VARISCAN MINES
16 rue L®onard de Vinci
45 074 Orl®ans cedex 2
France

Orl®ans le 20/11/2014

DEMANDE DE PERMIS EXCLUSIF DE RECHERCHES DE MINES DIT « PERMIS COUFLENS »

DOSSIER COMPLET

COPIE DE LA DEMANDE

à Monsieur le Ministre de l'Économie, de l'Industrie et du Numérique.

DOCUMENT CARTOGRAPHIQUE

IDENTIFICATION ET STATUTS

ACTES D'ENGAGEMENTS

CAPACITÉS TECHNIQUE ET FINANCIÈRE

MÉMOIRE TECHNIQUE

BUDGETS ET ENGAGEMENT DE DÉPENSES

ÉLÉMENTS CARTOGRAPHIQUES, SOCIO-ÉCONOMIQUE, NOTICE D'IMPACT ET NOTICE D'INCIDENCE NATURA 2000

PLANCHES HORS TEXTE

STRATÉGIE DE VARISCAN MINES

Document Variscan Mines r®dig®par :	**Document Variscan Mines v®rifi®par** :	**Document Variscan Mines approuv®par** :
A.-S. Audion, M. Bonnemaison, M Picault, E. Marcoux, Q. Monge, T. Poitrenaud, G. Raoult, P. Lebret	P. Lebret 	M. Bonnemaison 
Le 20/11/2014	Le 20/11/2014	Le 20/11/2014

16 rue Léonard de Vinci
CS 30019
45074 Orléans cedex 2

Le Directeur général
Michel Bonnemaison
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Siret : 528 859 846 000 16

Monsieur le Ministre en charge des mines,
Ministre de l'Économie, de l'industrie et du numérique
Direction générale de l'aménagement, du logement et de la nature
Direction de l'eau et de la biodiversité
GR 2 Ressources minérales
La Grande Arche – Paroi sud
92055 La Défense cedex

Lettre remise en main propre
Nos réf : 2014_11_20_650_MB
Objet : demande PERM Couflens

Orléans, le 20 novembre 2014

Monsieur le Ministre,

Je soussigné, Michel Bonnemaison, domicilié 256 rue Alexandre André, 45240 Ligny-le-Ribault, agissant en ma qualité de Directeur Général de la société Variscan Mines, société au capital de 1 800 000 €, dont le siège social est à 45074 Orléans cedex 2, 16, rue Léonard de Vinci, CS 30019,

ai l'honneur de solliciter, au nom et pour le compte de ladite société, l'octroi d'un permis exclusif de recherches de mines portant sur partie du département de l'Ariège appartenant à la région Midi-Pyrénées.

1) Les substances faisant l'objet de la demande sont : tungstène, étain, bismuth, molybdène, zinc, plomb, cuivre, or, argent et substances connexes (notamment niobium et tantale).

2) Le permis de recherches en cause est sollicité pour une durée de 5 (cinq) années renouvelables, et pourrait prendre le nom de "Permis **COUFLENS**".

3) Ce permis serait valable à l'intérieur d'un bloc délimité par les lignes joignant successivement les sommets **A, B, C, D, E, F et G** définis ci-après par leurs coordonnées géographiques :

Coordonnées des sommets du PERM "COUFLENS" :

	RGF 93		WGS 84		Lambert 93	
Sommet	X_93_Dec	Y_93_Dec	X_WGS84	Y_WGS84	X_93	Y_93
A	1,133775	42,750988	1,133775	42,75099	547050	6185300
B	1,171817	42,783123	1,171817	42,78312	550250	6188800
C	1,191953	42,783464	1,191953	42,78346	551900	6188800
D	1,223137	42,761951	1,223137	42,76195	554400	6186350
E	1,225330	42,730059	1,225330	42,73006	554500	6182800
F	1,170971	42,712956	1,170971	42,71296	550000	6181000
G	1,136962	42,727659	1,136962	42,72766	547250	6182700

Liste des communes concernées par le PERM "COUFLENS" (**42 km²**)

- Ariège (09) – 1 commune
  - Couflens

4) À ce jour, Variscan Mines détient trois titres miniers portant sur les gîtes relevant du régime légal des mines : Les PERM de « Saint-Pierre » (Maine-et-Loire), « Merléac » (Côtes-d'Armor) et « Tennie » (Sarthe). Elle a introduit cinq autres demandes : une dans la région Pays-de-Loire, le PERM « Beaulieu » (Maine-et-Loire), trois dans la région Bretagne, les PERM « Dompierre » (Ile-et-Vilaine), « Loc-Envel » (Côtes-d'Armor) et « Silfiac » (Côtes-d'Armor et Morbihan), une dans la région Bourgogne, le PERM « Cressy » (Saône-et-Loire).

5) La société est représentée par son président, Jack Testard, son directeur général exécutif, Michel Bonnemaison et son directeur général Gregory Jones, représentant l'associé unique Variscan Mines Limited (anciennement, Platsearch NL).
Les commissaires aux comptes sont messieurs Philippe Blin (commissaire aux comptes titulaire – Cabinet SEFAC, 10 avenue de Messine, 75008 Paris) et Serge Meheust (commissaire aux comptes suppléant du même cabinet).

Les actionnaires significatifs de l'associé unique Variscan Mines Limited sont indiqués dans le tableau ci-après :

Group or Holder No	Holder Name	Nationalité	Balance at 18-08-2014	%
S00000806048	HSBC CUSTODY NOMINEES (AUSTRALIA) LIMITED	Australie	51 283 865	29,182
S00009884521	UOB KAY HIAN PRIVATE LIMITED <CLIENTS A/C>	Singapour	18 426 560	10,485
S00022520920	MR CHRIS CARR & MRS BETSY CARR	Australie	7 500 000	4,268
S00032042091	MINOTAUR RESOURCES INVESTMENTS PTY LTD	Australie	7 266 238	4,135
S00014679219	DBS VICKERS SECURITIES (SINGAPORE) PTE LTD <CLIENT ACCOUNT>	Singapour	7 073 762	4,025
S00019378055	MR XIANGJUN ZHANG	Singapour	6 642 000	3,779
S00000817180	WARMAN INVESTMENTS PTY LTD	Australie	4 864 019	2,768
S00013111740	MR ROBERT LEWIS RICHARDSON & MS SUSANNE BRINT <THE RATHROAM STAFF FUND A/C>	Australie	3 350 760	1,907
S00010485185	DMG & PARTNERS SECURITIES PTE LTD <CLIENTS A/C>	Australie	2 674 661	1,522
S00003237958	MONEX BOOM SECURITIES (HK) LTD <CLIENTS ACCOUNT>	Australie	2 457 936	1,399

À notre connaissance, le périmètre concerné est libre de tout droit minier en rapport avec le permis qui est sollicité, y compris la concession du « Pic de la Fourque » (ancienne mine de tungstène) renoncée.

À l'appui de ma requête, je vous prie de trouver ci-joints les documents suivants, conformément à **l'arrêté du 28 juillet 1995, au décret n° 2006-648 du 2 juin 2006, et à l'ordonnance du 27 janvier 2011** :

1) Un exemplaire de la carte à 1/50 000 et cinq exemplaires de la carte à 1/25 000 signés par le pétitionnaire sur lesquels sont précisés le périmètre de la demande et les points géographiques servant à le définir

2) Les renseignements et pièces nécessaires à l'identification de Variscan Mines :

- Un exemplaire certifié conforme des statuts de la société par actions simplifiée unipersonnelle, inscrite au Registre du Commerce d'Orléans sous le N° 528 859 846 –N° de Gestion 2010 B 1401 et la justification des pouvoirs de la personne qui a signé la demande

- La liste des actionnaires ou des associés connus de celui-ci qui détiennent plus de 3 pour 100 du capital social en indiquant le nombre des titres détenus, la qualité et la nationalité de chacun des actionnaires ou des associés

3) Les engagements de respecter les obligations conformes aux articles 43 (5°) du décret 2006-648 du 2 juin 2006, à l'article 5 e) de l'arrêté du 28 juillet 1995 et à l'article 3 de l'arrêté du 28 juillet 1995

4) Les documents de nature à justifier des capacités financières et techniques de la société demanderesse et les garanties dont elle bénéficie comme filiale de la société australienne Variscan Mines Limited (anciennement, Platsearch NL), incluant l'accord de « joint-venture » avec la société Juniper Capital Partner Limited et son engagement financier à hauteur de 25 M € sur ce dossier

5) Un mémoire justifiant les limites de ce périmètre, compte tenu notamment de la constitution géologique de la région et le programme des travaux envisagé

6) L'effort financier minimum que la société Variscan Mines s'engage à consacrer à l'exécution de ces travaux

7) Les éléments de contexture : socio-économie du territoire concerné (INSEE), notice d'impact (Minelis ©), notice d'incidence Natura 2000 (Minelis ©)

8) Les planches hors texte

9) La stratégie de Variscan Mines.

Conformément à l'article 9 de l'arrêté du 28 juillet 1995, j'envoie des copies de la demande à Monsieur le Préfet de la région Midi-Pyrénées, à Monsieur le Préfet du département de l'Ariège, ainsi qu'à Monsieur le Directeur régional de l'équipement, de l'aménagement et du logement de la région Midi-Pyrénées.

Je vous prie de croire, Monsieur le Ministre, à l'expression de mon plus grand respect.

Pour la société Variscan Mines
Le Directeur Général
Michel Bonnemaison



SOMMAIRE

Le PERM ç COUFLENS è est le 9i¯me titre minier sollicit® par Variscan Mines pour tungst¯ne, ®tain, bismuth, molybd¯ne, zinc, plomb, cuivre, or, argent et substances connexes (notamment niobium et tantale) par la soci®t® Variscan Mines.
Le choix du p®rim¯tre a ®t® guid® par les strat®gies d'exploration et d'exploitation telles qu'explicit®es dans ce m®moire technique.

Ce dossier comprend les ®l®ments suivants :

Copie de la demande adress®e ¨ Monsieur le Ministre de l'Economie, de l'industrie et du num®rique.

Annexe 1 : carte des limites administratives du PERM avec une carte ¨ 1/50 000

Annexe 2 : identification et statuts de Variscan Mines (mise ¨ jour du 29 septembre 2014))

- Annexe 2a : statuts actuels de Variscan Mines (29 septembre 2014) : Un exemplaire certifi® conforme des Statuts de la Soci®t® par actions simplifi®e unipersonnelle, inscrite au Registre du Commerce d'Orl®ans sous le NÁ 528 859 846 ï NÁ de Gestion 2010 B 1401, et et la justification des pouvoirs de la personne qui a sign® la demande
- Annexe 2b : extrait du Kbis au 17 novembre 2014 et inscription INSEE (base SIRENE)
- Annexe 2c : rapport du commissaire aux comptes relatif ¨ l'exactitude de l'arr°t® de compte du 30 juin 2014 (article R. 225-134 du Code de commerce)
- Annexe 2d : certificat du d®positaire
- Annexe 2e : liste des 40 premiers actionnaires de Variscan Mines Limited (Anciennement PlatSearch NL)
- Annexe 2f : extrait des statuts de Variscan Mines (nomination de M. Jack Testard comme pr®sident de la soci®t® Variscan Mines ¨ compter du 3 d®cembre 2010 pour une dur®e illimit®e)
- Annexe 2g : pouvoirs de signature de M. Michel Bonnemaison, directeur g®n®ral de Variscan Mines ¨ compter du 1er F®vrier 2011.

Annexe 3 : actes d'engagement

- Annexe 3a : engagements souscrits en application de l'article 43 (5Á) du d®cret 2006-648 du 2 juin 2006. Engagement du pr®sident J. Testard
- Annexe 3b : engagements souscrits en application de l'article 43 (5Á) du d®cret 2006-648 du 2 juin 2006. Engagement du directeur g®n®ral M. Bonnemaison
- Annexe 3c : engagements souscrits en application de l'article 5 e) de l'arr°t® du 28 juillet 1995. Engagement du pr®sident J. Testard
- Annexe 3d : engagements souscrits en application de l'article 5 e) de l'arr°t® du 28 juillet 1995. Engagement du directeur g®n®ral M. Bonnemaison
- Annexe 3e : engagements souscrits en application de l'article 3 de l'arr°t® du 28 juillet 1995. Engagement du pr®sident J. Testard
- Annexe 3f : engagements souscrits en application de l'article 3 de l'arr°t® du 28 juillet 1995. Engagement du directeur g®n®ral M. Bonnemaison

Annexe 4 : capacit®s financi¯res et techniques de Variscan Mines

- Annexe 4a : un document original en anglais qui pr®sente la maison m¯re Variscan Mines Limited (anciennement PlatSearch NL).
- Annexe 4b : une traduction simplifi®e en fran- ais de l'annexe 2a, indiquant les renseignements attendus sur la composition du conseil d'administration et la qualit® et nationalit® de chacun de ses membres, sachant que le seul intervenant sur la filiale fran- aise Variscan Mines S.A.S est Monsieur Gregory Jones,
- Annexe 4c : rapport annuel 2014 de Variscan Mines Limited
- Annexe 4d : curriculum Vitae
- Annexe 4e : copie du rapport d'audit associ® au rapport d'activit® 2013. Ces documents fournissent les capacit®s financi¯res de la soci®t® ainsi que son mode de fonctionnement de « junior » capable de lever des fonds en bourse pour les programmes d'exploration
- Annexe 4f : accord de Joint-Venture avec la soci®t® Juniper Capital Partner Limited
- Annexe 4g : engagement financier de Juniper Capital Partner Limited.

Annexe 5 : m®moire technique

- Annexe 5a : travaux pr®liminaires ¨ la demande du PERM « Couflens »
- Annexe 5b : justification de la demande du PERM « Couflens »
- Annexe 5c : carte g®ologique et min®ralisations du PERM « Couflens »
- Annexe 5d : travaux projet®s sur le PERM « Couflens » pour les 5 ann®es ¨ venir.

Annexe 6 : budgets et engagement des d®penses.

Annexe 7 : ®l®ments cartographiques, socio-®conomiques, notice d'impact et notice d'incidence Natura 2000

- Annexe 7a : cadre l®gal de la demande du PERM « Couflens »
- Annexe 7b : ®l®ments cartographiques divers
- Annexe 7c : donn®es socio-®conomiques (Source INSEE, Janvier 2013)
- Annexe 7d : notice d'impact (MINELIS É)
- Annexe 7e : notice d'incidence NATURA 2000 (MINELIS É).

Annexe 8 : planches hors-texte (1/25 000)

- Annexe 8a : carte ¨ 1/25 000 des limites administratives du PERM (5 exemplaires)
- Annexe 8b : carte ¨ 1/25 000 des anciens titres miniers et des g´tes min®raux
- Annexe 8c : carte ¨ 1/25 000 de la g®ologie et des anomalies g®ochimiques
- Annexe 8d : carte ¨ 1/25 000 de localisation g®ographique du PERM
- Annexe 8e : carte ¨ 1/25000 de l'occupation des sols
- Annexe 8f : carte ¨ 1/25 000 des contraintes environnementales
- Annexe 8g : carte ¨ 1/25 000 des rivi¨res et plans d'eau
- Annexe 8h : carte ¨ 1/25 000 des sites arch®ologiques et des monuments historiques (sites class®s/inscrits).

Annexe 9 : strat®gie de Variscan Mines

- Annexe 9a : ®l®ments ayant conduit au choix de la France comme zone prioritaire pour l'exploration mini¯re
- Annexe 9b : annonce officielle aux actionnaires de la strat®gie de Variscan Mines Limited (anciennement, Platsearch NL.)
- Annexe 9c : strat®gie d'exploration mini¯re de Variscan Mines
- Annexe 9d : strat®gie d'exploitation mini¯re de Variscan Mines.

Dossier dâapplication dûun Permis Exclusif de Recherche de Mines ç COUFLENS è

ANNEXE 1

Carte des limites administratives du PERM ç COUFLENS è

Cette annexe cartographique comporte une carte des limites administratives ¨ 1/50 000.

Cinq cartes ¨ 1/25 000 sont ®galement fournies sous forme de planches hors texte en annexe 8a.

VARISCAN MINES

Annexe 1

Carte des limites administratives du PERM ç COUFLENS è

£chelle 1/50 000

5 cartes ¨ 1/25 000 sont fournies en annexe 8a

Coordonn®es des sommets du PERM "COUFLENS" (42 kmĮ - 1 commune) :

	RGF 93		WGS 84		Lambert 93	
Sommet	X_93_Dec	Y_93_Dec	X_WGS84	Y_WGS84	X_93	Y_93
A	1,133775	42,750988	1,133775	42,75099	547050	6185300
B	1,171817	42,783123	1,171817	42,78312	550250	6188800
C	1,191953	42,783464	1,191953	42,78346	551900	6188800
D	1,223137	42,761951	1,223137	42,76195	554400	6186350
E	1,225330	42,730059	1,225330	42,73006	554500	6182800
F	1,170971	42,712956	1,170971	42,71296	550000	6181000
G	1,136962	42,727659	1,136962	42,72766	547250	6182700

Liste des communes concern®es par le PERM "COUFLENS" (42 kmĮ) :

- Ari¯ge : 1 commune
  - Couflens

VARISCAN MINES

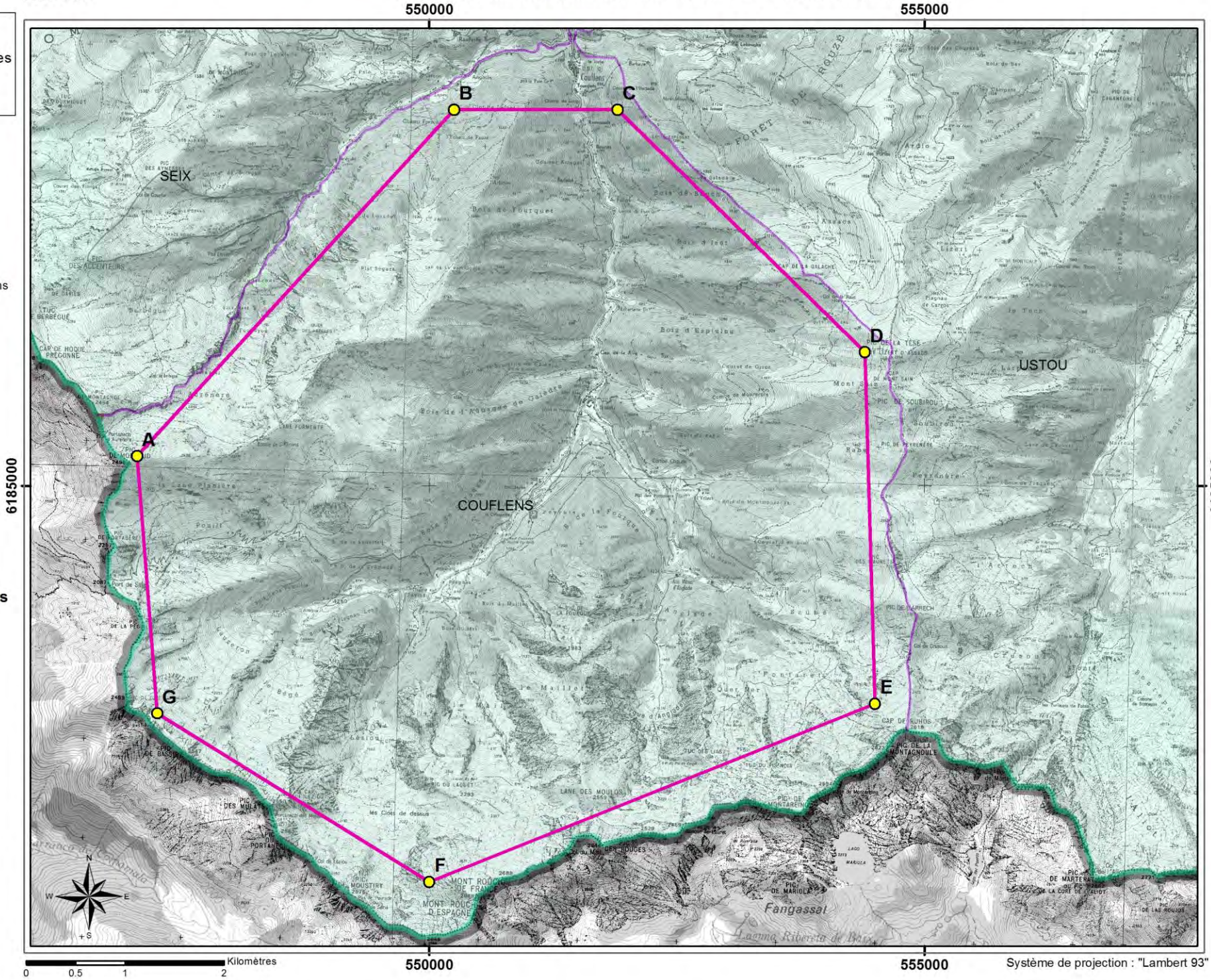
Annexe 8a

Carte des limites administratives du PERM "Couflens"

Echelle 1:50 000

1:50 000

Carte des limites administratives du PERM de Couflens



Légende

- Emprise du PERM de Couflens
- Sommets du PERM

Limites administratives

Nature

- Limite d'arrondissement
- Limite de commune
- Limite de canton
- Limite de département
- Limite de région
- Frontière internationale

Coordonnées des Sommets

	Lambert 93	
	X	Y
A	547050	6185300
B	550250	6188800
C	551900	6188800
D	554400	6186350
E	554500	6182800
F	550000	6181000
G	547250	6182700

	RGF - 93 (Degrés)	
	X	Y
A	1.133775	42.75099
B	1.171817	42.78312
C	1.191953	42.78346
D	1.223137	42.76195
E	1.22533	42.73006
F	1.170971	42.71296
G	1.136962	42.72766

Système de projection : "Lambert 93"

Dossier dâapplication dûun Permis Exclusif de Recherche de Mines ç COUFLENS è

ANNEXE 2

IDENTIFICATION ET STATUTS DE VARISCAN MINES

La soci®t® Variscan Mines est une soci®t® par actions simplifi®e dont lâactionnaire unique est Variscan Mines Limited (anciennement Platserch NL), soci®t® dâexploration mini¯re australienne, repr®sent®e par Monsieur Gregory Jones de nationalit® australienne.

Elle est g®r®e par les mandataires d®l®gu®s fran- ais suivants :

- Monsieur Jack Testard, pr®sident, dirige, repr®sente et administre la soci®t® tel que pr®cis® dans les statuts depuis sa cr®ation le 3 d®cembre 2010

- Monsieur Michel Bonnemaison, directeur g®n®ral nomm® par le pr®sident le 1er f®vrier 2011, administre la soci®t® et la dirige par d®l®gation compl¯te de ses activit®s par le pr®sident.

Cette annexe comporte :

- Annexe 2a : statuts actuels de Variscan Mines (29 septembre 2014): Un exemplaire certifi® conforme des statuts de la soci®t® par actions simplifi®e unipersonnelle, inscrite au Registre du Commerce dûOrl®ans sous le NÁ528 859 846 ï NÁde gestion 2010 B 1401, et la justification des pouvoirs de la personne qui a sign® la demande

- Annexe 2b : extrait du Kbis au 17 novembre 2014 et inscription INSEE (base SIRENE)

- Annexe 2c : rapport du commissaire aux comptes relatif ¨ lâexactitude de lâarr° t® de compte du 30 juin 2014 (article R. 225-134 du Code de commerce).

- Annexe 2d : certificat du d®positaire

- Annexe 2e : liste des 40 premiers actionnaires de Variscan Mines Limited (anciennement PlatSearch NL)

- Annexe 2f : extrait des statuts de Variscan Mines (nomination de M. Jack Testard comme pr®sident de la soci®t® Variscan Mines ¨ compter du 3 d®cembre 2010 pour une dur®e illimit®e)

- Annexe 2g : pouvoirs de signature de M. Michel Bonnemaison, directeur g®n®ral de Variscan Mines ¨ compter du 1er f®vrier 2011

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ANNEXE 2a : statuts actuels de la soci®t®Variscan Mines (29 septembre 2014)

VARISCAN MINES
Société par actions simplifiée unipersonnelle
Au capital de 1.800.000 euros
Siège social :
16, rue Léonard de Vinci, 45 000 ORLEANS
R.C.S ORLEANS 528 859 846

STATUTS

Version mise à jour au 29 septembre 2014

COPIE CERTIFIÉE
CONFORME A L'ORIGINAL

TITRE I

Forme - Objet – Dénomination – Siège Social - Durée - Exercice Social

ARTICLE 1 - Forme

Il est formé par l'associé unique, soussigné, propriétaire des actions ci-après créées, une société par actions simplifiée régie par les dispositions légales et réglementaires applicables et par les présents statuts.

Elle fonctionne indifféremment sous la même forme avec un ou plusieurs associés.

Elle ne peut procéder à une offre au public sous sa forme actuelle de Société par actions simplifiée, mais peut procéder à des offres réservées à des investisseurs qualifiés ou à un cercle restreint d'investisseurs.

ARTICLE 2 – Objet

La Société a pour objet, en France et à l'étranger, directement ou indirectement :

La recherche et l'exploitation des gisements miniers de toute nature, la métallurgie de tous métaux et alliages et leur négoce, et à cet effet :

- la recherche, l'acquisition, l'amodiation, l'aliénation, la concession, l'exploration, l'extraction et l'exploitation de toutes mines et carrières, de tout minerai, substance minérale, métal précieux ou industriel, de quelque nature que ce soit ;
- l'obtention et l'exploitation de tous privilèges, monopoles, concessions, autorisation, titres d'exploitation, d'exploitation ou d'extraction de mines ou carrières ;
- tous travaux, fabrication, transformation, recherches, études, commercialisation, en relation avec l'exploration ou l'exploitation de mines et carrières ;
- l'obtention ou l'acquisition et l'exploitation de tout brevet, licences, procédé et marques de fabrique ;
- la participation, directe ou indirecte, de la Société dans toutes opérations financières, immobilières ou mobilières ou entreprises commerciales ou industrielles pouvant se rattacher directement ou indirectement à l'objet social ou à tout objet similaire ou connexe ;
- Toutes opérations quelconques contribuant à la réalisation de cet objet.

ARTICLE 3 – Dénomination

La dénomination de la Société est :

"VARISCAN MINES".

Dans tous les actes, factures, annonces, publications et autres documents émanant de la Société, la dénomination sociale doit toujours être précédée ou suivie des mots écrits lisiblement «Société par actions simplifiée» ou des initiales S.A.S et de l'indication du montant du capital social.

ARTICLE 4 - Siège social

Le siège social est fixé 16, rue Léonard de Vinci, 45 000 ORLEANS.

Il pourra être transféré en tout autre endroit du même département par simple décision du dirigeant, sous réserve de ratification par l'associé unique ou par la prochaine assemblée, et en tout autre lieu suivant décision de l'associé unique ou décision collective extraordinaire des associés.

ARTICLE 5 – Durée

La durée de la Société est fixée à quatre-vingt-dix neuf (99) années à compter de la date d'immatriculation au registre du commerce et des sociétés, sauf dissolution ou prorogation anticipée. Les décisions de prorogation de la durée de la Société ou de dissolution anticipée sont prises par décision collective des associés.

Un (1) an au moins avant la date d'expiration de la Société, le Président doit provoquer une réunion de l'assemblée générale extraordinaire des associés, s'ils sont plusieurs ou convoquer l'associé unique, à l'effet de décider si la Société doit être prorogée. A défaut, tout associé peut demander au Président du Tribunal de Commerce, statuant sur requête, la désignation d'un mandataire de justice ayant pour mission de provoquer la consultation prévue ci-dessus.

ARTICLE 6 - Exercice social

L'exercice social commence le 1er juillet et se termine le 30 juin de chaque année.

TITRE II

Apports – Capital Social

ARTICLE 7 – Apports

Au titre de la constitution de la société, l'associé unique, soussigné, apporte à la Société la somme de mille (1.000) euros.

Lesdits apports correspondent à mille (1.000) actions de nominal un (1) euro, souscrites en totalité et entièrement libérées.

La somme de mille (1.000) euros a été déposée, dès avant ce jour, au crédit d'un compte ouvert au nom de la Société en formation ainsi que l'atteste le Certificat du dépositaire établi par la Société Générale, figurant en annexe.

La totalité des apports est donc réalisée en numéraire, et s'élève à mille (1.000) euros.

Par décision de l'associé unique en date du 8 juillet 2011, le capital a été augmenté en numéraire d'un montant de cent quatre-vingt-dix-neuf mille (199.000) euros, pour être porté à deux cent mille (200.000) euros.

Par décision de l'associé unique en date du 29 juin 2012, le capital a été augmenté en numéraire d'un montant de six cent mille (600.000) euros, pour être porté à huit cent mille (800.000) euros.

Par décision de l'associé unique en date du 29 septembre 2014, le capital a été augmenté en numéraire d'un montant de un million d'euros (1.000.000 €), pour être porté à un million huit cent mille euros (1.800.000 €).

ARTICLE 8 - Capital social

Le capital social est fixé à la somme de un million huit cent mille euros (1.800.000 €).

Il est divisé en un million huit cent mille actions de un (1) euro chacune, entièrement libérées et de même catégorie.

ARTICLE 9 - Comptes courants

Les associés peuvent, dans le respect de la réglementation en vigueur, mettre à la disposition de la Société toutes sommes dont celle-ci peut avoir besoin sous forme d'avances en «Comptes courants».

Les conditions et modalités de ces avances sont déterminées d'accord commun entre l'associé intéressé et le Président. Elles sont, le cas échéant, soumises à la procédure d'autorisation et de contrôle prévue par la loi.

ARTICLE 10 - Modifications du capital social

Le capital social peut être augmenté ou réduit dans les conditions prévues par la loi par décision unilatérale de l'associé unique ou par une décision collective des associés statuant sur le rapport du Président.

Le capital social peut être augmenté soit par émission d'actions ordinaires ou de préférence, soit par majoration du montant nominal des titres de capital existants.

Il peut également être augmenté par l'exercice des droits attachés à des valeurs mobilières donnant accès au capital, dans les conditions prévues par la loi.

Les titres de capital nouveaux sont émis soit à leur montant nominal, soit à ce montant majoré d'une prime d'émission.

Ils sont libérés soit par apport en numéraire y compris par compensation avec des créances liquides et exigibles sur la Société, soit par apport en nature, soit par incorporation de réserves, bénéfices ou primes d'émission, soit en conséquence d'une fusion ou d'une scission.

Ils peuvent aussi être libérés consécutivement à l'exercice d'un droit attaché à des valeurs mobilières donnant accès au capital comprenant, le cas échéant, le versement des sommes correspondantes.

L'associé unique ou les associés peuvent déléguer au Président les pouvoirs nécessaires à l'effet de réaliser ou de décider, dans les conditions et délais prévus par la loi, l'augmentation ou la réduction du capital.

En cas d'augmentation du capital en numéraire ou d'émission de valeurs mobilières donnant accès au capital ou donnant droit à l'attribution de titres de créances, l'associé unique a, sauf stipulations contraires éventuelles des présents statuts concernant les actions de préférence sans droit de vote, proportionnellement au montant de leurs actions, un droit de préférence à la souscription des nouveaux titres émis. Toutefois, l'associé unique peut renoncer à titre individuel à leur droit préférentiel de souscription et la décision d'augmentation du capital peut supprimer ce droit préférentiel dans les conditions prévues par la loi.

Les actions nouvelles de numéraire doivent obligatoirement être libérées lors de la souscription de la quotité du nominal prévue par la loi et, le cas échéant, de la totalité de la prime d'émission.

TITRE III

Actions

ARTICLE 11 - Forme des valeurs mobilières

Les valeurs mobilières émises par la société sont obligatoirement nominatives.

Elles sont inscrites au nom de leur titulaire dans des comptes tenus par la Société ou par un mandataire désigné à cet effet.

Tout associé peut demander la délivrance d'une attestation d'inscription en compte.

ARTICLE 12 - Libération des actions

1 - Toute souscription d'actions en numéraire est obligatoirement accompagnée du versement de la quotité minimale prévue par la loi et, le cas échéant, de la totalité de la prime d'émission. Le surplus est payable en une ou plusieurs fois aux époques et dans les proportions qui seront fixées par le Président en conformité de la loi. Les appels de fonds sont portés à la connaissance des associés quinze (15) jours au moins avant l'époque fixée pour chaque versement, par lettres recommandées avec demande d'avis de réception.

Les associés ont la faculté d'effectuer des versements anticipés.

2 - A défaut de libération des actions à l'expiration du délai fixé par le Président, les sommes exigibles sont, de plein droit, productives d'intérêt au taux de l'intérêt légal, à partir de la date d'exigibilité, le tout sans préjudice des recours et sanctions prévus par la loi.

TITRE IV

Cession – Transmission – Location d'actions

ARTICLE 13 - Transmissions des actions

Tant que la Société demeure unipersonnelle, toutes les transmissions d'actions s'effectuent librement.

La transmission des actions s'opère par virement de compte à compte sur instruction signée du Cédant ou de son représentant qualifié.

DISPOSITIONS COMMUNES APPLICABLES AUX CESSIONS D'ACTIONS EN CAS DE PERTE DU CARACTERE UNIPERSONNEL

ARTICLE 14 – Définitions

Dans le cadre des présents statuts, la soussignée convient des définitions ci-après :

a) Cession : signifie toute opération à titre onéreux ou gratuit entraînant le transfert de la pleine propriété, de la nue-propriété ou de l'usufruit des valeurs mobilières émises par la Société, à savoir : cession, transmission, échange, apport en Société, fusion et opération assimilée, cession judiciaire, constitution de trusts, nantissement, liquidation, transmission universelle de patrimoine.

b) Action ou Valeur mobilière : signifie les valeurs mobilières émises par la Société donnant accès de façon immédiate ou différée et de quelque manière que ce soit, à l'attribution d'un droit au capital et/ou

d'un droit de vote de la Société, ainsi que les bons et droits de souscription et d'attribution attachés à ces valeurs mobilières.

c) Opération de reclassement signifie toute opération de reclassement simple des actions de la Société intervenant à l'intérieur de chacun des groupes d'associés, constitué par chaque Société associée et les sociétés ou entités qu'elle contrôle directement ou indirectement au sens de l'article L 233-3 du Code de commerce.

ARTICLE 15 - Transmission des actions

1. La transmission des actions émises par la Société s'opère par un virement de compte à compte sur production d'un ordre de mouvement. Ce mouvement est inscrit sur le registre des mouvements coté et paraphé.

2. Les actions ne peuvent être cédées y compris entre associés qu'avec l'agrément préalable de la collectivité des associés statuant à la majorité des voix des associés disposant du droit de vote.

3. La demande d'agrément doit être notifiée par lettre recommandée avec demande d'avis de réception adressée au Président de la Société et indiquant le nombre d'actions dont la cession est envisagée, le prix de la cession, les nom, prénoms, adresse, nationalité de l'acquéreur ou s'il s'agit d'une personne morale, son l'identification complète (dénomination, siège social, numéro RCS, montant et répartition du capital, identité de ses dirigeants sociaux). Cette demande d'agrément est transmise par le Président aux associés.

4. Le Président dispose d'un délai de trois (3) mois à compter de la réception de la demande d'agrément pour faire connaître au Cédant la décision de la collectivité des associés. Cette notification est effectuée par lettre recommandée avec demande d'avis de réception. A défaut de réponse dans le délai ci-dessus, l'agrément sera réputé acquis.

5. Les décisions d'agrément ou de refus d'agrément ne sont pas motivées.

6. En cas d'agrément, l'associé Cédant peut réaliser librement la cession aux conditions notifiées dans sa demande d'agrément. Le transfert des actions doit être réalisé au plus tard dans les quarante (45) jours de la décision d'agrément : à défaut de réalisation du transfert dans ce délai, l'agrément serait frappé de caducité.

7. En cas de refus d'agrément, la Société est tenue dans un délai de un (1) mois à compter de la notification du refus d'agrément, d'acquérir ou de faire acquérir les actions de l'associé Cédant par un ou plusieurs tiers agréés selon la procédure ci-dessus prévue.
Si le rachat des actions n'est pas réalisé du fait de la Société dans ce délai d'un mois; l'agrément du ou des cessionnaires est réputé acquis.
En cas d'acquisition des actions par la Société, celle-ci est tenue dans un délai de six (6) mois à compter de l'acquisition de les céder ou de les annuler.
Le prix de rachat des actions par un tiers ou par la Société est déterminé d'un commun accord entre les parties. A défaut d'accord, le prix sera déterminé à dire d'expert, dans les conditions de l'article 1843-4 du Code civil.

ARTICLE 16 - Modifications dans le contrôle d'un associé

1. En cas de modification au sens de l'article L 233-3 du Code de commerce du contrôle d'une société associée, celle-ci doit en informer la Société par lettre recommandée avec demande d'avis de réception adressée au Président dans un délai de trente (30) jours du changement de contrôle. Cette notification doit préciser la date du changement de contrôle et toutes informations sur le ou les nouveaux contrôlaires.

Si cette procédure n'est pas respectée, la Société associée dont le contrôle est modifié pourra être exclue de la Société dans les conditions prévues à l'article *"Exclusion d'un associé"*.

2. Dans le délai de 15 jours à compter de la réception de la notification du changement de contrôle, la Société peut mettre en œuvre la procédure d'exclusion et de suspension des droits non pécuniaires de la Société associée dont le contrôle a été modifié, telle que prévue à l'article *"Exclusion d'un associé"*. Si la Société n'engage pas la procédure d'exclusion dans le délai ci-dessus, elle sera réputée avoir agréé le changement de contrôle.

3. Les dispositions ci-dessus s'appliquent à la Société associée qui a acquis cette qualité à la suite d'une opération de fusion, de scission ou de dissolution.

ARTICLE 17 - Restrictions à la libre transmission des actions

Les associés s'interdisent formellement, sous peine d'exclusion de la Société et de nullité des cessions intervenues en violation des stipulations du présent article, de céder ou transmettre, sous quelque forme que ce soit, à titre onéreux ou gratuit, en pleine propriété, nue-propriété ou usufruit, tout ou partie des actions qu'ils détiennent et viendraient à détenir dans la Société, à toute personne physique ou morale, exploitant des activités concurrentes de celles de la Société, ou à une personne physique ou morale, cliente ou fournisseur de la Société et susceptible de mettre en péril les intérêts, les activités ou la situation de la Société.

ARTICLE 18 - Exclusion d'un associé

L'exclusion de plein droit intervient en cas de dissolution, de redressement ou de liquidation judiciaire d'un associé.

L'exclusion d'un associé peut être également prononcée dans les cas suivants :
- violation des dispositions des présents statuts ;
- révocation d'un associé de ses fonctions de mandataire social ;
- condamnation pénale prononcée à l'encontre d'un associé.

L'exclusion est prononcée par décision collective des associés statuant à la majorité des voix des associés disposant du droit de vote ; l'associé dont l'exclusion est susceptible d'être prononcée participe au vote et ses actions sont prises en compte pour le calcul de la majorité.

La décision d'exclusion ne peut intervenir que sous réserve du respect des formalités suivantes :

- notification à l'associé concerné par lettre recommandée avec demande d'avis de réception adressée quinze (15) jours avant la date prévue pour la réunion de l'organe dirigeant collégial, de la mesure d'exclusion envisagée, des motifs de cette mesure et de la date de la réunion devant statuer sur l'exclusion afin de lui permettre de faire valoir ses arguments en défense soit par lui-même, soit par l'intermédiaire de son ou de ses représentants légaux.

- convocation de l'associé concerné à une réunion préalable des associés tenue au plus tard quinze (15) jours avant la date prévue pour la consultation des associés sur la décision d'exclusion afin de lui permettre de présenter ses observations et de faire valoir ses arguments en défense soit par lui-même, soit par l'intermédiaire de son ou de ses représentants légaux.

La décision d'exclusion prend effet à compter de son prononcé. Cette décision doit également statuer sur le rachat des actions de l'associé exclu et désigner le ou les acquéreurs de ces actions ; il est expressément convenu que la cession sera réalisée valablement sans application des clauses d'agrément prévues aux présents statuts.

La décision d'exclusion est notifiée à l'associé exclu par lettre recommandée avec demande d'avis de réception à l'initiative du Président.

L'exclusion de plein droit et l'exclusion facultative entraînent dès le prononcé de la mesure la suspension des droits non pécuniaires attachés à la totalité des actions de l'associé exclu. La totalité des actions de l'associé exclu doit être cédée dans les trente (30) jours de la décision d'exclusion à toute personne désignée comme il est prévu ci-dessus.

Le prix de rachat des actions de l'associé exclu est déterminé d'un commun accord ou à défaut, à dire d'expert dans les conditions de l'article 1843-4 du Code civil.

ARTICLE 19 - Nullité des cessions d'actions

Toutes les cessions d'actions effectuées en violation des dispositions de l'article *"Modifications dans le contrôle d'un associé "* des présents statuts sont nulles.

Au surplus, une telle cession constitue un juste motif d'exclusion.

ARTICLE 20 - Location d'actions

La location des actions est autorisée, dans les conditions définies par la loi.

TITRE V

Administration de la Société

ARTICLE 21 - Président de la Société – Directeurs généraux

La Société est représentée, dirigée et administrée par un Président, personne physique ou morale, associé ou non associé de la Société.

Le Président est désigné pour une durée déterminée ou non par l'associé unique ou la collectivité des associés qui fixe son éventuelle rémunération.

Lorsque le Président est une personne morale, celle-ci doit obligatoirement désigner un représentant permanent personne physique.

Le Président peut démissionner sans avoir à justifier de sa décision à la condition de notifier celle-ci à l'associé unique ou à la collectivité des associés, par lettre recommandée adressée deux (2) mois avant la date de prise d'effet de cette décision, sauf accord de l'associé unique, lorsqu'il n'existe qu'un seul associé.

L'associé unique ou la collectivité des associés, peut mettre fin à tout moment au mandat du Président. La révocation n'a pas à être motivée.

Le Président dirige la Société et la représente à l'égard des tiers. A ce titre, il est investi de tous les pouvoirs nécessaires pour agir en toutes circonstances au nom de la Société, y compris consentir des délégations de pouvoirs, dans la limite de l'objet social et des pouvoirs expressément dévolus par les dispositions légales et les présents statuts à l'associé unique ou à la collectivité des associés.

Le Président peut, sous sa responsabilité, consentir toutes délégations de pouvoirs à tout tiers pour un ou plusieurs objets déterminés.

Le Président peut nommer un ou plusieurs directeur généraux, personne physique ou morale, disposant, à l'égard des tiers, des mêmes pouvoirs que le Président et portant le titre de directeur général. Toutefois, et à titre d'ordre interne, la décision de sa nomination pourra fixer des limitations à ses pouvoirs de direction. Les conditions de durée, de rémunération et de révocation sont identiques à celles du Président.

Lorsque la société a un associé unique, tout engagement financier de la société par le président ou un directeur général d'un montant supérieur à la somme de 100.000 € devra faire l'objet d'une approbation préalable par décision de l'associé unique.

ARTICLE 22 - Représentation sociale

Les délégués du Comité d'entreprise exercent les droits prévus par l'article L. 2323-67 du Code du travail auprès du Président.

TITRE VI

Conventions règlementées – Commissaire aux comptes

ARTICLE 23 - Conventions réglementées

Il est fait mention au registre des décisions de l'associé unique des conventions intervenues directement ou par personnes interposées entre la Société et le Président-associé unique.

Lorsque le Président n'est pas associé, les conventions intervenues, autres que celles mentionnées au dernier alinéa du présent article, entre celui-ci, directement ou par personnes interposées, et la Société sont soumises à l'approbation de l'associé unique ou à la collectivité des associés, ainsi que les conventions intervenues avec des associés disposant de 10 % ou plus du capital et des droits de vote de la Société.

Les conventions portant sur les opérations courantes conclues à des conditions normales sont communiquées au Commissaire aux comptes, si la société en est dotée.

ARTICLE 24 - Commissaires aux comptes

L'associé unique ou la collectivité des associés désigne, lorsque cela est obligatoire en vertu des dispositions légales et réglementaires, pour la durée, dans les conditions et avec la mission fixée par la loi, notamment en ce qui concerne le contrôle des comptes sociaux, un ou plusieurs Commissaires aux comptes titulaires et un ou plusieurs Commissaires aux comptes suppléants.

Lorsque la désignation d'un Commissaire aux comptes titulaire et d'un Commissaire aux comptes suppléant demeure facultative, c'est à l'associé unique ou à la collectivité des associés, qu'il appartient de procéder à de telles désignations, si elle le juge opportun.

En outre, la nomination d'un commissaire aux comptes pourra être demandée en justice par un ou plusieurs associés représentant au moins le dixième du capital.

TITRE VI

Décisions de la Société

ARTICLE 25 - DECISIONS DE L'ASSOCIE UNIQUE

Sous-article 25-1 - Décisions de l'associé unique

L'associé unique est seule compétente pour :
- approuver les comptes annuels et affecter le résultat ;
- nommer et révoquer le Président ;
- nommer les Commissaires aux comptes ;
- décider la transformation de la Société, une opération de fusion, de scission, d'augmentation, de réduction ou d'amortissement du capital ;
- modifier les statuts ;
- dissoudre la Société.

L'associé unique ne peut pas déléguer ses pouvoirs.

Les décisions unilatérales de l'associé unique sont répertoriées dans un registre coté et paraphé.

Sous-article 25-2 - Information de l'associé unique ou des associés

1 - L'associé unique non Président, indépendamment de son droit d'information préalable à l'approbation annuelle des comptes, peut à toute époque, prendre connaissance au siège social des documents prévus par la loi et relatifs aux trois derniers exercices sociaux.

2 - Lorsque la Société comporte plusieurs associés, l'étendue et les modalités de leurs droits d'information et de communication sont déterminées par les dispositions légales et réglementaires en vigueur.

ARTICLE 26 - DECISIONS COLLECTIVES DES ASSOCIES

Les pouvoirs qui sont dévolus à l'associé unique dans le cadre de la Société unipersonnelle sont exercés par la collectivité des associés.

Sous-article 26-1- Décisions collectives obligatoires

La collectivité des associés est seule compétente pour prendre les décisions suivantes :
- transformation de la Société ;
- modification du capital social : augmentation (sous réserve des éventuelles délégations qu'elle pourrait consentir, dans les conditions prévues par la loi), amortissement et réduction ;
- fusion, scission, apport partiel d'actifs ;
- dissolution ;
- nomination des Commissaires aux comptes ;
- nomination, rémunération, révocation du Président ;
- approbation des comptes annuels et affectation des résultats ;
- approbation des conventions conclues entre la Société et ses dirigeants ou associés ;
- modification des statuts, sauf transfert du siège social ;
- nomination du Liquidateur et décisions relatives aux opérations de liquidation ;
- agrément des cessions d'actions ;
- exclusion d'un associé et suspension de ses droits de vote.

Sous-article 26-2 - Règles de majorité

Les décisions collectives sont prises à l'unanimité des associés.

Sous-article 26-3 - Modalités des décisions collectives

Les décisions collectives sont prises sur convocation ou à l'initiative du Président.

Elles résultent de la réunion d'une assemblée ou d'un procès-verbal signé par tous les associés. Elles peuvent également être prises par tous moyens de télécommunication électronique.

Pendant la période de liquidation de la Société, les décisions collectives sont prises sur convocation ou à l'initiative du Liquidateur.

Tout associé a le droit de participer aux décisions collectives, personnellement ou par mandataire, ou à distance, par voie électronique, dans les conditions prévues par la loi et les présents statuts, quel que soit le nombre d'actions qu'il possède. Il doit justifier de son identité et de l'inscription en compte de ses actions au jour de la décision collective trois jours ouvrés au moins avant la réunion de l'assemblée, à zéro (0) heure, heure de Paris.

Sous-article 26-4 - Assemblées

Les associés se réunissent en assemblée sur convocation du Président au siège social ou en tout autre lieu mentionné dans la convocation.

Toutefois, tout associé disposant de plus de 20 % du capital peut demander la convocation d'une assemblée.

Selon l'article L. 2323-67 du Code du travail, le Comité d'entreprise peut demander en justice la désignation d'un mandataire chargé de convoquer l'assemblée générale des associés en cas d'urgence. La convocation est effectuée par tous moyens de communication écrite 15 jours au moins avant la date de la réunion. Elle indique l'ordre du jour.

Toutefois, l'assemblée peut se réunir sans délai si tous les associés y consentent.

L'assemblée est présidée par le Président ou, en son absence par un associé désigné par l'assemblée. Les associés peuvent se faire représenter aux délibérations de l'assemblée par un autre associé ou par un tiers. Les pouvoirs peuvent être donnés par tous moyens écrits et notamment par télécopie.

En cas de vote à distance au moyen d'un formulaire de vote électronique, ou d'un vote par procuration donné par signature électronique, celui-ci s'exerce dans les conditions prévues par la réglementation en vigueur, soit sous la forme d'une signature électronique sécurisée au sens du décret 2001-272 du 30 mars 2001, soit sous la forme d'un procédé fiable d'identification garantissant son lien avec l'acte auquel elle se rattache.

Le Président de Séance établit un procès-verbal des délibérations devant contenir les mentions prévues à l'article ci-après.

Sous-article 26-5 - Procès-verbaux des décisions collectives

Les décisions collectives prises en assemblée doivent être constatées par écrit dans des procès-verbaux établis sur un registre spécial ou sur des feuilles mobiles numérotées. Les procès-verbaux sont signés

par le Président de l'Assemblée et par les associés présents.

Les procès-verbaux doivent indiquer la date et le lieu de la réunion, les nom, prénoms et qualité du Président de Séance, l'identité des associés présents et représentés, les documents et informations communiqués préalablement aux associés, un résumé des débats, ainsi que le texte des résolutions mises aux voix et pour chaque résolution le sens du vote de chaque associé.

En cas de décision collective résultant du consentement unanime de tous les associés exprimé dans un acte, cet acte doit mentionner les documents et informations communiqués préalablement aux associés. Il est signé par tous les associés et retranscrit sur le registre spécial ou sur les feuilles mobiles numérotées visés ci-dessus.

Sous-article 26-6 - Information préalable des associés

Quel que soit le mode de consultation, toute décision des associés doit avoir fait l'objet d'une information préalable comprenant tous les documents et informations permettant aux associés de se prononcer en connaissance de cause sur la ou les résolutions soumises à leur approbation.

Lorsque les décisions collectives doivent être prises en application de la loi sur le ou les rapports du Président et/ou des Commissaires aux comptes, si la société en est dotée, le ou les rapports doivent être mis à disposition des associés huit (8) jours avant la date d'établissement du procès-verbal de la décision des associés.

Les associés peuvent à toute époque mais sous réserve de ne pas entraver la bonne marche de la Société, consulter au siège social, et, le cas échéant prendre copie, pour les trois derniers exercices, des registres sociaux, de l'inventaire et des comptes annuels, du tableau des résultats des cinq derniers exercices, des comptes consolidés, s'il y a lieu, des rapports de gestion du Président et des rapports des Commissaires au comptes.

S'agissant de la décision collective statuant sur les comptes annuels, les associés peuvent obtenir communication aux frais de la Société des comptes annuels et, le cas échéant, des comptes consolidés du dernier exercice.

ARTICLE 27 - Droit de communication des associés

Le droit de communication des associés, la nature des documents mis à leur disposition et les modalités de leur mise à disposition ou de leur envoi s'exercent dans les conditions prévues par les dispositions légales et réglementaires.

TITRE VIII

Comptes annuels – Affectation des résultats

ARTICLE 28 - Comptes annuels

A la clôture de chaque exercice, le Président dresse l'inventaire des divers éléments de l'actif et du passif existant à cette date et établit les comptes annuels comprenant le bilan, le compte de résultat et l'annexe.

Il établit également un rapport sur la gestion de la Société pendant l'exercice écoulé.

L'associé unique approuve les comptes annuels, après rapport du Commissaire aux comptes, si la société en est dotée, dans le délai de six (6) mois à compter de la clôture de l'exercice.

En cas de pluralité d'associés, les associés doivent statuer par décision collective sur les comptes annuels au vu du rapport de gestion et des rapports du (ou des) Commissaire(s)aux comptes, si la société en est dotée, dans les six (6) mois de la clôture de l'exercice.

ARTICLE 29 - Affectation et répartition des résultats

Le bénéfice distribuable est constitué par le bénéfice de l'exercice diminué, le cas échéant, des pertes antérieures ainsi que des sommes nécessaires aux dotations de la réserve légale, des réserves statutaires et augmenté du report bénéficiaire.

Sur le bénéfice distribuable, il est prélevé tout d'abord toute somme que l'associé unique décidera de reporter à nouveau sur l'exercice suivant ou d'affecter à la création de tous fonds de réserve extraordinaire, de prévoyance ou autre avec une affectation spéciale ou non. Le surplus est attribué à l'associé unique.

L'associé unique peut décider d'opter, pour tout ou partie du dividende mis en distribution, entre le paiement du dividende en numéraire ou en actions émises par la Société, ceci aux conditions fixées ou autorisées par la loi.

ARTICLE 30 - Affectation et répartition des résultats en cas de pluralité d'associés

1. Toute action en l'absence de catégorie d'actions ou toute action d'une même catégorie dans le cas contraire, donne droit à une part nette proportionnelle à la quote-part du capital qu'elle représente, dans les bénéfices et réserves ou dans l'actif social, au cours de l'existence de la Société comme en cas de liquidation.

Chaque action supporte les pertes sociales dans les mêmes proportions.

2. Après approbation des comptes et constatation de l'existence d'un bénéfice distribuable, l'associé unique ou la collectivité des associés décide sa distribution, en totalité ou en partie, ou son affectation à un ou plusieurs postes de réserves dont elle règle l'affectation et l'emploi.

3. La collectivité des associés peut décider la mise en distribution de toute somme prélevée sur le report à nouveau bénéficiaire ou sur les réserves disponibles en indiquant expressément les postes de réserves sur lesquels ces prélèvements sont effectués. Toutefois, les dividendes sont prélevés par priorité sur le bénéfice distribuable de l'exercice.

La décision de la collectivité des associés ou, à défaut, le Président, fixe les modalités de paiement des dividendes.

TITRE IX

Liquidation –Dissolution

ARTICLE 31 - Dissolution - Liquidation de la Société

La Société est dissoute dans les cas prévus par la loi ou en cas de dissolution anticipée décidée par décision collective des associés.

La décision de l'associé unique ou de la collectivité des associés qui constate ou décide la dissolution nomme un ou plusieurs Liquidateurs.

Le Liquidateur, ou chacun d'eux s'ils sont plusieurs, représente la Société. Il dispose des pouvoirs les plus étendus pour réaliser l'actif même à l'amiable. Il est habilité à payer les créanciers sociaux et à répartir le solde disponible entre les associés.

L'associé unique ou la collectivité des associés peut autoriser le Liquidateur à continuer les affaires sociales en cours et à en engager de nouvelles pour les seuls besoins de la liquidation.

Le produit net de la liquidation, après apurement du passif, est employé au remboursement intégral du capital libéré et non amorti des actions.

Le surplus, s'il en existe, est attribué l'associé unique ou est réparti entre les associés proportionnellement au nombre d'actions de chacun d'eux.

Les pertes, s'il en existe, sont supportées par l'associé unique ou par les associés jusqu'à concurrence du montant de leurs apports.

Si toutes les actions sont réunies en une seule main, la dissolution de la Société entraîne, lorsque l'associé unique est une personne morale, la transmission universelle du patrimoine à l'associé unique, sans qu'il y ait lieu à liquidation, conformément aux dispositions de l'article 1844-5 du Code civil.

TITRE X

Désignation des organes sociaux – Actes accomplis pour la Société en formation

ARTICLE 32 - Nomination du Président

Le premier Président de la Société nommé aux termes des présents statuts sans limitation de durée est :

Jack TESTARD
Né le 11 mars 1945 à Bourges (18)
Demeurant 69, rue des Bouvreuils, 45590 St Cyr en Val

Lesquels déclarent accepter lesdites fonctions et satisfaire à toutes les conditions requises par la loi et les règlements pour leur exercice.

ARTICLE 33 - Nomination des premiers Commissaires aux comptes

Sont désignés Commissaires aux comptes de la Société pour une durée de six (6) exercices :

- En qualité de Commissaire aux comptes titulaire :

CABINET SEFAC, représenté par Philippe Blin, 10 avenue de Messine, 75008 Paris

- En qualité de Commissaire aux comptes suppléant :

Mr Serge Meheust, 10 avenue de Messine, 75008 Paris

lesquels interviennent aux présentes à l'effet d'accepter lesdites fonctions, chacun d'eux précisant que les dispositions légales instituant des incompatibilités ou des interdictions de fonctions ne peuvent lui être appliquées.

* * *

ANNEXE 2b : extrait Kbis et inscription INSEE (SIRENE)

VARISCAN MINES

Greffe du Tribunal de Commerce d'Orléans
44 rue de la Bretonnerie -
BP 92015
45010 Orleans CEDEX 1

N° de gestion 2010B01401

Extrait Kbis

EXTRAIT D'IMMATRICULATION PRINCIPALE AU REGISTRE DU COMMERCE ET DES SOCIETES
à jour au 17 novembre 2014

IDENTIFICATION DE LA PERSONNE MORALE

Immatriculation au RCS, numéro	528 859 846 R.C.S. Orléans
Date d'immatriculation	08/12/2010
Dénomination ou raison sociale	**VARISCAN MINES**
Forme juridique	Société par actions simplifiée à associé unique (Société à associé unique)
Capital social	1 800 000,00 Euros
Adresse du siège	16 rue Léonard de Vinci 45000 Orléans
Durée de la personne morale	Jusqu'au 07/12/2109
Date de clôture de l'exercice social	30 juin

GESTION, DIRECTION, ADMINISTRATION, CONTROLE, ASSOCIES OU MEMBRES

Président

Nom, prénoms	TESTARD Jack Marc Etienne
Date et lieu de naissance	Le 11/03/1945 à BOURGES (18)
Nationalité	Française
Domicile personnel	69 rue des Bouvreuils 45590 Saint-Cyr-en-Val

Directeur général

Nom, prénoms	BONNEMAISON Michel
Date et lieu de naissance	Le 27/03/1955 à LA VELANET
Nationalité	Française
Domicile personnel	256 rue Alexandre André 45240 Ligny-le-Ribault

RENSEIGNEMENTS RELATIFS A L'ACTIVITE ET A L'ETABLISSEMENT PRINCIPAL

Adresse de l'établissement	16 rue Léonard de Vinci 45000 Orléans
Activité(s) exercée(s)	La recherche exploration et l'exploitation de gisements miniers de toute nature la méttalurgie de tous métaux et alliages et leur négoce
Date de commencement d'activité	01/12/2010
Origine du fonds ou de l'activité	Création
Mode d'exploitation	Exploitation directe

Le Greffier

FIN DE L'EXTRAIT

RCS Orléans - 17/11/2014 - 15:42:50

VARISCAN MINES

INSEE
CENTRE
INSTITUT NATIONAL DE LA STATISTIQUE ET DES ÉTUDES ÉCONOMIQUES

Certificat d'inscription au Répertoire des Entreprises et des Établissements (SIRENE)

301432/00393

VARISCAN MINES
16 RUE LEONARD DE VINCI
45100 ORLEANS

REÇU LE - 4 SEP. 2012

Tél : 02 38 69 52 52
Fax : 02 38 69 52 68

A la date du 29 Août 2012

Description de l'entreprise ou de l'organisme

Identifiant SIREN	528 859 846
Identifiant SIRET du siège	528 859 846 00016
Désignation	VARISCAN MINES
Sigle	
Catégorie juridique	5720 Société par actions simplifiée à associé unique ou société par actions simplifiée unipersonnelle
Activité Principale Exercée (APE)	0990Z Activités de soutien aux autres industries extractives
Date de prise d'activité	01/12/2010

Description de l'établissement concerné

Identifiant SIRET	528 859 846 00016	Statut : Siège et établissement principal
Adresse	16 RUE LEONARD DE VINCI 45100 ORLEANS	
Enseigne		
Activité Principale Exercée (APE)	0990Z Activités de soutien aux autres industries extractives	
Date de prise d'activité	01/12/2010	
Effectif salarié à la prise d'activité	Non renseigné	

Mise à jour effectuée

Evènement	Autre modification d'activité au niveau SIREN
Date de l'événement	01/12/2010
Référence : déclaration n°	D00313848967 Transmise par INSEE - DIRECTION GENERALE

IMPORTANT : à l'exception des informations relatives à l'identification de l'entreprise, les renseignements figurant dans ce document, en particulier le code APE, n'ont de valeur que pour les applications statistiques (décret 2007-1888 du 26 décembre 2007 portant approbation des nomenclatures d'activités et de produits).

Pour toute question relative à ce certificat, s'adresser au Service SIRENE, Cellule Création, Déposition 0[illegible] - 18 RUE DU LAURIER BLANC 45034 ORLEANS CEDEX 1

RÉPUBLIQUE FRANÇAISE

ANNEXE 2c : rapport du commissaire aux comptes relatifs ¨ lœexactitude de lœarr° t®de compte du 30 juin 2014

VARISCAN MINES
Société par Actions Simplifiée
Paris

Rapport du Commissaire aux comptes
sur les comptes annuels de l'exercice
clos le 30 juin 2014

VARISCAN MINES

SEFAC Société d'Etudes Financières & d'Audit Comptable

10, Avenue de Messine – 75008 PARIS – Tél +33 (0)1 53 67 70 50 – Fax +33 (0)1 53 67 70 55 – sefac@sefac-sma.fr

A l'Associé Unique
VARISCAN MINES
Société par Actions Simplifiée
Paris

Monsieur,

En exécution de la mission qui nous a été confiée par vos statuts, nous vous présentons notre rapport relatif à l'exercice clos le 30 juin 2014 sur :

- le contrôle des comptes annuels de la société **VARISCAN MINES**, tels qu'ils sont joints au présent rapport,
- la justification de nos appréciations,
- les vérifications et informations spécifiques prévues par la loi.

Les comptes annuels ont été arrêtés par le Président. Il nous appartient, sur la base de notre audit, d'exprimer une opinion sur ces comptes.

1. OPINION SUR LES COMPTES ANNUELS

Nous avons effectué notre audit selon les normes d'exercice professionnel applicables en France ; ces normes requièrent la mise en œuvre de diligences permettant d'obtenir l'assurance raisonnable que les comptes annuels ne comportent pas d'anomalies significatives. Un audit consiste à vérifier, par sondages ou au moyen d'autres méthodes de sélection, les éléments justifiant des montants et informations figurant dans les comptes annuels. Il consiste également à apprécier les principes comptables suivis, les estimations significatives retenues et la présentation d'ensemble des comptes. Nous estimons que les éléments que nous avons collectés sont suffisants et appropriés pour fonder notre opinion.

Nous certifions que les comptes annuels sont, au regard des règles et principes comptables français, réguliers et sincères et donnent une image fidèle du résultat des opérations de l'exercice écoulé ainsi que de la situation financière et du patrimoine de la société à la fin de cet exercice.

2. JUSTIFICATION DES APPRECIATIONS

En application des dispositions de l'article L.823-9 du Code de commerce relatives à la justification de nos appréciations, nous portons à votre connaissance les éléments suivants :

- la note « Immobilisations » de l'annexe expose les modalités d'évaluation des frais d'établissement et de développement comptabilisés à l'actif.

Nous vous informons que les appréciations auxquelles nous avons procédé ont porté sur le caractère approprié des principes comptables appliqués ainsi que sur le caractère raisonnable des estimations significatives retenues.

Les appréciations ainsi portées s'inscrivent dans le cadre de notre démarche d'audit des comptes annuels pris dans leur ensemble et ont donc contribué à la formation de notre opinion exprimée dans la première partie de ce rapport.

3. VERIFICATIONS ET INFORMATIONS SPECIFIQUES

Nous avons également procédé, conformément aux normes d'exercice professionnel applicables en France, aux vérifications spécifiques prévues par la loi.

Nous n'avons pas d'observation à formuler sur la sincérité et la concordance avec les comptes annuels des informations données dans le rapport de gestion du Président et dans les documents adressés à l'Associé unique sur la situation financière et les comptes annuels.

Fait à Paris, le 24 septembre 2014

Le Commissaire aux comptes
SEFAC



Représentée par Monsieur Philippe BLIN
Membre de la Compagnie Régionale de Paris

VARISCAN MINES

ANNEXE

VARISCAN MINES

SASU VARISCAN MINES
45100 ORLEANS

BILAN ACTIF

	ACTIF	Exercice N 30/06/2014 12			Exercice N-1 30/06/2013 12	Ecart N / N-1	
		Brut	Amortissements et dépréciations (à déduire)	Net	Net	Euros	%
	Capital souscrit non appelé (I)						
ACTIF IMMOBILISÉ	IMMOBILISATIONS INCORPORELLES						
	Frais d'établissement						
	Frais de développement	1 436 617		1 436 617	902 126	534 491	59.25
	Concessions, Brevets et droits similaires	107 762	67 626	40 136	58 553	18 417-	31.45-
	Fonds commercial (1)						
	Autres immobilisations incorporelles	40 000		40 000		40 000	
	Avances et acomptes						
	IMMOBILISATIONS CORPORELLES						
	Terrains						
	Constructions						
	Installations techniques Matériel et outillage	28 074	5 577	22 497	24 007	1 510-	6.29-
	Autres immobilisations corporelles	110 004	37 736	72 268	50 136	22 132	44.14
	Immobilisations en cours						
	Avances et acomptes						
	IMMOBILISATIONS FINANCIERES (2)						
	Participations mises en équivalence						
	Autres participations						
	Créances rattachées à des participations						
	Autres titres immobilisés						
	Prêts						
	Autres immobilisations financières	17 688		17 688	17 801	113-	0.63-
	TOTAL II	1 740 145	110 940	1 629 205	1 052 622	576 583	54.78
ACTIF CIRCULANT	STOCKS ET EN COURS						
	Matières premières, approvisionnements						
	En-cours de production de biens						
	En-cours de production de services						
	Produits intermédiaires et finis						
	Marchandises						
	Avances et acomptes versés sur commandes				1 692	1 692-	100.00-
	CRÉANCES (3)						
	Clients et Comptes rattachés						
	Autres créances	223 251		223 251	225 241	1 990-	0.88-
	Capital souscrit - appelé, non versé						
	Valeurs mobilières de placement						
	Disponibilités	185 883		185 883	63 820	122 064	191.26
Comptes de Régularisation	Charges constatées d'avance (3)	14 973		14 973	9 771	5 202	53.23
	TOTAL III	424 107		424 107	300 523	123 583	41.12
	Frais d'émission d'emprunt à étaler (IV)						
	Primes de remboursement des obligations (V)						
	Ecarts de conversion actif (VI)						
	TOTAL GÉNÉRAL (I+II+III+IV+V+VI)	2 164 251	110 940	2 053 312	1 353 145	700 167	51.74

(1) Dont droit au bail
(2) Dont à moins d'un an 17 688
(3) Dont à plus d'un an

En Euros.

VARISCAN MINES

SASU VARISCAN MINES
45100 ORLEANS

BILAN PASSIF

	PASSIF	Exercice N 30/06/2014 12	Exercice N-1 30/06/2013 12	Ecart N / N-1 Euros	Ecart N / N-1 %
CAPITAUX PROPRES	Capital (Dont versé : 800 000)	800 000	800 000		
	Primes d'émission, de fusion, d'apport				
	Ecarts de réévaluation				
	RESERVES				
	Réserve légale				
	Réserves statutaires ou contractuelles				
	Réserves réglementées				
	Autres réserves				
	Report à nouveau	93 762-	93 762-		
	RESULTAT DE L'EXERCICE (Bénéfice ou perte)				
	Subventions d'investissement				
	Provisions réglementées	334 188	168 465	165 722	98.37
	TOTAL I	1 040 426	874 704	165 722	18.95
AUTRES FONDS PROPRES	Produit des émissions de titres participatifs				
	Avances conditionnées				
	TOTAL II				
PROVISIONS	Provisions pour risques				
	Provisions pour charges				
	TOTAL III				
DETTES (1)	DETTES FINANCIERES				
	Emprunts obligataires convertibles				
	Autres emprunts obligataires				
	Emprunts auprès d'établissements de crédit				
	Concours bancaires courants	160	414	254-	61.32-
	Emprunts et dettes financières diverses	798 895	293 240	505 655	172.44
	Avances et acomptes reçus sur commandes en cours				
	DETTES D'EXPLOITATION				
	Dettes fournisseurs et comptes rattachés	56 793	77 147	20 354-	26.38-
	Dettes fiscales et sociales	157 038	107 640	49 398	45.89
	Dettes sur immobilisations et comptes rattachés				
	Autres dettes				
Comptes de Régularisation	Produits constatés d'avance (1)				
	TOTAL IV	1 012 886	478 442	534 444	111.71
	Ecarts de conversion passif (V)				
	TOTAL GENERAL (I+II+III+IV+V)	2 053 312	1 353 145	700 167	51.74
	(1) Dettes et produits constatés d'avance à moins d'un an	1 012 886	478 442		

En Euros.

VARISCAN MINES

SASU VARISCAN MINES
45100 ORLEANS

COMPTE DE RESULTAT

	Exercice N 30/06/2014 12			Exercice N-1	Ecart N / N-1	
	France	Exportation	Total	30/06/2013 12	Euros	%
PRODUITS D'EXPLOITATION (1)						
Ventes de marchandises						
Production vendue de Biens						
Production vendue de Services						
CHIFFRE D'AFFAIRES NET						
Production stockée						
Production immobilisée			534 491	458 400	76 091	16.60
Subventions d'exploitation			1 500	1 500		
Reprises sur dépréciations, provisions (et amortissements), transferts de charges			6 438		6 438	
Autres produits			27	5	21	399.06
TOTAL DES PRODUITS D'EXPLOITATION (I)			542 455	459 905	82 550	17.95
CHARGES D'EXPLOITATION (2)						
Achats de marchandises						
Variation de stock (marchandises)						
Achats de matières premières et autres approvisionnements						
Variation de stock (matières premières et autres approvisionnements)						
Autres achats et charges externes *			804 413	647 223	157 190	24.29
Impôts, taxes et versements assimilés			16 002	14 056	1 946	13.85
Salaires et traitements			419 925	365 864	54 061	14.78
Charges sociales			216 485	174 433	42 052	24.11
Dotations aux amortissements et dépréciations						
Sur immobilisations : dotations aux amortissements			39 735	46 274	6 539-	14.13-
Sur immobilisations : dotations aux dépréciations						
Sur actif circulant : dotations aux dépréciations						
Dotations aux provisions						
Autres charges			312	152	160	105.01
TOTAL DES CHARGES D'EXPLOITATION (II)			1 496 872	1 248 003	248 869	19.94
1 - RESULTAT D'EXPLOITATION (I-II)			954 417-	788 097-	166 320-	21.10-
QUOTES-PARTS DE RESULTAT SUR OPERATIONS FAITES EN COMMUN						
Bénéfice attribué ou perte transférée (III)						
Perte supportée ou bénéfice transféré (IV)						

(1) Dont produits afférents à des exercices antérieurs
(2) Dont charges afférentes à des exercices antérieurs

VARISCAN MINES

SASU VARISCAN MINES
45100 ORLEANS

COMPTE DE RESULTAT

	Exercice N 30/06/2014 12	Exercice N-1 30/06/2013 12	Ecart N / N-1 Euros	Ecart N / N-1 %
PRODUITS FINANCIERS				
Produits financiers de participations (3)				
Produits des autres valeurs mobilières et créances de l'actif immobilisé (3)				
Autres intérêts et produits assimilés (3)	31	52	22-	41.29-
Reprises sur dépréciations et provisions, transferts de charges				
Différences positives de change				
Produits nets sur cessions de valeurs mobilières de placement				
TOTAL V	31	52	22-	41.29-
CHARGES FINANCIERES				
Dotations aux amortissements, dépréciations et provisions				
Intérêts et charges assimilées (4)		229	229-	100.00-
Différences négatives de change				
Charges nettes sur cessions de valeurs mobilières de placement				
TOTAL VI		229	229-	100.00-
2. RESULTAT FINANCIER (V-VI)	31	176-	207	117.46
3. RESULTAT COURANT AVANT IMPOTS (I-II+III-IV+V-VI)	954 386-	788 274-	166 113-	21.07-
PRODUITS EXCEPTIONNELS				
Produits exceptionnels sur opérations de gestion		1 020	1 020-	100.00-
Produits exceptionnels sur opérations en capital	932 345	745 760	186 585	25.02
Reprises sur dépréciations et provisions, transferts de charges	15 000		15 000	
TOTAL VII	947 345	746 780	200 565	26.86
CHARGES EXCEPTIONNELLES				
Charges exceptionnelles sur opérations de gestion	766	16	750	NS
Charges exceptionnelles sur opérations en capital		22 290	22 290-	100.00-
Dotations aux amortissements, dépréciations et provisions	180 722	116 708	64 014	54.85
TOTAL VIII	181 488	139 014	42 474	30.55
4. RESULTAT EXCEPTIONNEL (VII-VIII)	765 857	607 766	158 092	26.01
Participation des salariés aux résultats de l'entreprise (IX)				
Impôts sur les bénéfices (X)	188 529-	180 508-	8 021-	4.44-
TOTAL PRODUITS (I+III+V+VII)	1 489 831	1 206 738	283 094	23.46
TOTAL DES CHARGES (II+IV+VI+VIII+IX+X)	1 489 831	1 206 738	283 094	23.46
5. BENEFICE OU PERTE (total des produits - total des charges)				

* Y compris : Redevance de crédit bail mobilier
: Redevance de crédit bail immobilier
(3) Dont produits concernant les entreprises liées
(4) Dont intérêts concernant les entreprises liées

En Euros.

ANNEXE

Exercice du 01/07/2013 au 30/06/2014

Annexe au bilan avant répartition de l'exercice, dont le total est de 2 053 311.67 Euros et au compte de résultat de l'exercice présenté sous forme de liste, dont le chiffre d'affaires est de 0 Euros et dégageant un bénéfice de 0 Euros .

L'exercice a une durée de 12 mois, couvrant la période du 01/07/2013 au 30/06/2014 .

Les notes et les tableaux présentés ci-après, font partie intégrante des comptes annuels.

FAITS CARACTERISTIQUES DE L'EXERCICE

(Code du Commerce Art. R 123-196 3°)

La société bénéficie d'un crédit d'impôt recherche d'un montant de 187 993€.

La société a bénéficié d'un abandon de compte courant de son associé unique de 932 345€ au titre de l'exercice. Au 30 juin 2014, la société présente un compte courant créditeur de 798 895€ envers son associé unique.

EVENEMENTS SIGNIFICATIFS POSTERIEURS A LA CLOTURE

NEANT

- REGLES ET METHODES COMPTABLES -

(Code du Commerce - Art. R 123-196 1° et 2°; PCG Art. 531-1/1)

Principes et conventions générales

Les comptes de l'exercice clos ont été élaborés et présentés conformément aux règles comptables dans le respect des principes prévus par les articles 120-1 et suivants du Plan Comptable Général 2005.
La méthode de base retenue pour l'évaluation des éléments inscrits en comptabilité est la méthode des coûts historiques.
Les conventions comptables ont été appliquées en conformité avec les dispositions du code de commerce, du décret comptable du 29/11/83 ainsi que des règlements CRC relatifs à la réécriture du plan comptable général 2005 applicables à la clôture de l'exercice.

Permanence des méthodes

Les méthodes d'évaluation retenues pour cet exercice n'ont pas été modifiées par rapport à l'exercice précédent.

ANNEXE

Exercice du 01/07/2013 au 30/06/2014

Informations relatives au CICE

Il a été comptabilisé en déduction des frais de personnel un produit à recevoir relatif à l'application du CICE (crédit d'impôt compétitivité emploi) pour un montant de 2 158 € relatif à l'année civile 2013. La société n'a demandé aucun préfinancement au titre de ce mécanisme.

- COMPLEMENT D'INFORMATIONS RELATIF AU BILAN -

Etat des immobilisations

	Valeur brute début d'exercice	Augmentations	
		Réévaluations	Acquisitions
Frais d'établissements et de développement TOTAL	902 126		534 491
Autres postes d'immobilisations incorporelles TOTAL	105 629		42 133
Installations techniques, Matériel et outillage industriel	26 184		1 890
Installations générales agencements aménagements divers	8 576		
Matériel de transport			29 327
Matériel de bureau et informatique, Mobilier	63 511		8 590
TOTAL	98 271		39 807
Prêts, autres immobilisations financières	17 440		248
TOTAL	17 440		248
TOTAL GENERAL	1 123 466		616 679

	Diminutions		Valeur brute en fin d'exercice	Réévaluation Valeur d'origine fin exercice
	Poste à Poste	Cessions		
Frais établissement et de développement TOTAL			1 436 617	1 436 617
Autres immobilisations incorporelles TOTAL			147 762	147 762
Installations techniques, Matériel et outillage industriel			28 074	28 074
Installations générales agencements aménagements divers			8 576	8 576
Matériel de transport			29 327	29 327
Matériel de bureau et informatique, Mobilier			72 101	72 101
TOTAL			138 078	138 078
Prêts, autres immobilisations financières			17 688	17 688
TOTAL			17 688	17 688
TOTAL GENERAL			1 740 145	1 740 145

Les dépenses de recherche engagées par la société sont comptabilisées à l'actif en frais de recherche et développement. Dans la mesure où la société est toujours en phase de recherche, aucun amortissement comptable n'est comptabilisé.

L'administration fiscale exigeant que ces frais soient amortis dès leur inscription à l'actif, un amortissement dérogatoire est comptabilisé afin de corriger l'écart entre l'amortissement comptable et fiscal. La durée retenue est cinq ans. L'amortissement des frais de recherche 2011 a débuté le 1er janvier 2012, celui des frais de recherche arrêtés au 30 juin 2012 a débuté le 30 juin 2012, celui des frais arrêtés au 30 juin 2013 a débuté le 30 juin 2013 et celui des frais arrêtés au 30 juin 2014 a débuté le 30 juin 2014.

Il a été comptabilisé un montant de 40 000€ en immobilisations incorporelles en cours.

SASU VARISCAN MINES
45100 ORLEANS

ANNEXE

Exercice du 01/07/2013 au 30/06/2014

Cela correspond à la première partie du contrat d'extension du logiciel GKR développé par la société E-Mines. Le coût global de cette mise à jour est de 75 000€ et sera terminé sur le prochain exercice.

Etat des amortissements

Situations et mouvements de l'exercice	Montant début d'exercice	Dotations de l'exercice	Diminutions Reprises	Montant fin d'exercice
Autres immobilisations incorporelles TOTAL	47 076	20 550		67 626
Installations techniques, Matériel et outillage industriel	2 177	3 400		5 577
Installations générales agencements aménagements divers	3 822	1 715		5 537
Matériel de transport		4 163		4 163
Matériel de bureau et informatique, Mobilier	18 129	9 907		28 036
TOTAL	24 129	19 185		43 314
TOTAL GENERAL	71 205	39 735		110 940

Ventilation des dotations de l'exercice	Amortissements linéaires	Amortissements dégressifs	Amortissements exceptionnels	Amortissements dérogatoires	
				Dotations	Reprises
Frais étab.rech.développ. TOTAL				180 722	
Autres immob.incorporelles TOTAL	20 550				15 000
Instal.techniques matériel outillage indus.	3 400				
Instal.générales agenc.aménag.divers	1 715				
Matériel de transport	4 163				
Matériel de bureau informatique mobilier	9 907				
TOTAL	19 185				
TOTAL GENERAL	39 735			180 722	15 000

Etat des provisions

Provisions réglementées	Montant début d'exercice	Augmentations Dotations	Diminutions Montants utilisés	Diminutions Montants non utilisés	Montant fin d'exercice
Amortissements dérogatoires	168 465	180 722	15 000		334 188
TOTAL	168 465	180 722	15 000		334 188
TOTAL GENERAL	168 465	180 722	15 000		334 188
Dont dotations et reprises exceptionnelles		180 722	15 000		

VARISCAN MINES

SASU VARISCAN MINES
45100 ORLEANS

ANNEXE

Exercice du 01/07/2013 au 30/06/2014

Etat des échéances des créances et des dettes

Etat des créances	Montant brut	A 1 an au plus	A plus d'1 an
Autres immobilisations financières	17 688	17 688	
Personnel et comptes rattachés	3 100	3 100	
Impôts sur les bénéfices	190 687	190 687	
Taxe sur la valeur ajoutée	22 147	22 147	
Débiteurs divers	7 317	7 317	
Charges constatées d'avance	14 973	14 973	
TOTAL	255 912	255 912	

Etat des dettes	Montant brut	A 1 an au plus	De 1 à 5 ans	A plus de 5 ans
Emprunts et dettes ets crédit à 1 an maximum à l'origine	160	160		
Fournisseurs et comptes rattachés	56 793	56 793		
Personnel et comptes rattachés	40 194	40 194		
Sécurité sociale et autres organismes sociaux	104 760	104 760		
Taxe sur la valeur ajoutée	2 661	2 661		
Autres impôts taxes et assimilés	9 423	9 423		
Groupe et associés	798 895	798 895		
TOTAL	1 012 886	1 012 886		

Composition du capital social

(Code du Commerce Art. R 123-197; PCG Art. 531-3 et 532-12)

Différentes catégories de titres	Valeurs nominales en euros	Nombre de titres			
		Au début	Créés	Remboursés	En fin
PARTS SOCIALES	1.0000	800 000			800 000

Evaluation des immobilisations corporelles

(Code du Commerce Art. R 123-196 1°)

La valeur brute des éléments corporels de l'actif immobilisé correspond à la valeur d'entrée des biens dans le patrimoine compte tenu des frais nécessaires à la mise en état d'utilisation de ces biens et des frais engagés pour leur acquisition.

Evaluation des amortissements

(Code du Commerce Art. R 123-196 2°)

Les méthodes et les durées d'amortissement retenues ont été les suivantes :

Catégorie	Mode	Durée
Logiciels	Linéaire	1 an
Agencements et aménagements	Linéaire	5 à 10 ans
Matériel de transport	Linéaire	5 ans
Matériel et mobilier de bureau	Linéaire	3 à 10 ans

Evaluation des créances et des dettes

(Code du Commerce Art. R 123-196)

Les créances et dettes ont été évaluées pour leur valeur nominale.

ANNEXE

Exercice du 01/07/2013 au 30/06/2014

Charges à payer

(Code du Commerce Art. R 123-196)

Montant des charges à payer incluses dans les postes suivants du bilan	Montant
Emprunts et dettes auprès des établissements de crédit	160
Dettes fournisseurs et comptes rattachés	23 086
Dettes fiscales et sociales	69 585
Total	92 832

Charges et produits constatés d'avance

(Code du Commerce Art. R 123-196)

Charges constatées d'avance	Montant
Charges d'exploitation	14 973
Total	14 973

ANNEXE 2d : certificat du d®positaire

EXEMPLAIRE POUR PHOTOCOPIE

VARISCAN MINES

Société par Actions Simplifiée Unipersonnelle

Orléans

Certificat du dépositaire

VARISCAN MINES

SEFAC Société d'Etudes Financières & d'Audit Comptable

10, Avenue de Messine – 75008 PARIS – Tél : +33(0)1 53 67 70 50 – Fax : +33(0)1 53 67 70 55 – sefac@sefac-smts.fr

A l'Associé Unique
VARISCAN MINES
Société par Actions Simplifiée Unipersonnelle
Orléans

Monsieur,

En notre qualité de Commissaire aux comptes de la société **VARISCAN MINES**, nous avons mis en œuvre les diligences que nous avons estimées nécessaires au regard de la doctrine professionnelle de la Compagnie nationale des commissaires aux comptes relative à cette mission, afin d'établir le certificat prévu à l'article L. 225-146 alinéa 2 du code de commerce.

Ces diligences, qui ne constituent ni un audit ni un examen limité, ont consisté à vérifier :

- Le bulletin de souscription par lequel la société **PLATSEARCH NL** a souscrit 199 000 actions nouvelles d'un nominal de un euro de la société **VARISCAN MINES** à l'occasion d'une augmentation du capital décidée par l'associé unique du 8 juillet 2011 ;
- La déclaration incluse dans le bulletin manifestant la décision de la société **PLATSEARCH NL** de libérer sa souscription par compensation avec la créance liquide et exigible qu'elle possède sur la société ;
- L'arrêté de compte établi le 8 juillet 2011, par le Président dont nous avons certifié l'exactitude le 18 juillet 2011, duquel il ressort que la société **PLATSEARCH NL** possède sur la societé **VARISCAN MINES** une créance de 199 000 euros ;

VARISCAN MINES

- Le caractère liquide et exigible de cette créance ;
- L'écriture comptable de compensation de la créance visée ci-dessus permettant de constater la libération des actions.

Sur la base de ces vérifications, nous délivrons le présent certificat qui tient lieu de certificat du dépositaire.

Fait à Paris, le 8 juillet 2011

Le Commissaire aux comptes :

SEFAC



Représentée par Monsieur Philippe BLIN

Membre de la Compagnie Régionale de Paris

ANNEXE 2e : liste des 40 premiers actionnaires de Variscan Mines Limited (anciennement PlatSearch NL)

VARISCAN MINES

Variscan Mines Limited

Fully Paid Ordinary **Top 40 Holdings as at 18-08-2014**

Group or Holder No	Holder Name	Balance at 18-08-2014	%
S00000806048	HSBC CUSTODY NOMINEES (AUSTRALIA) LIMITED	51 283 865	29,182
S00009884521	UOB KAY HIAN PRIVATE LIMITED <CLIENTS A/C>	18 426 560	10,485
S00022520920	MR CHRIS CARR & MRS BETSY CARR	7 500 000	4,268
S00032042091	MINOTAUR RESOURCES INVESTMENTS PTY LTD	7 266 238	4,135
S00014679219	DBS VICKERS SECURITIES (SINGAPORE) PTE LTD <CLIENT ACCOUNT>	7 073 762	4,025
S00019378055	MR XIANGJUN ZHANG	6 642 000	3,779
S00000817180	WARMAN INVESTMENTS PTY LTD	4 864 019	2,768
S00013111740	MR ROBERT LEWIS RICHARDSON & MS SUSANNE BRINT <THE RATHROAM STAFF FUND A/C>	3 350 760	1,907
S00010485185	DMG & PARTNERS SECURITIES PTE LTD <CLIENTS A/C>	2 674 661	1,522
S00003237958	MONEX BOOM SECURITIES (HK) LTD <CLIENTS ACCOUNT>	2 457 936	1,399
S00014633693	IPSEITY PTY LIMITED	2 376 707	1,352
S00032041396	PANSTYN INVESTMENTS PTY LTD	2 352 345	1,339
S00001314955	NEFCO NOMINEES PTY LTD	2 223 512	1,265
S00040941827	MR GREGORY FRANCIS PATRICK JONES <JONES SUPER FUND A/C>	1 962 472	1,117
S00000719676	CITICORP NOMINEES PTY LIMITED	1 949 731	1,109
S00030272412	MR ALLAN EDWARD WATTS <WATTS FAMILY A/C>	1 863 226	1,060
S00032037038	CRESCENT NOMINEES LIMITED	1 470 316	0,837
S00033736061	DR FATT KAH FOO	1 403 000	0,798
S00025553900	HOWARD-SMITH INVESTMENTS PTY LTD	1 116 021	0,635
S00032043399	WIMTONE PTY LIMITED	1 100 000	0,626
S00001109332	TECHNICA PTY LTD	1 000 000	0,569
S00003717801	MACKAY CONSULTING PTY LIMITED <MACKAY CONSULTING P/L SF A/C>	1 000 000	0,569
S00005216729	MR RHYS WILLIAMS	984 042	0,560
S00002549603	ABN AMRO CLEARING SYDNEY NOMINEES PTY LTD <CUSTODIAN A/C>	974 096	0,554
S00002680807	ONYX PTY LTD	850 000	0,484
S00014158944	WARINCO SERVICES PTY LIMITED <WARING SUPER FUND A/C>	715 000	0,407
S00019190960	MR PETER FABIAN HELLINGS & MRS JACQUELINE KIM GUN HELLINGS <BOX SUPER FUND A/C>	700 000	0,398
S00032042538	KHOO BOO KOK	659 266	0,375
S00006767991	ALBATROSS INTERLINE RESOURCES PTY LIMITED <BOTANICAL SUPER ACCOUNT>	650 000	0,370
S00032041086	WARINCO SERVICES PTY LIMITED	638 864	0,364
S00033406762	MS YONGMEI CHEN	620 000	0,353
S00024086810	MR VICTOR KEVIN ADES & MRS JOAN MARY ADES <LADNOLTI P/L SUPER FUND A/C>	616 259	0,351
S00008004463	MR BRUCE SAMUEL HARRIS ROSENBERG	600 000	0,341
S00027629181	MR DARCY MILBURN	520 430	0,296
S00000893820	TROMSO PTY LIMITED	516 430	0,294
S00000994146	MR GRAHAME JOHN MCKENZIE	500 000	0,285
S00030840542	CURRACLOE PTY LTD <ROTHERY SUPER FUND A/C>	500 000	0,285
S00065221390	CRINAN SUPER CO PTY LIMITED <CRINAN SUPER FUND A/C>	500 000	0,285
S00010447046	LAWRENCE CROWE CONSULTING PTY LTD <L C C SUPER FUND A/C>	499 800	0,284
S00010017335	MR JOHN ANTHONY HELLIER & MRS DOROTHY MAY HELLIER	487 500	0,277
		142 888 818	81,308
	Total IC	**175 737 592**	

ANNEXE 2f : extrait des statuts de Variscan Mines (page 14)

VARISCAN MINES

ARTICLE 32 - Nomination du Président

Le premier Président de la Société nommé aux termes des présents statuts sans limitation de durée est :

Jack TESTARD
Né le 11 mars 1945 à Bourges (18)
Demeurant 69, rue des Bouvreuils, 45590 St Cyr en Val

Lesquels déclarent accepter lesdites fonctions et satisfaire à toutes les conditions requises par la loi et les règlements pour leur exercice.

ANNEXE 2g : pouvoirs de signature de Michel Bonnemaison

VARISCAN MINES
Société par actions simplifiée unipersonnelle
Au capital de 1.000 euros
Siège social :
16, rue Léonard de Vinci, 45 000 ORLEANS
R.C.S. ORLEANS - 528 859 846

PROCES -VERBAL
DE DECISION DU PRESIDENT
EN DATE DU 1ER FEVRIER 2011

L'an deux mille onze, le 1er février 2011, à douze heures,

Le soussigné,

Jack Testard, agissant en qualité de Président de la société VARISCAN MINES, SAS au capital de 1000 euros, dont le siège social est situé 16, rue Léonard de Vinci, 45000 ORLEANS, immatriculée au RCS d'Orléans sous le numéro 528 859 846

A pris les décisions portant sur l'ordre du jour suivant :

- Nomination d'un directeur général
- Pouvoir pour formalités

PREMIERE DECISION

Conformément aux dispositions de l'article 21 des statuts, le président nomme, pour une durée illimitée, en qualité de directeur général :

Monsieur Michel Bonnemaison,
né le 27 mars 1955 à Lavelanet (09)
demeurant 256, rue Alexandre André, 45240, LIGNY LE RIBAULT,
de nationalité française.

Le directeur général est investi des mêmes pouvoirs que le président de la Société, à savoir les pouvoirs les plus étendus pour agir en toute circonstance au nom de la Société dans les limites de l'objet social et des limites statutaires, et notamment celles applicables au Président.

Le Président constate que Monsieur Michel Bonnemaison a fait savoir par avance qu'il acceptait les fonctions de directeur général de la Société et qu'il satisfait à toutes les conditions requises par la loi et les règlements pour l'exercice desdites fonctions.

SECONDE DECISION

Tous pouvoirs sont donnés au porteur de l'original, d'une copie ou d'un extrait du présent procès-verbal à l'effet de procéder aux formalités de dépôt au Greffe du Tribunal de commerce prescrites par la loi.

De tout ce que dessus il a été dressé le présent procès-verbal qui, après lecture, a été signé par le Président et directeur général.

LE PRESIDENT
Mr Jack Testard

Monsieur Michel Bonnemaison
Directeur général

ANNEXE 3

ACTES DâENGAGEMENT

Engagements souscrits en application de lâarticle 43 (5Á) du d®cret 2006-648 du 2 juin 2006

Annexe 3a : engagement du pr®sident
Annexe 3b : engagement du directeur g®n®ral

Engagements souscrits en application de l'article 5 e) de l'arr°t® du 28 juillet 1995

Annexe 3c : engagement du pr®sident
Annexe 3d : engagement du directeur g®n®ral

Engagements souscrits en application de l'article 3 de l'arr°t® du 28 juillet 1995

Annexe 3e : engagement du pr®sident
Annexe 3f : engagement du directeur g®n®ral

Dossier dâapplication dûun Permis Exclusif de Recherche de Mines ç COUFLENS è

ANNEXE 3a

Engagement souscrit en application de l'article 43 (5°) du décret 2006-648 du 2 juin 2006

Je soussign®, Jack TESTARD, Pr®sident de VARISCAN MINES, agissant au nom et pour le compte de ladite soci®t®, prends l'engagement dûinformer le Ministre charg® des mines de toute modification substantielle de nature ¨ modifier les capacit®s techniques et financi¯res sur le fondement desquelles le titre a ®t® accord®.

Fait ¨ Orl®ans, le 15 novembre 2014

Le Pr®sident

Dossier dâapplication dûun Permis Exclusif de Recherche de Mines ç COUFLENS è

ANNEXE 3b

Engagement souscrit en application de l'article 43 (5°) du décret 2006-648 du 2 juin 2006

Je soussign®, Michel Bonnemaison, Directeur G®n®ral de VARISCAN MINES, agissant au nom et pour le compte de ladite soci®t®, prends l'engagement dûinformer le Ministre charg® des mines de toute modification substantielle de nature ¨ modifier les capacit®s techniques et financi¯res sur le fondement desquelles le titre a ®t® accord®.

Fait ¨ Orl®ans, le 15 novembre 2014

Le Directeur G®n®ral

Dossier dâapplication dûun Permis Exclusif de Recherche de Mines ç COUFLENS è

ANNEXE 3c

Engagements souscrit en application de l'Article 5 e) de l'arr°t®du 28 juillet 1995

Je soussign®, Jack TESTARD, Pr®sident de VARISCAN MINES, agissant au nom et pour le compte de ladite soci®t®, prends l'engagement, de pr®senter au Directeur r®gional de l'®cologie, de lâam®nagement et du logement dans le mois qui suivra l'octroi du permis, le programme de travaux du reste de l'ann®e en cours, avant le 31 d®cembre de chaque ann®e, le programme de travaux de l'ann®e suivante et au d®but de chaque ann®e, le compte rendu des travaux effectu®s au cours de l'ann®e ®coul®e.

Fait ¨ Orl®ans, le 15 novembre 2014

Le Pr®sident

Dossier dâapplication dûun Permis Exclusif de Recherche de Mines ç COUFLENS è

ANNEXE 3d

Engagement souscrit en application de l'Article 5 e) de l'arr°t®du 28 juillet 1995

Je soussign®, Michel BONNEMAISON, Directeur G®n®ral de VARISCAN MINES, agissant au nom et pour le compte de ladite soci®t®, prends l'engagement, de pr®senter au Directeur r®gional de l'®cologie, de lâam®nagement et du logement dans le mois qui suivra l'octroi du permis, le programme de travaux du reste de l'ann®e en cours, avant le 31 d®cembre de chaque ann®e, le programme de travaux de l'ann®e suivante et au d®but de chaque ann®e, le compte rendu des travaux effectu®s au cours de l'ann®e ®coul®e.

Fait ¨ Orl®ans, le 15 novembre 2014

Le Directeur G®n®ral

Dossier d'application d'un Permis Exclusif de Recherche de Mines « COUFLENS »

ANNEXE 3e

Engagement souscrit en application de l'Article 3 de l'arrêté du 28 juillet 1995.

Je soussigné Jack TESTARD, Président de Variscan Mines reconnaît avoir été informé par l'administration :

- que les informations nominatives fournies par elle sont susceptibles de faire l'objet d'un traitement automatisé ;
- qu'elle peut exercer un droit d'accès et de rectification, conformément aux dispositions des articles 34 et suivants de la loi n°78-17 du 6 janvier 1978 relative à l'informatique et aux libertés, auprès de la direction générale de l'énergie et des matières premières (ministère de l'industrie, 99, rue de Grenelle, 75700 Paris) ;
- et que ces informations peuvent être communiquées au Conseil d'Etat, au Conseil général des mines et au Commissariat à l'énergie atomique dans le cadre de l'instruction de la présente demande.

Fait à Orléans, le :15 novembre 2014

Le Président

Dossier d'application d'un Permis Exclusif de Recherche de Mines « COUFLENS »

ANNEXE 3f

Engagement souscrit en application de l'Article 3 de l'arrêté du 28 juillet 1995

Je soussigné Michel BONNEMAISON, Directeur général de Variscan Mines reconnaît avoir été informé par l'administration :

- que les informations nominatives fournies par elles sont susceptibles de faire l'objet d'un traitement automatisé ;
- qu'elle peut exercer un droit d'accès et de rectification, conformément aux dispositions des articles 34 et suivants de la loi n°78-17 du 6 janvier 1978 relative à l'informatique et aux libertés, auprès de la direction générale de l'énergie et des matières premières (ministère de l'industrie, 99, rue de Grenelle, 75700 Paris) ;
- et que ces informations peuvent être communiquées au Conseil d'Etat, au Conseil général des mines et au Commissariat à l'énergie atomique dans le cadre de l'instruction de la présente demande.

Fait à Orléans, le 15 novembre 2014

Le Directeur Général



Dossier dâapplication dûun Permis Exclusif de Recherche de Mines ç COUFLENS è

ANNEXE 4

CAPACIT£S FINANCIÊRE ET TECHNIQUE DE VARISCAN MINES

La soci®t® Variscan Mines, nouvellement cr®®e en d®cembre 2010, ne peut se pr®valoir dûune longue activit® pass®e dans le domaine de lâexploration mini¯re. Toutefois, au 30 juin 2014, elle a d®j¨ engag® des travaux pour un montant de 1.356 kú sur le PERM de Tennie (Sarthe) et de 352 kú sur le PERM r®cemment attribu® de Saint-Pierre (Maine-et-Loire). Par ailleurs, son actionnaire unique Variscan Mines Limited (anciennement PlatSearch NL) a r®alis® et r®alise dûimportants travaux dâexploration mini¯re en Australie, travaux qui lui ont permis dâacqu®rir des participations, souvent importantes, dans des soci®t®s mini¯res cot®es sur la bourse australienne. Ces participations permettent ¨ Variscan Mines Limited (anciennement PlatSearch NL) de financer les travaux dâexploration de Variscan Mines. Variscan Mines compte sur son staff dâexperts internationaux, de nationalit® fran- aise, pour promouvoir et d®velopper son activit®, principalement en France. Le personnel qualifi® (chefs de projets, g®ologues, techniciensé) sera recrut® en France au fur et ¨ mesure du d®veloppement de lâactivit®, directement li®e ¨ lâobtention des titres miniers autorisant la r®alisation des travaux. Variscan Mines privil®giera les recrutements dans les r®gions concern®es par les travaux de recherche.

Cette annexe comporte :

- annexe 4a : un document original en anglais qui pr®sente la maison m¯re Variscan Mines Limited (anciennement PlatSearch NL) ;
- annexe 4b : une traduction simplifi®e en fran- ais de lâannexe 2a, indiquant les renseignements attendus sur la composition du conseil dâadministration et la qualit® et nationalit® de chacun de ses membres, sachant que le seul intervenant sur la filiale fran- aise Variscan Mines S.A.S est Monsieur Gregory Jones **;**
- annexe 4c : rapport annuel 2014 de Variscan Mines Limited ;
- annexe 4d : curriculum vitae :
  - CV de M. Jack Testard, pr®sident de Variscan Mines,
  - CV de M. Michel Bonnemaison, directeur g®n®ral de Variscan Mines,
  - CV de M. Gregory Jones, directeur de Variscan Mines et repr®sentant de lâactionnaire unique Variscan Mines Limited (anciennement PlatSearch NL),
  - CV de M. Eric Marcoux, professeur dûuniversit® ¨ Orl®ans et expert en g®ologie mini¯re aupr¯s de Variscan Mines,
  - CV de M. Maxime Picault, g®ologue ¨ Variscan Mines,
  - CV de M. Guillaume Raoult, g®ologue ¨ Variscan Mines,
  - CV de M. Patrick Lebret, chef g®ologue ¨ Variscan Mines,
  - CV de Mme Anne-Sophie Audion, g®ologue en charge des mod¯lisations 3D, chef du projet associ® au PERM Merl®ac ;
  - CV de M. J®r¹ me Gouin, g®ologue chef du projet associ® au PERM Saint-Pierre ;
- annexes 4e : copie du rapport dâaudit associ® au rapport dâactivit® 2013. Ces documents fournissent les capacit®s financi¯res de la soci®t® ainsi que son mode de

fonctionnement de ç junior è capable de lever des fonds en bourse pour les programmes dêexploration ;

- annexe 4f : accord de joint-venture avec la soci®t® Juniper Capital Partner Lilmited

- annexe 4g : engagement financier de Juniper Capital Partner Limited

- **ANNEXE 4a : pr®sentation g®n®rale originale de Variscan Mines Limited**

VARISCAN MINES LIMITED

ACN 003 254 395

Level 1, 80 Chandos Street, St Leonards NSW 2065
PO Box 956, Crows Nest NSW 1585
P: (02) 9906 5220
F: (02) 9906 5233
W: www.platsearch.com.au

BACKGROUND OF VARISCAN MINES LIMITED (anciennement **PlatSearch NL**)

History and business

Variscan Mines Limited has been listed on the Australian Stock Exchange ("ASX") since 1987. Its principal activities are the exploration and potential exploitation of economic base and precious metal deposits. Variscan Mines Limited also holds substantial share investments in other ASX listed mineral exploration companies. Over the last 3 years Variscan Mines Limited and its associated companies have raised in excess of $33 million ($21 million to date plus $12 million expected from the Silver City IPO) to support their exploration activities.

In the 1990s, the Company evolved its exploration focus from precious metals to search for large, world-class base metal deposits. As these deposits often have direct magnetic and/or gravity signatures, the selection of new exploration targets and prospects was based on the interpretation of vast amounts of geophysical and other data collected by ground and airborne geophysical surveys that have become increasingly available throughout Australia over the last few decades.

Variscan Mines Limited currently holds a portfolio of 39 exploration tenements which covers an area of approximately 12,763 square kilometers. From its tenement package, the Company's team of experienced management identifies potential exploration targets via interpretation of geophysical, geochemical and geological data and initiates additional exploration, including drilling to determine the prospectivity and possible resource potential of target areas. Based on the results of these studies, Variscan Mines Limited's technical management determines whether to continue exploration evaluation of properties using its own resources or to invite joint venture participation by other exploration companies.

Whilst Variscan Mines Limited's business model is in the exploration field, the Company has diversified from pure exploration joint ventures to vending its projects into small junior explorers in return for equity holdings in the companies, or placing the assets into Variscan Mines Limited's controlled entities to take through to an ASX listing.

This approach has allowed Variscan Mines Limited to build a strong portfolio of investments in a number of ASX listed entities whilst allowing the Company the freedom to generate new exploration opportunities and continue project assessments. Variscan Mines Limited currently has five exploration companies in its portfolio of investments. Four of these companies were initiated and developed by Variscan Mines Limited via joint venture and collaboration agreements with industry players. The four companies are Eastern Iron Ltd, WPG Resources Ltd, Thomson Resources Ltd and Silver City Mining Ltd. The other company in its portfolio is Aguia Resources Ltd. Four of the five companies in its portfolio are listed on the ASX with a combined market capitalisation of A$ 374 million as at 25 February 2011. Further details of these companies are set out in Section 2 below.

Variscan Mines Limited has previously raised funding for its activities via:-

(i) Issuance of new shares or injection by investors to fund its exploration activities;

(ii) Rights issue to its existing shareholders;

(iii) Securing a convertible note; and

(iv) Listing of its subsidiaries to fund their respective activities within the exploration industry.

In 2008 a share placement and subsequent rights issue was made to Mr Kwan Chee Seng, a Singaporean businessman who invested A$ 1.0 million into the Variscan Mines Limited for a then aggregate of 8.1% stake in the Company. Mr Kwan subsequently supported other Company capital raisings and on-market purchases and is presently the Companyôs largest shareholder with 25.8% interest. He is a non-executive Director.

The change in substantial shareholders resulted in changes to the Companyôs Board of Directors where Mr. Gregory Jones, an experienced mine and exploration geologist was appointed as Managing Director. Patrick Elliott, a resource industry professional with more than 35 years of experience in the industry was appointed as Chairman.

In addition, the Company further supplemented its capital raising and corporate advisory skills and experience in the Board through the appointment of Singapore-based Dr. Foo Fatt Kah as a non-executive director of the Company.

Further details of the Board and key management of the Company are set out in the table below.

With these Board and shareholder changes and broadening of the Companyôs skills base, PlatSearch modified its strategy and has now begun seeking more advanced projects or mines to allow it become an operating production company.

As part of this drive towards acquiring more advanced projects the Company has commenced looking outside Australia and has recently formed a new wholly owned subsidiary, Variscan Mines SAS, a France domiciled company, opened an office in Orleans and employed two highly experienced French geologists to assess potential opportunities within Europe.

Variscan has completed detailed analysis of the geology and metallogeny of Europe, notably France and has committed to investing significant technical and financial resources into France to acquire advanced base and precious metal prospects. Once it has acquired projects, the Company plans to initiate exploration activities using the most up-to-date exploration methods in an attempt to define economic mineral deposits and possibly move towards feasibility studies and mine development. Any new mine development will be conducted to the very highest international standards of environmental protection, employee safety and local community involvement.

Board composition

The composition of the Board is as follows (Variscan Ltd Annual report 2013) :

Name	Position	Background	Nationality
Gregory Jones	Managing Director	Greg is a geologist and has more than 30 years of experience in the industry. Prior to joining PlatSearch, Greg has held senior positions in a number of large and international resource companies. Greg was awarded the Institute Medal for academic excellence in 1980 whilst at university and is credited with several economic discoveries including the Blair nickel and the Orion gold deposits in Western Australia. Greg graduated with a Bachelor of Science with First Class Honours in Geology from the New South Wales Institute of Technology in 1980. He has been a member of the Australian Institute of Mining and Metallurgy since 1989 and is a competent person as defined under the JORC code. Greg is also non-executive director of Eastern Iron Ltd, Silver City Limited and Thomson Resources Ltd.	Australian
Patrick Elliot	Non-Executive Chairman	Patrick Elliot has been the Non-Executive Chairman since 2008 and has 35 yearsôexperience in investment and corporate management and the resources sector. His early career was at Consolidated Gold Fields Australia Limited and covered investment analysis and management, minerals marketing (copper, tin, rutile and zircon). In 1979 he went into investment banking and became Head of Corporate Finance for Morgan Grenfell Australia Limited in 1982. Pat subsequently became Managing Director of Natcorp Investments Ltd in 1986 which owned a number of manufacturing businesses. After its takeover he became an active early stage venture capital investor with an emphasis on resources. Pat is Chairman of Argonaut Resources NL, Australia Oriental Minerals NL and MIL Resources Ltd, the latter company in which he is also the managing director. He is also a director of Crossland Uranium Mines Limited, Global Geoscience Limited and a number of privately owned companies.	Australian
Kwan Chee Seng	Non-Executive Director	Kwan Chee Seng has been a Non-Executive Director since 2009 and has extensive experience in senior management and in business, with investments in the renewable sustainable energy, base metal resources and the biotechnology businesses. He was the Managing Director of CG Aerospace Warehouse Pte Lt, a company which provides warehousing and logistics services, from 1994 to 2000 and the Managing Director of GRP Limited, a specialist in the supply of marine hoses and components. Since 2001, Mr Kwan has been an Executive Director of Van der Horst Holdings Pte Ltd. He is also a director of Vander Horst Energy Limited, a company listed on the Singaporean Stock Exchange.	Singaporean
Dr Foo Fatt Kah	Non-Executive Director	Dr Foo has been a Non-Executive Director since 2009 and has over 20 years experience in investment banking (Societe General), venture capital, private equity investments, financial advisory and consulting. Since 2003, Dr Foo has been the Asian Venture Partner for Aravis Ventures, a global venture capital firm specializing in biotechnology and energy investments, as well as the Managing Director of Maida Vale Associates Pte. Ltd which provides corporate finance advisory services specialising in life sciences. Since 2008, Dr Foo has been the Managing Director of Luminor Capital Pte Ltd. which provides fund management advisory services specialising in resources, renewable energy and recombinant technology. He is also a director of PEC Ltd, a company listed on the SGX.	Malaysian

Executive Officers

Variscan Mines Ltd has a total of 9 geologists who are employees and permanent consultants directly employed by the Company, with a combined experience of over 275 years of in the resource industry.

Name	Position	Background	Nationality
Gregory DeRoss	Managing Director of Eastern Iron	Gregory De Ross is a geologist with over 30 years experience in corporate management, exploration and mining. His experience has included a variety of roles in areas covering exploration management, feasibility studies, resource development and mining in commodities such as base and precious metals, uranium, mineral sands, coal and iron ore. He is a Fellow of the Australasian Institute of Mining and Metallurgy, as well as a member of the Society of Economic Geologists.	Australian
Ivo Polovineo	Company Secretary	Ivo is an accountant with more than 30 years experience as a CFO and Company Secretary, including over 20 years in the resources sector. He was previously CFO and Company Secretary for Sino Gold Mining Limited and is currently a Company Secretary of Lynas Corporation Ltd, an ASX 100 company. He is also Company Secretary for Thomson Resources Ltd, and is a non-executive director of Galaxy Resources Limited and Eastern Iron Limited. Ivo is a Professional Member of National Institute of Accountants (PNA).	Australian
Wendy Corbett	Managing Geologist	Wendy Corbett has been the Managing Geologist since 1995 and she has more than 35 years experience in mineral exploration and administration. Wendy specializes in tenement and exploration management and is a member of the Australian Institute of Geoscientists.	Australian
Nigel Maund	Consultant	Nigel Maund has been the Business Development Manager since 2010. He has more than 35 years of experience in the exploration and discovery of gold, base metal and uranium deposits in both Australia and overseas. Nigel specializes in the targeting and assessment of mineral deposits for the group. He is now consultant from Arcturus SA bqases in France and still working with Variscan Mines.	British
Gregory MacRae	Senior Geologist ï GIS	Gregory MacRae joined the company in 2008 and is an experienced geologist specializing in database and GIS information management. He is a member of the Australian Institute of Geoscientists.	Australian
Jyrki Pienmunne	GIS Geologist	Jyrki has over 20 years of experience. He joined Variscan Mines Limited in 2010 and specializes in the compilation and assessment of geological/geochemical datasets and the interpretation within a GIS environment.	Norwegian
Chris Hosie	Senior Exploration Geologist	Chris is a geologist with 7 years of exploration experience focused mainly into iron ore and gold. Chris directly manages the exploration field activities of the company in NSW, South Australia and Queensland.	New Zealand
Michelle Lilley	Financial Controller	Michelle Lilley is a qualified Chartered Account and has been the Financial Controller since 2009. She has more than 15 years experience in financial and management accounting. Prior to joining Variscan Mines Limited, she was a Financial Controller at a biotechnology company listed on the ASX.	Australian
Dr Jack Testard	President ï Variscan Mines	Jack is a geologist with over 40 years experience within the European mining industry, much of which was with the BRGM, the prominent French geological survey and a former senior manager for Normandy La Source. Jack is President of the French Mining Council.	French
Dr Michel Bonnemaison	Chief Executive Officer ï Variscan Mines	Dr Bonnemaison is a highly qualified geologist with over 35 years of experience specializing in European deposit metallogeny and exploration. Michel manages the day to day operations of Variscan and is instrumental in outlining and assessing new projects in Europe.	French

Shareholding structure

Kwan Chee Seng is the largest shareholder holding approximately 29.2 % interest in Variscan Mines Limited throught HSBC. The top 40 shareholders of Variscan Mines Limited are as set out below:-

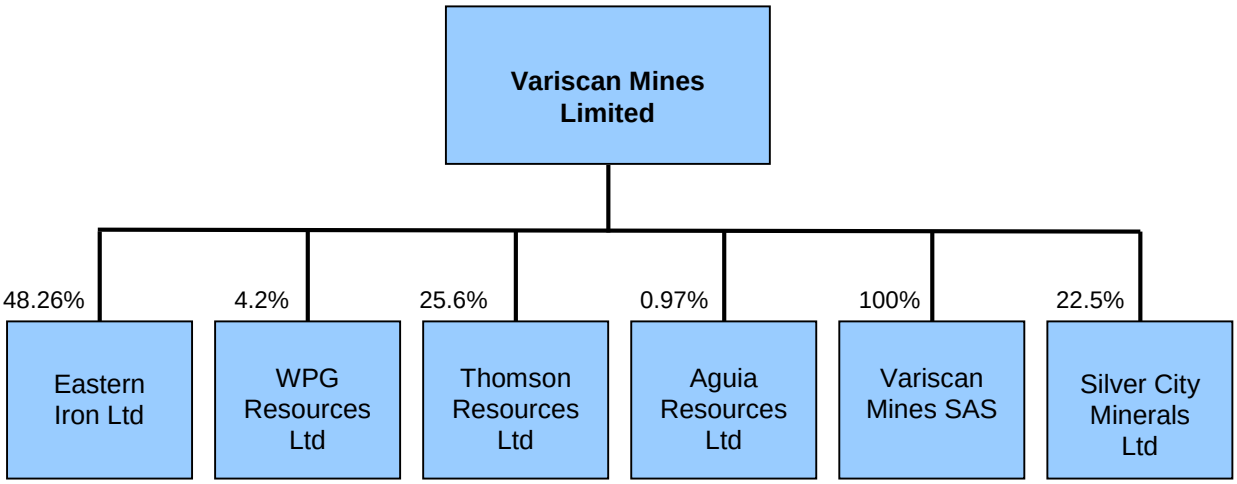
Variscan Mines Limited

Fully Paid Ordinary **Top 40 Holdings as at 18-08-2014**

Group or Holder No	Holder Name	Balance at 18-08-2014	%
S00000806048	HSBC CUSTODY NOMINEES (AUSTRALIA) LIMITED	51 283 865	29,182
S00009884521	UOB KAY HIAN PRIVATE LIMITED <CLIENTS A/C>	18 426 560	10,485
S00022520920	MR CHRIS CARR & MRS BETSY CARR	7 500 000	4,268
S00032042091	MINOTAUR RESOURCES INVESTMENTS PTY LTD	7 266 238	4,135
S00014679219	DBS VICKERS SECURITIES (SINGAPORE) PTE LTD <CLIENT ACCOUNT>	7 073 762	4,025
S00019378055	MR XIANGJUN ZHANG	6 642 000	3,779
S00000817180	WARMAN INVESTMENTS PTY LTD	4 864 019	2,768
S00013111740	MR ROBERT LEWIS RICHARDSON & MS SUSANNE BRINT <THE RATHROAM STAFF FUND A/C>	3 350 760	1,907
S00010485185	DMG & PARTNERS SECURITIES PTE LTD <CLIENTS A/C>	2 674 661	1,522
S00003237958	MONEX BOOM SECURITIES (HK) LTD <CLIENTS ACCOUNT>	2 457 936	1,399
S00014633693	IPSEITY PTY LIMITED	2 376 707	1,352
S00032041396	PANSTYN INVESTMENTS PTY LTD	2 352 345	1,339
S00001314955	NEFCO NOMINEES PTY LTD	2 223 512	1,265
S00040941827	MR GREGORY FRANCIS PATRICK JONES <JONES SUPER FUND A/C>	1 962 472	1,117
S00000719676	CITICORP NOMINEES PTY LIMITED	1 949 731	1,109
S00030272412	MR ALLAN EDWARD WATTS <WATTS FAMILY A/C>	1 863 226	1,060
S00032037038	CRESCENT NOMINEES LIMITED	1 470 316	0,837
S00033736061	DR FATT KAH FOO	1 403 000	0,798
S00025553900	HOWARD-SMITH INVESTMENTS PTY LTD	1 116 021	0,635
S00032043399	WIMTONE PTY LIMITED	1 100 000	0,626
S00001109332	TECHNICA PTY LTD	1 000 000	0,569
S00003717801	MACKAY CONSULTING PTY LIMITED <MACKAY CONSULTING P/L SF A/C>	1 000 000	0,569
S00005216729	MR RHYS WILLIAMS	984 042	0,560
S00002549603	ABN AMRO CLEARING SYDNEY NOMINEES PTY LTD <CUSTODIAN A/C>	974 096	0,554
S00002680807	ONYX PTY LTD	850 000	0,484
S00014158944	WARINCO SERVICES PTY LIMITED <WARING SUPER FUND A/C>	715 000	0,407
S00019190960	MR PETER FABIAN HELLINGS & MRS JACQUELINE KIM GUN HELLINGS <BOX SUPER FUND A/C>	700 000	0,398
S00032042538	KHOO BOO KOK	659 266	0,375
S00006767991	ALBATROSS INTERLINE RESOURCES PTY LIMITED <BOTANICAL SUPER ACCOUNT>	650 000	0,370
S00032041086	WARINCO SERVICES PTY LIMITED	638 864	0,364
S00033406762	MS YONGMEI CHEN	620 000	0,353
S00024086810	MR VICTOR KEVIN ADES & MRS JOAN MARY ADES <LADNOLTI P/L SUPER FUND A/C>	616 259	0,351
S00008004463	MR BRUCE SAMUEL HARRIS ROSENBERG	600 000	0,341
S00027629181	MR DARCY MILBURN	520 430	0,296
S00000893820	TROMSO PTY LIMITED	516 430	0,294
S00000994146	MR GRAHAME JOHN MCKENZIE	500 000	0,285
S00030840542	CURRACLOE PTY LTD <ROTHERY SUPER FUND A/C>	500 000	0,285
S00065221390	CRINAN SUPER CO PTY LIMITED <CRINAN SUPER FUND A/C>	500 000	0,285
S00010447046	LAWRENCE CROWE CONSULTING PTY LTD <L C C SUPER FUND A/C>	499 800	0,284
S00010017335	MR JOHN ANTHONY HELLIER & MRS DOROTHY MAY HELLIER	487 500	0,277
		142 888 818	81,308
	Total IC	**175 737 592**	

GROUP STRUCTURE

The present group structure of Variscan Mines Limited and its subsidiary and associated companies are illustrated below:-



Subsidiary	Market Capitalisation	% held	History, business and principal activity
Eastern Iron Ltd	A$11.1 million	48.26	Eastern Iron Limited was originally formed in 23 July 2007 to investigate the potential for iron ore on the infrastructure rich, eastern seaboard, which is home to the bulk of Australia's industrial capacity, population, workforce and markets. Eastern Iron listed in May 2008 on the ASX, raising A$5.0 million. Over the next two years the Company acquired an 80% interest in substantial channel iron deposits in central NSW and completed a significant drilling and metallurgical programme. Eastern Iron defined a resource of 612 million tons at 13% Fe. Subsequently the Company restructured its joint venture agreement over the project area with PlatSearch and signed a new joint venture agreement with the 3E group to allow 3E to earn up to a 77.5% interest by completing additional studies. In early 2010, Eastern Iron added a new iron-vanadium project, the Hawkwood Project, located in eastern Queensland. Hawkwood is a joint venture between Eastern Iron Ltd, Rugby Mining Pty Ltd and Rugby Mining Limited. Drilling by the Company has confirmed the presence of substantial thicknesses of magnetite bearing layers within a layered intrusive complex with a target resource tonnage of between 500-1,000 million tonnes. Preliminary metallurgical work has indicated the potential to produce high quality magnetite concentrate assaying up to 61% Fe, 1.1% V_2O_5 and 7.9% TiO_2. On 9 November 2010, Eastern Iron announced the acquisition of the Eulogie project from RMM Capital Pty Ltd for 2.5 million shares of Eastern Iron Ltd. The Eulogie project is an iron ore project located in Central Queensland of Australia with excellent access to world class bulk tonnage infrastructure including sealed roads and railway lines leading to the export port of Gladstone

Associated company	Market Capitalisation[1]	% held	History, business and principal activity
WPG Resources Ltd	A$194.7 million	4.22	In 2004, Variscan Mines Limited incorporated WPG to explore copper and gold tenements in the Broken Hill region and Lachlan Fold Belt, entering into joint ventures with WPG over the Euriowie and Mulyungarie tenements. Subsequently, WPG acquired mining tenements at Peculiar Knob and Hawks Nest in South Australia which hosts significant, high grade iron ore deposits. WPG completed a bankable feasibility mining study on developing a direct shipping ore operation on these deposits and is currently in mine construction. WPG successfully listed on the ASX in 2005 raising a total of A$2.8 million. PlatSearch retained a 25% interest in WPG immediately after the listing, which over time has diluted due to the subsequent fund raising exercises of WPG.
Thomson Resources Ltd	A$16.9 million	25.6	Thomson is focused on the discovery and development of high quality mineral deposits within the Thomson Fold Belt of northern New South Wales, Australia. In July 2009, the Company and its strategic alliance partner, Minotaur Exploration Ltd transferred all tenements held within the Thomson Fold Belt into a new entity, Thomson Resources. The Thomson Fold Belt is interpreted to be the covered northern extension of the well-endowed Lachlan Fold Belt and is considered to have excellent potential for large, high grade gold, copper, lead, zinc and silver deposits. Thomson was listed ASX on 17 December 2010 raising A$4.6M.
Aguia Resources Ltd	A$64.9 million	0.97	Aguia is an exploration company formerly in joint venture with our Company over the Pathfinder mining project in South Australia. Aguia has acquired two highly prospective and potentially large scale phosphate projects in Brazil, the Lucena Phosphate Project and the Mata da Corda Phosphate Project. Aguia has also reached conditional agreement to acquire a private mineral exploration company Potassio do Altlantico Ltda with a primary focus on potash exploration and development in the Sergipe Basin, Brazil, one of the largest global potash markets.
Silver City Mining Ltd	Lodged with ASIC for IPO	22.5	In July 2008, Silver City was incorporated for the purposes of acquiring and exploring a significant, high quality tenement package in the Broken Hills district. This was a joint venture arrangement with various parties including the Company who contributed tenements in return for shares in Silver City. Silver City subsequently secured an important joint venture with CBH Resources Ltd over a number of high quality tenements which are considered to have good potential for discovery of lead-zinc-silver deposits. Silver City Mining Ltd is expected to be listed on the ASX in June 2011, raising up to $12M.
Variscan Mines SAS	Unlisted	10	Variscan was incorporated in Dec 2010 for the purposes of acquiring advanced and brownfield opportunities in Europe and northern Africa. Variscan is based out of Orleans in France, but as an EU registered company has the ability to operate anywhere within the EU. Major activity to date has focused into France.

ANNEXE 4b : traduction de la pr®sentation de Variscan Mines Limited et rapport annuel

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Pr®sentation de Variscan Mines Limited

Historique et Affaires

Variscan Mines Limited est enregistrée à la Bourse Australienne (ASX = Australian Stock Exchange) depuis 1987. Ses principales activités sont l'exploration et l'estimation de gisements potentiels en métaux de base et métaux précieux. Variscan Mines Limited possède également de substantielles parts d'investisseurs dans d'autres compagnies d'explorations minières, également listées à la Bourse australienne (ASX). Durant les 3 dernières années PlatSearch et ses associés ont levé plus de 33 millions de $ australiens (environ 25 M€ constitués de 21 millions de $A à ce jour plus 12 millions $SA attendus de la compagnie Silver City IPO) pour soutenir ses activités d'explorations minières et en particulier celles de Variscan Mines.

En 1990, la compagnie a fait évoluer ses objectifs de recherche de métaux précieux vers la recherche de grands gisements de métaux de base de classe mondiale. Comme ces gisements ont en général des signatures magnétiques et/ou gravimétriques, leur sélection comme nouvelles cibles d'exploration fut basée sur l'analyse et l'interprétation de nombreux documents et données collectées lors de levés géophysique au sol ou aéroportée, qui sont devenus publics et largement accessibles à travers toute l'Australie dans les dernières décennies.

Variscan Mines Limited possède un portfolio d'environ 39 titres d'exploration en Australie, qui couvrent une superficie d'environ 12 763 km^2. À partir de ces titres miniers l'équipe dirigeante expérimentée de la société a identifié de nouvelles cibles potentielles, en se basant sur l'interprétation des données géophysiques, géochimiques et géologiques disponibles et en initiant des travaux d'exploration de terrain complémentaires incluant des sondages. En se basant sur les résultats obtenus les techniciens de Variscan Mines Limited ont déterminé s'ils devaient ou non poursuivre l'exploration et l'évaluation du titre minier travaillé sur leurs propres fonds ou si ils devaient rechercher des partenaires auprès d'autres compagnies d'exploration minière.

Bien que le plan industriel de Variscan Mines Limited (*business model*) soit surtout basé sur l'exploration, la compagnie a diversifié ses actions de simple partenaire explorateur vers celles d'une vraie « junior d'exploration» qui valorise ses investissements dans la compagnie en plaçant ses avoirs dans des entités contrôlées par Variscan Mines Limited via la bourse ASX

Cette approche permet à Variscan Mines Limited de bâtir un solide portefeuille d'investisseur avec des avoirs dans de nombreuses sociétés listées lui permettant ainsi de mobiliser librement des fonds disponibles pour générer de nouvelles cibles à explorer et de poursuivre le développement des projets existants. Quatre de ces sociétés ont été créées et développées par Variscan Mines Limited à travers

des accords d'association avec des acteurs industriels. Les quatre Compagnies sont : Eastern Iron Ldt, WPG Resources Ltd, Thomson Resources Ltd, Silver City Mining Ltd. L'autre compagnie en portefeuille est Aguia Resources Ltd. Quatre de ces cinq compagnies sont inscrites à la bourse australienne (ASX) pour une capitalisation globale de 374 millions de dollars australiens (environ 319 millions €) au 25 février 2011.

Plus de détails sur la compagnie sont présentés ci-dessous .

Variscan Mines Limited a levé ces fonds initialement par ;

(i) création de nouvelles actions ou d'avances d'actionnaires pour financer ses activités d'exploration

(ii) droits issus de ses participations actionnariales

(iii) sécurisant ses liquidités convertibles

(iv) inscrivant ses filiales à la bourse pour financer leurs activités respectives pour l'industrie d'exploration

En 2008 un apport conséquent en actions et droits associés a été réalisé pour Mr KWAN Chee Seng, un homme d'affaires de Singapour qui a investi 1 M $A dans Variscan Mines Limited pour un ensemble cumulé de 8,1 % des actions de la compagnie. Il est administrateur non exécutif de Variscan Mines Limited.

Plus de détails sur la composition du conseil d'administration et les hommes clés de la compagnie sont résumés dans le tableau ci-dessous.

Avec ces changements au sein du conseil et dans les actionnaires ainsi que dans ses métiers de base, Variscan Mines Limited a modifié sa stratégie et a démarré récemment ses actions hors Australie ; c'est ainsi qu' elle vient de créer une filiale qu'elle détient entièrement : Variscan Mines SAS , une société basée en France et de droit français qui a ouvert des bureaux à Orléans avec deux géologues français très expérimentés dans le but d'étudier et de développer les gisements potentiels français et européens.

Suite à l'analyse prospective détaillée de la géologie et de la métallogénie en Europe et plus particulièrement en France, Variscan Mines a poursuivi ses souhaits d'investissements en exploration pour acquérir ou découvrir des projets en métaux de base et métaux critiques ainsi que précieux. Couflens, 9ème PERM demandé annonce, pour Variscan Mines, la fin d'un cycle de demande de PERM à explorer dans les années à venir, en utilisant les méthodes disponibles les plus modernes pour définir des gisements d'intérêt économique et si possible jusqu'à l'étude de faisabilité et le projet minier. Toute activité minière sera conçue aux meilleurs standards internationaux en terme de protection de l'environnement, de sécurité des populations et avec une gouvernance locale impliquant les communautés locales (NB : ces notions sont développées dans la description du programme de travaux).

Variscan Mines a commencé ses travaux d'exploration sur le PERM Tennie puis sur le PERM Saint-Pierre, deux permis déjà signés (juillet 2013 et février 2014). Sur ces deux dossiers les travaux ont commencé par la réalisation d 'un état environnemental initial (Tennie) associé à une étude de structurale détaillée de la géologie régionale (Saint-Pierre).

Composition du Conseil dôadministration de Variscan Mines Limited

Nom	Fonction Nationalit®	Description
Patrick Elliot	**Pr®sident non -ex®cutif**

	Malaisien	Depuis 2008, Dr Foo est le PDG Luminor Capital Pte Ltd qui g¯re des fonds pour les investisseurs en ressources min®rales, ®nergies renouvelables et technologies de recyclage. Il est ®galement administrateur de PEC Ltd, une soci®t® list®e ¨ la bourse de Singapour (Singaporean Stock Exchange).
Alan Breen	**Administrateur non-ex®cutif** **Australien**	Alan, administrateur de le 6 octobre 2011, est un m®tallurgiste avec 35 ans d'exp®rience en tant qu'op®rationnel et/ou cadre pour diverses mati¯res premi¯res en Australie, Europe et Afrique. Il a occup® des postes de cadre confirm® chez Xstrata, Rio Tinto Aluminium et, plus r®cemment, chez Ok Tedi Mining o½ il fut directeur g®n®ral pendant 4 ans. En 2012-13 Alan ®tait consultant pour Harmony Gold (Etude de Pr®faisabilit®) pour le projet Wafi/Golpu project en Papouasie-Nouvelle Guin®e. Alan a ®t® directeur des soci®t®s Britannia Refined Metals Limited, Brittannia Recycling Limited, MIM Holdings (UK) Ltd et Ok Tedi Mining Limited.
Dr Jack Testard	**Adminsitrateur ex®cutif** **Fran- ais**	Dr Testard est un g®ologue fran- ais avec 40 d'exp®rience en Europe, Afrique, CIS countries, Turquie, Arabie saoudite et Guyane fran- aise. Jack a ®t® responsable du service des ressources min®rales au BRGM, pr®sident du GIP GEODERIS and directeur de la mine d'or d'Ovacik en Turquie, d®pendant de Normandy La Source. Dr Testard est le pr®sident de Variscan Mines SASU fran- aise d®tenue ¨ 100% par Variscan Mines Limited, bas®¨ Orl®ans, France. Jack est devenu directeur le 14 Mai 2014. Jack actuellement pr®sident de la Chambre des mines, tr®sorier de la F®d®ration des Min®raux et m®taux non-ferreux (FEDEM) et membre du conseil d'administration de la Soci®t® de l'Industrie Min®rale (SIM).
Ivo Polovineo	**Secretaire** **Australien**	Ivo a ®t® pendant 12 ans, directeur financier et secr®taire g®n®ral de la soci®t® Sino Gold Mining Limited, enregistr®e ¨ l'ASX 100 (of $100 million de capitalisation avant son acquisition par Eldorado Gold Corporation en d®cembre 2009, pur environ $2.400 millions. Ivo est affili® ¨ l'Institute of Public Accountants (FIPA) depuis 30 ans comme directeur financier CFO et secr®taire g®n®ral, dont plus de 20 ans dans le domaine des ressources. Ivo est aussi a non-ex®cutive directeur d'Eastern Iron Limited et secr®taire g®n®ral de Silver City Minerals Limited, de Thomson Resources Ltd et de KBL Mining Limited. Il est aussi consultant pour la soci®t® Lynas Corporation Ltd, enregistr®e aussi ¨ l'ASX 100.

£quipe dirigeante et technique de Variscan Mines Limited

Variscan Mines Limited a un total de 10 g®ologues qui cumulent approximativement 250 ans dôexp®rience dans lôindustrie min®rale*.*

Nom	Fonction Nationalit®	Exp®rience
Gregory DeRoss	**Pr®sident Directeur G®n®ral de Eastern Iron** **Australien**	Gregory De Ross est un g®ologue avec plus de 30 ans dôexp®rience en direction dôexploration et de mine. Son exp®rience inclut des r¹ les vari®s dans les secteurs couvrant les domaines de gestion de lôexploration mini¯re, des ®tudes de faisabilit®, de la valorisation des ressources, et lôextraction des substances telles que les m®taux pr®cieux, lôuranium, les sables lourds, le charbon, et le minerai de fer. Il est membre de lôAustralasian Institute of Mining and Metallurgy, ainsi que de la Society of Economic Geologists.
Ivo Polovineo	**Secr®taire g®n®ral** **Australien**	Ivo Polovineo est un comptable de plus de 30 ans dôexp®rience comme CFO et secr®taire, dont 20 ans dans le secteur des ressources min®rales. Il a ®t® CFO et secr®taire de Sino Gold Mining Limited et ®galement secr®taire deLynas Corporation Ltd, une des 100 premi¯res compagnies cot®es en bourse (ASX). Il est secr®taire de Thomson Resources Ltd, administrateur non ex®cutif de Galaxy Resources Limited et dôEastern Iron Limited. Il est membre du Professional Member of National Institute of Accountants (PNA).
Wendy Corbett	**Directeur de la G®ologie** **Australienne**	Wendy Corbett est la directrice de la g®ologie depuis 1995 et elle a plus de 35 ans dôexp®rience en exploration min®rale et administration. Elle est sp®cialis®e dans la gestion des titres miniers et dans lôorganisation de lôexploration, elle est membre de ç Australian Institute of Geoscientists è.
Nigel Maund	**Responsable du d®veloppement** **Britannique**	Nigel Maund a ®t® le directeur du d®veloppement entre 2010 et d®but 2014. Il a plus de 35 ans d'exp®rience dans l'exploration et la d®couverte d'or, de m®taux de base et d'uranium tant en Australie qu"¨ l'®tranger. Nigel se sp®cialise dans le ciblage et l'®valuation des g´tes min®raux pour le groupe. Il est depuis 2014 CEO de la soci®t® Arcturus bas®e ¨ Dun en Ari¯ge et sp®cialis® dans lôexpertise mini¯re.
Gregory MacRae	**G®ologue SIG Senior** **Australien**	Gregory MacRae rejoint la soci®t®en 2008. Côest un g®ologue exp®riment® sp®cialiste des bases de donn®es et de la gestion de l'information GIS. Il est membre de l'Institut australien ç Australian Institute of Geoscientists è.
Jyrki Pienmunne	**Geologue SIG** **Norv®gien**	Jyrki Pienmunne a plus de 20 ans d'exp®rience. Il rejoint Variscan Mines Limited en 2010 et se sp®cialise dans la compilation, l'®valuation et la synth¯se des donn®es g®ologiques et g®ochimiques et leur interpr®tation dans un environnement GIS.
Chris Hosie	**G®ologue dôexploration S®nior** **N®oz®landais**	Chris Hosie est un g®ologue avec 7 ans d'exp®rience en exploration principalement de minerai de fer et d'or. Chris g¯re directement les activit®s d'exploration de la soci®t® dans l'Australie-M®ridionale et le Queensland (NSW).
Michelle Lilley	**Contr¹ leur Financier** **Australienne**	Michelle Lilley est une comptable dipl¹ m®e et agr®®e et a ®t® le contr¹ leur financier depuis 2009. Elle a plus de 15 ann®es dôexp®rience dans la comptabilit® financi¯re et la gestion. avant de rejoindre Variscan Mines Limited, elle ®tait un contr¹ leur financier dans une soci®t®de biotechnologie inscrite ¨ la bourse australienne (ASX).

£quipe dirigeante et technique de Variscan Mines SASU

Nom	Fonction Nationalit®	Exp®rience
Dr Jack Testard	**Pr®sident Variscan Mines** **Fran- ais**	Jack Testard est un g®ologue avec une exp®rience de plus de 40 ann®es dans l'industrie mini¯re europ®enne, essentiellement avec le BRGM dont il fut le responsable des ressources min®rales, premier pr®sident du GIP Geoderis charg® de lœexpertise dûapr¯s mine en France et ancien PDG de la filiale Eurogold de Normandy LaSource. Jack Testard (conseiller du commerce ext®rieur de la France) est le pr®sident de la Chambre Syndicale des Industries mini¯res de la Fedem.
Dr Michel Bonnemaison	**Directeur g®n®ral** **Variscan Mines** **Fran- ais**	Michel Bonnemaison est un g®ologue hautement qualifi® avec plus de 35 ans d'exp®rience, sp®cialiste en m®tallog®nie, en exploration mini¯re et gestion ®lectronique des donn®es. Michel Bonnemaison a ®t® PDG de la soci®t® mini¯re SEIEMSA en Espagne et enseignant ¨ lœ£cole Sup®rieure des Mines de Madrid. Michel Bonnemaison g¯re les op®rations quotidiennes de Variscan Mines SASU et contribue au choix et ¨ l'®valuation de nouveaux projets en Europe.

£quipe technique de Variscan Mines SASU

Nom	Fonction Nationalit®	Exp®rience
Dr Eric Marcoux	**Consultant expert** **Fran- ais**	Eric Marcoux est un g®ologue hautement qualifi® de 30 ans dœexp®rience, sp®cialis® en ressources min®rales, en min®ralogie appliqu®e et en m®tallog®nie. Durant 16 ans au BRGM Eric Marcoux a particip® et anim® de nombreux programmes de recherche scientifique et dœexploration mini¯re. Professeur ¨ lûuniversit® dœOrl®ans depuis 1998, il est en charge dûun master international sp®cialis® en ressources min®rales co-habilit® avec lûUQAM de Montr®al. £galement charg® dœenseignement ¨ lœENSG de Nancy, Eric Marcoux a un r¹le dœexpert-consultant charg® dûidentifier, dœ®valuer et de documenter les cibles mini¯res de Variscan Mines.
Maxime Picault	**G®ologue** **Fran- ais**	Maxime Picault, 24 ans, est un g®oloque diplom® du Master 2 de lûuniversit® dœOrl®ans en octobre 2011, master international co-habilit® avec lûUQAM (Canada). Ses comp®tences en ressources min®rales et en logiciels appliqu®s ¨ lœexploration (ARCGIS) lui permettent dœassurer les t©ches courantes de choix, d®limitation et impression des PERM de Variscan Mines, de synth¯se et mod®lisation des donn®es correspondantes (bibliographie ï GKR- et calcul de r®serves - SURPAC) et dœexploration mini¯re sur le terrain.
Guillaume Raoult	**G®ologue** **Fran- ais**	Guillaume Raoult, 23 ans, est un g®ologue diplom® du Master 2 de lûuniversit® dœOrl®ans en octobre 2011, master international co-habilit® avec lûUQAM (Canada). Ses comp®tences en ressources min®rales et en logiciels appliqu®s ¨ lœexploration (ARCGIS) lui permettent dœassurer les t©ches courantes de choix, d®limitation et impression des PERM de Variscan Mines, de synth¯se et mod®lisation des donn®es

		correspondantes (bibliographie ï GKR- et calcul de r®serves - MICROMINE) et d'exploration mini¯re sur le terrain.
Dr Patrick Lebret	**G®ologue** **Fran- ais**	Recrut® au 15 avril 2012, Patrick Lebret, 55 ans, est g®ologue (th¯se ¨ Rouen sur les Formations superficielles). Il a travaill® en g®otechnique des sols gel®s (LCPC), fait de la maitrise d'œuvre en VRD (Saint Etienne du Rouvray), de la g®ologie appliqu®e ¨ l'arch®ologie (CNRS). Au BRGM, il a contribu® au lever de cartes g®ologiques, ¨ de la recherche sur les formations superficielles. Il a encadr® diverses ®quipes : fabrication des cartes, cellule ®dition, direction des SGR de Haute et de Basse Normandie, Intelligence ®conomique et mat®riaux. D®but 2012, il ®tait le correspondant de service public du Brgm au Minist¯re pour le th¯me des ressources min®rales et, entre autres, chef du projet sur l'observatoire des mat®riaux.
Anne-Sophie Audion	**G®ologue** **Fran- ais**	Recrut®e le 2 juin 2014, Anne-Sophie Audion, 28 ans, est g®ologue issue de l'ENSG (2010). Ing®nieure au BRGM jusqu'en juin 2014, elle a eu l'occasion de travailler sur des projets aussi vari®s que la r®®valuation du potentiel minier fran- ais, des campagnes d'exploration pour l'or au Qu®bec les bauxites de Guin®e, la gouvernance sur les mati¯res premi¯res min®rales ou des synth¯ses par m®tal (Tungst¯ne, Tellure, Antimoineé).
Dr J®r¹ me Gouin	**G®ologue** **Fran- ais**	Recrut® le 1 juillet 2014 comme chef de projet du PERM Saint-Pierre, J®r¹ me Gouin, 33 ans, est g®ologue (PhD) issu de l'universit® d'Orl®ans. Il a travaill® au BRGM sur des inventaires cartographiques de ressources min®rales au Gabon ou au Congo, des projets d'exploration de gisements de fer ou de bauxite en Guin®e, ou l'analyse d'occurrences via la r®alisation de SIG en France ou pour d'autres pays . Il a de plus fait sa th¯se sur la relation entre mati¯re organique et concentrations en m®taux de base.

L'équipe actuelle sera agrandie dès l'attribution de titres miniers et le début des travaux en fonction des engagements financiers annoncés et des programmes acceptés.

Il est prévu de nommer un chef de projet résident sur site qui aura en charge la planification des travaux de terrain, leur réalisation (sondages variés) et de recruter avec une priorité aux compétences locales les employés ou sous-traitants nécessaires à la réalisation des travaux.

Les programmes lourds exigeant une compétence particulière (tels que géophysique, sondages …) seront sous-traités à des spécialistes et supervisés par un expert employé par Variscan Mines.

ANNEXE 4c : rapport annuel 2014 de Variscan Mines Ltd

VARISCAN MINES





Annual Report 2014





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ASX: PTS

Chairman's Letter

Dear Fellow Variscan Shareholders

The past year has been one of ongoing progress in implementing our strategy of developing our exploration interests in Europe, and especially France. To date, the progress has been modest as we learn the nuances of the French regulatory systems. To this extent the year may be considered somewhat disappointing as a year ago we were expecting to be further advanced than we are now. However, we anticipate that the pace of PER license awards and on-ground work will accelerate through the coming year.

It is timely to repeat the rationale behind our focus on France. Mineral exploration and development in France almost entirely ceased some 20-25 years ago primarily for socio-political reasons. It most certainly was not for any lack of attractive geology as France has an excellent endowment in many areas for gold, base metals, tin, tungsten and other metals. When the French Government changed its policies to attract mineral exploration and development within France we saw a significant, albeit long term, opportunity.

Our strategic options some four years ago were to:

1. pursue targets in well-explored and sound fiscal jurisdictions e.g. Australia where the critical success factor was exploration insight that our competitors did not have; or
2. move to more challenging political jurisdictions where there is a strong geological appeal that is under explored e.g. West Africa; or
3. move to a sound fiscal jurisdiction which is underexplored e.g. Europe.

France fits the last category which we believe reduces both the exploration risk and the political risk.

We established a small and locally well experienced French management team, headed by Dr Jack Testard, who has now also joined our Board of Directors.

This team quickly identified a number of quality exploration targets which include a broad range of advanced opportunities. Some of these have well defined ore deposits from the 'Pre JORC' era with considerable potential for additional discoveries. We consider these to be significantly lower geologic risk than pursuing earlier stage exploration in Australia or elsewhere.

To date, we have been awarded two exploration licenses or PERs (Permis Exclusif de Recherche), St Pierre and Tennie, both located in Brittany. During the year, we commenced an extensive hand auger soil sampling program over parts of the Tennie PER, the first mineral exploration conducted in the country for many years.

In addition to Tennie and St Pierre, Variscan has a further seven PER applications within the approvals process. Each of these covers projects with good potential for short term resources generation and/or major new discoveries. We expect a number of these PER applications will be granted through the coming year which will lead to a significant acceleration in on-ground exploration work, including drilling.

Outside of our activities in France, we have reduced our focus on exploration in Australia but remain alert for any opportunities that we believe are especially interesting from a risk/reward perspective. Our new ventures effort has primarily been focused on targets in Spain, Portugal and Morocco where our France-based geological team have extensive knowledge and experience.

With respect to Variscan's investments, they each have significant upside potential on either an improvement in general mineral exploration market conditions or from exploration results. Unfortunately, these did not transpire in the past year to give us some recognition of our investments individual potential.

During the year the overall Australian share market measured by the S&P/ASX All Ordinaries Index rose by around 6%. The Small Resources Index performed somewhat better with a 12% gain. This Index is mainly comprised of companies in production rather than explorers such as Variscan. The exploration sector is better measured by the S&P/ASX Gold Stocks Index which remains some 70% lower than three years ago. Further, many individual shares have performed significantly worse. However, we feel this Index and many exploration stocks appear to be 'bumping along the bottom' which may be a precursor to better performance in the coming year.

As always, there are many big picture concerns in the financial markets. Apart from the obvious geo-political tensions, the major concerns revolve around future policy settings by the major central banks. In the past several years, in response to deflationary concerns, the Central Banks have flooded their

economies with liquidity resulting in extremely low interest rates by any historical standard. Whilst this liquidity injection has been a large factor behind improved share markets, it has not resulted in any significant upturn in economic growth, employment or inflation. However, there are signs, outside of Europe, that economic growth is starting to pick up somewhat. This leads into the inevitable debate about when and under what conditions the Central Banks will tighten liquidity. We continue to believe that the Central Banks will move slowly and that liquidity conditions will not be a constraint in either equity or commodity markets – even if interest rates do increase somewhat.

With some signs of improving global economic activity the outlook for commodities demand remains favourable especially from China and India where growth rates remain well above developed country levels. Unfortunately, the delayed supply response to higher prices in iron ore and coal has led to those prices becoming quite depressed. Fortunately, at current price levels in both these commodities the higher cost producers will be under pressure to close and the market balance will be restored.

From a Variscan viewpoint, the depressed iron ore prices have affected our 3.8% owned associate, Eastern Iron Limited, which is completing a Definitive Feasibility Study on the Nowa Nowa iron ore deposit in Victoria.

Elsewhere, our other significant investments – Silver City Minerals Limited and Thomson Resources Ltd – are focused on base metals and gold exploration targets. For these commodities the pricing has generally remained range bound over the past year but we believe the outlook is for improved prices. This is mainly driven by constrained supply increases in the face of demand growth.

During the year the exploration activity for both Silver City Minerals and Thomson Resources has been limited by a need to conserve capital. Nevertheless, Silver City Minerals has made good progress at its Sellheim, Queensland Intrusive-related gold property and the Razorback West base metals property near Broken Hill, NSW.

Variscan is in good financial shape. At year end we had cash of $2.41 million and listed resource investments with a market value of $3.8 million. These levels are less than a year ago as we have used our cash to execute our France strategy and our listed exploration investments remained affected by general market conditions.

Finally, I would like to acknowledge the dedication and hard work of our executive and staff led by our Managing Director, Greg Jones. The team remains enthusiastic despite generally moribund background market conditions as they position Variscan to participate strongly in the inevitable upturn.

The coming year offers a lot of promise as we step up our field activity in France and see more attractive PERs granted. We are well poised for exploration success in France.

Pat Elliott
Chairman



Operations Review

Exploration

FRANCE

Overview

Variscan was granted its first French exploration licence in June 2013 following three years of patient work to identify and secure high quality projects in regions of demonstrated mineral endowment outside Australia.

As detailed in the last annual report, through its wholly owned European subsidiary Variscan Mines SAS, the Company has established and equipped an office in Orleans, France and employed a team of experienced French geologists. Variscan compiled one of the largest and most complete dataset of the geology and mineral deposits of Western Europe and from this, identified, ranked and subsequently applied for a number of prospective mineral projects within Metropolitan France.

The Company has targeted the region due to its favourable geology (notably rocks from the Variscan period), strong mineral endowment, good infrastructure, skilled workforce and moderate sovereign risk.

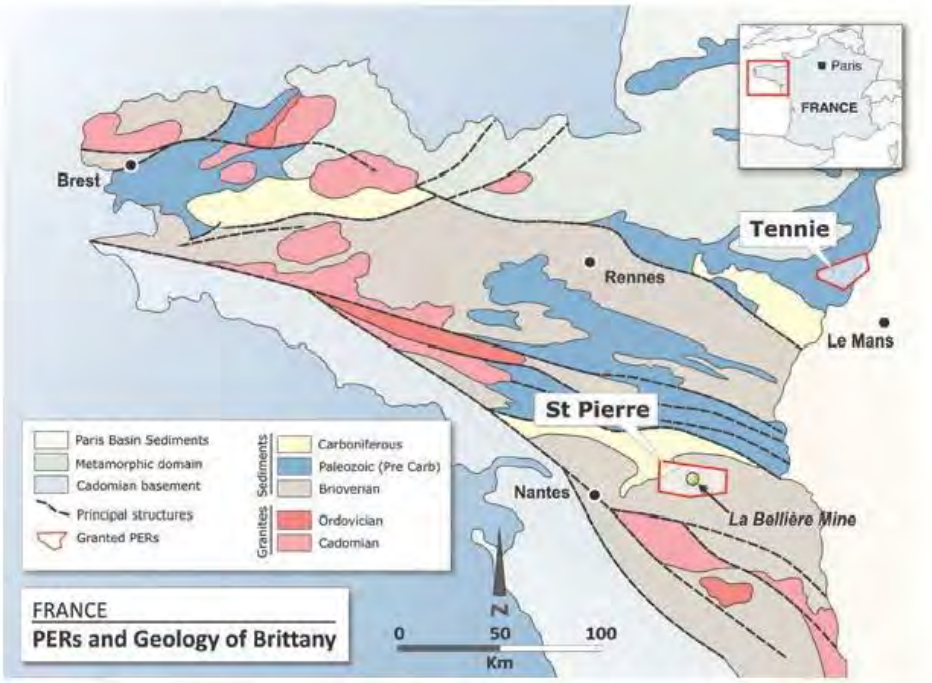
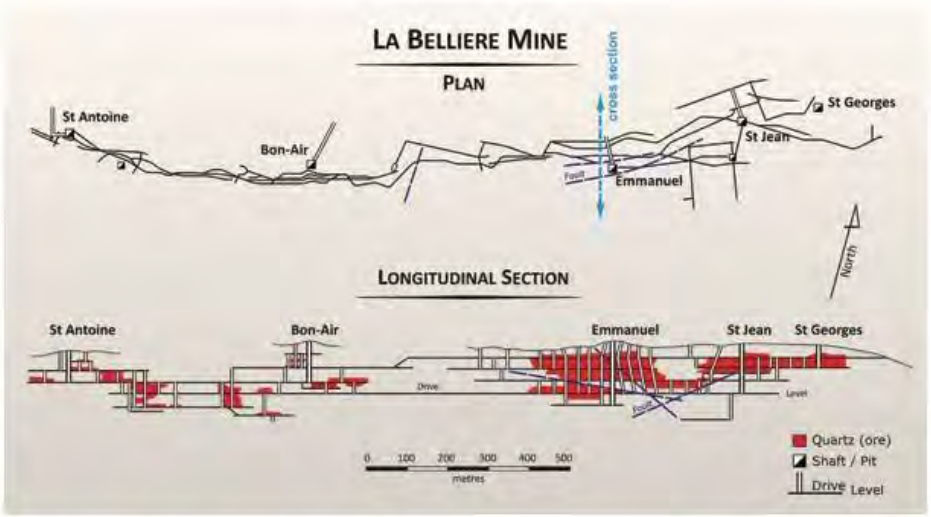


Figure 1: Variscan PER locations in Brittany



In the last 12 months the Company has received approvals for one additional licence (termed a PER) and has a number of others well advanced within the approvals process.

Saint Pierre

The Saint Pierre PER was granted in February 2014 and is located approximately 50 kilometres east of Nantes, Brittany. The licence covers an area of 386 square kilometres (Figure 1) over an important gold district believed to have been the third largest gold producer in France.

Within the licence lies the La Bellière gold mine which is recorded to have produced about 334,000 ounces of gold* (plus silver) from 1906 to 1952 up to a maximum depth of 170 metres intermittently over a strike length of about 1.6 kilometres (Figure 2). The average production grade was 12 g/t gold, mined from a series of stacked, high grade veins hosted within an east-west oriented shear zone. The high grade quartz – sulphide veins individually vary in true thickness from 1 to 16 metres and dip steeply to the south (Figure 3).

* C Louis. Les exploitations minières dans le Massif Armoricain. Déclin ou progrès. In Norois. N°141, 1989. pp. 5-3

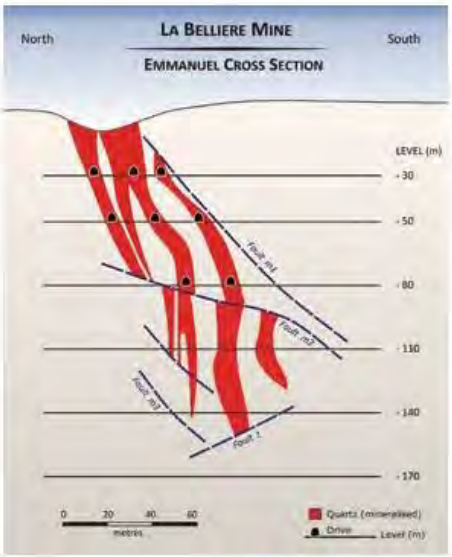
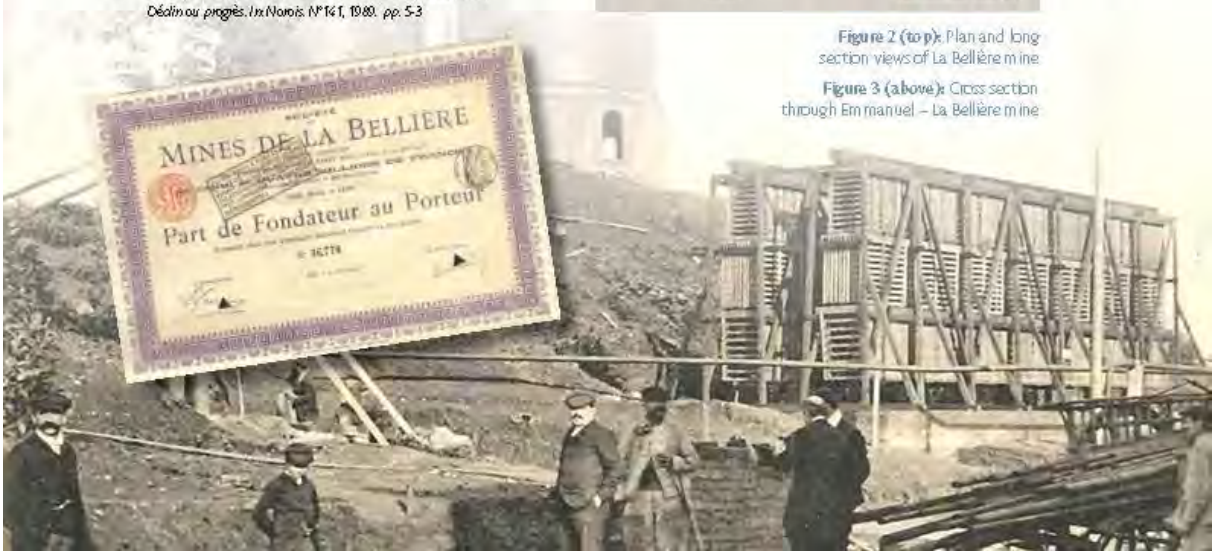


Figure 2 (top): Plan and long section views of La Bellière mine

Figure 3 (above): Cross section through Emmanuel – La Bellière mine





Variscan has commenced compiling and electronically converting all available records from the old mining area as well as former exploration conducted by the BRGM (Bureau de Recherches Géologiques et Minières – the French Geological Survey) during the 1980's. With the help of structural studies currently being conducted by the University of Orleans, the Company is constructing a 3D model of the mine which will be used to help elucidate the complex structural controls on mineralisation that are evident and target possible surface core drilling. This work is now well advanced.

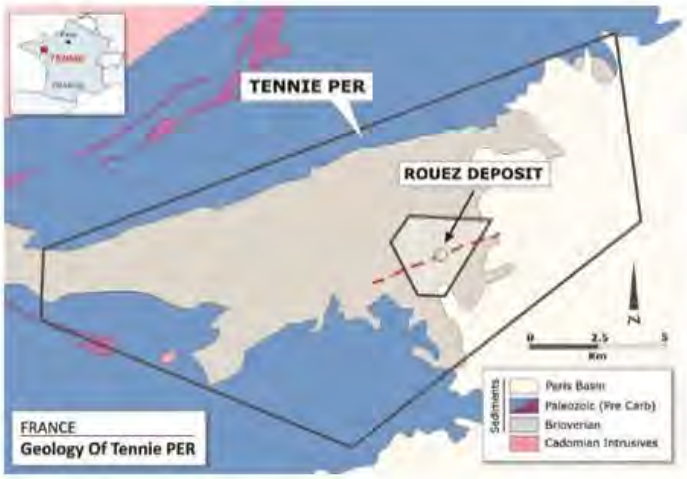
In addition, to the north and south of La Bellière old data indicates the presence of parallel shears, highlighting the potential for additional gold deposits within the immediate proximity of the mine and throughout the remainder of the St Pierre PER. The Company has commenced a detailed auger soil geochemistry programme in the mine region to help generate additional drilling targets. Preliminary results are expected later in 2014.



Tungsten-rich rock sample under UV light from a project area under PER application. The intensely fluorescent mineral is scheelite.



Figure 4: Tennie PER Geology



Tennie

The Tennie PER covers 205 square kilometres of the eastern section of a Palaeozoic sedimentary package which hosts the Rouez copper-gold-lead-zinc-silver deposit (Figures 1 and 4) owned by the French energy group, TOTAL. Rouez is considered to be possibly either VMS or a hybrid SEDEX type and shares a number of geological similarities to deposits such as Rio Tinto and Aljustrel within the Iberian Pyrite Belt of Spain and Portugal.



In late 2013 Variscan commenced an auger soil geochemical survey within the PER which is believed to be the first significant mineral exploration programme conducted in France for decades. The initial programme involves shallow hand auger drilling on a 200 x 200 metre grid over the accessible areas of fertile Brioverian rocks, to penetrate the thin transported loess horizon that blankets the area and thus may hide potential mineral deposits. Work is continuing.

Future Projects

The granting of the exploration licences to Variscan follows the stated intention of the French Government to reinvigorate the minerals sector of Metropolitan France. Although France has a healthy mining history, a strong demonstrated mineral endowment and a workable mining code, the country is unusual in that it currently does not have any metal mines of consequence and, until the granting of the Tennie PER last year, had no active mineral exploration licences. No other major developed economy shares this position.

It is the Company's understanding that PERs are the first new mineral exploration licences granted in France for more than two decades, reflecting the capacity of Variscan to work within the French Mining Code.

Variscan has six other exploration licence applications within the approvals process, each of them over projects with good potential for short term resource generation and/or major new discoveries. The Company has deliberately targeted more advanced project areas containing previously defined mineralised zones or evidence of substantial old mine workings to help fast track the discovery of economic deposits.

INVESTMENTS

Variscan maintains a diversified portfolio of investments within a number of ASX-listed resource companies. The value of the Variscan shareholdings in its ASX listed resource companies at the end of the year stood at approximately $3.8 million.

AUSTRALIA

In 2014 Variscan relinquished a number of its Australian grass roots exploration properties due to its focus in France. Joint venture interest for new exploration properties has been very subdued for the last few years and despite the good quality of some of the tenements, efforts to attract additional joint venture funding was not successful to maintain many of the tenements.

During the year exploration of Variscan's current joint venture properties was subdued in line with the general restricted risk capital availability in the bearish markets. During 2014 a total of $0.26 million was spent by Variscan's joint venture partners verses $0.7 million from the previous year.

EASTERN IRON

Eastern Iron Limited (ASX: EFE) continued with its Mine Feasibility Study on the Nowa Nowa iron project located near Bairnsdale in eastern Victoria, 270 kilometres east of Melbourne.

During the year Eastern Iron undertook a short program of RC drilling to upgrade part of the Inferred Mineral Resource at Five Mile to higher confidence categories for inclusion within a mining study. The results were consistent with assays reported from earlier drilling completed by the Victorian Department of Mines in the 1950's. Significantly it was noted that the thickest intersections were in the easternmost holes NRC044, NRC045 and NRC047 with the resource still open in this direction (Figure 5).

Additional confirmatory metallurgical work was also completed using large, pilot-scale, dry, low intensity magnetic separation (Dry LIMS) equipment to enhance recoveries. Overall results exceeded expectations with significant improvement in the average product grade to 58% iron (versus 56% iron in the feasibility study), at an average iron recovery of more than 90%.



Figure 5: Drilling at Nowa Nowa (courtesy of Eastern Iron)

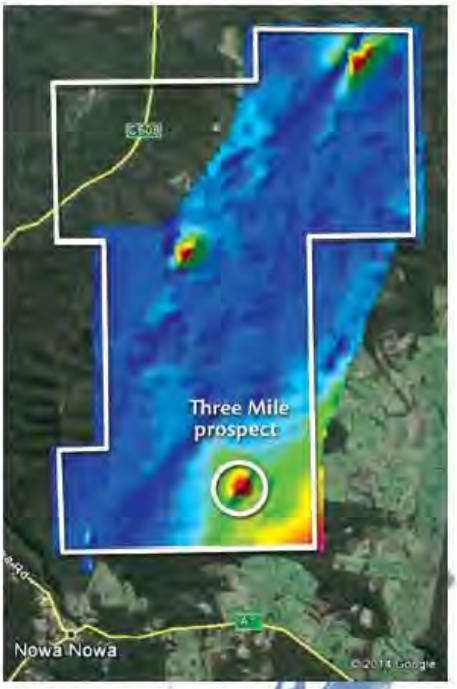


Figure 6: Channel 35, Z component VTEM image from Nowa Nowa (courtesy of Eastern Iron)

Upgrade factors (ie. from feed grade to product grade) suggest that the Dry LIMS is highly effective in its application to the Nowa Nowa ore, even at a relatively coarse feed size of -6mm. The technique was also successful in reducing sulphur grades to well below 1% sulphur in product.

Also during 2013, Eastern Iron announced a number of significant steps in the progression of the project. These included –

1. The successful granting of a mining licence (MIN 5571)
2. Reaching a native title agreement with GLaWAC representing the Gunaikurnai people, the recognised native title holders of the area.
3. The agreement by the Victorian Government to contribute up to $300,000 towards feasibility study relating directly to the infrastructure requirements of the project.

Following a decision by South East Fibre Exports Pty Ltd (SEFE) the owners of the SEFE bulkship loader and wharf facility at the Port of Eden, not to enter into a formal agreement to allow the use of the SEFE facility for loading iron ore the company commenced review of other shipping alternatives including the use of the multi user "Naval" wharf which is adjacent to the SEFE wharf.

On 2 September 2014 Eastern Iron reported that it had completed a detailed heli-borne electromagnetic VTEM survey over the Nowa Nowa exploration licence. The survey was completed following a review of previous exploration and the identification of extensive Silurian volcanics believed to be the same rocks that host important volcanogenic massive sulphide (VMS) deposits in Victoria and NSW such as Woodlawn and Benambra (Stockman), approximately 100 kilometres to the north.

Drilling carried out by previous explorers within the Nowa Nowa area intersected significant copper, lead, zinc and gold mineralisation in altered volcanics and sediments, with a best intersection of 13.6 metres assaying 3.8% copper at the Three Mile prospect in the south eastern corner of the licence.

Although final processing of the survey data has yet to be completed, preliminary results indicates the VTEM survey has defined three strong conductors, one of which is located at the Three Mile prospect (Figure 6).

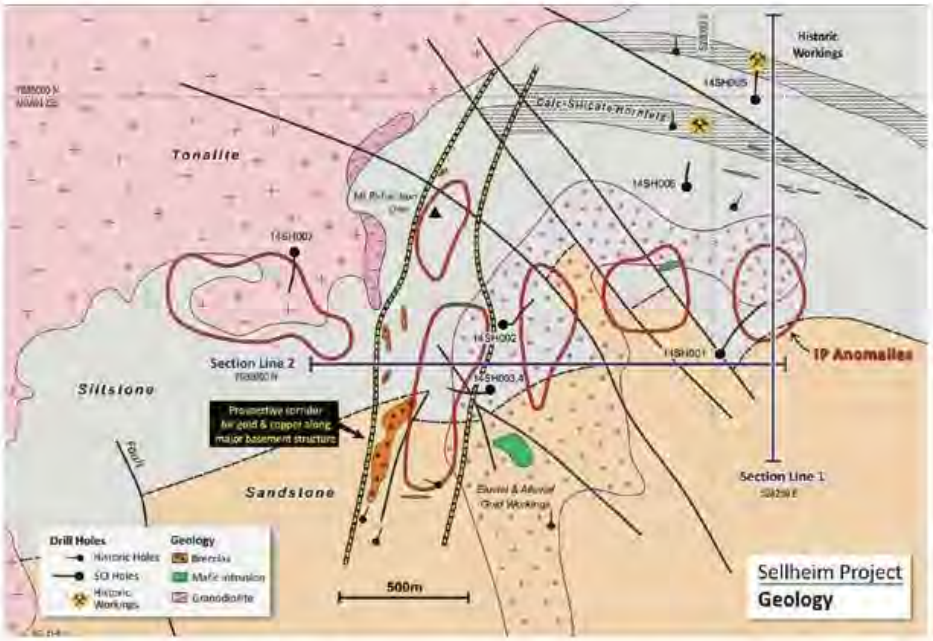


Figure 7: Local geology showing relationship of IP anomalies (modelled at 300 metres below surface) to the eluvial/alluvial goldfield and drill holes. Major structural corridor considered to be favourable for gold-copper mineralisation is shown (courtesy of Silver City)

SILVER CITY MINERALS

Silver City Minerals Limited (ASX: SCI) continued its well-funded programme of exploration within its extensive portfolio of tenements around Broken Hill, NSW and into its new Sellheim copper/gold project in Queensland.

At Sellheim SCI can earn up to an 80% interest in a joint venture over the historic Sellheim gold district near Charters Towers, Queensland, which is considered to have significant potential for large gold deposits associated with intrusive rocks.

Work by SCI during the year included completing a large Induced Polarisation (IP) programme to test beneath the elluvial goldfield and old copper-gold workings. The survey produced a number of very strong (greater than 100 m V/V) and discrete chargeability anomalies grouped in an east-west oriented corridor approximately 1.5 kilometres wide and 4 kilometres long.

SCI tested a number of the anomalies, completing seven diamond core and reverse circulation holes for a total of 2,268.4 metres. The company reported that the drilling returned a number of intersections of gold, copper and silver mineralisation predominantly hosted in skarn alteration and quartz-sulphide veins. The best intersection recorded was 11.1 metres at 0.66 g/t gold and 0.28% copper from 496.9 metres in hole 14SH004 (Figures 7 and 8) hosted in magnetite-quartz skarn close to a major fault and breccia complex.

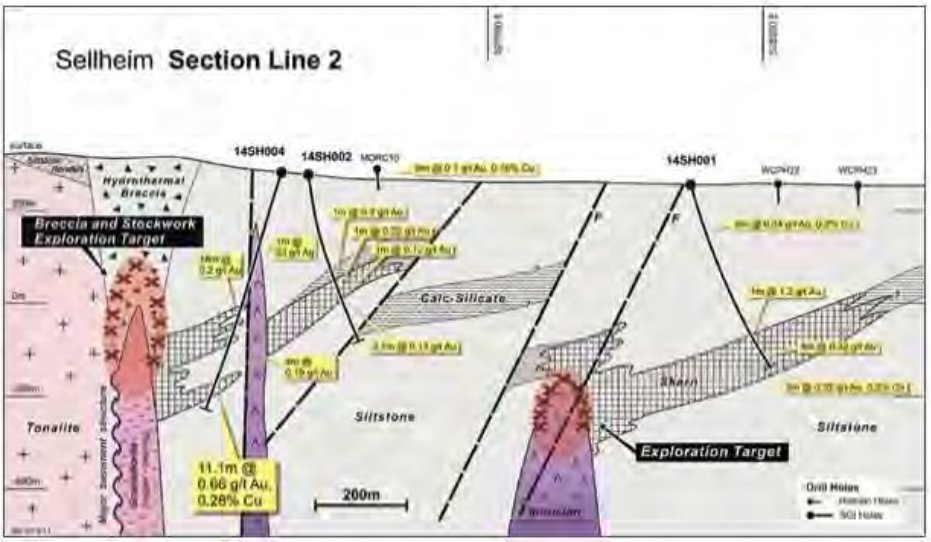
SCI believes that the mineralised skarns formed as a result of fluids emanating from the tonalite intrusion immediately west of Mount Richardson (a north-trending zone of silicification and phyllic alteration with gossanous quartz-sericite rocks and tourmaline breccias), or from other discrete intrusive stocks.

The company has identified a structural corridor at Mount Richardson which it considers to be highly prospective for gold-copper mineralisation. This will be tested with further drilling in Q3 2014.

In the Broken Hill region, drilling below and along strike from old mine workings at Allendale generated a number of high grade, but generally thin lead-zinc-silver intersections within a mineralised corridor approximately 75 metres wide and 450 metres long. Intersections recorded included 10 metres at 3.4% lead, 6.2% zinc and 26 g/t silver in drillhole 12AN035. However, the discontinuous nature of the known mineralisation has not allowed the generation of sufficient tonnage for open pit mining and Silver City completed deeper exploration via a helicopter-borne electromagnetic (EM) survey.

At Razorback West, Silver City believes that the geochemical anomalies previously identified in shallow RAB drilling might represent the northern extension to the famous Broken Hill "line of lode" corridor, offset westward by at fault structure known as the Stephens Creek Shear Zone.

An induced polarisation (IP) geophysical survey by Silver City generated a number of significant chargeability anomalies coincident with the surface lead-zinc geochemical anomalies and a distinctive ridge of elevated gravity. The company drilled a number of RC holes into the IP/geochemical anomalies



intersecting intervals up to 15 metres wide containing concentrations of blue quartz and disseminated pyrite and pyrrhotite (iron sulphides) with minor sphalerite veins (zinc sulphide) typical of BHT deposits. Evaluation work is continuing.

Figure 8: Interpretive cross-section showing holes 14SH001, 002 and 004. Best gold and copper mineralisation occurs close to the contact between intrusions in the west and sediments to the east. This contact zone is marked by the presence of a breccia complex which hosts quartz-tourmaline and quartz-sericite-gossan breccias. A copper-bearing granodiorite recently identified to the north of the breccia complex is interpreted to also underlie it (courtesy of Silver City).

THOMSON RESOURCES

Thomson Resources Ltd. (ASX: TMZ) continued exploration of its base and precious metal targets in the Cobar Basin and Thomson Fold Belt of north-western NSW. The Thomson Fold Belt targets are covered by the margin of the Eromanga Basin and are hosted within rocks believed to be the northern continuation of the Cobar Basin.

Thomson completed drilling at its wholly owned F1 target within the Falcon project area. Three holes were completed, defining another Intrusion-Related mineral system, hosted entirely in granite at the relatively shallow depth of 100 metres below cover. A sheeted vein system with silica and carbonate alteration was intersected with anomalous gold, molybdenum, tungsten, lead and arsenic results recorded.

As part of its new project generation initiative Thomson also acquired a number of new tin, base and precious metal projects outside the Thomson Fold Belt. These included the Havilah Project near Mudgee, central NSW which lies within the Silurian Hill End Trough. It is believed to have strong potential for volcanogenic massive sulphide (VMS) deposits also found in the region such as Woodlawn and Lewis Ponds.

Previous work at Havilah has defined zinc, lead, gold and silver anomalism in soil and rock chip sampling coincident with a strong sericite-pyrite-silica alteration zone hosted in rhyolitic to dacitic volcaniclastics, a typical setting for VMS deposits. Historical drilling largely targeted more distal parts of the alteration system, returning intercepts including 4 metres at 4.0 g/t gold, 81 g/t silver from 2 metre depth in CPDH10.

To test the Havilah and other key prospects within the Thomson portfolio, a VTEM survey (Versatile Time-Domain Electromagnetic geophysical system) was flown. VTEM is widely considered the best helicopter TEM massive sulphide detection and imaging tool with notable successes including the discovery of the Mallee Bull deposit in the Cobar Basin. A total of 564 line kilometres was acquired over five targets: Havilah, Wilga Downs, Furneys, Kenilworth and the Wilgaroon tin-tungsten project. Processing of results is in progress.

WPG RESOURCES

WPG Resources (ASX: WPG) is an iron ore, coal and gold exploration and development company with exploration tenements in South Australia. WPG's current focus is on two advanced gold projects in the Gawler Craton, South Australia - Tunkillia (WPG holds approximately 70%) and Tarcoola (WPG holds 100%) where previous feasibility and scoping studies at Tarcoola, had defined a significant gold resource. In July 2014, WPG announced that it would fast track development of the Tarcoola project with the objective of commencing operations late next year. The company stated that a review of data had confirmed that the Tarcoola gold project could be successfully developed into a heap leach mining operation with an initial mine life of four to five years.

AGUIA RESOURCES

Aguia Resources Limited (ASX: AGR) is an exploration company that has interests in substantial phosphate and potash projects in Brazil, including three highly prospective and potentially large scale phosphate projects, the Lucena and Mata da Corda Phosphate Projects and the Ties Estradas carbonatite-style phosphate project in Rio Grande do Sul, southern Brazil.

COMPETENT PERSONS STATEMENT

The information in this report that relates to Exploration Results is based on information compiled by Greg Jones, BSc (Hons), who is a member of the Australasian Institute of Mining and Metallurgy. Mr Jones is a Director and full-time employee of Variscan NL and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Jones consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.



Mining in Europe

Europe has a long and rich history of mining stretching from early Greek and Roman times through to the present day and is well endowed with mineral deposits that have helped to dramatically shape the history of the region.

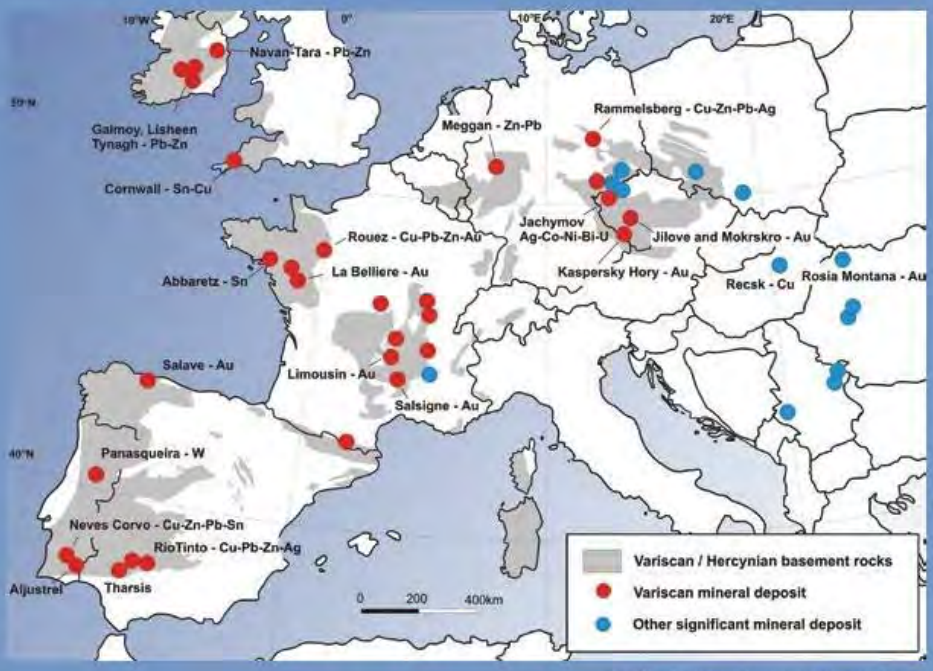
Mineral deposits which have been a crucial part of the development and industrialisation of Europe include –

- the rich silver deposits of Laurion on the Attica coast of Greece,
- the world-class copper, silver and iron deposits of Rio Tinto (Spain) which were the most important source of metals for the Roman empire,
- the tin deposits of Cornwall (UK), source of much raw material used in the Bronze age,
- the high grade silver-copper-lead deposits of Rammelsberg (Germany) which were a crucial factor in supporting the Renaissance.

The importance of European mining was clearly defined by Agricola, who in 1556 published his seminal work "De re Metallica" which '... underlined the crucial role being played in the renaissance of Western life, culture and commerce by the continuing infusion of wealth from the mines of central Europe' (R. Raymond - Out of the Fiery Furnace, 1984).

By any metric, the overall metal endowment of Europe is impressive, especially considering that much of the continent, with the exception of Sweden, Finland and Spain, has remained largely unexplored over the last 30-40 years due to a combination of economic and political issues. Countries considered to have strong geological potential to host additional major mineral deposits include Germany, Bulgaria, Romania, France, Hungary, Serbia, Greece and Macedonia.





Significant mineral deposits in Western Europe

Despite this obvious endowment and capacity to potentially produce large quantities of important and strategic metals, mining in Europe is relatively underdeveloped. Modern Europe currently consumes approximately 30% of world mineral production but only produces about 3%, with some of countries having little mineral mining.

This is predicted to change as European countries:

1. Grapple with increased mineral security concerns given huge rises in demand for metals worldwide, and the emergence of China, South East Asia and Brazil as major economic powers; and
2. Recognise the positive impact that a vibrant mining industry can have on a country's balance of payments, GDP and unemployment.

The EU is witnessing increased political and economic awareness of the importance of a strong metal mining industry. Policy changes in certain countries to encourage exploration and make mining more attractive to investors are anticipated.





Tenement Schedule

AS AT 11 SEPTEMBER 2014

Tenement	Tenement Number	Interest	Joint Venture Details
NEW SOUTH WALES			
Yalcowinna	EL 8078	0%	Note 1
Mundi Plains JV	ELs 6404	20%	Teck 80%
Willyama	EL 8075	0%	Note 1
Hillston	EL 6368	39.2%	Perilya can earn 80%, Eaglehawk 98%
Woodlawn South	ELs 7257 and 7469	0%	Royalty interest only
Trundle	EL 4512	0%	Royalty interest only
Achilles and Chiron	ELs 7746 and 7981	100%	Kidman can earn 80%
SOUTH AUSTRALIA			
Junction Dam	EL 4500	16%	Teck 80%, Eaglehawk 4%, Marmota 100% in uranium rights only
Quinyambie	EL 4280	52.6%	Red Metal can earn 70%. Note 2
Callabonna	EL 5360	100%	Red Metal can earn 70%
FRANCE			
Tennie	PER	100%	
St Pierre	PER	100%	

EL = Exploration Licence EPM = Exploration Permit for Minerals PER = Permis Exclusif de Recherche (France)

Note 1: These tenements are subject to agreements with Silver City Minerals Limited whereby Silver City Minerals Limited must meet expenditure commitments within various time frames. Under an agreement with Silver City Minerals Limited, Broken Hill Operations and Eaglehawk Geological Consulting Pty Ltd, Variscan has converted its interest in parts of these tenements to a NSR (Net Smelter Return).

Note 2: EL 4289 held 47.4% by Dolores Group (Allender, Kennedy, Aurelius Resources, Hosking and Houldsworth).

Summary of Joint Ventures

AS AT 4 SEPTEMBER 2014

Achilles and Chiron

ELs 7764 and 7931, NSW

Variscan 100% Kidman Resources Limited can earn an 80% interest in these tenements by completing expenditure of $210,000 over a three year period. When Kidman has earned a 51% interest Variscan holds 25% and Thomson 24% and when Kidman has earned 80% Variscan and Thomson hold 10% each. At either of these stages any party may contribute according to their interest or dilute. Variscan and Thomson may then elect to revert to a free carried 5% interest.

Callabonna

EL 5360, SA

Variscan 100%. Red Metal can earn a 51% interest by spending $1 million and a 70% interest by spending $3 million. Variscan then can contribute with 30% or reduce to a 15% interest, carried to completion of a BFS and repayable from Variscan's share of net proceeds of mine production.

Hillston

EL 6363, NSW

Variscan 39.2% and Eaglehawk 9.8%, Perilya 51%. Perilya can earn an 80% interest in this tenement by completing expenditure of $1.5 million. Variscan and Eaglehawk can then each participate with their respective interests of 16% and 4% or convert to a 10% and 2.5% free-carried interest to completion of a BFS. On completion of a BFS, Variscan and Eaglehawk can participate or convert their interests to a NSR royalty.

Junction Dam

EL 4509, SA

Variscan 16%, Teck 80% and Eaglehawk 4% in base and precious metal rights. Variscan (and Eaglehawk) can participate with a 16% interest (4% for Eaglehawk) or dilute to a NSR royalty.

Marmota Energy Limited has earned a 100% interest in the uranium rights only. Marmota is sole funding exploration and Variscan, Teck and Eaglehawk are entitled to receive a royalty of 5% Net Profits on production from a uranium mine on the tenement.

Mundi Plains

ELs 6404, NSW

Variscan 20%, Teck Australia 80%. Both parties to contribute to approved programs or dilute their interest. If Variscan's interest falls below 8% it may elect to revert to a 2% NSR interest.

Quinyambie

EL 4289, SA

Variscan 52.6% and Allender, Kennedy, Aurelius Resources, Hosking and Houldsworth (collectively Dolores Group 47.4%). Red Metal can earn a 70% interest by spending $3 million. Variscan can contribute with 15% or reduce to a 7.5% interest, carried to completion of a BFS and repayable from Variscan's share of net proceeds of mine production.

Trundle

EL 4512, NSW

Variscan holds a NSR royalty interest.

Woodlawn South

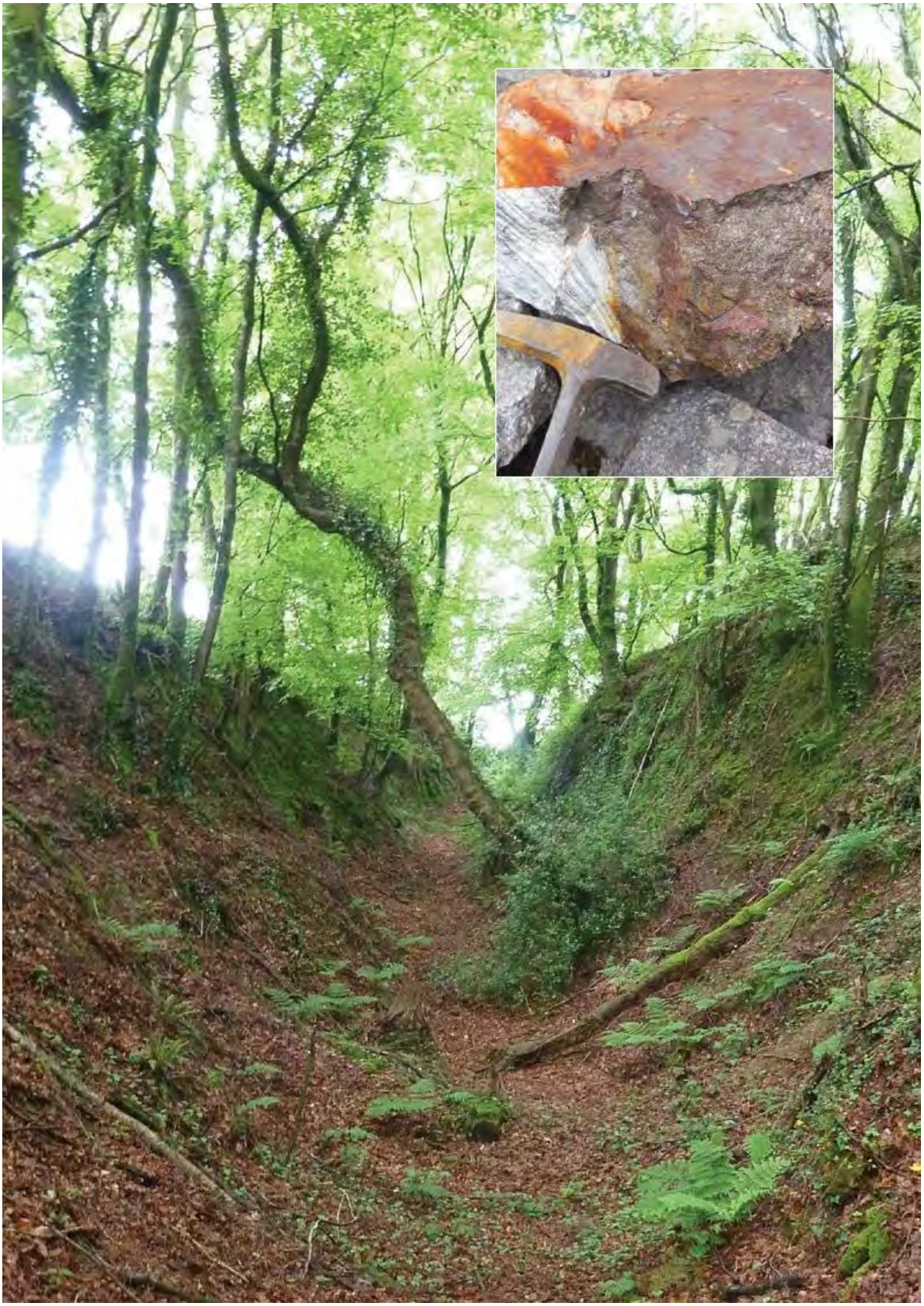
ELs 7257 and 7469, NSW

Variscan holds a NSR royalty interest.

Willyama, Yalcowinna and Native Dog

ELs 8075, EL 8078 and 8236 NSW

Under various agreements with Silver City Minerals Limited, Variscan holds a NSR royalty interest.



DIRECTORS' REPORT

Your directors submit their report for the year ended 30 June 2014.

DIRECTORS

The names and details of the Company's directors in office during the financial year and until the date of this report are as follows. Directors were in office for this entire period unless otherwise stated.

Patrick Elliott, *BCom, MBA, CPA*
Chairman

Patrick was appointed a Director of the Company on 22 December 2008 and is a company director specialising in the resources sector with over 40 years' experience in investment and corporate management. His early career was at Consolidated Gold Fields Australia Limited and covered investment analysis and management, minerals marketing (copper, tin, rutile and zircon). In 1979 he went into investment banking and became Head of Corporate Finance for Morgan Grenfell Australia Limited in 1982. Patrick subsequently became Managing Director of Natcorp Investments Ltd in 1986 which owned a number of manufacturing businesses. After its takeover he became an active early stage venture capital investor with an emphasis on resources.

Patrick is Chairman of Argonaut Resources NL and Chairman of Cap-XX Limited (Australian company listed on AIM). He is also a director of a number of privately owned companies.

During the past three years Patrick has also served as a director of the following other listed companies:

- Argonaut Resources NL – appointed June 2003
- Australia Oriental Minerals NL – appointed November 1998, resigned May 2012
- Global Geoscience Limited – appointed April 2003
- Cuesta Coal Limited – appointed October 2011

Gregory Jones, *BSc (Hons 1) (UTS), MAusIMM*
Managing director

Greg was appointed Chief Executive Officer of the Company on 1 January 2009 and Managing Director from 20 April 2009. He is a geologist with over 33 years of exploration and operational experience gained in a broad range of metalliferous commodities both within Australia and overseas. Greg has held senior positions in a number of resource companies including Western Mining Corporation and Sino Gold Limited and his experience spans the spectrum of exploration activity from grass-roots exploration through to resource definition and new project generation, as well as mine geology, ore resource/reserve generation and new mine development.

Greg was awarded the Institute Medal for academic excellence whilst at university and is credited with several economic discoveries including the Blair nickel and the Orion gold deposits in Western Australia.

During the past three years Gregory has also served as a director of the following other listed companies:

- Eastern Iron Limited – appointed April 2009
- Silver City Minerals Limited – appointed April 2009
- Thomson Resources Ltd – appointed July 2009
- Moly Mines Limited – appointed August 2014

Kwan Chee Seng
Non-executive director

Chee Seng was appointed a Director of the Company on 17 February 2009. Chee Seng has investments in the renewable sustainable energy, base metal resources and the biotechnology businesses. He has extensive experience in senior management and in business.

In March 2009, Chee Seng launched his fund management business with the incorporation of Luminor Capital Pte Ltd and Luminor Pacific Fund 1 Ltd (Fund 1). Recently he has launched Luminor Pacific Fund 2 Ltd (Fund 2). The Fund 1 and Fund 2 have been approved by the Economic Development Board of Singapore under the Global Investor Program.

In December 2012, Chee Seng acquired a major shareholder stake in Singapore listed GRP Limited, and in March 2013 he was appointed Executive Director of GRP. He has previously served as

Non-Executive Director of Singapore listed companies Van der Horst Energy Limited (from March 2008 to November 2011) and Viking Offshore and Marine Ltd (from mid-2009 to end 2010).

During the past three years Mr Kwan has not served as a director of any other ASX listed company.

Dr Foo Fatt Kah, *MB, BCh, BAO, MBA*
Non-executive director

Dr Foo was appointed a Director of the Company on 7 October 2009. Dr Foo has over 20 years' experience in the investment banking, fund management and advisory businesses spanning Europe and Asia. He was previously Head of Asian Equities for SG Securities Asia (the Asian Investment Banking business for Societe Generale) covering 10 Asian countries ex-Japan. Since 2004 Dr Foo has been active as an investor, overseeing investments in Resources, Energy and Healthcare.

Dr Foo is qualified in Medicine (MB, B Ch, BAO) and Business Administration (M.B.A.) from the Queen's University, United Kingdom, with further continuing education qualifications from Insead on Economic Value Added (EVA) and International Project Management. He has experience with listed companies in Singapore, being previously Executive Director of CyberVillage Holdings Ltd and currently Lead Independent Director of PEC Ltd.

During the past three years Dr Foo has not served as a director of any other ASX listed company.

Alan Breen, *HNDip Extraction Metallurgy, MBA*
Non-executive director

Alan was appointed as a non-executive director on 6 October 2011. Alan is a metallurgist and with over 35 years operational and executive management experience across a diverse range of commodities in Australasia, Europe and Africa. Alan held senior and executive management roles with Xstrata, Rio Tinto Aluminium and at Ok Tedi Mining where he held the position of Managing Director for 4 years.

Alan has previously held Director positions with Britannia Refined Metals Limited, Brittannia Recycling Limited, MIM Holdings (UK) Ltd and Ok Tedi Mining Limited.

During the past three years Alan has not served as a director any other ASX listed company.

Dr Jack Testard
Executive director (appointed 14 May 2014)

Jack was appointed a Director of the Company on 14 May 2014. Jack is a French geologist with over 40 years of experience in Europe, Africa, CIS countries, Turkey, Saudi Arabia and Guyana. Jack was formerly Head of the Minerals Resources Division of the BRGM (Bureau de Recherches Géologiques et Minières – the French Geological Survey), President of GIP GEODERIS and Manager of the Ovacik gold mine in Turkey under Normandy La Source.

Dr Testard is President of Variscan Mines SAS, the wholly owned French subsidiary of Variscan Mines Limited, based out of Orleans, France.

Jack is currently President of the French Chamber of Mines, Treasurer of the Federation of Minerals and Non Ferrous Metals (FEDEM) and a Director of the Société de l'Industrie Minérale (SIM).

During the past three years Jack has not served as a director of any other ASX listed company.

Kantilal Champaklal
Alternate director to Kwan Chee Seng (resigned 6 March 2014)

Kantilal resigned as an alternate director to Mr Kwan on 6 March 2014.

DIRECTORS' INTERESTS IN SHARES AND OPTIONS

As at the date of this report, the interests of the Directors in the shares and options of Variscan Mines Limited were:

Directors	Shares directly and indirectly held	Options directly and indirectly held
P Elliott	2,352,345	1,600,000
G Jones	2,505,000	5,550,000
C S Kwan	52,396,526	2,000,000
F K Foo	1,403,000	1,600,000
A Breen	–	1,000,000
J Testard	200,000	1,500,000

COMPANY SECRETARY

Ivo Polovineo, *FIPA*

Ivo Polovineo was appointed Company Secretary of the Company on 31 December 2010. Ivo has over 30 years' experience in corporate accounting, finance and company secretarial work for a diverse range of companies. He has spent the past 20 years in senior management roles in the resources sector including seven years as Company Secretary (and five years as CFO) of Sino Gold Mining Limited (a former ASX 100 company) until December 2009.

Ivo is currently also Company Secretary of Thomson Resources Ltd, Silver City Minerals Limited, KBL Mining Limited, and is a Director of Eastern Iron Limited.

PRINCIPAL ACTIVITIES

The principal continuing activity of the consolidated entity is the exploration for economic base metals, precious metals, tin and tungsten.

RESULTS

The net result of operations of the consolidated entity after applicable income tax was a loss of $5,717,244 (2013: loss $7,849,724) which includes the write-off of exploration expenditure during the year of $1,531,881 (2013: $3,482,189).

DIVIDENDS

No dividends were paid or proposed during the year.

REVIEW OF OPERATIONS

The most significant developments in the Company's operations and financing activities were:

Exploration

France

Variscan was granted its first French exploration licence in June 2013 following three years of patient work to identify and secure high quality projects in regions of demonstrated mineral endowment outside Australia. In the last 12 months the Company has received approvals for a second licence and has a number of others well advanced within the approvals process.

Saint Pierre

The Saint Pierre PER was granted in February 2014 and covers an area of 336 square kilometres over an important gold district believed to have been the third largest gold producer in France.

Within the licence lies the La Bellière gold mine which is recorded to have produced about 334000 ounces of gold* (plus silver) from 1906 to 1952, up to a maximum depth of 170 metres intermittently over a strike length of about 1.6 kilometres. The average production grade was 12 g/t gold, mined from a series of stacked, high grade veins hosted within an east-west oriented shear zone. The high grade quartz – sulphide veins individually vary in true thickness from 1 to 16 metres and dip steeply to the south.

Variscan has commenced compiling and electronically converting all available records from the old mining area as well as former exploration conducted by the BRGM (Bureau de Recherches Géologiques et Minières - the French Geological Survey) during the 1980's. With the help of structural studies currently being conducted by the University of Orleans, the Company is constructing a 3D model of the mine which will be used to help elucidate the complex structural controls on mineralisation and target possible surface core drilling. This work is now well advanced.

In addition, to the north and south of La Bellière old data indicates the presence of parallel shears, highlighting the potential for additional gold deposits within the immediate proximity of the mine and throughout the remainder of the St Pierre PER. The Company has commenced a detailed auger soil geochemistry programme in the mine region to help generate additional drilling targets.

Tennie

The Tennie PER covers 205 square kilometres of the eastern section of a Palaeozoic sedimentary package which hosts the Rouez copper-gold-lead-zinc-silver deposit owned by the French energy group, TOTAL. Rouez is considered to be possibly either volcanogenic massive sulphide (VMS) or a hybrid sedimentary exhalative (SEDEX) type and shares a number of geological similarities to deposits such as Rio Tinto and Aljustrel within the Iberian Pyrite Belt of Spain and Portugal.

In late 2013 Variscan commenced an auger soil geochemical survey within the PER which is believed to be the first significant mineral exploration programme conducted in France for decades. The initial programme involves shallow hand auger drilling on a 200 x 200 metre grid over the accessible areas of fertile Brioverian rocks, to penetrate the thin transported loess horizon that blankets the area and thus may hide potential mineral deposits. Work is continuing.

Future Projects

Variscan has six other exploration licence applications within the approvals process, each of them over projects with good potential for short term resource generation and/or major new discoveries. The Company has deliberately targeted more advanced project areas containing previously defined mineralised zones or evidence of substantial old mine workings to help fast track the discovery of economic deposits.

Australia

In 2014 Variscan relinquished a number of its Australian grass roots exploration properties due to its focus in France. Joint venture interest for new exploration properties has been very subdued for the last few years and despite the good quality of some of the tenements, efforts to attract additional joint venture funding was not successful to maintain many of the tenements.

During the year exploration of Variscan's current joint venture properties was subdued in line with the general restricted risk capital availability in the bearish markets. During 2014 a total of $0.26 million was spent by Variscan's joint venture partners verses $0.7 million from the previous year.

Investments

Variscan maintains a diversified portfolio of investments within a number of ASX-listed resource companies. The value of the Variscan shareholdings in its ASX listed resource companies at the end of the year stood at approximately $3.8 million.

Eastern Iron

Eastern Iron Limited (ASX: EFE) continued with its Mine Feasibility Study on the Nowa Nowa iron project located near Bairnsdale in eastern Victoria, 270 kilometres east of Melbourne.

During the year Eastern Iron undertook a short program of reverse circulation (RC) drilling to upgrade part of the Inferred Mineral Resource at Five Mile to higher confidence categories for inclusion within a mining study. The results were consistent with assays reported from earlier drilling completed by the Victorian Department of Mines in the 1950's. Significantly it was noted that the thickest intersections were in the easternmost holes NRC044, NRC045 and NRC047 with the resource still open in this direction.

Additional confirmatory metallurgical work was also completed using large, pilot-scale, dry, low intensity magnetic separation (Dry LIMS) equipment to enhance recoveries. Overall results exceeded expectations with significant improvement in the average product grade to 58% iron (versus 56% iron in the feasibility study), at an average iron recovery of more than 90%.

Upgrade factors (ie. from feed grade to product grade) suggest that the Dry LIMS is highly effective in its application to the Nowa Nowa ore, even at a relatively coarse feed size of -6mm. The technique was also successful in reducing sulphur grades to well below 1% sulphur in product.

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* C Louis: *Les exploitations minières dans le Massif Armoricain. Dédin ou progrès.* In: Norois N°141, 1989 | pp. 5–32

Also during the year Eastern Iron announced a number of significant steps in the progression of the project. These included –

1. The successful granting of a mining licence (MIN 5571)
2. Reaching a native title agreement with GLaWAC representing the Gunaikurnai people, the recognised native title holders of the area.
3. The agreement by the Victorian Government to contribute up to $300,000 towards feasibility study relating directly to the infrastructure requirements of the project.

Following a decision by South East Fibre Exports Pty Ltd (SEFE) the owners of the SEFE bulk ship loader and wharf facility at the Port of Eden, not to enter into a formal agreement to allow the use of the SEFE facility for loading iron ore the company commenced review of other shipping alternatives including the use of the multi user "Naval" wharf which is adjacent to the SEFE wharf.

On 2 September 2014 Eastern Iron reported that it had completed a detailed heli-borne electromagnetic versatile time-domain electromagnetic geophysical system (VTEM) survey over the Nowa Nowa exploration licence. The survey was completed following a review of previous exploration and the identification of extensive Silurian volcanics believed to be the same rocks that host VMS deposits in Victoria and NSW such as Woodlawn and Benambra, approximately 100 kilometres to the north.

Drilling carried out by previous explorers within the Nowa Nowa area intersected significant copper, lead, zinc and gold mineralisation in altered volcanics and sediments, with a best intersection of 13.6 metres assaying 3.8% copper at the Three Mile prospect in the south eastern corner of the licence.

Although final processing of the survey data has yet to be completed, preliminary results indicates the VTEM survey has defined three strong conductors, one of which is located at the Three Mile prospect.

Silver City Minerals

Silver City Minerals Limited (ASX: SCI) continued its well-funded programme of exploration within its extensive portfolio of tenements around Broken Hill, NSW and into its new Sellheim copper/gold project in Queensland.

At Sellheim Silver City can earn up to an 80% interest in a joint venture over the historic Sellheim gold district near Charters Towers, Queensland, which is considered to have significant potential for large gold deposits associated with intrusive rocks. Work by Silver City included completing a large induced polarisation (IP) programme to test beneath the elluvial goldfield and old copper-gold workings. The survey produced a number of very strong (greater than 100 mV/V) and discrete chargeability anomalies grouped in an east-west oriented corridor approximately 1.5 kilometres wide and 4 kilometres long.

Silver City tested a number of the anomalies, completing seven diamond core and reverse circulation holes for a total of 2,268.4 metres. The company reported that the drilling returned a number of intersections of gold, copper and silver mineralisation predominantly hosted in skarn alteration and quartz-sulphide veins. The best intersection recorded was 11.1 metres at 0.66 g/t gold and 0.28% copper from 496.9 metres in hole 14SH004 hosted in magnetite-quartz skarn close to a major fault and breccia complex.

Silver City believes that the mineralised skarns formed as a result of fluids emanating from the tonalite intrusion immediately west of Mount Richardson (a north-trending zone of silicification and phyllic alteration with gossanous quartz-sericite rocks and tourmaline breccias), or from other discrete intrusive stocks. The company has identified a structural corridor at Mount Richardson which it considers to be highly prospective for gold-copper mineralisation. This will be tested with further drilling later in 2014.

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Thomson completed drilling at its wholly owned F1 target within the Falcon project area. Three holes were completed, defining another Intrusion-Related mineral system, hosted entirely in granite at the relatively shallow depth of 100 metres below cover. A sheeted vein system with silica and carbonate alteration was intersected with anomalous gold, molybdenum, tungsten, lead and arsenic results recorded.

During the year Thomson acquired a number of new tin, base and precious metal projects outside the Thomson Fold Belt. These included the Havilah Project near Mudgee, central NSW which lies within the Silurian Hill End Trough. It is believed to have strong potential for volcanogenic massive sulphide (VMS) deposits also found in the region such as Woodlawn and Lewis Ponds.

Previous work at Havilah has defined zinc, lead, gold and silver anomalism in soil and rock chip sampling coincident with a strong sericite-pyrite-silica alteration zone hosted in rhyolitic to dacitic volcaniclastics, a typical setting for VMS deposits. Historical drilling largely targeted more distal parts of the alteration system, returning intercepts including 4 metres at 40 g/t gold, 31 g/t silver from 2 metres depth in CPDH10.

To test the Havilah and other key prospects within the Thomson portfolio, a VTEM survey was flown. VTEM is widely considered the best helicopter TEM massive sulphide detection and imaging tool with notable successes including the discovery of the Mallee Bull deposit in the Cobar Basin. A total of 564 line kilometres was acquired over five targets: Havilah, Wilga Downs, Furneys, Kenilworth and the Wilgaroon tin-tungsten project. Processing of results is in progress.

WPG Resources

WPG Resources Ltd (ASX: WPG) is an iron ore, coal and gold exploration and development company with exploration tenements in South Australia. WPG's current focus is on two advanced gold projects in the Gawler Craton, South Australia - Tunkillia (WPG holds approximately 70%) and Tarcoola (WPG holds 100%) where previous feasibility and scoping studies at Tarcoola, had defined a significant gold resource. In July 2014, WPG announced that it would fast track development of the Tarcoola project with the objective of commencing operations late next year. The company stated that a review of data had confirmed that the Tarcoola gold project could be successfully developed into a heap leach mining operation with an initial mine life of four to five years.

AGUIA Resources

Aguia Resources Limited (ASX: AGR) is an exploration company that has interests in substantial phosphate and potash projects in Brazil, including three highly prospective and potentially large scale phosphate projects, the Lucena and Mata da Corda Phosphate Projects and the Ties Estradas carbonatite-style phosphate project in Rio Grande do Sul, southern Brazil.

Competent Persons Statement

The information in this report that relates to Exploration Results is based on information compiled by Greg Jones, BSc (Hons), who is a member of the Australasian Institute of Mining and Metallurgy. Mr Jones is a Director and full-time employee of Variscan Mines Limited and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Jones consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

SIGNIFICANT CHANGES IN THE STATE OF AFFAIRS

The Directors are not aware of any significant changes in the state of affairs of the Group occurring during the financial period, other than as disclosed in this report.

SIGNIFICANT EVENTS AFTER THE REPORTING DATE

There were, at the date of this report, no matters or circumstances which have arisen since 30 June 2014 that have significantly affected or may significantly affect the operations of the Group, the results of those operations, or the state of affairs of the Group, in future financial years.

INDEMNIFICATION AND INSURANCE OF DIRECTORS AND OFFICERS

The Company has not, during or since the end of the financial period, in respect of any person who is or has been an officer of the Company or a related body corporate, indemnified or made any relevant agreement for indemnifying against a liability incurred as an officer, including costs and expenses in successfully defending legal proceedings.

Insurance premiums

During the financial period the Company has paid premiums to insure each of the directors and officers against liabilities for costs and expenses incurred by them in defending any legal proceedings arising out of their conduct while acting in the capacity of director or officer of the Company, other than conduct involving a wilful breach of duty in relation to the Company.

The premiums paid are not disclosed as such disclosure is prohibited under the terms of the contract.

ENVIRONMENTAL PERFORMANCE

Variscan holds exploration licences issued by New South Wales Department of Trade and Investment - Resources and Energy and the South Australian Department for Manufacturing, Innovation, Trade, Resources and Energy which specify guidelines for environmental impacts in relation to exploration activities. The licence conditions provide for the full rehabilitation of the areas of exploration in accordance with the Departments' guidelines and standards. There have been no significant known breaches of the licence conditions.

LIKELY DEVELOPMENTS AND EXPECTED RESULTS

As the Company's areas of interest are at an early stage of exploration, it is not possible to postulate likely developments and any expected results. The Company is hoping to identify other precious, base metal and tin / tungsten exploration and evaluation targets within France and western Europe.

SHARES UNDER OPTION OR ISSUED ON EXERCISE OF OPTIONS

Details of unissued shares or interests under option for Variscan Mines Limited as at the date of this report are:

No. shares under option	Class of share	Exercise price of option	Expiry date of options
9,590,000	Ord	$0.18	27 Nov 2014
1,500,000	Ord	$0.18	27 Nov 2014
10,900,000	Ord	$0.30	25 Nov 2015
1,000,000	Ord	$0.25	6 Oct 2014
2,300,000	Ord	$0.14	31 Oct 2015
25,290,000			

The holders of these options do not have the right, by virtue of the option, to participate in any share issue of the Company or of any other body corporate or registered scheme.

There were no shares issued during or since the end of the financial year as a result of exercise of the above options.

Refer to the remuneration report and Note 19 for further details of the options outstanding.

REMUNERATION REPORT (AUDITED)

This remuneration report for the year ended 30 June 2014 outlines the remuneration arrangements of the Company and the Group in accordance with the requirements of the Corporations Act 2001 (the Act) and its regulations. This information has been audited as required by section 308(3C) of the Act.

The remuneration report details the remuneration arrangements for key management personnel (KMP) who are defined as those persons having authority and responsibility for planning, directing and controlling the major activities of the Company and the Group, directly or indirectly, including any director (whether executive or otherwise) of the parent company.

DETAILS OF KEY MANAGEMENT PERSONNEL

Details of KMP including the top five remunerated executives of the Parent and Group are set out below.

Directors

Patrick Elliott	*Chairman (Non-Executive)*
Gregory Jones	*Managing Director*
Kwan Chee Seng	*Non-Executive Director*
Dr Foo Fatt Kah	*Non-Executive Director*
Alan Breen	*Non-Executive Director*
Dr Jack Testard	*Executive Director (appointed 14 May 14) President of Subsidiary – Variscan Mines SAS*
Kantilal Champaklal	*Alternate director for Kwan Chee Seng (resigned 6 Mar 14)*

Executives

Ivo Polovineo	*Company Secretary*
Wendy Corbett	*Managing Geologist*
Michelle Lilley	*Financial Controller*
Greg De Ross	*Managing Director of Subsidiary – Eastern Iron Limited (Deconsolidated 11 March 2014)*
Michel Bonnemaison	*CEO of Subsidiary – Variscan Mines SAS*

REMUNERATION PHILOSOPHY

The objective of the Company's remuneration framework is to ensure reward for performance is competitive and appropriate for the results delivered. The framework aligns executive reward with achievement of strategic objectives and the creation of value for shareholders. The Board believes that executive remuneration satisfies the following key criteria:

- Competitiveness and reasonableness
- Acceptability to shareholders
- Performance linkage/alignment of executive compensation
- Transparency
- Capital management

These criteria result in a framework which can be used to provide a mix of fixed and variable remuneration, and a blend of short and long term incentives in line with the Company's limited financial resources.

Fees and payments to the Company's Non-Executive Directors and Senior Executives reflect the demands which are made on, and the responsibilities of, the Directors and the senior management. Such fees and payments are reviewed annually by the Board. The Company's Executive and Non-Executive Directors, Senior Executives and Officers are entitled to receive options under the Company's Employee Share Option Plan ('ESOP').

NON-EXECUTIVE DIRECTORS REMUNERATION ARRANGEMENTS

Directors are entitled to remuneration out of the funds of the Company but the remuneration of the Non-Executive Directors (NED) may not exceed in any year the amount fixed by the Company in general meeting for that purpose. The aggregate remuneration of the NED's has been fixed at a maximum of $250,000 per annum to be apportioned among the NED's in such a manner as the Board determines. Directors are also entitled to be paid reasonable travelling, accommodation and other expenses incurred in consequence of their attendance at Board meetings and otherwise in the execution of their duties as Directors.

The Chairman's fee is set at $50,000 p.a. and NED fees at $36,000 p.a. which are consistent with industry average fees. At present, no Committee fees are paid to Directors.

SERVICE AGREEMENTS

Remuneration and other terms of employment for key management personnel are formalised in employment contracts and contractor agreements. Details of these arrangements are set out below:

Managing Director – Greg Jones

- Contract term: No fixed term. Either party may terminate the letter of employment with one months' notice.
- Remuneration: $280,642 p.a. (2013: $280,000) as at 30 June 2014 to be reviewed annually.
- Termination payments: A 3 month severance pay with an additional 3 months after more than five years.

Executive Director – Jack Testard

- Contract term: No fixed term.
- Remuneration: Annual salary equivalent to Euro 65,532 (2013: 60,762) as at 30 June 2014, to be reviewed annually.
- Termination payments: Nil.

Company Secretary – Ivo Polovineo

- Contract term: 12 month rolling contract. Either party may terminate the contract with one months' notice.
- Remuneration: $1,300 (2013: $1,300) per day plus GST as at 30 June 2014.
- Termination payments: Nil.

Managing Geologist – Wendy Corbett

- Contract term: Rolling contract. Either party may terminate the agreement with one months' notice.
- Remuneration: $108.16 per hour (2013: $108.16) plus GST for consultancy services as at 30 June 2014.
- Termination payments: Nil.

Financial Controller – Michelle Lilley

- Contract term: No fixed term. Either party may terminate the agreement with one months' notice.
- Remuneration: $92.77 per hour (2013: $92.56) as at 30 June 2014.
- Termination payments: A 1 month severance pay with an additional 2 months after more than five years.

CEO (Variscan Mines) – Michel Bonnemaison

- Contract term: No fixed term.
- Remuneration: Annual salary equivalent to Euro 162,462 (2013: 154,930) as at 30 June 2014, to be reviewed annually.
- Termination payments: In the case of redundancy one month payment for each year of service.

Managing Director (Eastern Iron) – Greg De Ross (Subsidiary deconsolidated 11 Mar 14)

- Contract term: No fixed term. Either party may terminate the letter of employment with two months' notice.
- Remuneration: $284,572 p.a. (2013: $283,920) as at 30 June 2014 to be reviewed annually.
- Termination payments: A 3 month severance pay with an additional 3 months after more than five years.

Directors and KMP remuneration (consolidated) for the year ended 30 June 2014

	Short-term benefits		Post employment	Share-based payments		
	Cash salary and fees $	Consulting fees $	Superannuation $	Options $	Total $	Consisting of options %
Directors						
P Elliott	50,000	–	–	–	50,000	0%
G Jones	256,881	25,294*	26,101	–	308,276	0%
CS Kwan	36,000	–	–	–	36,000	0%
FK Foo	36,000	–	–	–	36,000	0%
A Breen	33,024	–	3,055	–	36,079	0%
J Testard	92,711	–	–	–	92,711	0%
Total Directors	504,616	25,294	29,156	–	559,066	
Other key management personnel						
I Polovineo	62,400	27,571*	–	–	89,971	0%
W Corbett	–	91,427*	2,250	–	93,677	0%
M Lilley	106,081	–	9,813	–	115,894	0%
M Bonnemaison	235,769	–	–	–	235,769	0%
G De Ross	181,354	–	16,775	10,580	208,709*	5%
Other KMP	525,604	118,998	28,838	10,580	744,020	
Totals	1,090,220	144,292	57,994	10,580	1,303,086	

* Eastern Iron Limited remuneration from 1 July 2013 to 11 March 2014 (date of deconsolidation).

Directors and KMP remuneration (consolidated) for the year ended 30 June 2013

	Short-term benefits		Post employment	Share-based payments		
	Cash salary and fees $	Consulting fees $	Superannuation $	Options $	Total $	Consisting of options %
Directors						
P Elliott	50,000	–	–	–	50,000	0%
G Jones	252,294	36,330	25,976	3,510	318,110	1%
C S Kwan	36,000	–	–	–	36,000	0%
F K Foo	36,000	–	–	–	36,000	0%
A Breen	33,024	–	2,972	–	35,996	0%
Total Directors	407,318	36,330	28,948	3,510	476,106	
Other key management personnel						
I Polovineo	61,800	38,400	–	12,285	112,485	11%
W Corbett	–	126,739	3,270	6,885	136,894	5%
M Lilley	121,903	–	10,971	–	132,874	0%
N Maund[a]	196,724	44,955	15,622	–	257,301	0%
J Testard	76,383	–	–	8,100	84,483	10%
M Bonnemaison	194,822	–	–	8,100	202,922	4%
G De Ross	259,642	–	23,368	7,800	290,810	3%
Other KMP	911,274	210,094	53,231	43,170	1,217,769	
Totals	1,318,592	246,424	82,179	46,680	1,693,875	

(a) Not considered to be key management personnel for the year ending 30 June 2014

Compensation options: granted and vested during the year (parent entity)

There were no share-based payments (options) granted during the financial year to Directors and Key Management Personnel.

The value of options granted during the period is recognised in compensation over the vesting period of the grant, in accordance with Australian Accounting Standards.

For details on the valuation of the options, including models and assumptions used, please refer to Note 19.

There were no alterations to the terms and conditions of options granted as remuneration since their grant date. There were no forfeitures during the period.

The Company has established an ESOP for the benefit of Directors, officers, senior executives and consultants.

Directors' Benefits, Emoluments and Share Options

During its annual budget review the Board reviews the Directors' Emoluments. Remuneration levels, including participation in the Company's ESOP, are set to provide reasonable compensation in line with the Company's limited financial resources. During the year no Director of the Company has received or become entitled to receive a benefit (other than a benefit included in Note 22 of the financial statements) by reason of a contract made by the Company or a related corporation with the Director or with a firm of which he is a member, or with a company in which he has a substantial financial interest.

Due to the difficulty in the measurement of performance using quantitative indicators in the mineral exploration industry, there is no formal link between financial performance of the group and remuneration levels.

There is no retirement scheme for Non-Executive Directors.

End of Audited Remuneration report.

MEETINGS OF DIRECTORS

The following table sets out the number of Directors' meetings (including meetings of committees of Directors) held during the financial year and the number of meetings attended by each Director.

	Board of directors		Remuneration committee		Audit committee	
	Held	Attended	Held	Attended	Held	Attended
Directors						
P Elliott	4	4	1	1	2	1
G Jones	4	4	1	1	2	2
C S Kwan	4	3	1	1	–	–
F K Foo	4	4	–	–	2	2
A Breen	4	4	–	–	–	–
J Testard	1	1	–	–	–	–
K Champaklal	1	1	–	–	–	–

AUDITOR'S INDEPENDENCE AND NON-AUDIT SERVICES

HLB Mann Judd
Accountants | Business and Financial Advisers

VARISCAN MINES LIMITED
AUDITOR'S INDEPENDENCE DECLARATION

As lead auditor for the audit of the consolidated financial report of Variscan Mines Limited for the year ended 30 June 2014 I declare that, to the best of my knowledge and belief, there have been no contraventions of:

(a) the auditor independence requirements of the *Corporations Act 2001* in relation to the audit; and

(b) any applicable code of professional conduct in relation to the audit.

This declaration is in relation to the Variscan Mines Limited and the entities it controlled during the year.

Sydney, NSW
30 September 2014

M D Muller
Partner

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Email: mailboxsh@hlbnsw.com.au | Website: www.hlb.com.au
Liability limited by a scheme approved under Professional Standards Legislation
HLB Mann Judd (NSW Partnership) is a member of HLB International, a world-wide network of independent accounting firms and business advisers

NON-AUDIT SERVICES

The following non-audit services were provided by the Company's primary auditor, HLB Mann Judd. The Directors are satisfied that the provision of non-audit services is compatible with the general standard of independence for auditor's imposed by the Corporations Act. The nature and scope of each type of non-audit service provided means that auditor independence was not compromised.

HLB Mann Judd received or is due to receive the following amounts for the provision of non-audit services:

- Tax advisory services $5,000

Signed at Sydney this 30th day of September 2014 in accordance with a resolution of the Directors.

Greg Jones
Managing Director

CORPORATE GOVERNANCE

The Board has adopted a corporate framework for the Company which is underpinned by the ASX Corporate Governance Council's Corporate Governance Principles and Recommendations (2nd Edition) ('the Recommendations') applicable to ASX-listed entities.

This Section addresses each of the Corporate Governance Principles and, where the Company has not followed a Recommendation, this is identified with the reasons for not following the Recommendation.

PRINCIPLE 1: LAY SOLID FOUNDATIONS FOR MANAGEMENT AND OVERSIGHT

Recommendation 1.1 – Functions reserved to the Board and delegated to senior executives

The Company has established functions reserved to the Board and functions delegated to senior executives.

The functions reserved to the Board include:

(1) oversight of the Company, including its control and accountability systems;

(2) appointing and removing the Managing Director (MD) (or equivalent), including approving remuneration of the MD and the remuneration policy and succession plans for the MD;

(3) ratifying the appointment and, where appropriate, the removal of the Chief Financial Officer (or equivalent) and the Secretary;

(4) input into the final approval of management's development of corporate strategy and performance objectives;

(5) reviewing and ratifying systems of risk management and internal compliance and control, codes of conduct and legal compliance;

(6) monitoring senior management's performance and implementation of strategy, and ensuring appropriate resources are available;

(7) approving and monitoring the progress of major capital expenditure, capital management and acquisitions and divestitures;

(8) approving and monitoring financial and other reporting;

(9) appointment and composition of committees of the Board;

(10) on recommendation of the Audit Committee, appointment of external auditors; and

(11) on recommendation of the Nomination and Remuneration Committee, initiating Board and director evaluation.

The functions delegated to senior executives include:

(1) implementing the Company's vision, values and business plan;

(2) managing the business to agreed capital and operating expenditure budgets;

(3) identifying and exploring opportunities to build and sustain the business;

(4) allocating resources to achieve the desired business outcomes;

(5) sharing knowledge and experience to enhance success;

(6) facilitating and monitoring the potential and career development of the Company's people resources;

(7) identifying and mitigating areas of risk within the business;

(8) managing effectively the internal and external stakeholder relationships and engagement strategies;

(9) sharing information and making decisions across functional areas;

(10) determining the senior executives' position on strategic and operational issues; and

(11) determining the senior executives' position on matters that will be referred to the Board.

Recommendation 1.2 – Performance evaluation of senior executives

The Board reviews the performance of the Managing Director and executives to ensure they execute the Company's strategy through the efficient and effective implementation of the business objectives. The Managing Director and executives are assessed against the performance of the Company and individual performance.

Recommendation 1.3 – Performance evaluation of senior executives during the financial year

During the financial year ended 30 June 2014 given the company's current stage of development, an informal process of performance evaluation of the Managing Director and senior executives was carried out.

PRINCIPLE 2: STRUCTURE THE BOARD TO ADD VALUE

Recommendation 2.1 – A majority of the Board should be independent Directors

Recommendation 2.1 requires a majority of the Board to be independent directors. The Corporate Governance Council defines independence as being free from any business or other relationship that could materially interfere with, or could reasonably be perceived to materially interfere with, the exercise of unfettered and independent judgement.

The Board has determined that three of its non-executive directors are independent as defined under Recommendation 2.1. The Company is however at variance with Recommendation 2.1 in that a majority of directors are not independent. In accordance with the definition in Recommendation 2.1 above the Board has determined that Messrs Elliott, Foo and Breen are independent. Mr Jones is the managing director of the company, Mr Testard is an executive director and Mr Kwan is a substantial shareholder and accordingly Messrs Jones, Testard and Kwan are not considered by the Board to be independent directors as defined in Recommendation 2.1.

The Board has nevertheless determined that the composition of the current Board represents the best mix of directors that have an appropriate range of qualifications and expertise and that can understand and competently deal with current and emerging business issues.

Each individual member of the Board is satisfied that whilst the Company may not comply with Recommendation 2.1, all directors bring an independent judgment to bear on Board decisions.

Recommendation 2.2 – The chair should be an independent director

The Company's chairman, Mr Elliott, is an independent director as defined under Recommendation 2.1.

Recommendation 2.3 – The roles of chair and managing director should be separated

The roles of the Chairman and the Managing Director are not exercised by the same individual. The Board charter summarises the roles and responsibilities of the Chairman, Mr Elliott and the Managing Director, Mr Jones.

Recommendation 2.4 – Nomination Committee

The Board has established a Nomination and Remuneration Committee. The members of the Committee are Messrs Elliott, Kwan and Jones. A copy of the charter of the Nomination and Remuneration Committee is available on the Company's website.

Recommendation 2.5 – Process for evaluating the performance of the Board

In accordance with the charter of the Nomination and Remuneration Committee, the Committee is responsible for the:

(1) annual evaluation and review of the performance of the Board against both measurable and qualitative indicators established by the Committee;

(2) evaluation and review of the performance of individual directors against both measurable and qualitative indicators established by the Committee;

(3) review of and making of recommendations on the size and structure of the Board; and

(4) review of the effectiveness and programme of Board meetings.

Recommendation 2.6 – Additional information concerning the Board and Directors

(1) the skills and experience of each Director is set out in the Directors section of the Director's Report.

(2) the period of office of each Director is as follows:

Name	Term in office
P Elliott	5.5 years
G Jones	5.5 years
J Testard	4 months
C Kwan	5.3 years
K Foo	4.7 years
A Breen	2.7 years

(3) the reasons why Messrs Elliott, Foo and Breen are considered to be independent Directors are disclosed in relation to Recommendation 2.1.

(4) there are procedures in place, agreed by the Board, to enable Directors, in furtherance of their duties, to seek independent professional advice at the company's expense;

(5) details of the names of members of the nomination and remuneration committee are disclosed in relation to Recommendation 2.4 and attendances at meetings are set out in the Directors Meetings section of the Director's Report;

(6) given the current stage of the company's development, the 2014 evaluation of the performance of the Board, its committees and individual Directors was conducted on an agreed informal basis.

(7) the Nomination and Remuneration Committee is responsible for providing the Board with advice and recommendations regarding the ongoing development of:

(a) a plan for identifying, assessing and enhancing director competencies; and

(b) a succession plan that is designed to ensure that an appropriate balance of skills, experience and expertise is maintained on the Board.

The charter of the Nomination and Remuneration Committee requires that prior to identifying an individual for nomination for directorship, the Committee must evaluate the range of skills, experience and expertise currently existing on the Board to ensure that the Committee identifies the particular diverse skills, experience and expertise that will most effectively complement the Board's current composition. If a new candidate is approved by the Nomination and Remuneration Committee, the appointment of that new candidate is ultimately subject to shareholder approval in accordance with the Corporations Act 2001 and the Company's Constitution.

Further details are set out in the charter of the Nomination and Remuneration Committee. A copy of the charter of the Nomination and Remuneration Committee is available on the Company's website.

PRINCIPLE 3: PROMOTE ETHICAL AND RESPONSIBLE DECISION MAKING

Recommendation 3.1 – Code of Conduct

The Company has established a code of conduct as to the:

(1) practices necessary to maintain confidence in the Company's integrity;

(2) practices necessary to take into account the Company's legal obligations and the expectations of stakeholders; and

(3) responsibility and accountability of individuals for reporting and investigating reports of unethical practices.

A copy of the code of conduct is available on the Company's website.

Recommendation 3.2 – Diversity Policy

The Company has established a policy concerning diversity. The Company recognises the need to set diversity measures in each of its operating locations taking into account the differing diversity issues within each geographic location in which it operates.

A copy of the diversity policy is available from the Company's website. The policy includes requirements for the Board, at the appropriate stage of its development, to establish measurable objectives for achieving gender diversity and, once established, for the Board to assess annually both the objectives and progress in achieving them.

Recommendation 3.3 – Measurable Objectives for Achieving Gender Diversity

Due to the size of the Company and its workforce and its current stage of development the Board does not consider it appropriate to set measurable objectives at this time.

The Company intends to establish measurable objectives at the appropriate stage of its development.

Recommendation 3.4 – Proportion of Women Employees

Refer Recommendation 3.3 above.

At the date of this report the Company has 5 equivalent full time employees (including the Managing Director) of which 2 are female representing 40%. All of the employees are defined as senior management.

The Board comprises six directors all of which are male.

Recommendation 3.5 – Documents on Company website

Copies of the Code of Conduct and the Diversity Policy are available from the Company's website.

PRINCIPLE 4: SAFEGUARD INTEGRITY IN FINANCIAL REPORTING

Recommendation 4.1 – Audit Committee

The Company has established an Audit Committee.

Recommendation 4.2 – Structure of the Audit Committee

The Company's Audit Committee does not comply with all of the requirements of Recommendation 4.2. Details are as follows:

(1) the Audit Committee consists of two independent non-executive directors and the Managing Director. The members of the Audit Committee are Messrs Elliott, Foo and Jones.

(2) Mr Jones, the Managing Director is not considered to be an independent director for the reasons given under Recommendation 2.1.

(3) the Audit Committee is chaired by Mr Foo, who is an independent director and not the Chairman of the Board.

(4) the Audit Committee has three members.

Although not all of the members of the Audit Committee are independent the Board has nevertheless determined that the composition of the Audit Committee represents the only practical mix of directors that have an appropriate range of qualifications and expertise and that can understand and competently deal with current and emerging relevant business issues.

Recommendation 4.3 – Audit Committee Charter

The Company has adopted an Audit Committee charter which sets out its role, responsibilities and membership requirements and reflects the matters set out in the commentary and guidance for Recommendation 4.3.

Recommendation 4.4 – Additional information concerning the Audit Committee

The skills and experience of each member of the Audit Committee and the number of Audit Committee meetings attended by each member is set out in the Director's Report.

In accordance with the guide to reporting on Principle 4, the Company's Audit Committee charter is available on the Company's website.

PRINCIPLE 5: MAKE TIMELY AND BALANCED DISCLOSURE

Recommendation 5.1 – ASX Listing Rule Disclosure Requirements

The Company has established a Continuous Disclosure Policy which sets out the key obligations of directors and employees in relation to continuous disclosure as well as the Company's obligations under the Listing Rules and the Corporations Act. The policy also provides procedures for internal notification and external disclosures, as well as procedures for promoting understanding of compliance with disclosure requirements.

The policy reflects the matters set out in the commentary and guidance for Recommendation 5.1.

Recommendation 5.2 – Continuous Disclosure Policy

There were no departures from Recommendation 5.1 during the financial year.

A copy of the Company's Continuous Disclosure Policy is available on the Company's website.

PRINCIPLE 6: RESPECT THE RIGHTS OF SHAREHOLDERS

Recommendation 6.1 – Shareholder Communications Policy

The Company has adopted a shareholder communications policy for:

(1) promoting effective communication with shareholders; and

(2) encouraging shareholder participation at annual and other general meetings.

A copy of the Company's shareholder communications policy is available on the Company's website.

Recommendation 6.2 – Availability of Shareholder Communications Policy

A copy of the Company's shareholder communications policy is available on the Company's website.

PRINCIPLE 7: RECOGNISE AND MANAGE RISK

Recommendation 7.1 – Risk Management Policies

(1) The Company has established policies for the oversight and management of its material business risks as follows:

(2) the Audit Committee oversees financial risks pursuant to the Audit Committee charter. This includes internal controls to deal with both the effectiveness and efficiency of significant business processes, the safeguarding of assets, the maintenance of proper accounting records, and the reliability of financial information as well as non-financial considerations such as the benchmarking of operational key performance indicators.

(3) the finance department of the Company manages financial risks.

(4) a Risk Committee will oversee the Company's other material business risks.

Recommendation 7.2 – Risk Management and Internal Control System

The Company has developed a risk management framework which is supported by the Board of directors and management.

The Board requires management to implement risk management and internal control systems to manage the Company's business risks.

The Board requires management to report to it on whether those risks are being managed effectively.

Recommendation 7.3 – Statement from the Chief Executive Officer and the Chief Financial Officer

When considering the Audit Committee's review of financial reports the Board will receive a signed statement declaration in accordance with section 295A of the Corporations Act. This statement will also confirm whether the Company's financial reports are founded on a sound system of risk management and internal control, and that the system is operating effectively in all material respects in relation to financial risks.

Similarly, in a separate written statement the Chief Executive Officer and the Chairman of the Audit Committee will also confirm to the Board whether the Company's risk management and internal control, and that the system is operating effectively in all material respects in relation to financial risks and that nothing has occurred since period-end that would materially change the position.

Recommendation 7.4 – Additional information concerning Risk Management

The Board has received the report from management under Recommendation 7.2 and the Board has received assurance from the managing director and the chief financial officer under Recommendation 7.3.

The Company is in the process of developing a Risk Committee charter together with a risk management framework.

PRINCIPLE 8: REMUNERATE FAIRLY AND RESPONSIBLY

Recommendation 8.1 – Remuneration Committee

The Company has established a Nomination and Remuneration Committee which has delegated responsibilities in relation to the Company's remuneration policies as set out in the Company's Nomination and Remuneration Committee charter. The charter reflects the matters set out in the commentary and guidance for Recommendation 8.1.

Recommendation 8.2 – Remuneration of Executive Directors, Executives and Non-Executive Directors

The Company complies with Recommendation 8.2 by clearly distinguishing the structure of non-executive directors' remuneration from that of executive directors and senior executives. The commentary that follows each Recommendation does not form part of the Recommendation. Remuneration for non-executive directors is fixed. Total remuneration for all non-executive directors voted by shareholders at the Annual General Meeting held in November 2010 is not to exceed $250,000 per annum.

Neither the non-executive directors nor the executives of the Company receive any retirement benefits, other than superannuation.

Recommendation 8.3 – Additional information concerning Remuneration

The skills and experience of each member of the Nomination and Remuneration Committee and the number of Committee meetings attended by each member is set out in the Director's Report.

A copy of the Company's Nomination and Remuneration Committee charter is available on the Company's website.

Consolidated Statement of Comprehensive Income

For the year ended 30 June 2014

	Note	2014 $	2013 $
Revenue and other income	3	1,995,045	2,287,040
ASX and ASIC fees		(50,398)	(49,223)
Auditors' remuneration	5	(108,323)	(95,241)
Contract admin/geological services		(149,238)	(205,213)
Depreciation expense	13	(77,558)	(86,585)
Directors' fees		(289,314)	(360,213)
Exploration expenditure written-off	14	(1,531,881)	(3,482,189)
Finance costs		(279,900)	–
Impairment of investment		(784,909)	(1,476,368)
Interest on convertible note	17	(563,634)	(924,679)
Loss on options – mark to market		(117,221)	(85,960)
Operating lease rental expense		(117,589)	(108,222)
Loss on disposal of subsidiary		(471,845)	–
Employee costs net of on-costs recharged to exploration projects		(1,046,133)	(1,137,770)
Share of net losses of associate accounted for by the equity method	9	(1,389,073)	(163,944)
Other expenses		(777,904)	(733,891)
(Loss) before income tax expense		**(5,759,875)**	**(6,622,458)**
Income tax benefit/(expense)	4	42,631	(1,227,266)
(Loss) after tax		**(5,717,244)**	**(7,849,724)**
Other comprehensive income/(loss)			
Items that may be reclassified to profit or loss			
Net fair value gains/(losses) on available-for-sale financial assets		93,671	(668,732)
Income tax on items of other comprehensive income/(loss)		(28,102)	200,620
Other comprehensive income/(loss) for the period, net of tax		**65,569**	**(468,112)**
Total comprehensive (loss) for the period		**(5,651,675)**	**(8,317,836)**
(Loss) for the period is attributable to:			
Non-controlling interests		24,816	(633,183)
Owners of the parent		(5,742,060)	(7,216,541)
		(5,717,244)	**(7,849,724)**
Total comprehensive (loss) for the period is attributable to:			
Non-controlling interests		24,816	(633,183)
Owners of the parent		(5,676,491)	(7,684,653)
		(5,651,675)	**(8,317,836)**
(Loss) per share			
Basic (loss) per share (cents per share)	21	(3.27)	(4.12)
Diluted (loss) per share (cents per share)	21	(3.27)	(4.12)

The Consolidated Statement of Comprehensive Income should be read in conjunction with the accompanying notes.

Consolidated Statement of Financial Position

As at 30 June 2014

	Note	2014 $	2013 $
Assets			
Current assets			
Cash and cash equivalents	6	2,408,993	9,333,933
Receivables	7	414,913	567,987
Tenement security deposits	12	30,000	170,000
Total current assets		**2,853,906**	**10,071,920**
Non-current assets			
Investments – available for sale	8	1,433,127	1,400,439
Investment in associates	9	1,850,000	468,000
Derivative financial instruments	11	955	81,176
Receivables	7	32,156	31,932
Tenement security deposits	12	20,000	115,850
Property, plant and equipment	13	203,165	233,771
Deferred exploration and evaluation expenditure	14	918,297	5,793,879
Deferred tax asset	4	828,869	814,339
Total non-current assets		**5,286,569**	**8,939,386**
Total assets		**8,140,475**	**19,011,306**
Liabilities			
Current liabilities			
Trade and other payables	15	364,555	691,204
Provisions	16	97,103	139,494
Derivative liability	17	–	2,139
Convertible note	17	–	1,969,654
Total current liabilities		**461,658**	**2,802,491**
Non-current liabilities			
Provisions	16	54,497	61,867
Total non-current liabilities		**54,497**	**61,867**
Total liabilities		**516,155**	**2,864,358**
Net assets		**7,624,320**	**16,146,948**
Equity			
Equity attributable to equity holders of the parent			
Contributed equity	18	14,526,115	14,515,132
Reserves	20	3,547,839	4,514,098
Accumulated losses		(10,449,634)	(9,004,793)
Parent interests		**7,624,320**	**10,024,437**
Non-controlling interests	10	–	**6,122,511**
Total equity		**7,624,320**	**16,146,948**

The Consolidated Statement of Financial Position should be read in conjunction with the accompanying notes.

Consolidated Statement of Cash Flows

For the year ended 30 June 2014

	Note	2014 $	2013 $
Cash flows from operating activities			
Payment to suppliers and employees		(2,463,696)	(2,777,015)
Consultancy fees and rental income received		280,568	276,226
R&D tax offset		956,555	1,232,116
Interest received		225,159	524,507
Net cash flows used in operating activities	29	**(1,001,414)**	**(744,166)**
Cash flows from investing activities			
Purchase of plant and equipment		(63,916)	(97,489)
Proceeds from sale of plant and equipment		–	19,656
Sale of mining tenements		200,000	–
Expenditure on mining interests (exploration)		(3,535,397)	(3,221,941)
Purchase of equity investments		(30,000)	–
Tenement security deposits & bank guarantees (paid)/recovered		222,500	(37,500)
Cash forgone on disposal of subsidiary		(86,556)	–
Net cash flows from investing activities		**(3,293,369)**	**(3,337,274)**
Cash flows from financing activities			
Proceeds from issue of shares		16,875	1,348,661
Payment of share issue costs		–	(54,400)
Repayment of convertible note		(2,350,000)	–
Convertible note costs		(308,288)	(201,370)
Net cash flows (used in)/from financing activities		**(2,641,413)**	**1,092,891**
Net increase in cash and cash equivalents		(2,988,549)	5,498,831
Net foreign exchange differences		11,256	(51,027)
Cash and cash equivalents at beginning of period		9,333,933	12,373,509
Cash and cash equivalents at end of period	29	**2,408,993**	**9,333,933**

The Consolidated Statement of Cash Flows should be read in conjunction with the accompanying notes.

Consolidated Statement of Changes in Equity

For the year ended 30 June 2014

	Note	Contributed equity $	Accumulated losses $	Reserves $	Non-controlling interest $	Total equity $
At 1 July 2012		14,515,132	(1,849,638)	2,837,018	5,419,932	20,922,444
(Loss) for the period		–	(7,216,541)	–	(633,183)	(7,849,724)
Other comprehensive income		–	–	(468,112)	–	(468,112)
Total comprehensive (loss) for the period		–	(7,216,541)	(468,112)	(633,183)	(8,317,836)
Transactions with owners in their capacity as owners:						
Issue of share capital (net of share issue costs)		–	–	–	1,421,467	1,421,467
Transfer expired options to Retained Earnings		–	504,113	(389,548)	(114,565)	–
Investment revaluation reserve adjustment	20	–	(442,727)	442,727	–	–
Deferred tax adjustment	20	–	–	745,611	–	745,611
Adjustment relating to impairment of assets	20	–	–	846,817	–	846,817
Share-based payments	20	–	–	50,815	28,860	79,675
Foreign currency translation	20	–	–	449,770	–	449,770
At 30 June 2013	20	14,515,132	(9,004,793)	4,514,098	6,122,511	16,146,948
At 1 July 2013		14,515,132	(9,004,793)	4,514,098	6,122,511	16,146,948
(Loss) for the period		–	(5,742,060)	–	24,816	(5,717,244)
Other comprehensive income		–	–	65,569	–	65,569
Total comprehensive (loss) for the period		–	(5,742,060)	65,569	24,816	(5,651,675)
Transactions with owners in their capacity as owners:						
Issue of share capital (net of share issue costs)		10,875	–	–	255,155	272,030
Transfer expired options to Retained Earnings		–	282,550	(47,880)	(234,670)	–
Expiry of Convertible Note Option	20	–	1,095,168	(1,095,168)	–	–
Non-Controlling interest disposal of Eastern Iron Limited		(5,892)	2,919,501	229,108	(6,178,392)	(3,035,675)
Share-based payments		–	–	–	10,580	10,580
Foreign currency translation	20	–	–	(117,888)	–	(117,888)
At 30 June 2014	20	14,526,115	(10,449,634)	3,547,839	–	7,624,320

The Consolidated Statement of Changes in Equity should be read in conjunction with the accompanying notes.

Consolidated Notes to the Financial Statements

For the year ended 30 June 2014

1. CORPORATE INFORMATION

The financial report of Variscan Mines Limited (Variscan or the Company) (formerly PlatSearch NL) for the year ended 30 June 2014 was authorised for issue in accordance with a resolution of the Directors on 30 September 2014.

On 10 January 2014 the Company changed its name from PlatSearch NL to Variscan Mines Limited.

Variscan Mines Limited (the parent) is a company limited by shares incorporated and domiciled in Australia whose shares are publicly traded on the Australian Securities Exchange under ASX Code VAR.

The consolidated financial statements comprise the financial statements of Variscan Mines Limited and its subsidiaries (the Group or Consolidated Entity).

The nature of the operations and principal activities of the Consolidated Entity are described in the Directors' Report.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of preparation

The financial report is a general purpose financial report, which has been prepared in accordance with the requirements of the Corporations Act 2001, Australian Accounting Standards and other authoritative pronouncements of the Australian Accounting Standards Board. It has been prepared on a historical cost basis except for investments in listed shares and derivative financial instruments, which are measured at fair value.

Statement of compliance

The financial report complies with Australian Accounting Standards and International Financial Reporting Standards ('IFRS') as issued by the International Accounting Standards Board ('IASB').

Basis of consolidation

The consolidated financial statements comprise the financial statements of Variscan Mines Limited (Variscan or the Company) and its subsidiaries (collectively, the Group) as at 30 June each year.

The financial statements of subsidiaries are prepared for the same reporting period as the parent company, using consistent accounting policies.

All intercompany balances and transactions, income and expenses and profit and losses resulting from intra-group transactions have been eliminated in full.

Non-controlling interests are allocated their share of profit after tax in the statement of comprehensive income and are presented within equity in the consolidated statement of financial position, separately from the equity of the owners of the parent. Losses are attributable to the non-controlling interest even if that results in a deficit balance.

Subsidiaries are fully consolidated from the date on which control is transferred to the Group and cease to be consolidated from the date on which control is transferred out of the Group. At this date, any retained interest in the entity is remeasured to its fair value with the change in carrying amount recognised in profit or loss. The fair value is the initial carrying amount for the purposes of subsequently accounting for the retained interest as an associate.

Business combinations

Business combinations are accounted for using the acquisition method. The consideration transferred in a business combination shall be measured at fair value, which shall be calculated as the sum of the acquisition-date fair values of the assets transferred by the acquirer, the liabilities incurred by the acquirer to former owners of the acquiree and the equity issued by the acquirer, and the amount of any non-controlling interest in the acquiree. For each business combination, the acquirer measures the non-controlling interest in the acquiree either at fair value of at the proportionate share of the acquiree's identifiable net assets.

Acquisition-related costs are expensed as incurred.

When the Group acquires a business, it assesses the financial assets and liabilities assumed for appropriate classification and designation in accordance with the contractual terms, economic conditions, the Group's operating or accounting policies and other pertinent conditions as at the acquisition date. This includes the separation of embedded derivatives in host contracts by the acquiree.

If the business combination is achieved in stages, the acquisition date fair value of the acquirer's previously held equity interest in the acquiree is remeasured at fair value as at the acquisition date through profit or loss.

Any contingent consideration to be transferred by the acquirer will be recognised at fair value at the acquisition date. Subsequent changes to the fair value of the contingent consideration which is deemed to be an asset or liability will be recognised in accordance with AASB 139 either in profit or loss or in other comprehensive income. If the contingent consideration is classified as equity, it shall not be remeasured.

Cash and cash equivalents

Cash and short-term deposits in the Statement of Financial Position comprise cash at bank and in hand and short-term deposits readily convertible to a known amount of cash and subject to an insignificant risk of change in value.

For the purposes of the Statement of Cash Flows, cash and cash equivalents consist of cash and cash equivalents as defined above, net of outstanding bank overdrafts, if any.

Trade and other receivables

Trade receivables, which generally have a 30 day term, are recognised initially at fair value and subsequently measured at amortised cost using the effective interest method, less an allowance for impairment.

An allowance for doubtful debts is made when there is objective evidence that the Company will not be able to collect the debts. Bad debts are written off when identified.

Exploration, evaluation, development and restoration costs

Exploration and evaluation

Exploration and evaluation expenditure incurred by or on behalf of the Company is accumulated separately for each area of interest. Such expenditure comprises net direct costs and an appropriate portion of related overhead expenditure, but does not include general overheads or administrative expenditure not having a specific connection with a particular area of interest.

Exploration and evaluation costs in relation to separate areas of interest for which rights of tenure are current are brought to account in the year in which they are incurred and carried forward provided that:

Such costs are expected to be recouped through successful development and exploitation of the area, or alternatively through its sale.

Exploration and/or evaluation activities in the area have not yet reached a stage which permits a reasonable assessment of the existence or otherwise of economically recoverable reserves.

Once a development decision has been taken, all past and future exploration and evaluation expenditure in respect of the area of interest is aggregated within costs of development.

Exploration and evaluation – impairment

The Group assesses at each reporting date whether there is an indication that an asset has been impaired and for exploration and evaluation costs whether the above carry forward criteria are met.

Accumulated costs in respect of areas of interest are written off or a provision made in the Statement of Comprehensive Income when the above criteria do not apply or when the Directors assess that the carrying value may exceed the recoverable amount. The costs of productive areas are amortised over the life of the area of interest to which such costs relate on the production output basis.

Provisions are made where farm-in partners are sought and there is a possibility that carried-forward expenditures may have to be written off in the future if a farm-in partner is not found. In the event that farm-in agreements are reached or the Company undertakes further exploration in its own right on those properties, the provisions would be reviewed and if appropriate, written back.

Development

Development expenditure incurred by or on behalf of the Company is accumulated separately for each area of interest in which economically recoverable reserves have been identified to the satisfaction of the Directors. Such expenditure comprises net direct costs and, in the same manner as for exploration and evaluation expenditure, an appropriate portion of related overhead expenditure having a specific connection with the development property.

All expenditure incurred prior to the commencement of commercial levels of production from each development property is carried forward to the extent to which recoupment out of revenue to be derived from the sale of production from the relevant development property, or from the sale of that property, is reasonably assured.

No amortisation is provided in respect of development properties until a decision has been made to commence mining. After this decision, the costs are amortised over the life of the area of interest to which such costs relate on a production output basis.

Restoration

Provisions for restoration costs are recognised when the Company has a present obligation (legal or constructive) as a result of a past event, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and a reliable estimate can be made of the amount of the obligation.

If the effect of the time value of money is material, provisions are determined by discounting the expected cash flows at a pre-tax rate that reflects current market assessments of the time value of money and, where appropriate, the risks specific to the liability.

When discounting is used, the increase in the provision due to the passage of time is recognised as a finance cost.

Investments and other financial assets

Investments and financial assets in the scope of AASB 139 Financial Instruments: Recognition and Measurement are categorised as either financial assets at fair value through profit or loss, loans and receivables, or available for sale financial assets. The classification depends on the purpose for which the investments were acquired. Designation is re-evaluated at each financial year end, but there are restrictions on reclassifying to other categories.

When financial assets are recognised initially, they are measured at fair value, plus, in the case of assets not at fair value through profit or loss, directly attributable transaction costs.

Recognition and derecognition

All purchases and sales of financial assets are recognised on the trade date i.e. the date that the Group commits to purchase the asset. Regular way purchases or sales are purchases or sales of financial assets under contracts that require delivery of the assets within the period established generally by regulation or convention in the market place. Financial assets are derecognised when the right to receive cash flows from the financial assets have expired or have been transferred.

Financial assets at fair value through profit or loss

Financial assets classified as held for trading are included in the category 'financial assets at fair value through profit or loss'. Financial assets are classified as held for trading if they are acquired for the purpose of selling in the near term with the intention of making a profit. Derivatives are also classified as held for trading unless they are designated as effective hedging instruments. Gains or losses on financial assets held for trading are recognised in profit or loss and the related assets are classified as current assets in the Statement of Financial Position.

Loans and receivables

Loans and receivables including loan notes and loans to KMP are non-derivative financial assets with fixed or determinable payments that are not quoted in an active market. Such assets are carried at amortised cost using the effective interest method. Gains and losses are recognised in profit or loss when the loans and receivables are derecognised or impaired. These are included in current assets, except for those with maturities greater than 12 months after reporting date, which are classified as non-current.

Available for sale securities

Available for sale investments are those non-derivative financial assets, principally equity securities, that are designated as available for sale or are not classified as any of the three preceding categories. After initial recognition available for sale securities are measured at fair value with gains or losses being recognised as a separate component of equity until the investment is derecognised or until the investment is determined to be impaired, at which time the cumulative gain or loss previously reported in equity is recognised in profit or loss.

The fair values of investments that are actively traded in organised financial markets are determined by reference to quoted market bid prices at the close of business on the reporting date. For investments with no active market, fair values are determined using valuation techniques. Such techniques include: using recent arm's length market transactions; reference to the current market value of another instrument that is substantially the same; discounted cash flow analysis and option pricing models making as much use of available and supportable market data as possible and keeping judgemental inputs to a minimum.

Investments in associates

The Group's investment in its associates is accounted for using the equity method of accounting in the consolidated financial statements and at cost in the parent. The associates are entities over which the Group has significant influence and that are neither subsidiaries nor joint ventures.

The Group generally deems they have significant influence if they have over 20% of the voting rights.

Under the equity method, investments in the associates are carried in the consolidated Statement of Financial Position at cost plus post-acquisition changes in the Group's share of net assets of the associates. Goodwill relating to an associate is included in the carrying amount of the investment and is not amortised. After application of the equity method, the Group determines whether it is necessary to recognise any impairment loss with respect to the Group's net investment in associates.

The Group's share of its associates' post-acquisition profits or losses is recognised in the Statement of Comprehensive Income, and its share of post-acquisition movements in reserves is recognised in reserves. The cumulative post-acquisition movements are adjusted against the carrying amount of the investment. Dividends receivable from associates are recognised in the parent entity's Statement of Comprehensive Income, while in the consolidated financial statements they reduce the carrying amount of the investment.

When the Group's share of losses in an associate equals or exceeds its interest in the associate, including any unsecured long-term receivables and loans, the Group does not recognise further losses, unless it has incurred obligations or made payment on behalf of the associate.

The reporting dates of the associates and the Group are identical and the associates' accounting policies conform to those used by the Group for like transactions and events in similar circumstances.

Interest in jointly controlled operations – joint ventures

The Group has an interest in exploration joint ventures that are jointly controlled. A joint venture is a contractual arrangement whereby two or more parties undertake an economic activity that is subject to joint control. A jointly controlled operation involves use of assets and other resources of the venturers rather than establishment of a separate entity. The Group recognises its interest in the jointly controlled operations by recognising the assets that it controls and the liabilities that it incurs. The Group also recognises the expenses that it incurs and its share of any income that it earns from the sale of goods or services by the jointly controlled operations.

Plant and equipment

Plant and equipment is stated at historical cost less accumulated depreciation and any accumulated impairment losses.

Depreciation is calculated on a straight-line basis over the estimated useful life of the asset, namely motor vehicles and plant and equipment – depreciated over 2–10 years (2013: 2–8 years).

Impairment

The carrying values of plant and equipment are reviewed for impairment when events or changes in circumstances indicate the carrying value may not be recoverable.

An item of plant and equipment is derecognised upon disposal or when no further future economic benefits are expected from its use or disposal.

Any gain or loss arising on derecognition of the asset (calculated as the difference between the net disposal proceeds and the carrying amount of the item) is included in the income statement in the period the item is derecognised.

Leases

In determination of whether an arrangement is or contains a lease is based on the substance of the arrangement and requires an assessment of whether the fulfilment of the arrangement is dependent on the use of a specific asset or assets and the arrangement conveys a right to use the asset.

Leases where the lessor retains substantially all the risks and benefits of ownership of the asset are classified as operating leases.

Operating lease payments are recognised as an expense in the income statement on a straight-line basis over the lease term.

Trade and other payables and provisions

Trade payables and other payables are carried at amortised cost. They represent liabilities for goods and services provided to the Group prior to the end of the financial year that are unpaid and arise when the Group becomes obliged to make future payments in respect of the purchase of these goods and services.

Provisions are recognised when the Company has a present obligation (legal or constructive) as a result of a past event, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and a reliable estimate can be made of the amount of the obligation.

Where the Company expects some or all of a provision to be reimbursed, for example under an insurance contract, the reimbursement is recognised as a separate asset but only when the reimbursement is virtually certain. The expense relating to any provision is presented in the Statement of Comprehensive Income net of any reimbursement.

If the effect of the time value of money is material, provisions are determined by discounting the expected future cash flows at a pre-tax rate that reflects current market assessments of the time value of money and where appropriate, the risks specific to the liability.

When discounting is used, the increase in the provision due to the passage of time is recognised as a finance cost.

Borrowing costs

Borrowing costs directly attributable to the acquisition, construction or production of a qualifying asset (i.e.an asset that necessarily takes a substantial period of time to get ready for its intended use or sale) are capitalised as part of the cost of that asset. All other borrowing costs are expensed in the period they occur. Borrowing costs consist of interest and other costs that an entity incurs in connection with the borrowing of funds.

Convertible notes

The component of convertible notes that exhibits characteristics of a borrowing is recognised as a liability in the Statement of Financial Position, net of transaction costs. On issue of convertible note, the fair value of the liability component is determined using a market rate for an equivalent non-convertible note and this amount is carried as a liability on the amortised cost basis until extinguished on conversion or redemption. The increase in the liability due to the passage of time is recognised as a finance cost. The component of the note that exhibits characteristics of a derivative is recognised as a liability in the Statement of Financial Position. The option is carried at fair value and is subsequently remeasured at each reporting date, with any movement recognised in the income statement.

The remainder of the proceeds is allocated to the equity component and is recognised in shareholders' equity, net of tax effects. The carrying amount of the equity component is not remeasured in subsequent years.

Convertible notes are classified as non-current liabilities unless the Group has an unconditional obligation to settle the liability within 12 months after the reporting date.

Employee entitlements

Wages, salaries, annual leave, and long service leave

Liabilities for wages and salaries are recognised and are measured as an amount unpaid at the reporting date at current pay rates in respect of employee's services up to that date.

Superannuation

The Company contributes to defined contribution superannuation funds for its employees. The cost of these contributions is expensed as incurred. A liability in respect of superannuation at the current superannuation guarantee rate has been accrued at the reporting date.

Share-based payment transactions

In addition to salaries, the Group provides benefits to certain employees (including Directors) of the Group in the form of share-based payment transactions, whereby employees render services in exchange for shares or rights over shares ('equity-settled transactions').

There is currently an Employee Share Option Plan in place to provide these benefits.

The cost of these equity-settled transactions with employees is measured by reference to the fair value at the date at which they are granted. The fair value of the options is determined by using the binomial option pricing model.

In valuing transactions settled by way of issue of options, no account is taken of any vesting limits or hurdles, or the fact that the options are not transferable.

The cost of equity-settled transactions is recognised, together with a corresponding increase in equity, over the period in which the vesting conditions are fulfilled, ending on the date on which the relevant employees become fully entitled to the award (the vesting period).

The cumulative expense recognised for equity-settled transactions at each reporting date until vesting date reflects (i) the extent to which the vesting period has expired and (ii) the Group's best estimate of the number of equity instruments that will ultimately vest. No adjustment is made for the likelihood of market performance conditions being met as the effect of these conditions is included in the determination of fair value at grant date. The Statement of Comprehensive Income charge or credit for a period represents the movement in cumulative expense recognised as at the beginning and end of that period.

No expense is recognised for awards that do not ultimately vest, except for awards where vesting is only conditional upon a market condition.

If the terms of an equity-settled award are modified, at a minimum an expense is recognised as if the terms had not been modified. In addition, an expense is recognised for any modification that increases the total fair value of the share-based payment arrangement, or is otherwise beneficial to the employee, as measured at the date of modification.

If an equity-settled award is cancelled, it is treated as if it had vested on the date of the cancellation, and any expense not yet recognised is recognised immediately. However, if a new award is substituted for the cancelled award and designated a replacement award on the date it is granted, the cancelled and the new award are treated as if there was a modification of the original award, as described in the previous paragraph.

The dilutive effect, if any, of outstanding options is reflected as additional share dilution in the computation of earnings per share except where such dilution would serve to reduce a loss per share.

Revenue recognition

Revenue is recognised to the extent that it is probable that the economic benefits will flow to the Group and the revenue can be reliably measured. The following specific recognition criteria must also be met before revenue is recognised.

Rendering of services

Revenue from consulting services are recognised when provided.

Interest

Revenue is recognised as interest accrues using the effective interest method.

Royalties

Royalties are recognised in accordance with substance of the relevant agreement.

Contract exploration

Contract exploration revenue (consulting fees) earned from third parties is recognised when rights to receive the revenue are assured.

Income tax

Current tax assets and liabilities for the current and prior periods are measured at the amount expected to be recovered from or paid to the taxation authorities. The tax rates and tax laws used to compute the amount are those that are enacted or substantively enacted by the reporting date.

Deferred income tax is provided on all temporary differences at the reporting date between the tax bases of assets and liabilities and their carrying amounts for financial reporting purposes.

Deferred income tax liabilities are recognised for all taxable temporary differences:

- Except where the deferred income tax liability arises from the initial recognition of an asset or liability in a transaction that is not a business combination and, at the time of the transaction, affects neither the accounting profit nor taxable profit or loss.
- In respect of taxable temporary differences associated with investments in subsidiaries, associates and interests in joint ventures, except where the timing of the reversal of the temporary differences can be controlled and it is probable that the temporary differences will not reverse in the foreseeable future.

Deferred income tax assets are recognised for all deductible temporary differences, carry-forward of unused tax assets and unused tax losses, to the extent that it is probable that taxable profit will be available against which the deductible temporary differences, and the carry-forward of unused tax assets and unused tax losses can be utilised:

- Except where the deferred income tax asset relating to the deductible temporary difference arises from the initial recognition of an asset or liability in a transaction that is not a business combination and, at the time of the transaction, affects neither the accounting profit nor taxable profit or loss.
- In respect of deductible temporary differences associated with investments in subsidiaries, associates and interests in joint ventures, deferred tax assets are only recognised to the extent that it is probable that the temporary differences will reverse in the foreseeable future and taxable profit will be available against which the temporary differences can be utilised.

The carrying amount of deferred income tax assets is reviewed at each reporting date and reduced to the extent that it is no longer probable that sufficient taxable profit will be available to allow all or part of the deferred income tax asset to be utilised.

Deferred income tax assets and liabilities are measured at the tax rates that are expected to apply to the year when the asset is realised or the liability is settled, based on tax rates (and tax laws) that have been enacted or substantively enacted at the reporting date.

Income taxes relating to items recognised directly in equity are recognised in equity and not in the Statement of Comprehensive Income.

Other taxes

Revenues, expenses and assets are recognised net of the amount of GST except:

- Where the GST incurred on the purchase of goods and services is not recoverable from the taxation authority, in which case the GST is recognised as part of the cost of acquisition of the asset or as part of the expense item as applicable.

- Receivables and payables are stated with the amount of GST included.

The net amount of GST recoverable from, or payable to, the taxation authority is included as part of receivables or payables in the Statement of Financial Position.

Cash flows are included in the Statement of Cash Flows on a gross basis and the GST component of cash flows arising from investing and financial activities, which is recoverable from, or payable to, the taxation authority are classified as operating cash flows.

Commitments and contingencies are disclosed net of the amount of GST recoverable from, or payable to, the taxation authority.

Currency

Functional currency translation

The functional and presentation currency for the parent company is Australian dollars ($). The functional currency of overseas subsidiaries is the local currency.

Transactions and balances

Transactions in foreign currencies are initially recorded in the functional currency by applying the exchange rates ruling at the date of the translation. Monetary assets and liabilities denominated in foreign currencies are retranslated at the rate of exchange at the reporting date.

Non-monetary items that are measured in terms of historical cost in a foreign currency are translated using the exchange rate as at the date of the initial transaction. Non-monetary items measured at fair value in a foreign currency are translated using the exchange rates at the date when the fair value was determined.

Translation of Group Companies' functional currency to presentation currency

The results of the French subsidiary are translated into Australian Dollars (presentation currency) as at the date of each transaction. Assets and liabilities are translated at exchange rates prevailing at reporting date.

Impairment of assets

The Group assesses at each reporting date whether there is an indication that an asset may be impaired. If any such indication exists, or when annual impairment testing for an asset is required, the Group makes an estimate of the asset's recoverable amount. An asset's recoverable amount is the higher of its fair value less costs to sell and its value in use and is determined for an individual asset, unless the asset does not generate cash inflows that are largely independent of those from other assets or groups of assets and the asset's value in use cannot be estimated to be close to its fair value. In such cases the asset is tested for impairment as part of the cash-generating unit to which it belongs. When the carrying amount of an asset or cash-generating unit exceeds its recoverable amount, the asset or cash-generating unit is considered impaired and is written down to its recoverable amount.

In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset. Impairment losses relating to continuing operations are recognised in those expense categories consistent with the function of the impaired asset unless the asset is carried at revalued amount (in which case the impairment loss is treated as a revaluation decrease).

An assessment is also made at each reporting date as to whether there is any indication that previously recognised impairment losses may no longer exist or may have decreased. If such indication exists, the recoverable amount is estimated. A previously recognised impairment loss is reversed only if there has been a change in the estimates used to determine the asset's recoverable amount since the last impairment loss was recognised. If that is the case the carrying amount of the asset is increased to its recoverable amount. The increased amount cannot exceed the carrying amount that would have been determined, net of depreciation, had no impairment loss been recognised for the asset in prior years. Such reversal is recognised in profit or loss unless the asset is carried at revalued amount, in which case the reversal is treated as a revaluation increase. After such a reversal the depreciation charge is adjusted in future periods to allocate the asset's revised carrying amount, less any residual value, on a systematic basis over its remaining useful life.

Contributed equity

Ordinary shares are classified as equity. Incremental costs directly attributable to the issue of new shares or options are shown in equity as a deduction, net of tax, from the proceeds.

Recoverable amount of assets

At each reporting date, the Group assesses whether there is any indication that an asset may be impaired. Where an indicator of impairment exists, the Group makes a formal estimate of recoverable amount. Where the carrying amount of an asset exceeds its recoverable amount the asset is considered impaired and is written down to its recoverable amount.

Recoverable amount is the higher of fair value less costs to sell and value in use.

Significant accounting judgements, estimates and assumptions

The carrying amounts of certain assets and liabilities are often determined based on estimates and assumptions of future events. The key estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of certain assets and liabilities within the next annual reporting period is:

Share-based payment transactions

The Company measures the cost of equity-settled share-based payments at fair value at the grant date using the Binominal formula taking into account the terms and conditions upon which the instruments were granted, and estimates of volatility as detailed in Note 19.

Derivative financial instruments

The Company values its equity in the form of options in listed public companies using the Binomial method of valuation methodology taking into account the terms and conditions on which the instruments are granted as detailed in Note 11. The net gain or loss for the period is brought to account in the Statement of Comprehensive Income.

Capitalisation and write-off of capitalised exploration costs

The determination of when to capitalise and write-off exploration expenditure requires the exercise of judgement based on assessments of results, various assumptions and other factors such as historical experience, current and expected economic conditions.

Earnings per share

Basic earnings per share is calculated as net profit attributable to members of the Group, adjusted to exclude any costs of servicing equity divided by the weighted average number of ordinary shares.

Diluted earnings per share is calculated as net profit attributable to members of the Group, adjusted for:

- Costs of servicing equity
- The after tax effect of dividends and interest associated with dilutive potential ordinary shares that have been recognised as expenses.
- Other non-discretionary changes in revenues or expenses during the period that would result from the dilution of potential ordinary shares.

divided by the weighted average number of ordinary shares and dilutive potential ordinary shares, adjusted for any bonus element.

Segment reporting

Operating segments are reported in a manner consistent with the internal reporting provided to the chief operating decision maker. The chief operating decision maker, who is responsible for allocating resources and assessing performance of the operating segments, has been identified as the Managing Director.

Accounting standards issued but not yet effective

Australian Accounting Standards and interpretations that have been issued or amended but are not yet effective have not been adopted by the Consolidated Entity for the year ended 30 June 2014. The Consolidated Entity plans to adopt the following standards which are considered relevant, at their application dates as detailed below.

AASB 9 Financial Instruments (Application date 1 January 2017)

AASB 9 includes requirements for the classification and measurement of financial assets resulting from the first part of Phase 1 of the IASB's project to replace IAS 39 Financial Instruments: Recognition and Measurement (AASB 139 Financial Instruments: Recognition and Measurement).

These requirements improve and simplify the approach for classification and measurement of financial assets compared with the requirements of AASB 139. The main changes from AASB 139 are described below.

(a) Financial assets are classified based on (1) the objective of the entity's business model for managing the financial assets; (2) the characteristics of the contractual cash flows. This replaces the numerous categories of financial assets in AASB 139, each of which had its own classification criteria.

(b) AASB 9 allows an irrevocable election on initial recognition to present gains and losses on investments in equity instruments that are not held for trading in other comprehensive income. Dividends in respect of these investments that are a return on investment can be recognised in profit or loss and there is no impairment or recycling on disposal of the instrument.

(c) Financial assets can be designated and measured at fair value through profit or loss at initial recognition if doing so eliminates or significantly reduces a measurement or recognition inconsistency that would arise from measuring assets or liabilities, or recognising the gains and losses on them, on different bases.

It is anticipated that the application of the standard will not have a material effect on the Group's results or financial reports in future periods.

AASB 2010-7 Amendments to Australian Accounting Standards arising from AASB 9 (December 2010)[AASB 1, 3, 4, 5, 7, 101, 102, 108, 112, 118, 120, 121, 127, 128, 131, 132, 136, 137, 139, 1023, & 1038 and interpretations 2, 5, 10, 12, 19 & 127] (Application date 1 January 2017)

The requirements for classifying and measuring financial liabilities were added to AASB 9. The existing requirements for the classification of financial liabilities and the ability to use the fair value option have been retained. However, where the fair value option is used for financial liabilities the change in fair value is accounted for as follows:

- The change attributable to changes in credit risk are presented in other comprehensive income (OCI)
- The remaining change is presented in profit or loss

If this approach creates or enlarges an accounting mismatch in the profit or loss, the effect of the changes in credit risk are also presented in profit or loss.

It is anticipated that the application of this standard will not have a material effect on the Group's results or financial reports in future periods.

	2014 $	2013 $
3. REVENUE AND OTHER INCOME		
Revenue		
Interest received – other persons/corporations	209,056	495,279
Consulting fees	222,533	242,864
Rental income	51,709	41,460
Other Income		
Gain on options – mark to market	–	14,676
Gain on derivatives	2,139	30,171
Gain on sale of tenements	200,000	–
R&D tax concession offset	964,269	1,462,590
Victorian government infrastructure grant	300,000	–
Unrealised gain on foreign currency	43,190	–
Other	2,149	–
	1,995,045	**2,287,040**
4. INCOME TAX		
Income tax expense		
The major components of income tax expense are:		
Current income tax	–	–
Current income tax benefit		
Deferred income tax	–	–
Relating to origination and reversal of temporary differences	(42,631)	1,227,266
Recognition of previously unrecognised losses	–	–
Income tax (benefit)/expense reported in the Statement of Comprehensive Income	**(42,631)**	**1,227,266**
Amounts charged or credited directly to equity		
Deferred income tax related to items charged directly to equity		
Unrealised (gain)/loss on available for sale investments	(28,101)	583,737
Income tax benefit/(expense) reported in equity	**(28,101)**	**583,737**
Reconciliation		
Prima facie income tax (benefit)/expense on operating profit/(loss) at 30%	(1,727,963)	(1,986,737)
Non-deductible expenses	179,005	39,849
Under provision in prior year	–	189,740
Tax losses of subsidiaries not recognised	(414,850)	855,677
Recognition / de-recognition of tax losses and other temporary differences	1,921,177	2,128,751
Income tax (benefit)/expense	**(42,631)**	**1,227,266**
Recognised deferred tax assets and liabilities		
Opening deferred tax balance	(814,339)	(1,457,868)
Charged to income expense / (benefit)	(42,631)	1,227,266
Charged to equity (credit)	28,101	(583,737)
Closing balance	**(828,869)**	**(814,339)**
Amounts recognised in the Statement of Financial Position		
Deferred tax asset	1,011,530	1,118,846
Deferred tax liability	(182,661)	(304,507)
Net deferred tax balance	**828,869**	**814,339**

	2014 $	2013 $
4. INCOME TAX continued		
Deferred income tax at 30 June relates to the following:		
(i) **Deferred tax liabilities**		
Derivatives	287	24,353
Available for sale investments	128,017	99,916
Capitalised exploration	54,357	180,238
Gross deferred tax liabilities	**182,661**	**304,507**
(ii) **Deferred tax assets**		
Carry-forward tax losses	182,661	304,507
Equity accounted investment	667,200	242,221
Provisions	28,308	39,798
Share issuance costs	98,652	98,652
Interest on convertible notes	–	367,490
Available for sale investments	34,709	66,178
Gross deferred tax assets	**1,011,530**	**1,118,846**
Net deferred tax assets	**828,869**	**814,339**

Franking credits of $2,810,116 (2013: $2,810,116) are available for subsequent years.

The above amounts represent the balance of the franking account as at the end of the reporting period, adjusted for:

- Franking credits that will arise from the payment of the amount of the provision for income tax;
- Franking debits that will arise from the payment of dividends recognised as a liability at the reporting date; and
- Franking credits that will arise from the receipt of dividends recognised as receivables at the reporting date.

The consolidated amounts include franking credits that would be available to the parent entity if distributable profits of subsidiaries were paid as dividends.

Tax consolidation

Variscan Mines Limited and its 100% owned subsidiaries (Bluestone 23) formed a tax consolidated group with effect from 1 November 2007. Variscan Mines Limited is the head entity of the tax consolidated group. No amounts have been recognised in the financial statements in respect of this agreement on the basis that the possibility of default is remote.

There are $209,090 (2013: $7,358,489) unrecognised tax losses attributable to Variscan Mines SAS (2013: Eastern Iron and Variscan Mines SAS), subsidiaries which are not tax consolidated with the parent company.

5. AUDITORS' REMUNERATION

Amounts received or due and receivable by:		
HLB Mann Judd, for:		
Audit and review of the financial report of Variscan Mines Limited	65,703	64,347
Tax advisory services	5,000	–
	70,703	**64,347**
Amounts received or due and receivable **Barnes Dowell James**, for:		
Audit and review of the financial report of Eastern Iron Limited	25,500	23,000
Other services	3,500	–
Amounts received or due and receivable **SEFAC**, for:		
Audit and review of the financial report of Variscan Mines SAS	8,620	7,894
Total Auditors' Remuneration for the Group	**108,323**	**95,241**

	2014 $	2013 $
6. CASH AND CASH EQUIVALENTS		
Cash at bank and in hand	789,168	740,004
Short-term deposits	1,619,825	8,593,929
Refer Note 29	**2,408,993**	**9,333,933**

Cash at bank earns interest at floating rates based on daily bank deposit rates. The carrying amount of cash and cash equivalents represents fair value.

Short-term deposits are made for varying periods of between one day and six months, depending on the immediate cash requirements of the Group, and earn interest at the respective short-term deposit rates.

7. RECEIVABLES – CURRENT

Current		
R&D tax concession offset	271,988	257,339
GST receivables	30,718	53,251
Interest receivable	21,611	37,716
Prepayments	47,516	63,488
Other debtors	43,080	156,193
	414,913	**567,987**
Non-current		
Rental bonds	32,156	31,932
	32,156	**31,932**

Receivables are non-interest bearing and generally 30 day terms and trading terms are being followed by debtors and there are no overdue amounts. An allowance for impairment loss is recognised when there is objective evidence that it is impaired. No allowance for impairment loss is required. The amounts not past due have been assessed to be not impaired.

8. INVESTMENTS

Investment – available for sale – WPG (a)	426,721	333,051
Investment – available for sale – AGR (b)	47,000	64,625
Investment – available for sale SCI (c)	959,406	1,002,763
	1,433,127	**1,400,439**

(a) The market value on ASX of Variscan's 10,407,837 shares in WPG Resources Ltd (WPG) at 30 June 2014 was $426,721 ($0.041 per share) and on 24 September 2014 it was $447,537 ($0.043 per share).

(b) The market value on ASX of the Group's 1,175,000 shares in Aguia Resources Limited (AGR) at 30 June 2014 was $47,000 ($0.04 per share) and on 24 September 2014 it was $47,000 ($0.04 per share).

(c) The market value of the Group's 14,536,449 shares in Silver City Minerals Limited (SCI) at 30 June 2014 was $959,406 ($0.066 per share) and on 24 September 2014 it was $625,067 ($0.043 per share).

9. INVESTMENT IN ASSOCIATES

The Group's interest in the below investments in associates have been brought to account using the equity method in accordance with Australian Accounting Standard AASB 128 Investments in Associates as the Directors consider that significant influence exists. The Company's share in any retained profits or reserves of the associated company are not available to Variscan until such time as those profits and reserves are distributed by the associated company.

	Thomson Resources Ltd		Eastern Iron Limited	
Name	2014	2013	2014	2013
Interest in associates	%	%	%	%
Ownership interest	25.65	25.65	36.74	–
	$	$	$	$
Carrying amount	–	468,000	1,850,000	–
Share of associate's losses	**(450,018)**	**(163,944)**	**(939,055)**	–
Carrying amount of investment in associate				
Balance at beginning of financial period	468,000	900,000	–	–
– opening value of associate	–	–	3,465,000	–
– share purchase	–	–	15,000	–
– share of associate's net losses for the financial period	(450,018)	(163,944)	(939,055)	–
– impairment of investment	(17,982)	(268,056)	(690,945)	–
Carrying amount of investment in associate at the end of the financial period	–	468,000	1,850,000	–
Summarised Balance Sheet				
Total current assets	1,034,371	1,602,542	296,648	–
Total non-current assets	2,465,170	3,673,800	5,956,649	–
Total current liabilities	(81,691)	(108,292)	(525,471)	–
Total non-current liabilities	(19,579)	(15,324)	–	–
Net assets	**3,398,271**	**5,152,726**	**5,727,826**	–
Reconciliation to carrying amounts:				
Opening net assets 1 July	5,152,726	5,791,884	8,283,856	–
(Loss) for the period	(1,754,455)	(639,158)	(2,556,030)	–
Closing net assets	**3,398,271**	**5,152,726**	**5,727,826**	–
Group's share in %	**25.65**	**25.65**	**36.74**	–
Group's share in $	**871,657**	**1,321,674**	**2,104,403**	–
Summarised statement of comprehensive income				
Revenue	417,196	1,235,810	1,168,206	–
(Loss) for the period	(1,754,455)	(639,158)	(2,556,030)	–
Other comprehensive income	–	–	–	–
Total comprehensive income	**(1,754,455)**	**(639,158)**	**(2,556,030)**	–

Thomson Resources Ltd

Thomson Resources Ltd (ASX Code: TMZ) is an Australian minerals explorer. An impairment adjustment of $17,982 (2013: $268,056) was made to reflect the equity value of the investment at 30 June 2014 of Nil.

Eastern Iron Limited

Eastern Iron Limited (ASX Code: EFE) is an Australian minerals explorer. An impairment adjustment of $690,945 (2013: Nil) was made to reflect the fair value of the investment on ASX at 30 June 2014 of $1,850,000.

	2014 $	2013 $
10. NON-CONTROLLING INTERESTS		
Contributed equity	7,907,335	7,652,180
Reserves	353,987	578,077
Accumulated losses	(2,082,930)	(2,107,746)
Non-Controlling interest on disposal of Eastern Iron Limited	(6,178,392)	–
	–	6,122,511
11. DERIVATIVE FINANCIAL INSTRUMENTS		
Share options – AGR (a)	–	–
Share options – SCI (b)	955	81,176
Share options – TMZ (c)	–	–
	955	81,176

(a) The Variscan group holds 200,000 (2013:200,000) options in Aguia Resources Limited (AGR) with an exercise price of $0.50 and an expiry date of 31 December 2014. A valuation of these options has been obtained using the Black, Scholes, Merton methodology model with a Binomial Variation and the following assumptions: expected volatility of 57.06%, risk-free interest rate of 2.71%, dividend yield nil and an option life of 0.5 years. This results in a fair value of $Nil at 30 June 2014.

(b) Variscan's 3,000,000 options in Silver City Minerals Limited (SCI) expired on 1 July 2013. In November 2011 SCI announced a non-renounceable rights issue to issue one option for every three shares held at an issue price of $0.01 per option. The Variscan Group purchased 4,775,061 listed options in December 2011 for $47,750. The options have an exercise price of $0.25 and an expiry date of 19 December 2014. The market value on ASX of the Group's 4,775,061 (2013: 4,775,061) options in Silver City Minerals Limited (SCI) at 30 June 2014 was $955 ($0.0002 per option).

(c) Variscan holds 5,000,000 (2013: 5,000,000) options in Thomson Resources Ltd (TMZ) with an exercise price of $0.30 and an expiry date of 11 December 2014. A valuation of these options has been obtained using the Black, Scholes, Merton methodology model with a Binomial Variation and the following assumptions: expected volatility of 57.26%, risk-free interest rate of 2.71%, dividend yield nil and an option life of 0.5 years. This results in a fair value of $Nil at 30 June 2014.

The fair value of share prices are as identified in Note 8.

12. TENEMENT SECURITY DEPOSITS

Current		
Cash at bank – bank deposits	–	170,000
Cash with government mines departments	30,000	–
	30,000	170,000
Non-Current		
Cash at bank – bank deposits	–	10,000
Cash with government mines departments	20,000	105,850
	20,000	115,850

These deposits are restricted so that they are available for any rehabilitation that may be required on exploration tenements (refer to Note 26). The bank deposits are interest earning.

13. PROPERTY, PLANT AND EQUIPMENT

	Motor vehicle $	Plant and equipment $	Total $
Year ended 30 June 2013			
Opening net book amount	41,833	252,369	294,202
Additions	–	101,806	101,806
Disposals	(32,699)	(19,656)	(52,355)
Depreciation expense	(8,611)	(77,974)	(86,585)
Foreign exchange differences	3,944	(27,241)	(23,297)
Closing net book amount	**4,467**	**229,304**	**233,771**
At 30 June 2013			
Cost	24,167	442,823	466,990
Accumulated depreciation	(19,700)	(206,714)	(226,414)
Foreign exchange differences	–	(6,805)	(6,805)
Net book amount	**4,467**	**229,304**	**233,771**
Year ended 30 June 2014			
Opening net book amount	4,467	229,304	233,771
Additions	43,372	20,544	63,916
Disposals	–	–	–
Disposal of subsidiary	(2,452)	(17,209)	(19,661)
Depreciation expense	(8,158)	(69,400)	(77,558)
Foreign exchange differences	(822)	3,519	2,697
Closing net book amount	**36,407**	**166,758**	**203,165**
At 30 June 2014			
Cost	42,430	415,841	458,271
Accumulated depreciation	(6,023)	(249,083)	(255,106)
Net book amount	**36,407**	**166,758**	**203,165**

14. DEFERRED EXPLORATION AND EVALUATION EXPENDITURE

	2014 $	2013 $
Costs brought forward	5,793,879	5,096,763
Costs incurred during the year	3,885,862	4,184,305
Disposal of subsidiary	(7,235,467)	–
Expiry of options acquired on acquisition of tenements	–	(5,000)
Foreign currency translation differences	5,904	–
Expenditure written off during the year	(1,531,881)	(3,482,189)
Costs carried forward	**918,297**	**5,793,879**
Exploration expenditure costs carried forward are made up of:		
Expenditure on joint venture areas	131,190	1,780,230
Expenditure on non joint venture areas	787,107	4,013,649
Costs carried forward	**918,297**	**5,793,879**

14. DEFERRED EXPLORATION AND EVALUATION EXPENDITURE continued

The above amounts represent costs of areas of interest carried forward as an asset in accordance with the accounting policy set out in Note 2. The ultimate recoupment of deferred exploration and evaluation expenditure in respect of an area of interest carried forward is dependent upon the discovery of commercially viable reserves and the successful development and exploitation of the respective areas or alternatively sale of the underlying areas of interest for at least their carrying value. Amortisation, in respect of the relevant area of interest, is not charged until a mining operation has commenced.

In accordance with Note 2, the Directors write off exploration expenditure where they assess that the asset is impaired. Exploration expenditure is written off either by a reassessment by the Group that has reduced the interpreted potential of the licence for mineral deposits and, or a joint venture partner has withdrawn from a project.

	2014 $	2013 $
15. CURRENT LIABILITIES – PAYABLES		
Trade creditors*	131,948	372,566
Accrued expenses	65,197	170,905
GST payable	2,852	3,359
Accrued payroll and payroll deductions	164,558	144,374
	364,555	**691,204**

* Trade creditors are non-interest bearing and are generally settled on 30 day terms.

16. LIABILITIES – PROVISIONS		
Current		
Annual Leave	97,103	139,494
Non-current		
Long Service Leave	54,497	61,867

Annual leave is accrued for all permanent eligible employees and provided for based on current salaries. Long service leave is accrued for all permanent eligible employees with greater than two years' service and provided for based on current salaries.

17. DERIVATIVE LIABILITY/CONVERTIBLE NOTE

The Company completed a capital raising in December 2010 via a private placement of 16,666,667 convertible notes at 15 cents each which raised $2,500,000 in additional working capital.

The convertible notes had an initial maturity date of 9 December 2013 which was subsequently extended to 1 April 2014 and redeemed in full on that date.

The general terms of the issue are:

(a) Convertible notes with a conversion price of 15 cents per share.

(b) The Company may redeem the notes at any stage and must redeem all convertible notes on the maturity date or upon an event of default.

(c) Each convertible note will accrue interest at 8% per annum to be paid each half year in arrears in cash, the first instalment to be paid on 30 April 2011.

(d) Noteholders will receive one share option for every two convertible notes they subscribe to, providing the notes are converted into ordinary shares and at the time of conversion. The share options will have an exercise price of 25 cents and an expiry of 9 December 2014.

17. DERIVATIVE LIABILITY/CONVERTIBLE NOTE continued

In accordance with requirements of the relevant Australian Accounting Standards and International Financial Reporting Standards based on the accounting policy described in Note 2 the proceeds have been initially accounted for as follows:

	$
Gross proceeds	2,500,000
Less issue costs	(150,000)
Net Allocation	**2,350,000**
Allocated as follows:	
Convertible note liability	744,587
Derivative liability (1)	510,245
Equity (2)	1,095,168
	2,350,000

(1) Represents the valuation of the option entitlement per (d) above.

(2) Represents the value of the conversion function per (a) above.

The balances and movements of the convertible note and derivative liability components at 30 June 2014 are as follows:

	2014 $	2013 $
Convertible Note Liability		
Opening balance	1,969,654	1,246,345
Add interest expense	563,634	924,679
Less interest paid	(183,288)	(201,370)
Redemption of convertible note	(2,350,000)	–
Closing balance	**–**	**1,969,654**
Derivative Liability		
Opening balance	2,139	907
Revaluation adjustment	(2,139)	1,232
Closing balance	**–**	**2,139**

18. CONTRIBUTED EQUITY

Share capital			
175,737,592 (2013: 175,287,592) ordinary shares fully paid		14,756,951	14,735,576
Partly paid shares			
450,000 ordinary shares paid to $0.01 with $0.24 unpaid		–	4,500
Share issue costs		(230,836)	(224,944)
		14,526,115	**14,515,132**

Movements in ordinary shares on issue		Number	$
At 1 July 2012		**175,287,592**	**14,740,076**
Shares issued		–	–
At 30 June 2013		**175,287,592**	**14,740,076**
Conversion of partly paid shares	(i)	450,000	16,875
At 30 June 2014		**175,737,592**	**14,756,951**

(i) Sale and transfer of 450,000 forfeited partly paid shares offered at auction held on 18 October 2013. Refer to comments below under terms and conditions.

18. CONTRIBUTED EQUITY continued

Terms and conditions of contributed equity

Ordinary shares

Ordinary shares have the right to receive dividends as declared and, in the event of winding up the Company, to participate in the proceeds from the sale of all surplus assets in proportion to the number of and amounts paid up on shares held.

Ordinary shares entitle their holder to one vote, either in person or by proxy, at a meeting of the Company.

In respect to members who hold shares which are paid to $0.01, the number of votes to which that member is entitled on a poll in respect of those part paid shares shall be that fraction of one vote which the amount paid up bears to the total issued price thereof. The shares were issued under the Platinum Search Share Incentive Plan, which was replaced by the Variscan Employee Share Option Plan on 25 November 1993.

On 4 September 2013 the company issued call notices to the holders of the 450,000 unquoted partly paid shares on issue to call up the full amount of 24 cents per share which were unpaid at the date of the notices. The calls were not paid by the due date of 18 September 2013 and were therefore forfeited. These shares were subsequently sold as fully paid shares by public auction.

Options

Options do not carry voting rights or rights to dividends until options are exercised.

19. SHARE-BASED PAYMENTS

Types of share-based payment plans

Share-based payments

An Employee Share Option Plan (ESOP) has been established where selected officers, employees and consultants of the Company can be issued with options over ordinary shares in Variscan Mines Limited. The options, issued for nil consideration, will be issued in accordance with a performance review by the Directors. The options cannot be transferred and will not be quoted on the ASX. Options expire if not exercised 90 days after a participant resigns from the Company.

There have been no cancellations or modifications to any of the plans during 2014 and 2013.

	2014 No.	2013 No.
Summary of options granted by the parent entity		
Outstanding at the beginning of the year	26,190,000	23,890,000
Granted during the year	–	2,300,000
Expired during the year	(900,000)	–
Outstanding at the end of the year	25,290,000	26,190,000

The outstanding balance as at 30 June 2014 is represented by:

- 9,590,000 which expire on 27 November 2014 exercisable at $0.18 per share
- 1,500,000 which expire on 27 November 2014 exercisable at $0.18 per share (not vested)
- 10,900,000 which expire on 25 November 2015 exercisable at $0.30 per share
- 1,000,000 which expire on 6 October 2014 exercisable at $0.25 per share
- 2,300,000 which expire on 31 October 2015 exercisable at $0.14 per share

	2014	2013
Weighted Average disclosures for options granted by the parent entity		
Weighted average exercise price of options at 1 July	$0.23	$0.24
Weighted average exercise price of options granted during period	–	$0.14
Weighted average exercise price of options outstanding at 30 June	$0.23	$0.23
Weighted average exercise price of options exercisable at 30 June	$0.23	$0.23
Weighted average contractual life	0.92	1.87
Range of exercise price	$0.14 – $0.30	$0.14 – $0.30

19. SHARE-BASED PAYMENTS continued

Option pricing model and terms of options

The following table lists the inputs to the options model and the terms of options granted in **Variscan Mines Limited:**

Issue date	Number of options issued	Exercise price	Expiry date	Expected volatility	Risk-free rate	Expected life years	Estimated fair value	Model used	
Nov 09	8,250,000	$0.18	27 Nov 14	122.91%	4.99%	5.0	$0.0636	Binomial	(a)
Dec 09	840,000	$0.18	27 Nov 14	122.91%	4.99%	4.9	$0.0536	Binomial	(b)
Aug 10	2,000,000	$0.18	27 Nov 14	80.00%	4.64%	4.3	$0.0700	Binomial	(c)
Nov 10	6,250,000	$0.30	25 Nov 15	80.00%	5.32%	5.0	$0.0500	Binomial	(d)
Dec 10	1,900,000	$0.30	25 Nov 15	80.00%	5.37%	4.9	$0.0600	Binomial	(e)
May 11	950,000	$0.30	25 Nov 15	121.29%	5.19%	4.5	$0.0663	Binomial	(f)
Nov 11	1,000,000	$0.25	6 Oct 14	118.33%	3.49%	3.0	$0.0452	Binomial	(g)
Dec 11	1,800,000	$0.30	25 Nov 15	30.86%	4.75%	4.0	$0.0035	Binomial	(h)
Oct 12	2,300,000	$0.14	31 Oct 15	60.37%	2.58%	3.0	$0.0135	Binomial	(i)
	25,290,000								

(a) Issued by Variscan Mines Limited to Directors and approved by shareholders at the General Meeting held on 26 November 2009. Expensed in the income statement. The options vested on the grant date of 26 November 2009.

(b) Issued by Variscan Mines Limited to employees and consultants under the Company's ESOP. Expensed in the income statement. The options vested on the grant date of 18 December 2009.

(c) 2,000,000 options were issued to the Company's Business Development Manager and expensed in the income statement. 500,000 options vested immediately with the remaining 1,500,000 vesting upon performance hurdles.

(d) 6,250,000 options were issued to Directors of the Company and approved by shareholders at the Company's AGM held on 25 November 2010. The options vested immediately and were expensed in the income statement.

(e) 1,900,000 options were issued to employees and consultants under the Company's ESOP. The options vested immediately and were expensed in the income statement.

(f) 950,000 options were issued to employees and consultants under the Company's ESOP. The options vested immediately and were expensed in the income statement.

(g) 1,000,000 options were issued to Alan Breen, Non-executive Director of the Company, and approved by shareholders at the Company's AGM held on 29 November 2011. The options vested immediately and were expensed in the income statement.

(h) 1,800,000 options were issued to employees/consultants under the Company's ESOP. The options vested immediately and were expensed in the income statement.

(i) 2,300,000 options were issued to employees/consultants under the Company's ESOP. The options vested immediately and were expensed in the income statement.

20. RESERVES

	2014 $	2013 $
Share-based compensation reserve	1,222,877	1,270,757
General reserve	–	(229,108)
Investment revaluation reserve	2,038,465	1,972,896
Foreign currency translation reserve	286,497	404,385
Convertible note option reserve	–	1,095,168
	3,547,839	**4,514,098**
Share-based compensation reserve (i)		
Balance at the beginning of financial year	1,270,757	1,609,490
Share-based payment expense	–	50,815
Transfer expired options to Retained Earnings	(47,880)	(389,548)
Balance at end of financial year	**1,222,877**	**1,270,757**
General reserve (ii)		
Balance at the beginning of financial year	(229,108)	(229,108)
Disposal of subsidiary	229,108	–
Balance at end of financial year	**–**	**(229,108)**
Investment revaluation reserve (iii)		
Balance at the beginning of financial year	1,972,896	406,853
Change in fair value of investments available for sale	65,569	(468,112)
Impairment of investments	–	845,817
Investment revaluation reserve adjustment	–	442,727
Deferred tax adjustment	–	746,611
Balance at end of financial year	**2,038,465**	**1,972,896**
Foreign currency translation reserve (iv)		
Balance at the beginning of financial year	404,385	(45,385)
Effect of exchange rate fluctuation	(117,888)	449,770
Balance at end of financial year	**286,497**	**404,385**
Convertible note option reserve (v)		
Balance at the beginning of financial year	1,095,168	1,095,168
Transfer expired options relating to convertible note to retained earnings	(1,095,168)	–
Balance at end of financial year	**–**	**1,095,168**

(i) **Share-based compensation reserve**
The share-based compensation reserve is used to recognise the fair value of options issued but not exercised as described in Note 2 and referred to in Note 19.

(ii) **General reserve**
The general reserve represents the change in the value of non-controlling interests resulting from the exercise of Eastern Iron Limited options during the prior periods. This was reversed on deconsolidation of the subsidiary.

(iii) **Investment revaluation reserve**
The investment revaluation reserve arises in connection with the accounting for investments as per Note 8.

(iv) **Foreign currency translation reserve**
The foreign currency translation reserve arises from the translation of foreign currency subsidiaries.

(v) **Convertible note option reserve**
The convertible note option reserve is used to record the fixed equity component of the convertible notes. Refer to Note 17. This amount was transferred to retained earnings on redemption of the convertible note.

	2014 $	2013 $
21. EARNINGS/(LOSS) PER SHARE		
(Loss) used in calculating basic and diluted (loss) per share	(5,742,060)	(7,216,541)
	Number	Number
Weighted average number of ordinary shares outstanding during the year used in calculation of basic EPS	175,597,044	175,305,592
	Cents per share	Cents per share
Basic (loss) per share	(3.27)	(4.12)
Diluted (loss) per share	(3.27)	(4.12)

The number of potential ordinary shares that are dilutive and included in determining diluted EPS are nil (2013: nil) relating to share options issued. There are no instruments excluded from the calculation of diluted earnings per share that could potentially dilute basic earnings per share in the future because they are antidilutive for all of the periods presented.

Conversion, call, subscription or issue after 30 June 2014: Since the end of the financial year there have been no other conversions to, call of, or subscriptions for ordinary shares or issues of potential ordinary shares since the reporting date and before the completion of these financial statements.

	2014 $	2013 $
22. KEY MANAGEMENT PERSONNEL		
Key management personnel (KMP) remuneration, shares and options		
Compensation for key management personnel		
Short-term employee benefits	1,234,512	1,565,016
Post-employment benefits	57,994	82,179
Share-based payments	10,580	46,680
Total compensation	**1,303,086**	**1,693,875**

22. KEY MANAGEMENT PERSONNEL continued

Shareholdings of key management personnel

Fully paid ordinary shares held in Variscan Mines Limited

	Balance at 1 July No.	Granted as remuneration No.	Received on exercise of options No.	Net other change* No.	Balance at 30 June No.
2014					
P Elliott	2,352,345	–	–	–	2,352,345
G Jones	2,200,000	–	–	305,000	2,505,000
C S Kwan	52,396,526	–	–	–	52,396,526
F K Foo	1,403,000	–	–	–	1,403,000
I Polovineo	–	–	–	70,000	70,000
J Testard	–	–	–	200,000	200,000
M Bonnemaison	219,629	–	–	–	219,629
Total	**58,571,500**	**–**	**–**	**575,000**	**59,146,500**
2013					
P Elliott	2,352,345	–	–	–	2,352,345
G Jones	2,200,000	–	–	–	2,200,000
C S Kwan	50,625,425	–	–	1,771,101	52,396,526
F K Foo	–	–	–	1,403,000	1,403,000
M Bonnemaison	219,629	–	–	–	219,629
Total	**55,397,399**	**–**	**–**	**3,174,101**	**58,571,500**

* Other change consists of shares purchased and sold by KMP on market.

22. KEY MANAGEMENT PERSONNEL continued

Option holdings of key management personnel

Share options held in Variscan Mines Limited

	Balance at 1 July No.	Granted as remuneration No.	Options exercised No.	Net change other # No.	Balance at 30 June No.	Balance vested at 30 June No.	Vested and exercisable No.
2014							
P Elliott	1,600,000	–	–	–	1,600,000	1,600,000	1,600,000
G Jones	6,300,000	–	–	(750,000)	5,550,000	5,550,000	5,550,000
C S Kwan	2,000,000	–	–	–	2,000,000	2,000,000	2,000,000
F K Foo	1,600,000	–	–	–	1,600,000	1,600,000	1,600,000
K Champaklal(a)	1,000,000	–	–	–	1,000,000	1,000,000	1,000,000
A Breen	1,000,000	–	–	–	1,000,000	1,000,000	1,000,000
I Polovineo	1,250,000	–	–	–	1,250,000	1,250,000	1,250,000
W Corbett	1,000,000	–	–	–	1,000,000	1,000,000	1,000,000
M Lilley	900,000	–	–	–	900,000	900,000	900,000
J Testard	1,500,000	–	–	–	1,500,000	1,500,000	1,500,000
M Bonnemaison	1,500,000	–	–	–	1,500,000	1,500,000	1,500,000
Total	19,650,000	–	–	(750,000)	18,900,000	18,900,000	18,900,000
2013							
P Elliott	1,600,000	–	–	–	1,600,000	1,600,000	1,600,000
G Jones	6,300,000	–	–	–	6,300,000	6,300,000	6,300,000
C S Kwan	4,000,000	–	–	(2,000,000)	2,000,000	2,000,000	2,000,000
F K Foo	1,600,000	–	–	–	1,600,000	1,600,000	1,600,000
K Champaklal(a)	–	–	–	1,000,000	1,000,000	1,000,000	1,000,000
A Breen	1,000,000	–	–	–	1,000,000	1,000,000	1,000,000
I Polovineo	600,000	650,000	–	–	1,250,000	1,250,000	1,250,000
W Corbett	750,000	250,000	–	–	1,000,000	1,000,000	1,000,000
M Lilley	900,000	–	–	–	900,000	900,000	900,000
N Maund (b)	2,000,000	–	–	–	2,000,000	500,000	500,000
J Testard	900,000	600,000	–	–	1,500,000	1,500,000	1,500,000
M Bonnemaison	900,000	600,000	–	–	1,500,000	1,500,000	1,500,000
Total	20,550,000	2,100,000	–	(1,000,000)	21,650,000	20,150,000	20,150,000

(a) K Champaklal resigned as an alternate Director on 6 March 2014.

(b) Not considered to be key management personnel for the year ending 30 June 2014.

(2014: Expiry of options), (2013: Adjustment for options held on behalf of other parties)

No shares were issued as a result of the exercise of compensation options to KMP.

Options held by Directors may be exercised at any time. Shares and options held by Directors include those held by the Directors and their Director-related entities, including the spouses of such Directors and relatives of such Directors. All shares and options, excluding those held under the Employee Share Option Plan, were issued or granted on terms no more favourable than to other shareholders or option holders.

23. RELATED PARTY DISCLOSURES

Subsidiaries

The consolidated financial statements include the financial statements of Variscan Mines Limited (the Parent Entity) and the following subsidiaries:

		% Equity interest		$ Investment	
Name	Country of incorporation	2014	2013	2014	2013
Bluestone 23 Pty Ltd	Australia	100	100	5,000	5,000
Eastern Iron Limited *	Australia	–	45.3	–	3,100,385
PlatSearch Australia Limited	Australia	100	100	5	5
Variscan Mines SAS	France	100	100	1,007,679	1,007,679

* Eastern Iron Limited was deconsolidated on 11 March 2014.

Subsidiary deconsolidated during the year

In March 2014, Eastern Iron Limited (Eastern Iron) issued shares through a placement and appointed a new board member which reduced Variscan's shareholding in Eastern Iron from 45% to 39% and Variscan's interest in the Board of Eastern Iron from (3 of 6 directors) to (3 of 7 directors). Management assessed that from 11 March 2014, Variscan no longer meets the definition of control and subsequently deconsolidated Eastern Iron. The Group retains significant influence over Eastern Iron and accounts for the retained interest as an associate. At the time the Group lost control of the subsidiary, the assets, liabilities and non-controlling interest of the subsidiary were deconsolidated and a loss on disposal was recognised in the Consolidated Statement of Comprehensive Income.

Transactions with directors and key management personnel

The Company has an agreement with Luminor Capital Pte Ltd which is entitled to a cash fee of 6% of equity funds raised by Luminor Capital and other parties. Mr Kwan and Dr Foo, Directors of Variscan, have an interest in and are directors of Luminor Capital and Mr Champaklal, alternate Director (resigned 6 March 2014) for Mr Kwan, is a director of Luminor Capital. No fees have been paid to date.

Variscan Mines SAS signed an agreement in January 2013 with E-Mines of which Michel Bonnemaison is a Director. The agreement is for E-Mines to provide geological services, sample preparation and analytical services to Variscan Mines SAS. A total of $538,700 was paid to E-Mines during the year ended 30 June 2014 (2013: $354,794).

Services provided by Directors and Key Management Personnel related entities were under normal commercial terms and conditions. There are no long term service agreements and hence no liabilities will arise from termination of such agreements. No other benefits have been received or are receivable by Directors, other than those already disclosed in the notes to the accounts.

Transactions with associated companies

During the year the Company provided technical and administrative support services to its associated company Thomson Resources Ltd (TMZ) and Eastern Iron Limited (EFE). Services provided to TMZ amounted to $110,086 (2013: $125,507) and EFE $105,228 (2013: $113,933) consisting of payments received for consulting, use of office space and office services.

24. JOINT VENTURES

The Company is a party to a number of exploration joint venture agreements to explore for copper, gold, zinc, lead, uranium and heavy minerals. Under the terms of the agreements the Company may be required to contribute towards the exploration and other costs if it wishes to maintain or increase its percentage holdings. The joint ventures are not separate legal entities. There are contractual arrangements between the participants for sharing costs and future revenues in the event of exploration success. There are no assets and liabilities attributable to Variscan at reporting date resulting from these joint ventures, other than exploration expenditure costs carried forward as detailed in Note 14. Costs are accounted for in accordance with the terms of joint venture agreements and in accordance with Note 2. Percentage equity interests in joint ventures at 30 June 2014 were as follows:

Variscan Mines Limited **New South Wales – gold, base metals and iron**	% interest 2014	% interest 2013
Hillston – diluting to 16%	39.2%	39.2%
Mundi Plains	20%	20%
Mundi Plains – cover rights	–	0%
Eastern Iron Projects – Eastern Block Tenements	–	51%

24. JOINT VENTURES continued

Variscan Mines Limited South Australia – base metals and gold	% interest 2014	% interest 2013
Quinyambie – diluting to 15%	52.6%	52.6%
Callabonna – diluting to 30%	100%	100%
Kalabity – diluting to 32% - tenement relinquished	–	80%
Junction Dam – base and precious metals rights	16%	16%
Junction Dam – uranium rights	0%	4.98%
Officer Basin – EL applications only	–	50%
Eastern Iron* **Tenements in NSW – iron**		
Eastern Block Tenements	–	49%
Western Block Tenements	–	100%
Eastern Iron* **Queensland – iron**		
Hawkwood – EFE can earn 80%	–	0%

* Eastern Iron Limited was deconsolidated on 11 March 2014.

25. SEGMENT INFORMATION

The operating segments identified by management are as follows:

1. Exploration projects funded directly by Variscan ("Exploration") operating in France and Australia and;

2. Investments in other companies ("Investing").

Regarding the Exploration segment, the Chief Operating Decision Maker (the Board of Directors) receives information on the exploration expenditure incurred. This information is disclosed in Note 14 of this financial report. No segment revenues are disclosed as each exploration tenement is not at a stage where revenues have been earned. Furthermore, no segment costs are disclosed as all segment expenditure is capitalised, with the exception of expenditure written off which is disclosed in Note 14.

Regarding the Investing segment, the Chief Operating Decision Maker reviews the value of investments and derivatives held in other exploration companies. The changes in the value of investments and derivatives are disclosed in Notes 8, 9 and 11 of this financial report. Segment revenues are disclosed in the statement of comprehensive income as '(Loss) on options'. Financial information about each of these tenements is reported to the Managing Director on an ongoing basis.

Corporate office activities are not allocated to operating segments as they are not considered part of the core operations of any segment and comprise of the following:

- Interest revenue
- Corporate costs
- Depreciation and amortisation of non-project specific property, plant and equipment.

The Group's accounting policy for reporting segments is consistent with that disclosed in Note 2.

25. SEGMENT INFORMATION continued

The Group's geographical segments are determined based on the location of the Group's assets.

	Geographical segments							
	Australia		France		Eliminations		Consolidated	
	2014 $'000	2013 $'000	2014 $'000	2013 $'000	2014 $'000	2013 $'000	2014 $'000	2013 $'000
Revenue								
Revenue from outside the group	1,719	2,036	276	251	–	–	1,995	2,287
Results								
Segment results before income tax	(7,031)	(4,858)	1,271	(1,764)	–	–	(5,760)	(6,622)
Income tax expense							43	(1,227)
Profit after income tax expense							(5,717)	(7,849)
Assets								
Segment assets	3,824	24,355	1,612	634	(3,296)	(5,978)	8,140	19,011
Liabilities								
Segment liabilities	565	3,040	1,364	1,615	(1,413)	(1,791)	516	2,864
Other segment information								
Plant and equipment	8	45	195	189	–	–	203	234
Other non-current assets	6,137	12,928	787	–	(1,840)	(4,223)	5,084	8,705
Depreciation	19	28	59	59	–	–	78	87

26. CONTINGENT LIABILITIES

The Group's bankers have provided guarantees totalling $50,000 (2013: $180,000) in respect of exploration tenements and the guarantees are secured against short term deposits of these amounts. The Company does not expect to incur any material liability in respect of the guarantees. There are nil (2013: $105,850) guarantees in respect of exploration tenements that are secured against deposits held by Mines Departments.

27. COMMITMENTS

Lease commitments

The Company has obligations under the terms of an operating lease agreement for its office premises as follows:

	2014 $	2013 $
Payable not later than one year	26,543	79,629
Payable later than one year and not later than five years	–	26,543
	26,543	106,172

The Company's lease of its office premises is for a two year period (with an option to renew for two years) expiring on 31 October 2014.

Exploration licence expenditure requirements

In order to maintain the Group's tenements in good standing with the various mines departments, the Group will be required to incur exploration expenditure under the terms of each licence. These expenditure requirements will diminish as the Group joint ventures projects to third parties. It is the Group's exploration strategy to farm-out to larger companies to fund drilling programmes. In addition, the Group has commitments to expend funds towards earning or retaining an interest under joint venture agreements.

	2014 $	2013 $
Payable not later than one year	–	33,853
Payable later than one year but not later than five years	–	50,000
	–	83,853

It is likely that variations to the terms of current and future joint ventures, the granting of new licences and changes in licence areas at renewal or expiry, will change the expenditure commitment to the Group from time to time.

28. EVENTS AFTER THE REPORTING DATE

There were, at the date of this report, no matters or circumstances which have arisen since 30 June 2014 that have significantly affected or may significantly affect the operations of the Group, the results of those operations, or the state of affairs of the Group, in future financial years.

	2014 $	2013 $
29. CASH FLOW STATEMENT		
Reconciliation of net cash outflow from operating activities to operating profit after income tax		
Operating profit after income tax	(5,717,244)	(7,849,724)
Depreciation	77,558	86,585
Exploration expenditure written-off	1,531,881	3,482,190
Non cash adjustments on convertible note	734,375	924,679
Share of associate's net losses	1,389,073	163,944
Share-based payment expense	10,580	(363,052)
Loss on disposal of subsidiary	471,845	–
Non cash movements in investments	41,240	2,302,868
Impairment of investments	784,909	268,056
Provisions for annual leave and long service leave	29,590	62,539
Tax expense/(benefit)	(14,530)	643,529
Foreign exchange variances	14,064	–
Exploration adjustments and differences in closing creditors/accruals	(139,388)	(256,654)
Gain on sale of tenement	(200,000)	–
Transfer of debt to capital	–	(420,999)
Other	(70,221)	342,477
Change in assets and liabilities:		
(Increase)/decrease in receivables	(234,328)	(238,668)
(Decrease)/increase in trade and other creditors	289,182	108,064
Net cash outflow from operating activities	**(1,001,414)**	**(744,166)**
For the purpose of the Statement of Cash Flows, cash includes cash on hand, at bank, deposits and bank bills used as part of the cash management function. The Group does not have any unused credit facilities.		
The balance at 30 June comprised:		
Cash and cash equivalents	789,168	740,004
Money market securities – bank deposits (Note 6)	1,619,825	8,593,929
Cash on hand	**2,408,993**	**9,333,933**

30. FINANCIAL RISK MANAGEMENT OBJECTIVES AND POLICIES

The Company's Board considers the Company's overall risk management framework and policies, including quarterly review by the Board of the Company's financial position and financial forecasts and maintaining adequate insurances.

AASB 7 requires the disclosure of qualitative and quantitative information about exposure to risks arising from financial instruments, including specified minimum disclosures about credit risk, liquidity risk and market risk, including sensitivity analysis to market risk.

Capital management

The Group considers its capital to comprise its ordinary share capital and its retained earnings, net of accumulated losses.

In managing its capital, the Group's primary objective as an explorer is to maintain a sufficient funding base to enable the Group to meet its working capital and strategic investment needs. The Group has no debt hence has a nil gearing ratio.

In making decisions to adjust its capital structure to achieve these aims, either through altering its new share issues, or consideration of debt, the Group considers not only its short-term position but also its long-term operational and strategic objectives.

30. FINANCIAL RISK MANAGEMENT OBJECTIVES AND POLICIES continued

Financial instrument risk exposure and management

As is common with all other businesses, the Group is exposed to risks that arise from its use of financial instruments. These main risks, arising from the group's financial instruments are interest rate risk, liquidity risk, share market risk and credit risk. This note describes the Group's objectives, policies and processes for managing those risks and the methods used to measure them. Further quantitative information in respect of these risks is presented throughout these financial statements.

There have been no substantive changes in the Group's exposure to financial instrument risks, its objectives, policies and processes for managing those risks or the methods used to measure them from previous periods unless otherwise stated in this note.

General objectives, policies and processes

The Board has overall responsibility for the determination of the Group's risk management objectives and policies and has the responsibility for designing and operating processes that ensure the effective implementation of the objectives and policies to the Group's finance function. The Board receives quarterly reports through which it reviews the effectiveness of the processes put in place and the appropriateness of the objectives and policies it sets.

The overall objective of the Board is to set policies that seek to reduce risk as far as possible without unduly affecting the Group's competitiveness and flexibility. Further details regarding these policies are set out below:

Liquidity risk

Liquidity risk arises from the Group's management of working capital. It is the risk that the Group will encounter difficulty in meeting its financial obligations as they fall due.

The Group's policy is to ensure that it will always have sufficient cash to allow it to meet its liabilities when they become due. To achieve this aim, it seeks to maintain cash balances (or agreed facilities) to meet expected requirements for a period of at least 45 days.

The Board receives cash flow projections on a monthly basis as well as information regarding cash balances. At the balance sheet date, these projections indicated that the Group expected to have sufficient liquid resources to meet its obligations under all reasonably expected circumstances.

Interest rate risk

At reporting date, the Group is exposed to floating weighted average interest rates at 30 June 2014 for financial assets as follows:

	2014	2013
Weighted average rate of **cash** balances	0.00%	0.24%
Cash balances	$789,168	$740,004
Weighted average rate of **term deposits**	3.74%	4.03%
Term deposits	$1,619,825	$8,593,929

All other financial assets and liabilities are non-interest bearing.

The Group's exposure to interest rate risk and the effective weighted average interest rate for each class of financial asset and financial liability is set out in the following tables:.

Risk exposure and responses	Pre tax loss		Equity	
Judgements of reasonably possible movements:	Lower / (higher)		Lower / (higher)	
Consolidated	2014 $	2013 $	2014 $	2013 $
+1% (100 basis points)	16,198	93,339	16,198	93,339
-1% (100 basis points)	(16,198)	(93,339)	(16,198)	(93,339)

Share market risk

The Company relies greatly on equity markets to raise capital for its exploration activities and is thus exposed to equity market volatility. When market conditions require, for prudent capital management, in consultation with its professional advisers the Group looks to alternative sources of funding, including the sale of assets and royalties.

30. FINANCIAL RISK MANAGEMENT OBJECTIVES AND POLICIES continued

Credit risk

Credit risk arises principally from the Group's cash, cash equivalents, receivables and tenement security deposits.

The Group's exposure to credit risk arises from potential default of the counter party, with the maximum exposure equal to the carrying amount of these instruments.

The Group trades only with recognised, creditworthy third parties, and as such collateral is not requested nor is it the Group's policy to securitise its trade and other receivables.

In addition, receivable balances are monitored on an ongoing basis with the result that the Group's exposure to bad debts is not significant.

Foreign currency risk

The Group is exposed to foreign currency risk on purchases that are denominated in a currency other than the Australian dollar. The Group does not enter into derivative financial instruments to hedge such transactions denominated in a foreign currency. At 30 June 2014 the Group had no material exposure to foreign currencies and therefore no sensitivity analysis has been performed.

Other receivables

Other receivables comprise GST. Credit worthiness of debtors is undertaken when appropriate.

Equity price risk

Price risk arises from investments in equity securities. All significant equity investments held by Variscan are publicly traded on the ASX. The price risk for listed securities is material in terms of the possible impact on profit and loss or total equity and as such a sensitivity analysis is completed below. The capacity of the Company to raise capital from time to time may be influenced by either or both market conditions and the price of Variscan's quoted shares at that time.

At balance date, the Group is exposed to a stock exchange risk on its investments (Note 8). The Group's exposure to share price movement is set out in the following tables:

Risk exposure and responses	Pre tax loss		Equity	
Judgements of reasonably possible movements in share prices:	Lower / (higher)		Lower / (higher)	
Consolidated	2014 $	2013 $	2014 $	2013 $
+20%	–	–	286,625	280,088
-20%	–	–	(286,625)	(280,088)

At balance date, the Group is exposed to a stock exchange risk on its derivative financial instruments (Note 11). The Group's exposure to movements in the value of share options is set out in the following tables:

Risk exposure and responses	Pre tax loss		Equity	
Judgements of reasonably possible movements in share prices:	Lower / (higher)		Lower / (higher)	
Consolidated	2014 $	2013 $	2014 $	2013 $
+20%	191	16,235	191	16,235
-20%	(191)	(16,235)	(191)	(16,235)

Accounting policies

Accounting policies in relation to financial assets and liabilities and share capital are contained in Note 2.

Fair value of financial assets and liabilities

The fair value of all monetary financial assets and financial liabilities of the Variscan Group approximate their carrying value.

There are no off-balance sheet financial asset and liabilities at year-end.

All financial assets and liabilities are denominated in Australian dollars, except for a bank account held by Variscan SAS, the French subsidiary.

30. FINANCIAL RISK MANAGEMENT OBJECTIVES AND POLICIES continued

Fair value risk

The group uses three different methods in estimating the fair value of a financial investment. The methods comprise:

- Level 1 – the fair value is calculated using quoted prices in active markets; and
- Level 2 – the fair value is estimated using inputs other than quoted prices included in Level 1 that are observable for the asset or liability, either directly (as prices) or indirectly (derived from prices)
- Level 3 – the fair value is estimated using inputs other than quoted prices.

The fair value of the financial instruments as well as the methods used to estimate the fair value are summarised in the table below:

2014	Quoted market price (Level 1) $	Valuation technique – market observable inputs (Level 2) $	Valuation technique – non market observable inputs (Level 3) $	Total $
Financial assets				
Investments available for sale	1,433,127	–	–	1,433,127
Total financial assets	**1,433,127**	**–**	**–**	**1,433,127**
Derivative assets				
Derivatives – fair value through the income statements	–	955	–	955
Derivative assets	**–**	**955**	**–**	**955**

Quoted market price represents the fair value determined based on quoted prices on active markets as at the reporting date without any deduction for transaction costs.

The fair value of derivatives that do not have an active market are based on valuation techniques. Level 2 derivatives include market observable inputs whilst level 3 derivatives do not include market observable inputs.

Transfer between categories

There were no transfers between levels during the year.

31. PARENT ENTITY INFORMATION

Information relating to the parent entity Variscan Mines Limited:	2014 AUD$'000	2013 AUD$'000
Current assets	3,574	8,456
Total assets	7,840	14,617
Current liabilities	161	172
Total liabilities	216	2,236
Issued capital	14,526	14,509
Accumulated losses	(10,164)	(6,467)
Investment revaluation reserve	2,039	1,973
Convertible note option reserve	–	1,095
Share based payment reserve	1,223	1,271
Total shareholders' equity	7,624	12,381
Profit of the parent entity	(5,820)	(5,517)
Total comprehensive income/(loss) of the parent entity	66	(468)
	(5,754)	(5,985)
Contingent liabilities of the parent entity – refer to Note 26	**50**	**180**

Contractual commitments by the parent entity

The parent entity has lease commitments as stated in Note 27. The parent entity holds the lease commitment for its subsidiaries.

DIRECTORS' DECLARATION

In accordance with a resolution of the directors of Variscan Mines Limited, I state that:

In the opinion of the directors:

(a) The financial statements and notes of the consolidated entity are in accordance with the Corporations Act 2001, including:

(i) Giving a true and fair view of the consolidated entity's financial position as at 30 June 2014 and of its performance for the year ended on that date.

(ii) Complying with Australian Accounting Standards (including the Australian Accounting Interpretations) and the Corporations Regulations 2001

(b) The financial statements and notes also comply with International Financial Reporting Standards as disclosed in note 2.

(c) There are reasonable grounds to believe that the Company will be able to pay its debts as and when they become due and payable.

(d) This declaration has been made after receiving the declarations required to be made to the Directors in accordance with section 295A of the Corporations Act 2001 for the financial year ending 30 June 2014.

On behalf of the Board

Greg Jones
Managing Director

Sydney, 30 September 2014

INDEPENDENT AUDITOR'S REPORT

HLB Mann Judd

Accountants | Business and Financial Advisers

VARISCAN MINES LIMITED

INDEPENDENT AUDITOR'S REPORT

To the members of Variscan Mines Limited

Report on the Financial Report

We have audited the accompanying financial report of Variscan Mines Limited ('the company'), which comprises the consolidated statement of financial position as at 30 June 2014, the consolidated statement of comprehensive income, the consolidated statement of changes in equity and the consolidated statement of cash flows for the year then ended, notes comprising a summary of significant accounting policies and other explanatory information, and the directors' declaration, for the consolidated entity. The consolidated entity comprises the company and the entities it controlled at the year's end or from time to time during the financial year.

Directors' Responsibility for the Financial Report

The directors of the company are responsible for the preparation of the financial report that gives a true and fair view in accordance with Australian Accounting Standards and the Corporations Act 2001 and for such internal control as the directors determine is necessary to enable the preparation of the financial report that gives a true and fair view and is free from material misstatement, whether due to fraud or error.

In Note 2, the directors also state, in accordance with Accounting Standard AASB 101: *Presentation of Financial Statements*, that the consolidated financial statements comply with International Financial Reporting Standards.

Auditor's Responsibility

Our responsibility is to express an opinion on the financial report based on our audit. We conducted our audit in accordance with Australian Auditing Standards. Those standards require that we comply with relevant ethical requirements relating to audit engagements and plan and perform the audit to obtain reasonable assurance about whether the financial report is free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial report. The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatement of the financial report, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the company's preparation of the financial report that gives a true and fair view in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the company's and its controlled entities' internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by the directors, as well as evaluating the overall presentation of the financial report.

Our audit did not involve an analysis of the prudence of business decisions made by directors or management.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

HLB Mann Judd (NSW Partnership) ABN 34 482 821 289

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INDEPENDENT AUDITOR'S REPORT

HLB Mann Judd

Accountants | Business and Financial Advisers

Independence

In conducting our audit, we have complied with the independence requirements of the *Corporations Act 2001*. We confirm that the independence declaration required by the *Corporations Act 2001*, given to the directors of the company on 30 September 2014, would be in the same terms if provided to the directors as at the time of this auditor's report.

Opinion

In our opinion:

(a) the financial report of Variscan Mines Limited is in accordance with the *Corporations Act 2001*, including:

  (i) giving a true and fair view of the consolidated entity's financial position as at 30 June 2014 and its performance for the year ended on that date; and

  (ii) complying with Australian Accounting Standards and the *Corporations Regulations 2001*; and

(b) the financial statements also comply with International Financial Reporting Standards as disclosed in Note 2.

Report on the Remuneration Report

We have audited the Remuneration Report included in pages 7 to 10 of the directors' report for the year ended 30 June 2014. The directors of the company are responsible for the preparation and presentation of the Remuneration Report in accordance with section 300A of the *Corporations Act 2001*. Our responsibility is to express an opinion on the Remuneration Report, based on our audit conducted in accordance with Australian Auditing Standards.

Opinion

In our opinion, the Remuneration Report of Variscan Mines Limited for the year ended 30 June 2014 complies with section 300A of the *Corporations Act 2001*.

HLB Mann Judd
Chartered Accountants

Sydney, NSW
30 September 2014

M D Muller
Partner

SHAREHOLDER INFORMATION

Information relating to shareholders at 23 September 2014.

ORDINARY FULLY PAID SHARES

There were a total of 175,737,592 fully paid ordinary shares on issue.

OPTIONS

There were a total of 25,290,000 options on issue.

SUBSTANTIAL SHAREHOLDERS

	Shareholding
Kwan Chee Seng	52,396,526

At the prevailing market price of $0.04 per share, there were 711 shareholders with less than a marketable parcel of $500.

TOP 20 SHAREHOLDERS OF ORDINARY SHARES AS AT 23 SEPTEMBER 2014

	Number	%
HSBC CUSTODY NOMINEES (AUSTRALIA) LIMITED	51,283,865	29.18
UOB KAY HIAN PRIVATE LIMITED <CLIENTS A/C>	18,426,560	10.49
DMG & PARTNERS SECURITIES PTE LTD <CLIENTS A/C>	10,061,593	5.73
MR CHRIS CARR & MRS BETSY CARR	7,500,000	4.27
DBS VICKERS SECURITIES (SINGAPORE) PTE LTD <CLIENT ACCOUNT>	7,073,762	4.03
MR XIANGJUN ZHANG	6,642,000	3.78
WARMAN INVESTMENTS PTY LTD	4,864,019	2.77
MR ROBERT LEWIS RICHARDSON & MS SUSANNE BRINT <THE RATHROAM STAFF FUND A/C>	3,350,760	1.91
MONEX BOOM SECURITIES (HK) LTD <CLIENTS ACCOUNT>	2,457,936	1.40
IPSEITY PTY LIMITED	2,376,707	1.35
PANSTYN INVESTMENTS PTY LTD	2,352,345	1.34
NEFCO NOMINEES PTY LTD	2,223,512	1.27
MR GREGORY FRANCIS PATRICK JONES <JONES SUPER FUND A/C>	1,962,472	1.12
CITICORP NOMINEES PTY LIMITED	1,951,731	1.11
MR ALLAN EDWARD WATTS <WATTS FAMILY A/C>	1,863,226	1.06
CRESCENT NOMINEES LIMITED	1,470,316	0.84
DR FATT KAH FOO	1,403,000	0.80
HOWARD-SMITH INVESTMENTS PTY LTD	1,116,021	0.64
WIMTONE PTY LIMITED	1,100,000	0.63
TECHNICA PTY LTD	1,000,000	0.57
Total of top 20 holdings	**131,479,825**	**74.82**
Other holdings	44,257,767	25.18
Total fully paid shares issued	**175,737,592**	**100.00**

DISTRIBUTION OF SHAREHOLDERS

Range	No of shareholders	Ordinary shares
1 – 1,000	332	136,666
1,001 – 5,000	201	560,982
5,001 – 10,000	157	1,299,322
10,001 – 100,000	367	14,079,467
100,001 – and over	118	159,661,155
	1,175	175,737,592

VOTING RIGHTS

There are no restrictions on voting rights. On a show of hands every member present or by proxy shall have one vote and upon a poll each share shall have one vote. Where a member holds shares which are not fully paid, the number of votes to which that member is entitled on a poll in respect of those part paid shares shall be that fraction of one vote which the amount paid up bears to the total issued price thereof. Optionholders have no voting rights until the options are exercised.

DISTRIBUTION OF OPTIONHOLDERS

Range	No of optionholders	Unlisted options
1 – 1,000	–	–
1,001 – 5,000	–	–
5,001 – 10,000	–	–
10,001 – 100,000	2	190,000
100,001 – and over	20	25,100,000
	22	25,290,000

CORPORATE DIRECTORY

BOARD OF DIRECTORS

Patrick Elliott
Non-Executive Chairman

Greg Jones
Managing Director

Kwan Chee Seng
Non-Executive Director

Dr Foo Fatt Kah
Non-Executive Director

Alan Breen
Non-Executive Director

COMPANY SECRETARY

Ivo Polovineo

REGISTERED OFFICE

Level 1, 80 Chandos Street
St Leonards, NSW 2065

PO Box 956, Crows Nest
NSW 1585

Telephone: (+ 61 2) 9906 5220
Email: info@variscan.com.au
Website: www.variscan.com.au

SHARE REGISTRY

Boardroom Pty Limited
GPO Box 3993
Sydney, NSW 2001

Telephone: (+61 2) 9290 9600
Website: www.boardroomlimited.com.au

AUDITORS

HLB Mann Judd
Level 19, 207 Kent Street
Sydney, NSW 2000

SOLICITORS

Gadens Lawyers
Level 16, 77 Castlereagh Street
Sydney, NSW 2000

BANKERS

Bankwest
Commonwealth Bank
Macquarie Bank
HSBC

SECURITIES EXCHANGE LISTING

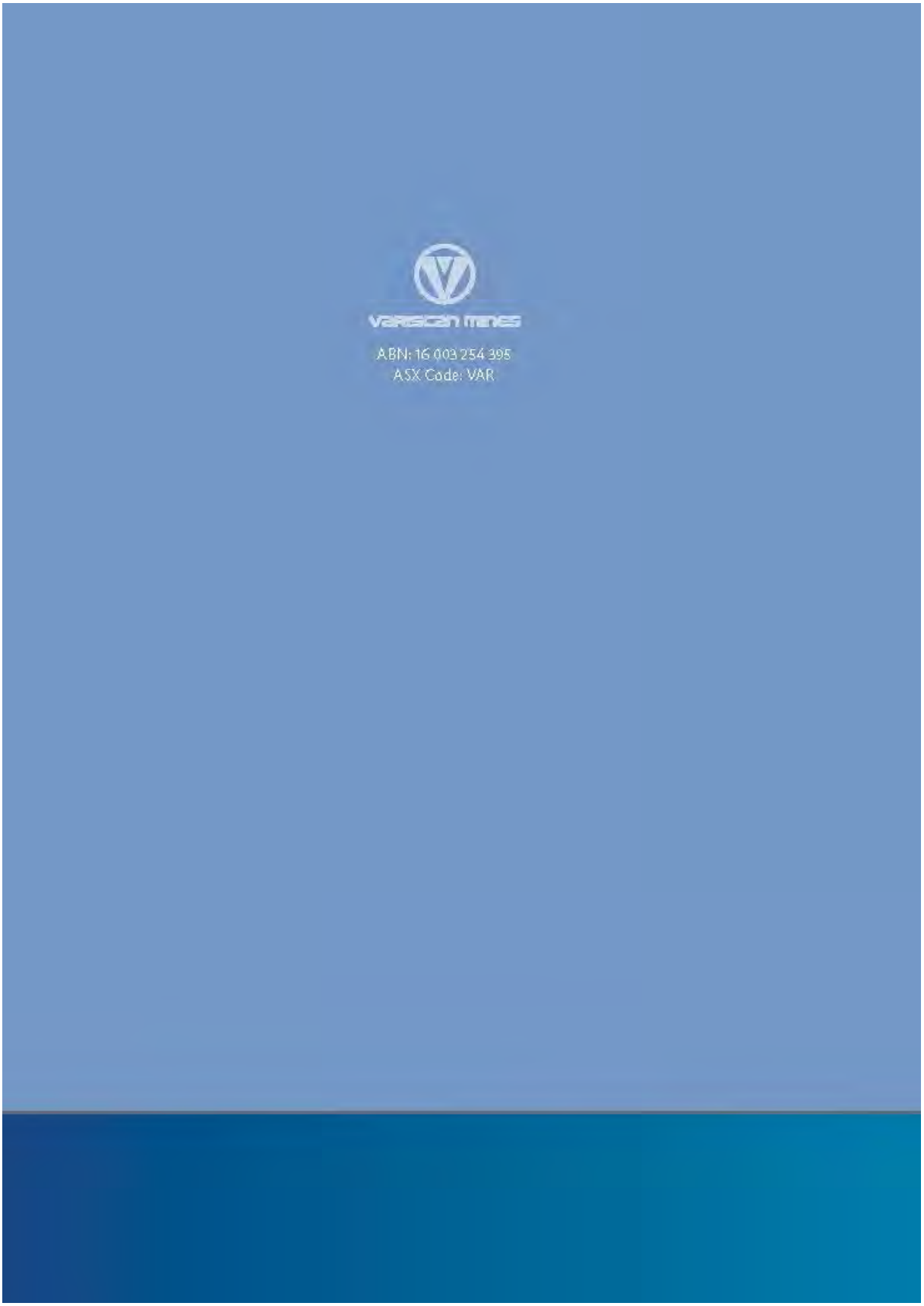
Australian Securities Exchange
ASX code: **VAR**

ACN

ACN: 003 254 395




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varscan mines
ABN: 16 003 254 395
ASX Code: VAR

ANNEXE 4d : curriculum vitae

1. **Jack Testard**
2. **Michel Bonnemaison**
3. **Gregory Jones**
4. **£ric Marcoux**
5. **Patrick Lebret**
6. **J®r¹ me Gouin**
7. **Anne-Sophie Audion**
8. **Maxime Picault**
9. **Guillaume Raoult**



Jack TESTARD

INDICATIONS GENERALES

Nationalit®: Fran- aise
N®le : 11 mars 1945 ¨ Bourges (18)
Situation familiale : Mari®, 2 enfants et 5 petits enfants
Emploi actuel : Retrait® du BRGM
Pr®sident de SASU VARISCAN MINES
Langues : Fran- ais, Anglais, Espagnol, Russe (d®butant)
Exp®rience : + 40 ans
Distinctions : Chevalier de l'Ordre National du M®rite
M®daille de la section Exploitation de la Soci®t® de l'industrie Min®rale 2009
Titre : Docteur de sp®cialit® en P®trographie de l'Universit® de Clermont-Ferrand
Conseiller du Commerce Ext®rieur de la France
Autres activit®s Pr®sident de la chambre syndicale des industries mini¯res, administrateur de la fedem (tr®sorier, f®d®ration des minerais et m®taux), membre de la SIM (soci®t® de l'industrie min®rale), membre de la SGF (soci®t® g®ologique de France) et de l'UFG (Union Fran- aise des g®ologues)

SYNTHESE DES COMP£TENCES

Aujourd'hui pr®sident de la jeune soci®t® d'exploration mini¯re Variscan Mines, l'exp®rience de Jack Testard couvre autant le secteur minier priv®que les instances institutionnelles fran- aises et ®trang¯res des Sciences de la Terre. Durant sa carri¯re, faite essentiellement au BRGM il a repr®sent® cet ®tablissement public et commercial aupr¯s d'instances priv®es ou d'organisations et institutions comme administrateur ¨ Euromines (Emirec), ¨ la chambre syndicale des Industries mini¯res (CSIM), ¨ l'Agence de Pr®voyance et de S®curit® des Risques Miniers (APSRM), ¨ la SIM, ¨ Geoderis(GIP pour la gestion de l'apr¯s mine) dont il a assur® la pr®sidence pendant 8 ans. Il a ®galement repr®sent® le groupe minier BRGM dans de nombreux syndicats de recherche et d'exploration mini¯re.

J. Testard a termin® sa carri¯re comme chef du service Ressources min®rales du BRGM, poste qu'il occupait depuis 1998 date de son retour au BRGM apr¯s quelques ann®es pass®es ¨ diriger une compagnie mini¯re en Turquie (EUROGOLD), Gr¯ce et Bulgarie (janvier 1995 ¨ septembre 1998). Cette soci®t® a termin® la construction de la mine d'or (®pithermal) d'Ovacik (24 t d'or, 4 M. USD) et la pr®faisabilit® d'un second projet (Mastira) de mine d'or. Ces activit®s se sont d®roul®es dans une atmosph¯re d'opposition politique locale maximale qui l'a amen® ¨ cr®er de nouvelles soci®t®s ind®pendantes d'Eurogold pour g®rer les d®couvertes dans ces pays (Gr¯ce en particulier).

Auparavant et depuis 1991, au sein du BRGM, il avait ®t® charg®, comme directeur g®ographique Europe de l'Est et CEI, de d®velopper les activit®s de services du BRGM dans les domaines g®ologiques et miniers en Europe Centrale & Orientale et CEI, avec un succ¯s particulier en Yakoutie.

D¯s 1987, comme directeur g®ographique adjoint, il a d®velopp® l'activit® BRGM en Afrique de l'Est et Australe. A ce titre, il a organis® les investissements miniers du BRGM au Malawi (terres rares), ¨ Madagascar (or et platine), au Kenya (or puis zinc) et en Ouganda pour le cobalt, en promouvant des techniques originales de biolixiviation qui ont permis le d®veloppement de la mine de cobalt de Kasese (pr¯s de Kilembe). En m° me temps, il a assur® l'obtention des contrats commerciaux ou de coop®ration dans cette partie de l'Afrique, essentiellement dans les domaines institutionnels (Code minier) ainsi que dans le secteur des roches et min®raux industriels et de celui de l'environnement minier.

Pour r®aliser ces t©ches, Jack Testard a d¾expliquer, convaincre et justifier les actes du BRGM aupr¯s des autorit®s et d®cideurs locaux (ministres, banques de financement, conseils d'administrationé).

Ces actions d'organisation d'op®rations multiples au niveau central de la soci®t® suivaient une p®riode de direction d'une unit® d®centralis®e en Guyane fran- aise ï charg®¨ ce moment de l'inventaire minier, il a attir® des investisseurs miniers importants, d®velopp® une unit® de services pour les besoins locaux et maintenu un ®quilibre social, fragilis® au sein de l'®tablissement.

Cette position de responsable op®rationnel a ®t® l'aboutissement d'un apprentissage et d'une application technique de terrain de 6 ans en Arabie Saoudite comme g®ologue de terrain pour d®velopper un important g´te de Zn/Cu (Khnaiguyha) avant de devenir chef g®ologue en Guyane.

Son d®but de carri¯re s'est fait au BRGM et ¨ l'universit® de Clermont Ferrand sur des sujets de recherches mini¯res appliqu®es ¨ la prospection de l'or, du lithium et du tungst¯ne ainsi qu'à la synth¯se g®ologique du socle oriental du C®zallier dans le massif central fran- ais. Il a mis au point des m®thodes de traitement informatiques multicrit¯res bas®s sur les analyses math®matiques traitant de donn®es g®ologiques et min®rales quantitatives et qualitatives (analyse des correspondances).

FORMATIONS

Universit® de Clermont-Ferrand
Docteur de sp®cialit® en p®trographie

CARRIÊRE PROFESSIONNELLE

2010- 2011 AUTO ENTREPRENEUR. MANDATAIRE Variscan Mines
Expert et conf®rencier et enseignant sur la strat®gie des mati¯res premi¯res min®rales
Pr®sident de Variscan Mines

2009-2010 BRGM : COLLABORATEUR EXTERIEUR
Charg® de monter l'ENAG (Ecole Nationale d'Application des G®osciences

1998-200 BRGM : SERVICE ç RESSOURCES MINERALES è
Chef du service

1995-1998 TURQUIE EUROGOLD
Directeur g®n®ral d'une soci®t® de production d'or, filiale du Groupe LaSource.

1994 BRGM FRANCE
Directeur g®ographique ECO et CEI ¨ la Direction G®ologie Mine International.
Responsable du projet cobalt (KCC) trait® par bioxiviation.

1992-1993 BRGM FRANCE
Directeur G®ographique au Service vente de services en g®ologie et mine pour l'Afrique de l'Est, l'Europe Centrale & Orientale et la CEI.

1987-1991 BRGM FRANCE
Adjoint au directeur des op®rations mini¯res en Afrique.
Responsable de l'Afrique de l'Est pour les investissements, la coop®ration, la vente de services et l'implantation du BRGM dans des pays nouveaux : Kenya -Ouganda ï Malawi et des substances vari®es telles que terres rares, platino¨des, or, m®taux de base, z®olites, etc.

1983-1986 BRGM GUYANE
Directeur local
Gestion, orientation, promotion commerciale, cr®ation d'un SGR et d'une activit® hydrog®ologique, g®otechnique.
R®forme de l'activit® mini¯re par la promotion et l'apport de capitaux ®trangers, la mise en exploitation de mine d'or.

1981-1982 BRGM GUYANE
Chef g®ologue
£quipes de prospection mini¯re en for°t ®quatoriale.

1980 BRGM FRANCE
Pr®paration du congr¯s g®ologique, r®daction de synth¯ses.

1978-1979 BRGM ARABIE SAOUDITE
G®ologue chef de mission
Prospection g®n®rale par m®taux de base, or, argent, par g®ochimie, g®ophysique, cartographie.
£valuation de gisements, statistiques, informatique, min®ralurgie, faisabilit®.

1975-1977 BRGM ARABIE SAOUDITE
G®ologue de terrain
Lev®de mine et ®chantillonnage Au, Zn, Cu (stockwerk) mine de Al Amar.
Prospection et travaux de d®tail 1/2000¯me de prospects Zn, Cu dans le volcano-s®dimentaire d'Arabie par sondages carott®s et percutants.

1974-1975 BRGM FRANCE
M®thodologie du traitement informatique des donn®es alluvionnaires de prospection.

1972-1974 FRANCE
Prospection Sn, Li, W, synth¯se g®ologique du socle oriental de C®zallier.
Cartographie g®ologique ¨ 1/25.000eme. Th¯se 3¯me cycle.
Mesures g®ochronologiques LA10 CNRS Clermont-Ferrand.

1- Michel BONNEMAISON

Curriculum vitae Europass



Information personnelle

Nom(s) / Prénom(s)	**BONNEMAISON Michel**
Adresse(s)	256 rue Alexandre André F-45240 Ligny le Ribault
Téléphone(s)	(33-2) 38 51 10 56 Portable: (33-6) 04 52 21 72
Télécopie(s)	(33-2) 38 51 03 27
Courrier électronique	m.bonnemaison@variscan.fr ; e.mine.bonnemaison@gmail.com
Nationalité	Française
Date de naissance	27.03.1955
Sexe	Masculin

Emploi recherché / Domaine de compétence

Exploration minière, management de sociétés

Expérience professionnelle

2011	**France**
Fonction ou poste occupé	**Directeur général de Variscan Mines**
Principales activités et responsabilités	Société d'exploration minière française spécialisée dans les métaux critiques, les métaux de base et métaux précieux. Constitue le domaine minier de la société et développe les partenariats avec les autres groupes miniers nationaux et internationaux.
Nom et adresse de l'employeur	Variscan Mines, 16 rue Léonard de Vinci, 45074 Orléans Cedex 2, France
Type ou secteur d'activité	Industrie minérale
2005 - 2011	**France**
Fonction ou poste occupé	**Adjoint au chef de service** des ressources minérales du BRGM

Principales activités et responsabilités	Réalisation d'audits sur des gisements métallifères pour le compte d'organismes industriels, financier institutionnels ; expert short-listé EI-TAF Banque Mondiale. Coordonne également pour le Service des Ressources Minérales les travaux relevant des opéra commerciales. Durant cette période, a fait évoluer par progression constante le chiffre d'affaire du se de 2 M€ /an (années 2001-2005) à 18 M€/an (année 2009).
Nom et adresse de l'employeur	BRGM, 3 avenue Claude Guillemin, BP 36009, 45060 Orléans Cedex 2 - France
Type ou secteur d'activité	Gestion des Ressources Minérales
2001 - 2005	**France**
Fonction ou poste occupé	**Responsable de l'Unité des Roches et Minéraux Industriels** au Service des ressources Minérale BRGM
Principales activités et responsabilités	Assure la promotion de la discipline au sein de l'Etablissement et propose des programmes scientifi et techniques tels que la révision des Schémas Départementaux des Carrières ou l'Observatoire Nati des Ressources Minérales. Coordonne également pour ce Service les travaux relevant des opérations de Service Public.
Nom et adresse de l'employeur	BRGM, 3 avenue Claude Guillemin, BP 36009, 45060 Orléans Cedex 2 - France
Type ou secteur d'activité	Gestion des Ressources Minérales non métalliques
1998 -2000	**Argentine**
Fonction ou poste occupé	**Chef du Projet « Cordoba »**
Principales activités et responsabilités	Appui institutionnel à la Direction Générale des Mines de la Province de Cordoba (Argent comprenant : L'installation d'un système de SIG pour gérer les ressources minières de la Provin l'installation d'un laboratoire d'analyses géochimiques (ICP séquentiel/simultané, AAFG, etc.…) et procédures de fonctionnement. ; la réalisation d'un plan d'exploration de la Province avec formation équipes de la DGM.
Nom et adresse de l'employeur	BRGM, 3 avenue Claude Guillemin, BP 36009, 45060 Orléans Cedex 2 - France
Type ou secteur d'activité	Gestion des Ressources Minérales
1991 -1998	**Espagne**
Fonction ou poste occupé	**Président Directeur Général**
Principales activités et responsabilités	PDG de SEIEMSA (60 employés), filiale d'exploration et d'exploitation minière du gro franco-australien La Source. Durant cette période, a constitué la société anonyme, créé un dom minier par pose de permis et acquisitions de sociétés, développé des projets d'exploitation jusqu'au st de la préfaisabilité. Le projet Or-Cuivre « La Zarza », découvert et développé par SEIEMSA, aujourd'hui en exploitation.
Nom et adresse de l'employeur	La Source Cie Minière (Société absorbée par Newmont)
Type ou secteur d'activité	Industrie Minière
1992 -1998	**Espagne**
Fonction ou poste occupé	**Administrateur**
Principales activités et responsabilités	Administrateur d'INGEMISA, Société d'ingénierie filiale du Groupe BRGM.
Nom et adresse de l'employeur	BRGM, 3 avenue Claude Guillemin, BP 36009, 45060 Orléans Cedex 2 - France
Type ou secteur d'activité	Industrie Minière
1993 -1998	**Espagne**
Fonction ou poste occupé	**Professeur d'Université**
Principales activités et responsabilités	Professeur Associé à l'Ecole Supérieure des Mines de Madrid Enseignement des techniques de prospection géochimique : cours complet de 5ème et 6ème anné

Nom et adresse de l'employeur	Universidad politécnica de Madrid Escuela técnica superior de ingenieros de minas de Madrid C/Ric Rosas, 21. E-28 003 Madrid
Type ou secteur d'activité	Enseignement supérieur
1982 -1990	**France**
Fonction ou poste occupé	**Chef de Projet scientifique – Expert international**
Principales activités et responsabilités	Responsable de programmes méthodologiques sur l'exploration des gisements aurifères. Propos d'un modèle métallogénique pour les gisements associés à l' hydrothermalisme crustal (shear z aurifère). Ces travaux furent réalisés dans le cadre de projets nationaux ou internationaux (Cana Brésil, Tchécoslovaquie, Espagne…) Réalisation de missions d'expertise pour le compte du Groupe Minier du BRGM (Afrique, Amérique Sud, Europe) ou le MAE (Chine).
Nom et adresse de l'employeur	BRGM, 3 avenue Claude Guillemin, BP 36009, 45060 Orléans Cedex 2 - France
Type ou secteur d'activité	Recherche scientifique – Exploration minière

Éducation et formation

Dates	1987
Intitulé du certificat ou diplôme délivré	Doctorat d'Etat ès Sciences.
Principales matières/compétences professionnelles couvertes	Thèse : "Concentrations aurifères dans les zones de cisaillement : métallogénie et prospection".
Nom et type de l'établissement d'enseignement ou de formation	Université de Toulouse
Niveau dans la classification nationale ou internationale	HDR ; CITE : Niveau 6 – Groupe 44
Dates	1980
Intitulé du certificat ou diplôme délivré	Doctorat de Troisième cycle, option Métallogénie.
Principales matières/compétences professionnelles couvertes	Thèse : "Etude géologique et minéralogique des minéralisations aurifères des "schistes X" de la min de Salsigne (Aude)"
Nom et type de l'établissement d'enseignement ou de formation	Université de Toulouse
Niveau dans la classification nationale ou internationale	CITE : Niveau 6 – Groupe 44
Dates	1978
Intitulé du certificat ou diplôme délivré	Diplôme d'Etudes Approfondies
Principales matières/compétences professionnelles couvertes	Cristallographie, option Minéralogie et Matériaux.
Nom et type de l'établissement d'enseignement ou de formation	Université de Toulouse
Niveau dans la classification nationale ou internationale	DEA - CITE : Niveau 5A
Dates	1978
Intitulé du certificat ou diplôme délivré	Maîtrise ès Sciences de la Terre

Principales matières/compétences professionnelles couvertes	Certificats : C1 - Pétrologie C2 - Géologie sédimentaire C3 - Géologie structurale C4 - Géologie appliquée C5 – Minéralogie
Nom et type de l'établissement d'enseignement ou de formation	Université de Toulouse
Niveau dans la classification nationale ou internationale	CITE : Niveau 5A

Aptitudes et compétences personnelles

Langue(s) maternelle(s) **Français**

Autre(s) langue(s)

Auto-évaluation	Comprendre				Parler				Ecrire	
Niveau européen (*)	Ecouter		Lire		Prendre part à une conversation		S'exprimer oralement en continu			
Anglais	B1	Utilisateur indépendant	B2	Utilisateur indépendant	B1	Utilisateur indépendant	B2	Utilisateur indépendant	B1	Utilisat indépen
Espagnol	C2	Utilisateur expérimenté	C2	Utilisateur expérimenté	C2	Utilisateur expérimenté	C2	Utilisateur expérimenté	C1	Utilisat expérim
Portugais	B2	Utilisateur indépendant	B2	Utilisateur indépendant	B1	Utilisateur indépendant	B1	Utilisateur indépendant	A1	Utilisat élémen

(*) Cadre européen commun de référence (CECR)

Aptitudes et compétences sociales	Bonnes capacités de communication acquise au cours de mes fonctions commerciales (clien l'international), de management (PDG d'une société rendant des comptes simultanément à un organ public français, le BRGM, et une société minière australienne, Normandy, d'appui institutio (Argentine) ou d'enseignement (Espagne) Bonnes capacités pour motiver des équipes de recherche Forte participation aux congrès internationaux ; Chairman au IX Congreso. Internacional de Mine Metalurgia, León (1994). Core Member du PDAC
Aptitudes et compétences organisationnelles	Adjoint au chef d'un service de 80 personnes Forte capacité organisationnelle : constitution et management d'une SA minière de 60 personnes, mise en place des systèmes de gestion et de comptabilité devant obéir simultanément aux nor françaises et australiennes. Bonne aptitude à la gestion de projets scientifiques ou techniques mettant en œuvre des équ pluridisciplinaires et internationales
Aptitudes et compétences informatiques	Spécialiste des architectures de bases de données relationnelles utilisables dans le domaine Sciences de la Terre. Concepteur et coréalisateur de MINER@LIA, encyclopédie minéralogique électronique destine l'industrie et l'enseignement. Concepteur et réalisateur de GKR (Geological Knowledge Representation) : un système utilisan ontologies pour organiser l'information économique, géologique et minière à l'usage d'institutions o sociétés privées. Maîtrise des logiciels usuels de la bureautique et du dessin.
Permis de conduire	Permis A et B ; bateau

Information complémentaires BONNEMAISON M., BAYLE L.D. - Etonnantes richesses min®ralogiques de la France; G®osciences 2007.

(bibliographie)

BONNEMAISON M. - L'eau, facteur de lib®ration de l'arsenic naturel ; G®osciences 2005.

BOUCHOT V., GROSY Y., CALLI M., AURIOL M., BONNEMAISON M., CHARVET J., TOL
F.- La mine d'or de Cros-Gallet, Le Bourneix (Hte Vienne, district de St Yrieix, Massif C
Fran- ais).- Chronologie relative et r¹ les respectifs des d®formations dans la mise en place
min®ralisation, Colloque PIRSEM Montpellier. M®m. BRGM.

CALLI M., BONNEMAISON M., AURIOL M., TOLLON F. - Etude lithog®ochimique (majeu
traces) de la min®ralisation aurif¯re du gisement du Bourneix (Hte Vienne, district de St Y
Massif Central Fran- ais), implications pour la prospection de l'or en Limousin, Colloque PIR
Montpellier 1986. M®m. BRGM.

MARCOUX E., BONNEMAISON M. - G®ochimie isotopique du Pb et la prospection de l'
France ; Colloque PIRSEM Montpellier 1986. M®m. BRGM.

BONNEMAISON M., MARCOUX E. (1989) - Development of auriferous shear zones : a three
model. *Min. Deposita*.

BOUCHOT V., GROS Y., BONNEMAISON M. (1989) - Structural controls of the gold bearing
zone of the Saint Yrieix district, Massif central, France. Evidences from the Bourneix and Lau
gold deposits. *Econ. Geol.*

JOHAN Z., MARCOUX E., BONNEMAISON M. (1988) - Ars®nopyrite aurif¯re : mod
substitution de Au dans la structure de FeAsS. *C.R. Acad. Sc. Paris*.

MARCOUX E., BONNEMAISON M., JOHAN Z., BRAUX Ch. (1988) - Distribution de Au, Sb,
Fe dans l'ars®nopyrite aurif¯re. *C.R. Acad. Sc. Paris*.

TOURAY J.C., TOLLON F., BONNEMAISON M. (1988) - Gold deposits in France and Herc
Europe. Congr¯s IMM, Londres.

BONNEMAISON M. (1987) - Les concentrations aurif¯res dans les zones de cisaillem
m®tallog®nie et prospection.- Th¯se de Doctorat d'Etat, Universit®de Toulouse.

BONNEMAISON M., BONNEFOY D., BRAUX C. (1987) - Signatures g®ochimiques des
zones aurif¯res, 12¯me Colloque International d'Exploration G®ochimique, Orl®ans.

BONNEMAISON M., MARCOUX E. (1987) - Les zones de cisaillement aurifères du socle herc
français. - *Chron. rech. min.*, n° 488, sept. 1987, pp. 29-42.

BONNEMAISON M., MARCOUX E. (1987) - Les zones de cisaillement aurifères du socle hercynien fra
Chron. rech. min. n° 488.

BONNEMAISON M., HUBERT P. (1986) - Les shear zones aurifères d'Afrique de l'Ouest.- Colloque C
Paris, 26 juin 1986.

BONNEMAISON M. (1986) - Les "filons de quartz aurifère" : un cas particulier de shear zone aurifère.- C
rech. min., n° 482, mars 1986, pp. 55-65.

BONNEMAISON M., CROUZET J., THIERCELIN F., TOLLON F. (1986) - Controls on exhalative
deposits hosted by volcaniclastic sediments in the "schistes X", Salsigne district, Montagne Noire, Sou
France.- Proc. International Symposium on the Geology of Gold deposits, Toronto, Canada, 29 sept-
1986, pp. 457-569.

BOUCHOT V., GROS Y., CALLI M., AURIOL M., BONNEMAISON M., CHARVET J., TOLLON F. (1
La mine d'or de Cros-Gallet, Le Bourneix (Haute Vienne, district de Saint-Yrieix, Massif central fran
Chronologie relative et rôles respectifs des déformations dans la mise en place de la minéralisation. Co
PIRSEM Montpellier. Mém. BRGM.

CALLI M., BONNEMAISON M., DOMMANGET A., OUSTRIERE P., RANKIN R., TOURAY
(1986) - Apport de la géochimie des phases fluides à la caractérisation de quartz aurifères d'Afriq
l'Ouest.- 11ème Réunion des Sciences de la Terre, Clermont-Ferrand (France), 26-27 mars 1986

CALLI M., BONNEMAISON M., AURIOL M., TOLLON F. (1986) - Etude lithogéochimique (majeurs et t
de la minéralisation aurifère du gisement du Bourneix (Haute Vienne, district de Saint-Yrieix, Massif c
français). Implications pour la prospection de l'or en Limousin. Colloque PIRSEM Montpellier 1986.

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France.- Colloque PIRSEN, Montpellier (France), 29-30 sept. 1986.

RICHARD J.L., BONNEMAISON M., TOLLON F. (1986) - Mission d'étude des mines d'or du Xinjiang, C
Rap. inédit SMPC Salsigne.

FORNARI M., BONNEMAISON M. (1984) - Mantos et amas sulfurés assénié à or : la Rinconada, pr
indice de minéralisation de type exhalatif-sédimentaire dans la cordillère orientale du Pérou. - *Chron.
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DERAMOND J., BONNEMAISON M., CROUZET J., DEBAT P., FERRET B. (1981) - Rôle actif des sc
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géométrie de la couche minéralisée de Salsigne.- *C.R. Acad. Sci. Paris V*, 267, pp. 623-628.

BONNEMAISON M. (1980) - Etude géologique et minéralogique des minéralisations aurifères des "sc
X" de la mine de Salsigne (Aude).- Thèse de 3ème cycle, Université de Toulouse.

BONNEMAISON M., DEMANGE M., ISNARD H., LEGER M., PASCAL M.L., PERRI
(1980) - Lithostratigraphie et structure des schistes "X" du Cabardes (Montagne Noire, France).- *Bul
Geol. Fr.*, série 7, vol. 5, 1980, pp. 278-286.

BONNEMAISON M. (1980) - Etude géologique et minéralogique des minéralisations sulfo-arse
aurifères des schistes X de la mine de Salsigne (Aude). Thèse de 3ème cycle de l'Université de Toulo

BONNEMAISON M., CROUZET J., TOLLON F. (1978) - New stratiform As, Fe, Bi, Cu sulfides a
deposits in the volcano-sedimentary sequence of Salsigne gold mine (Aude, France). 5th Symp
IAGOD, Snowbird, Alta, Utah, USA.

Annexes

Thèse d'état
Professorat École des Mines Madrid

UNIVERSITE PAUL SABATIER
TOULOUSE III

ATTESTATION

DE DOCTORAT D'ETAT

Discipline : SCIENCES

(Arrêté du 16 avril 1974)

Le Secrétaire Général de l'Université Paul Sabatier de Toulouse, soussigné, certifie que :

M onsieur B O N N E M A I S O N Michel

né le 27 mars 1955

à LAVELANET département Ariège

a présenté le 29 septembre 1987

devant ladite Université

1) en soutenance : une thèse

Intitulé :

Concentrations aurifères dans les zones de cisaillement : Métallogénie et prospection.

2) un exposé permettant de situer ses travaux dans leur contexte scientifique

Après délibération, le jury a prononcé l'admission de :

M onsieur BONNEMAISON Michel

au grade de DOCTEUR D'ETAT - discipline SCIENCES - Spécialité : METALLOGENIE/

Avec la mention : TRES HONORABLE//

Fait à Toulouse, le 30 SEP. 1987

L'Administrateur Civil
chargé des Fonctions
de Secrétaire Général :

G. DANON

UNIVERSITE PAUL SABATIER TOULOUSE

Sous aucun prétexte, il ne peut être délivré de duplicata de la présente attestation.
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MINISTERIO PARA LAS ADMINISTRACIONES PUBLICAS

HOJA DE SERVICIOS

de D. MICHEL ANDRE BONNEMAISON A

CONTRATADO ADMINISTRATIVO con fecha 23 DE FEBRERO DE 1995

y con Número de Registro de Personal 91274835138C para realizar funciones de

PROFESOR ASOCIADO

En su virtud expido la presente Hoja de Servicios que acredita su relación de trabajo con la Administración del Estado.

Madrid, a 23 DE MARZO DE 1995

EL SECRETARIO DE ESTADO PARA
LA ADMINISTRACION PUBLICA
P.D. El Director General de la Función Pública
O.M. 11/09/92 (B.O.E. 22/9)

Leandro González Gallardo

90

M. - F.N.M.T.

VARISCAN MINES

Gregory JONES

Gregory F. P. Jones

106 Copeland Rd ~ Beecroft ~ NSW 2119 ~ Australia Tel: +612 9980 2241 (Home), +61413 870 090 (Mobile) Email: jonesfamily83@optusnet.com.au

QUALIFICATIONS

University of Technology - Sydney BSc (Geology) (Hons 1) with

Institute Medal for Academic Excellence 1980

Formation et d®veloppement professionnels

Date	Cours	Lecturer(s)
1981	Mineral Economics	B. MacKenzie (Queens)
1984	Precambrian Gold Deposits	C. Jay Hodgson
1985	Epithermal Gold Models for exploration	F. Reid and J.
1987	Statistical Methods for Exploration and Mining	Dr. W. Dunsmuir
1990	Skarn Deposits : Characteristics and Genesis	Dr. L. Mienert
1990	Ore reserve calculation methodologies - classical and Geostatistical	Dr. S. Carras
1991	Komatiitic Nickel Sulphide Deposits	Dr. M. Lesher
1994	Ancient and Modern Volcanic Terrains	Dr. R. Cas
2002/03	Direction des Ressources Humaines ï Management Research Group	D. Davidson

PULICATIONS (POST 1985)

Anderson, W.B.; Antonio, M.; Davis, B.; **Jones, G.F.P**.; Setterfield, T. N.; Tua, P. (1987): The Emperor epithermal gold deposit, Vatukoula, Fiji; Proceedings : Pacific Rim Congress 87. *The Australasian Institute of Mining and Metallurgy, Parkville, Vic.* pp 9-12.

Chanter, S.C., Ellu, P., Erickson, M.E., **Jones, G.F.P.**, Mikucki,E. (1998): The Bulletin Gold Deposit**;** Geology of Australian & Papua New Guinean Mineral Deposits. *The AusIMM, Melbourne*, Monograph 22, pp 105-110

Vielreicher, R.M., Vielreicher, N.M., Hagemann, S.G., and **Jones, G**. (2003): Fault zone evolution and its controls on ore-grade distribution at the Jianchaling gold deposit, western Qinling region, central China. *Mineralium Deposita 38*, pp 538-554.

Greg Jones (2003): Geology of the Jinfeng Gold Deposit ï A Chinese ñCarlinò Analogy; Exploration in Asia? Put a Tiger in Your Tenements. *Australian Institute of Geoscientists, Sydney*. Monograph 38.

Greg Jones (2007): CBH ï Setting a Cracking Investment Pace in NSW; NSW Mineral Exploration & Investment 2007 Conference, *NSW Dept. of Primary Industries*.

Greg Jones and Ian Mackenzie (2007): Mineral Hill ï A Mining Centre Renaissance; Mineral exploration in the Tasminides - Mines and Wines Conference 2007, *AIG Bulletin 46*, pp 87-94

AUTRE

PROFESSIONNEL ET ASSOCIATIONS Membre - Australian Institute Of Mining and Metallurgy. *Competent person* telle que définie dans le code JORC code.

Ancien représentant à l'Exploration Council of The Chamber of Minerals and Energy (WA).

Ancien Directeur de Taurus Exploration, compagnie privée d'exploration et d'investissement.

Ancien Directeur de PenUltimate Solutions Ltd, compagnie spécialisée dans la création de logiciels géologiques

Actuel Directeur de Silver City Minerals Ltd, Eastern Iron Limited, Thomson Resources Ltd

INFORMATIONS COMPLÉMENTAIRES

Logiciels: **MS Office, Access, MS Word, Excel, Powerpoint, Corel 13, MapInfo**

Nationalité **Australienne**

Centres d'intérêt: **Golf, pêche, tennis, squash, voile, rugby, ski, ébénisterie**

Date de naissance: **26th Mai, 1957**

Etat civil: **Marié, 3 enfants (23, 21 et 18 ans)**

Références: **Disponible sur demande**

CARRIÈRE

PLATSEARCH NL (PTS)

Directeur général : 2009 – aujourd'hui

Direction générale de la compagnie, incluant les tâches journalières, contrôle financier et management des ressources humaines

Définition et direction de l'exploration de CBH et de ses programmes de définition de ressources.

Définition et mise en œuvre des stratégies de croissance de la société approuvées par le Board.

Conception et présentation des éléments de la société aux institutions, actionnaires et à des conférences. Préparation des annonces d'ASX, des rapports trimestriels de la société et des rapports annuels.

Gestion des parties prenantes les actionnaires et les organes gouvernementaux-clés.

Gestion des aspects financiers et commerciaux-clés de la compagnie, incluant les activités de levées de fonds et les négociations pour de nouveaux projets.

Représentant de PlatSearch pour les compagnies cotées à l'ASX.

CBH RESOURCES LTD (CBH)

Directeur général – Géologie et exploration : 2006 - 2008

Large rôle de géologue et dirigeant dans CBH comprenant :

Définition, budgétisation et management de l'exploration de CBH ainsi que des programmes de définition des ressources. Membre de l'équipe de développement de projet minier avec le rôle de diriger les études de faisabilité de la mine à tous les niveaux.

Membre de l'équipe exécutive pour le développement de stratégies de croissance pour compagnie de plus grande taille.

Assiste MD et indépendamment con-ut et présenta des éléments de la société aux institutions, actionnaires et à des conférences. Co-rédaction des annonces de ASX, des rapports trimestriels de la société et des rapports annuels.

Gestion des parties prenantes incluant les organes gouvernementaux, les propriétaires locaux et les groupes aborigènes. Supervision technique de la géologie du site minier de CBH. *Competent person* au sens du code JORC.

Réussites majeures

- Formation d'une équipe d'exploration et initiation d'un premier et vaste programme d'exploration à conduire par CBH (budget de $14M en 2007).
- Co-direction des études de prévisions minières pour les projets de Constance Range, Sorby Hills et Mineral Hill. Sorby Hills et Mineral Hill seront très probablement mis en production.
  Co-direction de l'équipe à Hong Kong et Singapore qui participa à la levée réussie de $200M en actions.
  L'équipe d'exploration augmenta de manière substantielle les ressources dans les gisements de métaux de base de Mineral Hill et Hera.

LEYSHON RESOURCES LTD (LRL)

Directeur général – Chine : 2004 - 2006

Rôle exécutif dans LRL incluant :

Génération et évaluation de projets.

Etablissement, budgétisation et management des programmes d'exploration de LRL.

En collaboration avec MD et d'autres du bureau exécutif, développement de stratégies de croissance pour une compagnie plus importante.

Assistance de MD et indépendamment con-ut et présenta des éléments de la société à des institutions, actionnaires et à des conférences. Co-rédaction des annonces de ASX, des rapports trimestriels de la société et des rapports annuels.

Création des modes opératoires-clés et des systèmes pour la société, incluant sécurité, environnement et sociabilité, et un code de conduite.

Directeur général des JVs chinoises

Responsable du développement de la mine et des études de faisabilité

Réussites majeures

- Constitution d'une équipe géologique et établit les bases pour conduire la première exploration étrangère en Heilongjiang.
- Définition avec succès d'une ressource aurifère de haute qualité (maintenant 1,2 Moz) à Zheng Guang.
- Cadrage et initiation d'une étude de faisabilité et des études environnementales à Zheng Guang, employant à la fois des groupes chinois (Nerin) et internationaux (Ausenco). Le projet sera en production en 2009. Développa des contacts institutionnels-clés et participa à imposer Leyshon sur le marché australien.
- Création des modes opératoires-clés et des systèmes pour la société (par exemple code pour les comptes et le *reporting*), incluant sécurité, environnement et sociabilité, et un code de conduite.

SINO GOLD LTD (SGX)

Directeur financier – China : 2002 – 2003

Promu pour diriger les opérations de Sino mine (ainsi que les tâches nécessaires de géologie minière). Responsabilités englobant la direction opérationnelle de la société narrow vein, mine d'or de Jianchaling (JCL) (80,000oz/a) (350 personnes)

Optimisation des dépenses du capital de JCL

Développement de stratégies opérationnelles pour une plus grande compagnie

Management des programmes de géologie pour l'étude de faisabilité de la mine de Jinfeng

Réussites majeures

- Dirigea Jianchaling, lors d'une difficile période de transition, restructura le management et avec l'équipe de la mine, améliora les performances sur de nombreux points (sécurité, environnement, coûts de production).
- Succès d'exploration à Jinfeng. Les ressources montèrent de 1.5Moz à 2.6Moz (maintenant 5Moz) grâce à la découverte d'une importante minéralisation stratiforme analogue aux Carlin type du Nevada.

SINO GOLD LIMITED (SGX)

Chef géologue (directeur général) - Chine : 1998 à 2002

SGX était à l'origine une petite compagnie privée opérant en Chine. En 1998elle ouvrit la première mine d'or en Chine développée avec des standards internationaux par une compagnie occidentale. En 2002 SGX est sur la liste de ASX et exploite actuellement la seconde mine d'or de Chine, Jinfeng, qui contient au moins 5 M oz Au (150 t).

Tâches essentielles du poste comprennent :

Développement et coordination des stratégies d'exploration régionales et près de la mine

Supervision technique de la géologie de la mine et responsabilités pour SGX des calculs de ressources

Recherche de nouvelles opportunités pour SGX (au travers du *China Review project*), compte-rendus et évaluations des biens miniers

Participation à des compte-rendus de la branche et à des études d'acquisition

Management des JV

Présentations externes (responsables financiers et techniques)

Réussites majeures

- Membre de l'équipe qui amena Sino Gold du stade de startup privée à celui de compagnie classée à capitalisation de +$300M en 2002 (maintenant >$1B).
- Membre-clé de l'équipe IPO
- Conçut et/ou présenta de nombreuses présentations aux actionnaires, banques et institutions pour aider à lever des fonds lors du stade privé et lors du processus de création de IPO. Il fut important de convaincre Goldfields et Colonial FSde prendre des positions dominantes dans Sino pre-IPO
- Formation, apprentissage et équipement de groupe de géologie de SGX geology group (exploration et mine) partant d'une équipe sommaire.
- Direction de l'équipe qui prolongea la vie de la mine Jianchaling de 18 mois à 5 ans. Créa le *China Review concept* (considérée comme la plus performante base de données géologiques de Chine) et management de son développement.
- Membre d'une petite équipe qui identifia et promut la participation de SGX dans le gisement d'or de Jinfeng, maintenant un des plus grands gisements d'or de Chine.
- Développa et maintint de solides liens de travail avec les agences gouvernementales locales et provinciales et les communautés, particulièrement dans des régions sensibles éloignées comme le Sichuan et le Qing Hai (toutes deux au Tibet).

WILUNA MINES LIMITED

Directeur d'exploration / Chef géologue - WA : 1994 - 1997

Wiluna est une compagnie spécialisée dans l'or de taille moyenne produisant en souterrain de l'or réfractaire en contexte sulfuré. WML possède au moins 2400 km^2 de propriétés minières dans les ceintures de roches vertes archéennes de Wiluna et Yandal, ainsi que de vastes propriétés à Duketon et Cloncurry, dans le Queensland. Les dépenses totales d'exploration pour 1996 furent de $11.1M.

Tâches essentielles du poste comprennent :

Développement et direction des stratégies et programmes d'exploration régionales et en mine

Supervision technique de la géologie du site de la mine avec responsabilités pour la compagnie des calculs de réserves et de ressources (*Competent Person*)

Recrutement, affectation et management de l'équipe géologique (en moyenne 28 personnes)

Compte-rendus locaux et régionaux et études d'acquisitions

Veille technologique, évaluation de districts potentiels, acquisitions de propriétés

Négociations et suivi de JV

Réussites majeures

- De 1994 à 1997, l'exploration à grande échelle aboutit à la définition de 1.0Moz (30 t) de ressources et réserves à un coût moyen de découverte de $26/oz.
- Exploration sur le site minier découvrit un système minéralisé caché environ. 500m sous la surface à Wiluna (filons Woodley et Lennon) avec une ressource préliminaire estimée à 1.1 Mt @ 9.0gpt Au soit 327,000 onces.

WESTERN MINING CORPORATION

Chef géologue – Kambalda Nickel Mines, WA : 1992 - 1994

Muté pour diriger le département de géologie nouvellement formé. L'opération consiste en 11 mines souterraines produisant 1.3 Mt / pa de minerai transporté par camions à un complexe de broyage. La production totale de

nickel ®tait de 35,000 tonnes de m®tal en concentr®s par an. A cause de la finesse, de lôirr®gularit®et de la g®om®trie complexe des zones min®ralis®es, lôexploitation ®tait semi-m®canis®e. Les contraintes du d®veloppement et de lôexploration ®taient importantes et demandaient une technicit®en pointe pour assurer la continuit®du succ¯s de lôop®ration.

T©ches essentielles du poste comprennent :
Management dôune importante et diverse ®quipe g®ologique de 19 g®ologues, 10 personnel dôavant-projet et 5autres membres de lô®quipe ï non compris lô®quipe de forage-.
Direction de 43,000 m de sondages souterrains, 30,000 m de sondages carott®s de surface et environ 8,000m de sondages RC par an.
Supervision et certification des calculs de r®serves annuels
Pr®paration du budget du d®partement en en partie du budget de KNM
Direction de lôexploration sur le site et hors de la mine.

Le poste ®tait gratifiant et exigeant, demandant une vaste palette de comp®tences techniques et de management.

R®ussites majeures

- R®organisation du syst¯me informatique dô®valuation des r®serves de minerai utilis®¨ KNM.
- Recentrage de lôexploration sur le site de la mine avec un effort significatif sur les sondages et les d®penses. Ceci fut partiellement transf®r®¨ lôaccroissement des r®serves de minerai de KNM en 1993 et 1994.

WESTERN MINING CORPORATION

G®ologue senior -Superviseur ï Am®rique du Nord : 1991 - 1992

Mut®pour d®velopper les cibles nickel et diriger lôexploration du nickel en Am®rique du Nord. Le groupe d®veloppa une exploration strat®gique ç nickel è et initia des acquisitions dans les terrains arch®ens et prot®rozoµques.

Les t©ches principales comprennent :
Formation dôune nouvelle ®quipe dôexploration pour nickel
Synth¯se des donn®es et ®valuation r®gionale, avec g®n®ration de cibles r®gionales et recommandations dôacquisitions de propri®t®s
£tablissement des strat®gies dôexploration, chronogrammes, budgets et logistique n®cessaire pour les propri®t®s nouvellement acquises
Direction des activit®s dôexploration

R®ussites majeures

- Ce travail permit la premi¯re exploration pour nickel de WMC hors dôAustralie. Les nouvelles cibles ont ®t® d®finies ¨ la fois dans lôArch®en et le Prot®rozoµque comme dans les terrains plus jeunes (par exemple, analogues ¨ Norilsk). De larges arpents de terrain ont ®t®acquis et lôexploration d®but®e, surtout autour de Thompson, en Manitoba.

WESTERN MINING CORPORATION

G®ologue de projet senior ï Am®rique du Nord : 1989 ï 1991

Travaux op®rationnels et dôexploration pour apporter le support technique ¨ WMC mines et nouvelles acquisitions.
Les travaux sur projets incluent Hog Ranch (Nevada), un gisement dôor ®pithermal, Carson Hill (California), un gisement dôor m®sothermal, Chibougamau (Qu®bec, Canada), des filons m®sothermaux ¨ Cu-Au
Travaux dôacquisition incluent lô®valuation de nombreux g´tes en Am®rique du Nord, incluant des gisements de type Carlin, en contexte de conglom®rats, des ®pithermaux et des skarns aurif¯res, des gisements de nickel de type komattite, ou de type magmatisme mafique/ultramafique, filons Cu-Ag en contexte gr®seux et gisements de Zn-(Pb) en contexte carbonat®

Le support technique pour les op®rations WMC inclut :

Certification des anciens calculs de r®serves et, si n®cessaire, travaux pour accro´tre ces r®serves par cartographie, logging, enregistrement de donn®es et optimisation des donn®es g®ologiques
Recherche des causes de variabilit®des caract®ristiques du minerai complexe
D®finition statistiques des teneurs de coupure et calculs de cut off dô®quilibre et de gain

Direction de lôexploration pour toutes les op®rations dans et autour de la mine

WESTERN MINING CORPORATION

Chef g®ologue ¨ Bendigo Gold Project, Victoria : 1988 ï 1989

Mut®au BGP pour prendre en charge lôexploration en surface et le d®veloppement souterrain de cibles peu profondes au cî ur du Bendigo Goldfield et superviser lôexploration r®gionale (e.g. at Tranagulla)

.Les t©ches principales comprennent:
D®finition et direction des programmes dôexploration r®gionaux et en mine
Budg®tisation et acquisition et cession de propri®®s mini¯res

WESTERN MINING CORPORATION

G®ologue minier senior ï Mine dôor dôEmperor, Fiji : 1985 - 1988

Lôop®ration mini¯re consiste ¨ produire et broyer 600,000 tpa (120Koz Au) de minerai r®fractaire, conduire lôactivit®de 3 open pits et dôune mine souterraine accessible par 4 puits et une descenderie.

.Les t©ches principales comprennent:
Supervision du d®partement de g®ologie avec 9 g®ologues locaux et expatri®s et 7 assistants g®otechniques (op®rations courantes et exploration en mine)
D®finition et contr¹ le des r®serves ; calcul des r®serves annuelles D®finition des cibles mini¯res avec programmes dôexploration
D®finition et ajustement des crit¯res dô®chantillonnage pour le contr¹ le des teneurs /m®thodologie et certification statistique des biais dô®chantillonnage et des teneurs de coupure dans les chambres dôextraction (*stopes*) ; transfert au maintien et ¨ lôoptimisation de la production
Organisation et hi®rarchisation des ressources dôexploration (programmation des sondages entre autres)

Nombreux succ¯s dôexploration semi-strat®gique pour lô®quipe g®ologique avec notamment Vunivalu Shatter et York F/M.

WESTERN MINING CORPORATION

G®ologue minier ï Charg®de Kambalda Gold Open Cuts, WA : 1984 - 1985

Mutation pour superviser le mine ¨ ciel ouvert r®cemment d®couverte de Kambalda.

Les t©ches principales comprennent :
Ach¯vement du programme de sondages pr®-d®veloppement et d®finition de mod¯le de colonnes min®ralis®es pour affiner et optimiser le trac®de lôopen pit
Supervision des activit®s de contr¹ le des teneurs, d®finition des blocs de minerai, modalit®s et supervision des apports miniers au budget global et au phasage dôexploitation
D®finition des cibles mini¯res et programmation des activit®s dôexploration proches de la mine
Calculs de bilans et de teneur de coupures ; cons®quences dans les calculs de r®serves et sc®narios dôexploitation

R®ussites majeures

- D®couverte de la zone mini¯re dôOrion, ¨ lôest des puits principaux, est ¨ mettre au cr®dit des travaux dôexploration.

WESTERN MINING CORPORATION

G®ologue minier ï Charg®des mines de nickel de McMahon and Carnilya : 1982 - 1984

Deux mines souterraines de nickel (acc¯s par descenderie). La production annuelle totale de ces deux mines g®ologiquement complexes est dôenviron 120,000 tpa.

Principaux travaux r®alis®s :
Cartographie g®ologique d®taill®e des travaux miniers
Supervision g®ologique des activit®s mini¯res, notamment certification des teneurs, pr®visions mini¯res, chronogramme dôexploitation
Choix et supervision des programmes dôexploration en mines

Calculs des r®serves
Reconstitution des r®serves et optimisation du circuit de broyage

Succ¯s de lôexploration semi-strat®gique avec la d®couverte de la zone min®ralis®e de Carnilya East (ext®rieur de lôinfrastructure mini¯re existante).

WESTERN MINING CORPORATION

G®ologue dôexploration ï Nickel Exploration, WA : 1980 - 1982

Supervision de la totalit®de lôexploration du nickel et dôune partie de lôexploration de lôor dans les Eastern Goldfields. Les difficult®s du march®ont fait que jô®tais le seul g®ologue travaillant sur lôexploration du nickel.

Principaux travaux r®alis®s :
G®n®ration de nouvelles cibles r®gionales et acquisition de propri®t®s mini¯res
Compilation des donn®es dôexploration ant®rieures et g®n®ration de cibles locales dôexploration
Cartographie g®ologique de cibles de districts-cl®s ¨ lô®chelle 1:1000 ¨ 1:7500
Organisation, r®alisation et supervision des programmes de sondages carott®s RAB, RC ; r®alisation de programmes g®ochimiques et g®ophysiques
£tablissement et gestion de budgets

Cr®dit®des d®couvertes *grassroot* de la mine de nickel de Blair (toujours en production) et de la mine de nickel de Armstrong (Australie occidentale)

SOUTHERN PACIFIC PETROLEUM

G®ologue : 1979

Exploration de schistes p®trolif¯res et d®finition de zones min®ralis®es en Queensland du Sud. T©ches principales comprenaient le choix et la r®alisation des programmes de sondages carott®s, interpr®tation des zones min®ralis®es, calcul des ressources du gisement de schistes p®trolif¯res de Rundle.

CRA EXPLORATION LTD

Assistant g®ologue : 1978

Recherche g®n®rale de documentation, compilation et travaux de terrain au sein dôun group de recherch®¨ Fyshwick, Canberra. Exp®rience de travail industriel requise comme une partie du BSc.

JODODEX AUST. PTY LTD

Assistant de terrain : 1976

Travaux dôexploration incluant un ®chantillonnage sol r®gional et des sondages l®gers pour la recherche de VMS autour de Woodlawn, NSW. Exp®rience de travail industriel requise comme une partie du BSc.

VARISCAN MINES

2- £ric MARCOUX

£ric MARCOUX

Professeur ¨ l'universit®d'Orl®ans

D®partement des Sciences de la Terre et de lŒEnvironnement

N®le 9 octobre 1955 ¨ Vire (Calvados, France)
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Dipl¹mes et distinctions

1992	Laur®at du prix Carri¯re de lŒAcad®mie des Sciences de Paris
1986	Doctorat ¯s Sciences, sp®cialit® p®trologie-min®ralogie, Universit® de Clermont-Ferrand
1980	Doctorat de G®ologie et m®tallog®nie, Universit®de Clermont-Ferrand

R®sum®de carri¯re

depuis mars 2010	Charg® dôenseignement ¨ l'**Universit® internationale dôAndalousie** ¨ Huelva (UIA) (Espagne)
depuis novembre 2009	Charg® dôenseignement ¨ l'**ENSG Nancy** (fili¯re CESEV et 3¯me ann®e fili¯re G®nie G®ologique et Mati¯res Premi¯res Min®rales ï GGMPM-)
septembre 2007	**Professeur 1¯re classe, Universit® dôOrl®ans (France)**
2001 - 2011	Directeur du master professionnel international EGERM (Exploration et Gestion des Ressources Min®rales) co-habilit® avec lôUQAM de Montr®al
1998	**Professeur 2¯me classe, Universit® dôOrl®ans (France)** Expert aupr¯s de soci®t®s de lôindustrie min®rale
1994-1998	Chef de projet or et m®taux de base (exploration, valorisation et gen¯se), (Direction de la Recherche, BRGM) ; nombreuses missions dôexpertise, recherche et formation ¨ lô®tranger
1986-1993	G®ologue minier et min®ralogiste : min®ralogie appliqu®e, min®raux industriels, traitement des minerais (D®partement G®ologie et G´tes min®raux, **BRGM**) ; nombreuses missions dôexpertise, recherche et formation ¨ lô®tranger
1982-1986	Pr®paration dôun Doctorat dôEtat au laboratoire Min®ralogie, G®ochimie, Analyse du **BRGM**

Enseignement Universit® et Grandes £coles

Master, Doctorat, £cole dôing®nieurs (ENSG Nancy, UIA Huelva et Polytech Orl®ans)

Ressources min®rales et mines
G´tologie, m®tallog®nie et g®ologie mini¯re ; typologie, processus de gen¯se exog¯nes et endog¯nes, prospection des concentrations min®rales ; liens avec la g®odynamique ; ®conomie mini¯re

Min®raux industriels, mat®riaux de carri¯re ; gestion des carri¯res ï cautionnement - ®tudes dôimpact
Min®ralogie appliqu®e, m®tallographie et traitement des minerais, g®ochimie isotopique appliqu®e
Stages de terrain : g´tologie, cartographie et prospection mini¯re, emploi du PAD

Licence et formation CAPES- G®ologie g®n®rale, Min®ralogie g®n®rale et approfondie, Ressources Min®rales et vie quotidienne

G®ologie environnementale
D®chets miniers et pollutions mini¯res
R®habilitation des sites industriels et miniers : techniques et case histories
Valorisation de st®riles miniers

Encadrement
15 th¯ses de doctorat, 1 doctorat en cours ; 6 stages d'ing®nieur dans les domaines des ressources min®rales : exploration min®rale, ®tudes min®ralogiques, direction dôenviron **quatre-vingts stages de master professionnel international** dans les domaines des ressources min®rales (exploration, logging et ®chantillonnage, mod®lisation et cubage de gisements, caract®risation min®rale, tests et contr¹le qualit®, r®habilitation de sitesé)

Th¯mes de recherche et dôexpertise

- **Ressources min®rales et mini¯res** : gisements ¨ m®taux de base et pr®cieux, min®raux industriels ; ®tudes de gisements, cartographie mini¯re, calculs de r®serves, m®thodes approfondies de caract®risation, recherches de guides de prospection et processus g®n®tiques, ®laboration de campagnes dôexploration, s®lection et hi®rarchisation de cibles mini¯res

- **Min®ralogie appliqu®e et min®ralogie des minerais** (m®tallographie) : paragen¯ses m®talliques et dôalt®ration, ®l®ments valorisants et p®nalisants, application ¨ la mise au point dôun proc®d® de traitement des minerais

Relations avec entreprises

Expert auprès de sociétés de l'industrie minérale :

VARISCAN Mines (depuis janvier 2011) : expert en exploration minière (Au, métaux de base et de haute technologie)

IMERYS (depuis mars 2007) : chargé de la formation professionnelle du groupe dans le domaine de la géologie (Formation *Basics of Geology*)

MANAGEM (groupe ONA Maroc)
2004-2005 : expert en exploration minière
depuis 2011 : chargé de la formation professionnelle des cadres miniers en « ressources minérales et métallogénie »

ERAMET (depuis septembre 2008) : expert pour Nickel Division et Manganese Division

Compagnie minière de Touissit (CMT, Maroc) (2002-2004)
BRGM (1998-2009) : cartographie et expertises « caractère minéralogique et minier »
Barytine de Chaillac et Société industrielle du centre (Chaillac) (1999-2002)
GOVIEX : expert en exploration minière

Publications, ouvrages, conférences et congrès

105 articles publiés dans des revues « comité de lecture. Une **cinquantaine** de communications dans plus de 30 congrès internationaux et plus de 60 communications « congrès nationaux.

Co-rédaction d'un **ouvrage de synthèse** avec M. Jébrak : « **Géologie des ressources minérales** », publié en 2008 par le Ministère québécois des ressources naturelles et de la faune, 668 p

Co-auteur d'une **Encyclopédie minéralogique interactive Miner@lia** (Éditions Société de l'industrie Minérale Paris – 2004)

Editeur associé du numéro spécial de Mineralium Deposita sur la Ceinture pyriteuse sud-ibérique (1998)

Président du Comité scientifique et du Comité d'organisation de l'école thématique INSU « Ressources Minérales : nouvelles frontières » (Orléans 3-5 février 2011

Plus de **40 conférences invitées** en France et « l'étranger

Conférencier invité des Journées Européennes de Métallogénie (Brest, Octobre 1999, Octobre 2001, octobre 2004) ; conférencier invité 3ème congrès 3 MA Marrakech (Mai 2001), Journées ressources minérales Nancy (3-5 février 2010)

Activités de responsabilité collective

Depuis 2009	Membre de l'Union Fran- aise des G®ologues (UFG)
Depuis 2000	Membre de la Soci®t® de l'Industrie Min®rale (SIM)
2002-2009	Directeur-adjoint du D®partement des G®osciences, Universit® d'Orl®ans
2001-2011	Directeur du Master professionnel EGERM (Exploration et Gestion des Ressources Min®rales), dipl¹ me international avec l'UQAM Montr®al
2000-2006	Membre du Comit® Editorial de Ore Geology Reviews (nÁ3 mondial des revues sur les gisements miniers et la m®tallog®nie)
1995-1998	Membre du Comit® Editorial de Mineralium Deposita (nÁ1 mondial des revues sur les gisements miniers et la m®tallog®nie)
depuis 1992	Membre associ® du GEOTERAP de l'UQAM, Canada
1986-1992	Conservateur d®l®gu® de la collection de min®ralogie de l'Ecole Nationale Sup®rieure des Mines de Paris.

Liste des publications et communications ¨ congr¯s

J®brak M., el Wartiti M., Marcoux £., et Zaharaoui M. (2011) - The Bouznika Cambrian barite deposit (Morocco), an early mineralization on the Iapetus margin. Journal of African Earth Sciences, 60, 3, 53-62

Lotfi F., Belkabir A., Brunet S., Brown, A.C., Marcoux £. (2010) - Lithogeochemical, mineralogical analyses and oxygenï hydrogen isotopes of the Hercynian Koudiat Aµcha massive sulphide deposit, Morocco. Journal of African Earth Sciences, 56, 4-5: 150-166

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El Dursi K., Branquet Y. Guillou-Frottier L., Marcoux £. (2009) - Numerical investigation of transient hydrothermal processes around intrusions: heat-transfer and fluid-circulation controlled mineralization patterns. Earth and Planetary Science Letters, 288: 70-83

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Sizaret S., Marcoux, £., Boyce A., J®brak M., Stevenson R., Ellam R. (2009) - Isotopic (S, Sr, Sm/Nd, D, Pb) evidences for multiple sources in the Early Jurassic Chaillac F-Ba ore deposit (Indre, France). Bulletin de la Soci®t® G®ologique de France, 180, 2: 83-94

Lotfi F., Belkabir A., Brown A., Marcoux £., Brunet S., Maacha L. (2009) - Geology and mineralogy of the Hercynian Koudiat Aµcha polymetallic (Zn, Pb, Cu) massive sulfide deposit, Central Jebilet, Morocco. Exploration and Mining Geology, 17, 3-4: 15-31

J®brak M. et Marcoux £. (2008) ï G®ologie des ressources min®rales. £ditions Minist¯re des Ressources naturelles et de la Faune, Qu®bec, 668 p.

Marcoux £., Belkabir A., Gibson H., Lentz D., Ruffet G. (2008) - Draa Sfar, Morocco: a Visean (331 Ma) pyrrhotite-rich, polymetallic volcanogenic massive sulphide deposit in a Hercynian sediment-dominant terranes. Ore Geology Reviews, 33: 307-328

Belkabir A., Gibson H, Lentz D., Marcoux £., Rziki M. (2008) - Geology and Wall-Rock Alteration at the Hercynian Draa Sfar Zn-Pb-Cu deposit, Morocco. Ore Geology Reviews, 33: 280-306

Gloaguen £., Branquet Y., Boulvais P., Mo±lo Y., Chauvel J-J., Chiappero P-J., Marcoux £. (2007) - Palaeozoic oolitic ironstone of the French Armorican Massif: a chemical and structural trap for orogenic base metal-As-Sb-Au mineralisation during Hercynian strike-slip deformation. Mineralium Deposita, 42: 399-422

Sizaret, S., Chen, Y., Barbanson L., Henry B., Camps P., Marcoux £. (2006) - Crystallization in flow ï I. Palaeocirculation track by texture analysis and magnetic fabrics. Geophysical Journal. Int, 167: 605 -612

Marcoux £., Wadjinny A. (2005) - Le gisement Ag-Hg de Zgounder (Jebel Siroua, Anti-Atlas, Maroc) : un ®pithermal n®oprot®rozoµque de type Imiter. C.R. G®osciences, 337: 1439 ï 1446

Andr®-Mayer A.S., Bailly L., Lerouge C., Chauvet A., Leroy J., Marcoux £. (2005) - Constraints on the ore fluids in the Sando Alcalde Au-Ag epithermal deposit, southwestern Peru: fluid inclusions and stable isotope data. C.R. G®osciences, 337: 745-753

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Marcoux £., Chauris, L., Hall®gou±t B., Guennoc, P., Marteau P, Thomas £. (2004) - Carte g®ologique de la France (1/50.000), feuille de Plouguerneau (200). £ditions BRGM, Orl®ans

Sizaret, S., Marcoux £., J®brak, M. and Touray J.-C. (2004) - The Rossignol fluorite vein, Chaillac, France: Multiphase hydrothermal activity and intra-vein sedimentation. Economic Geology, 99: 1107-1122

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Marcoux £., Le Berre P. et Cocherie A. (2004) - The Meillers Autunian hydrothermal chalcedony: first evidence of a ~295 Ma auriferous epithermal sinter in the French massif central. Ore Geology Reviews, 25: 69-87

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Grancea L., Bailly L., Leroy J.L., Banks D., Marcoux £., Mil®si J.P., Cuney M., Andr® A.S., Istvan D. and Fabre C. (2002) - Fluid evolution in the Baia Mare epithermal gold/polymetallic district, Inner Carpathians, Romania. Mineralium Deposita, 37: 630-647

J®brak M., Higueras P., Marcoux £. and Lorenzo S. (2002) - Geology and geochemistry of high-grade, volcanic rock-hosted, mercury mineralization in the Nuevo Entredicho deposit, Almad®n district, Spain. Mineralium Deposita, 37: 421-432

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CGI Beijing - 1996 : 1 r®sum®

Simposio "Sulfuros polimetalicos de la Faja piritica iberica" Huelva 21-23 f®vrier 1996: 1 communication

3rd biennal SGA meeting, Prague, R®publique Tch¯que. Ao¾t 1995. 2 posters et 2 communications

Workshop d'Hanovre (Allemagne) Mai 1994 "Metallogenesis of gold in Africa" - 1 r®sum®

Nottingham (U K) Colloque "Economic Geology in Europe and Beyond II" Models for mineral deposits in sedimentary basins, april 13-14, 1994 Keyworth pp. 34-35.

2nd biennal SGA meeting, Grenade, Espagne. 1993. 2 posters

CGI Kyoto - 1992 : 2 r®sum®s

Gold 89 (Toulouse) 1989 - 2 posters

CGI Washington - 1989 : 1 r®sum®
Colloque international Montpellier 1988 : 8 communications
Colloque International de G®ochimie -Orl®ans - 1987- 1 r®sum®

Bonhomme M., Baubron J-C., Marcoux E. (1986) - K/Ar ages of minerals associated with gold deposits from Limousin (French Massif central), Gold 89 in Europe. Terra Abstracts, 1, 1989, 40. Blackwell Scientific Publications.

Colloque Bouladon -Paris-Orl®ans - 1986 - 1 r®sum®

Colloque "Permingeat" Toulouse - 1985 - 2 communications

E.U.G. Braunlage - RFA - 1983 - 1 communication

5 Patrick LEBRET

PATRICK LEBRET

Date de Naissance : 27 juin 1959
Nationalit®: Fran- aise
Situation de famille : Mari®, 2 enfants

Formation

1984 : Th¯se de 3e cycle de G®ologie, mention tr¯s bien avec f®licitations ¨ l'unanimit®du jury, Universit®de Rouen
Th¯se : La bordure nord de la province normande ; ®volution quaternaire, s®dimentation lî ssique et tectonique r®cente

1982 : DEA de G®ologie du Quaternaire, mention assez bien, Universit® Paris VI et Mus®um national d'Histoire Naturelle

1981 : Ma´trise de G®ologie g®n®rale, mention assez bien, (1Á) Universit®Paris VI (+ hors cursus : module de p®trologie approfondie, mention assez bien)

1980 : Licence de G®ologie g®n®rale, mention assez bien (2e), Universit®Paris VI

1979 : DEUG B, mention assez bien, Universit®de Rouen

Langues : Anglais lu ®crit parl®

Participation ¨ associations, comit®s ou organismes scientifiques et professionnels :

- Association Fran- aise pour l'Etude du Quaternaire
- Comit®fran- ais de stratigraphie
- Comit®Fran- ais de l'INQUA
- Soci®t®G®ologique de France
- Soci®t®G®ologique de Normandie et des Amis du Mus®um du Havre
- Soci®t®de lôndustrie min®rale

Situation actuelle : Chef g®ologue

Ann®es dôexperience : 27

Date de d®but de carri¯re : 1985

CARRIERE PROFESSIONNELLE

Depuis Avril 2012

Depuis avril 2012, chef g®ologue ¨ Variscan Mines, il contribue aux d®buts de cette junior fran- aise dôexploration mini¯re.

1990 ¨ fin 2011 : BRGM

P. Lebret a occup®les postes suivants (ordre chronologique) :
- G®ologue cartographe et chef de projet (recherche sur les formations superficielles - 1990-1993)
- Responsable dôunit®s (CAR, cellule ®dition ï 1993 - 1996)
- Chef du d®partement de cartographie (BRGM-Jiddah, Arabie Saoudite ï 1996-1999)

- Directeur des Services g®ologiques r®gionaux de Basse et Haute Normandie (1999-2004)
- Chef de projet ¨ lôunit® Valorisation des donn®es sous-sol (2004-2005)
- Correspondant de service public ç Ressources min®rales è et r®f®rent de la th®matique des mat®riaux et roches et min®raux industriels (2005-2011)
- Responsable de lôunit® ç Economie des ressources min®rales è (2011-2012)

Fin 2005 ¨ 2011 : Service Ressources min®rales

Affect®¨ lôunit® dôintelligence ®conomique dont il a ®t® responsable depuis mai 2011, il est en charge du programme sur lôobservatoire national des mat®riaux et doit contribuer au devenir de la th®matique ç mat®riaux è au Brgm. Il en est le correspondant dans ses actions de service public pour le th¯me ç Ressources min®rales è dont il est un des r®f®rents th®matiques. Ceci lôa amen®¨ °tre en contacts r®guliers avec les services g®ologiques r®gionaux pour les op®rations li®es aux sch®mas des carri¯res. Dans ce cadre, il a men®, ¨ la demande du Minist¯re (Industrie puis Environnement), lôinventaire d®taill® de toutes les carri¯res de France accessible ¨ tout public via un site web. Ce travail sôaccompagne dôinterventions sur le th¯me des roches et min®raux industriels en France (Sch®ma des carri¯res, granulats en fa- ade maritime, Nouvelle Cal®donie) ou ¨ lô®tranger (Alg®rie, Tchad). Il poursuit sa collaboration au lever des formations superficielles des cartes g®ologiques, participe ¨ lô®volution de la BSS en cordonnant la r®cup®ration de donn®es de sondages (inventaire minier notamment) et continue ¨ contribuer au projet de g®oth¯que nationale.

2004 ¨ 2005 : Service des Connaissances et diffusions de lôinformation g®ologique

Affect®¨ lôunit® Valorisation des donn®es sous-sol, il a contribu® au montage des propositions de projets de g®oth¯que nationale, lôorganisation et la production de 7 cartes g®ologiques harmonis®es et plus de 3500 forages dans le r®f®rentiel ou travaill® sur les proc®dures pour la carte g®ologique du futur (formations superficielles, saisie de points dôobservation). Il a ®t® aussi charg® de d®marrer un projet de r®sorption des arri®r®s dôarchives non trait®es du Brgm, suite ¨ une inspection de la DAF.

1999 ¨ 2004: Service des Actions R®gionales

P. Lebret a ®t® nomm® responsable des Services g®ologiques de Basse et Haute Normandie le 15/09/1999. Il a repr®sent® le BRGM dans ces deux r®gions aupr¯s des diff®rents partenaires publics ou parapublics. Il est en charge du d®veloppement des actions cofinanc®es du BRGM en fonction des diff®rents besoins r®gionaux (eaux souterraines, risques naturels -stabilit® de falaises, carri¯res souterraines et anciennes mines-, mat®riaux, bases de donn®es g®ologiques). Il est amen® ¨ accompagner ou initier des recherches ¨ caract¯re plus fondamentales associ®es aux th®matiques r®gionales.

1990 ¨ 1999 : D®partement Cartographie et Mod®lisation G®ologique et G®ophysique

P. Lebret se pr®occupe des formations meubles de surface ; il est intervenu dans le cadre du lever de la carte g®ologique de la France ¨ 1/50.000 en Normandie et en Bretagne. En tant que chef de projet, outre des actions de recherche scientifique (encadrement de DEA et th¯ses), il a contribu® au mod¯le de donn®es g®ologiques destin®¨ la num®risation des cartes g®ologiques, ¨ des op®rations de valorisation appliqu®es en cartographie (zonage viticole) ou dans une optique g®oprospective (mod®lisation de l'®paisseur de perg®lisol en France).

Responsable d'un groupe d'environ 30 personnes charg®es de la fabrication des cartes g®ologiques (digitalisation, impression) et de la mise en forme des rapports du d®partement (cellule d'®dition : dactylographie, dessin, mise aux normes), il a contribu®¨ la pr®occupe mise en place des proc®dures de fabrication des banques de donn®es "cartes g®ologiques" sans stopper des activit®s de recherche sur les Formations superficielles (Encadrement de th¯ses, publications...)

Dôoctobre 1996 ¨ septembre 1999, il a ®t® affect®¨ la Mission BRGM-Arabie bas®e ¨ Jiddah comme responsable du d®partement de cartographie. Il ®tait en charge des productions cartographiques de la mission, de travaux de g®ologie g®n®rale et de la mise en place de la production de produit SIG et banques de donn®es ainsi que de lôencadrement et la formation de g®ologues saoudiens sur ces divers sujets (transfert de technologie).

<u>1989-1990 CENTRE NATIONAL DE RECHERCHE SCIENTIFIQUE</u> (Centre de G®omorphologie de Caen)

P. Lebret a ®t® recrut® pour mener une ®tude sur l'®volution quaternaire du Val d'Oise (95) pour le compte du Conseil G®n®ral en faisant l'inventaire des diff®rents d®p¹ts et leur r®partition ainsi que les changements climatiques subis par cette r®gion au cours des diff®rents cycles glaciaires.

1987-1988 MAIRIE DE SAINT-ETIENNE-DU-ROUVRAY

Employ® comme ing®nieur subdivisionnaire au Service Voirie - R®seaux divers de cette commune (ville de 35 000 habitants en banlieue de Rouen 76), il ®tait responsable de 50 personnes et gestionnaire d'un budget de 20-25 MF. P. Lebret a eu en charge les divers projets de voirie de la commune, la gestion du service des ordures m®nag¯res, du parc municipal (> 100 v®hicules), le service des transports ainsi que le support technique des diverses c®r®monies municipales.

1986 LABORATOIRE CENTRAL DES PONTS ET CHAUSSEES

P. Lebret ®tait responsable du suivi, de la maintenance d'une exp®rience de caract®risation d'un gazoduc enterr®en sols gel®s pour le compte du D®partement de Math®matiques de ce laboratoire, dans le cadre d'un projet de coop®ration franco-canadien.

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BLUM A., BARTHELEMY Y., CHERY L., CHRISTMANN P., GARCIN M., LEBRET P., LENOTRE N., LAGARDE P., MARTEL-JANTIN B., URVOIS M., VINCHON C. (2010) - Convention MEEDDM/DEB 2010. Rapport dâavancement ¨ fin septembre. Rapport BRGM/RP-59024-FR,101 p, Annexes .

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ABOU AKAR A., BRINON P., CATANIA D., COUćFFE R., DUFOUR P., GARCIA M., GONZALEZ G., LE BERRE P., LEBRET P., LE BOUCHER E., LUQUET C., MAILLOT I., MIGUEL E., MAZURIER C., NAY K.-M., POUX E., ROUZAIRE D., SERRANO O., SUBRA P., TOUCHARD F., WELLER G. (2009) - Recherche de sondages compl®mentaires pour la BSS : activit®2009 ï Rapport Final, Rapport BRGM/RP-57658-FR, 129 p., 11 fig., 8 tab., 9 Annexes.

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1. Poste : Chef de projet / G®ologue dêexploration

2. Nom du consultant : Variscan Mines

3. Nom de lêemploy®: J®r¹ me GOUIN

4. Date de naissance : 16/09/1981 **Nationalit®:** Fran- aise

5. Education :

2008 ï Th¯se de Doctorat en G®ologie et G®ochimie s®dimentaires, Universit® dêOrl®ans. M®moire : Mode de gen¯se et valorisation des minerais de type black shales : cas du Kupferschiefer (Pologne) et des schistes noirs de Talvivaara (Finlande).

2004 ï DEA G®osyst¯mes : Environnement et Ressources, Universit® dêOrl®ans.

2003 ï Ma´trise Sciences de lêEnvironnement, Universit® dêOrl®ans.

2002 ï Licence Sciences de la Terre, Universit® dêOrl®ans.

6. Affiliation ¨ des associations/groupements professionnels :

- Society for Geology Applied to mineral deposits (SGA)

7. Autres formations : interne au BRGM

8. Pays o½ lêemploy®a travaill®:

Pologne, Finlande, Bulgarie, Mac®doine, Guin®e Conakry, Gabon, Tchad, Mauritanie, Polyn®sie Fran- aise, Burkina Faso, Congo Brazzaville, France.

9. Langues :

Langue	Lue	Parl®e	£crite
Fran- ais	Langue maternelle		
Anglais	Bon	Moyen	Bon
Espagnol	Bon	Moyen	Bon

10. Exp®rience professionnelle :

(En commen- ant par son poste actuel, donner la liste par ordre chronologique inverse de tous les emplois exerc®s par lêemploy®depuis la fin de ses ®tudes. Pour chaque emploi (voir le formulaire ci-dessous), donner les dates, le nom de lêemployeur et le poste occup®)

G´ologue / M®tallog®niste, sp®cialiste :

- de la m®tallog®nie et des min®ralisations ¨ m®taux de base et m®taux pr®cieux en contexte de bassin s®dimentaire en Europe et Afrique Centrale ;
- de la g®ologie dêexploration mini¯re ;
- du contr¹ le et de lê®valuation de terrain des indices miniers en Afrique de lêOuest et Centrale, dans un cadre institutionnel ou pour le compte de soci®t®s mini¯res ;
- de la r®alisation de travaux de g®n®ration de cibles sur diff®rents th¯mes, dans un cadre institutionnel ou pour le compte de soci®t®s mini¯res ;
- des th®matiques de recherches des m®taux critiques.

Cette exp®rience, acquise dans diff®rents pays et principalement en Afrique, a permis ¨ J. Gouin de se familiariser avec les sp®cificit®s g®ographiques et humaines du d®sert, des r®gions de savane et de la for°t tropicale.

Ses comp®tences recouvrent les domaines suivants :

- la **g®ologie des provinces min®ralis®es**, en particulier du Kupferschiefer et des min®ralisations de type MVT en Europe, ceci incluant outre une ma´trise de la g®ologie g®n®rale, des comp®tences particuli¯res en m®tallog®nie des sulfures de m®taux de base et pr®cieux, ainsi qu'en p®trographie et g®ochimie de la mati¯re organique ; mais aussi en Afrique Centrale du domaine pr®cambrien du Gabon et Congo Brazzaville et de celui des pays voisins (pays de la CEMAC) ;

- l'**exploration mini¯re**, depuis le stade amont (s®lection de cibles, prospection r®gionale) jusqu'au stade aval (prospections tactiques, travaux de subsurface, sondages) ;

- l'®valuation de l'int®r°t des indices en **ressources min®rales.**

11. D®tail des t©ches ex®cut®es	**12. Exp®rience de l'employ® qui illustre le mieux sa comp®tence**
Chef de projet d'exploration mini¯re	Nom du projet : PERM Saint-Pierre. Ann®es : 01/07/2014 Lieu : Maine-et-Loire (France) Principales caract®ristiques des projets : recherche de gisement d'or, argent et m®taux connexes ; prospection de shear-zone aurif¯res. Poste : Chef de projet / G®ologue d'exploration Activit®s : Prospection r®gionale, exploration g®ochimique, cartographie d®taill®e de filons de quartz, m®tallog®nie, sondages.
Expert G´tologue	Nom des projets **:** Projets pour le compte de Soci®t®s Mini¯res (non publics), ou cadre institutionnel (Carte g®ologique et m®tallog®nique du Tchad, Programme Nationale de cartographie g®ologique du Congo Brazzaville). Ann®e : 2010-2013 Lieu : Tchad, Mauritanie, Burkina Faso, Congo Brazzaville. Principales caract®ristiques du projet : R®alisation de Synth¯ses cartographiques et m®tallog®niques, v®rification d'indices miniers. Poste : G®ologue / G´tologue Activit®s : Cartographie g®ologique ¨ 1/200 000 (Conkouati, Pointe-Noire, Kibangou au Congo Brazza), base de donn®es, visite, interpr®tation, synth¯se de gisements, caract®risation et ®valuation de gisements (fer, cuivre, plomb-zinc, or,é).
G®n®ration de cibles et cartes prospectives	Nom du projet : Projets pour le compte de Soci®t®s Mini¯res ou priv®es, ou cadre institutionnel. Ann®e : 2010-2013

	Lieu : France, Afrique. Principales caract®ristiques du projet : SIG de la G®ologie et des Ressources Min®rales, r®alisation de cartes pr®dictives, proposition de sujets miniers. Poste : G®ologue / G´tologue Activit®s : R®alisation de cartes pr®dictives pour niobium et terres rares, d®finition de provinces m®tallog®niques ¨ fort potentiel minier (or, m®taux de base, Sn-W, Mn, Ué).
Expert M®tallog®nie	Nom des projets **:** SYSMIN Gabon. Ann®es : 2008-2009 Lieux : Gabon Principales caract®ristiques des projets : recherche et/ou expertise de gisements, synth¯se nationale. Poste : Expert m®tallog®nie Activit®s : base de donn®es, interpr®tation, synth¯se de gisements, synth¯se nationale.
G®ologue dêexploration	Nom du projet : Exploration pour le fer et m®taux de base pour Mitsubishi Corporation (Phase 2 / Phase 3), Campagne dêexploration oc®anographique au large de Futuna pour la recherche de VMS. Ann®es : 2008-2010 Lieu : Guin®e Conakry, Wallis et Futuna Principales caract®ristiques des projets : recherche de gisements ; prospection pour fer et m®taux de base, amas sulfur®s polym®talliques sous-marins. Poste : G®ologue / M®tallog®niste Activit®s : Prospection r®gionale, exploration g®ochimique, sondages, plong®es en submersible (Nautile).
Expertise M®tallog®nique et M®taux Critiques	Nom des projets : Projet BIOSHALE, projet PROMINE, le germanium des min®ralisations ¨ Pb-Zn dans les gisements de type MVT des C®vennes (France). Ann®e : 2005-2013 Lieu : France, Europe. Principales caract®ristiques du projet : M®tallog®nie et g´tologie du Kupferschiefer (Pologne) et des MVT en France, SIG Pan Europ®en de la G®ologie et des Ressources Min®rales. Poste : G®ologue / M®tallog®niste Activit®s : Caract®risation m®tallog®nique et description g´tologique des min®ralisations et de leur mise en place, ainsi que de la mati¯re organique. Participation ¨ la r®alisation de la carte et du SIG M®tallog®nique de lêEurope.

13 Publication

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Thi®blemont D., Gouin J., Prian J. P., Goujou J.C., Cocherie A., Guerrot C., Tegyey M., Boulingui B., Ekogha H., Kassadou A.B. (2009g). Notice explicative de la Carte g®ologique de la R®publique du Gabon ¨ 1/200 000, feuille Koulamoutou - Malinga. Editions DGMG ï Minist¯res des Mines, du P®trole, des Hydrocarbures. Libreville.

Thi®blemont D., Bouton P., Gouin J., Kassadou A.B., Tegyey M., Agenbacht A., Cocherie A., Guerrot C., Moussavou M. (2009i). Notice explicative de la Carte g®ologique de la R®publique du Gabon ¨ 1/200 000, feuille Batouala. Editions DGMG ï Minist¯res des Mines, du P®trole, des Hydrocarbures. Libreville.

Thi®blemont D., Gouin J., Cocherie A., Guerrot C., Tegyey M., Boulingui B., Ekogha H., Kassadou A.B., Goujou J.C. (2009k). Notice explicative de la Carte g®ologique de la R®publique du Gabon ¨ 1/200 000, feuille Mink®b®. Editions DGMG - Minist¯re des Mines, du P®trole, des Hydrocarbures, Libreville, 45 p.

Thi®blemont D., Castaing C., Billa M., Gouin J., Husson Y., Nagel J.L., Prian J.P., Boulingui B., Ebang Obiang M., Ekogha H., Kassadou A.B., Simo Ndounze S., Abouma Simba S., Bouton P., Goujou J.C., Tourli¯re B. (2011). La 3i¯me ®dition de la Carte G®ologique et des Ressources Min®rales du Gabon. 23rd Colloquium of African Geology, Abstracts volume, January 8-14, p. 391.

Anne-Sophie AUDION



1. Poste G®ologue dôexploration et mod®lisation

2. Nom du consultant Variscan Mines

3. Nom de lôemploy® AUDION Anne-Sophie

4. Date de naissance 21/06/1986 **Nationalit®** Fran- aise

5. £ducation

2010 Dipl¹me dôing®nieur G®ologue de lô£cole Nationale Sup®rieure de G®ologie (ENSG, Nancy), sp®cialit® G®nie et Gestion des Mati¯res Premi¯res Min®rales

2010 Master 2 de recherche G®osciences Ressources Plan¯tes Environnements, sp®cialit® Mati¯res Premi¯res Min®rales, Universit® Henri-Poincar® (Nancy) : ®tude du fractionnement de lôuranium et des ®l®ments incompatibles dans un granite calco-alcalin fortement potassique hautement diff®renci® (Granite de la Chinchilla, Argentine)

6. Affiliation ¨ des associations/groupements professionnels
Soci®t® G®ologique de France

7. Autres formations

2014	*Formatrice :* mod®lisation 3D et estimation des ressources sur Surpac (2x5j)
2013	*BRGM :* Formation sur ArcView (4j)
	BRGM : Analyse financi¯re de projets (2j)
2012	*BRGM :* Ouverture ¨ la science ®conomique (3j)
	BRGM : Les fondamentaux du management de projet (3j)
2011	*BRGM :* Monter une offre au BRGM pour lôinternational (2j)
	Gemcom-Surpac : Resource estimation and geostatistics, TCL scripting (Coalville, Royaume-Uni, 4j)
	BRGM Compagnonnage pour transfert de comp®tences : Gouvernance des ressources min®rales et Processus de Kimberley
2010	*MRNF* : £cole de Terrain Abitibi 2010 (Rouyn-Noranda, Canada, 2 semaines)
	SRK Consulting : Structural geology applied to mining exploration (Toronto, Canada, 5j)
	DMTI Spatial Inc. et GeoGRAFX GIS Services : MapInfo intermediate training course (Toronto, Canada, 5j)

8. Pays o½ lôemploy® a travaill®

France, Guin®e, Canada, Cameroun, RDC, C¹te dôIvoire

9.Langues :

Langue	Lue	Parl®e	£crite
Fran- ais	Langue maternelle		
Anglais	Bon	Bon	Bon
Espagnol	Moyen	Moyen	Moyen

10. Exp®rience professionnelle :

1 ï Depuis juin 2014
Employeur : Variscan Mines, FRANCE
Poste : G®ologue dôexploration et mod®lisation de gisements

2 - F®vrier 2011 ¨ juin 2014
Employeur : BRGM, FRANCE
Poste : £conomie, connaissance et exploration des ressources min®rales
ï Chef de projet

3 ï Mai 2010 ¨ septembre 2010
Employeur : Eastmain Resources, CANADA
Poste : G®ologue dôexploration mini¯re (or)

4 ï Septembre 2008 ¨ septembre 2009
Employeur : BRGM, FRANCE
Poste : G®ologue stagiaire ï ressources min®rales

11. D®tail des t©ches ex®cut®es	**12. Exp®rience de lôemploy® qui illustre le mieux sa comp®tence**
1 : **G®ologue dôexploration mini¯re ï g´tologue**	**Nom du projet ou de la mission** : Campagnes dôexploration mini¯re **Ann®es** : depuis 2009 **Lieu** : Mar®la et Fria (Guin®e), Baie James (Canada), Bangolo (C¹te dôIvoire) **Principales caract®ristiques du projet** : Projets dôexploration mini¯re pour fer et m®taux connexes, bauxite et or **Poste** : G®ologue dôexploration **Activit®s** : * Cartographie g®ologique * Logging de sondages et ®chantillonnage * Int®gration des donn®es dans un SIG et g®n®ration de cibles * Planification dôune campagne de sondages
2 : **Mod®lisation 3D et ®valuation des ressources pour des projets dôexploration mini¯re**	**Nom du projet ou de la mission** : Mod®lisation 3D de gisement et estimation des ressources pour des op®rateurs priv®s ou des institutionnels **Ann®es** : depuis 2011 **Lieu** : Bangolo (C¹te dôIvoire) et Orl®ans (France) **Principales caract®ristiques du projet** : Exploration en minerai de fer pour un op®rateur priv® en C¹te dôIvoire, pour des phosphates au S®n®gal, pour du nickel en Nouvelle Cal®donie et du tungst¯ne en m®tropole **Poste** : G®ologue mod®lisatrice **Activit®s** : * Int®gration des donn®es de terrain du client apr¯s contr¹le * Mod®lisation 3D, g®ostatistiques et ®valuation des ressources * Formations des g®ologues travaillant pour le client et en interne * Recommandations pour la suite des travaux dôexploration * Analyse ®conomique de projet

3 : **£tude du march® de substances ç critiques è** 14 monographies r®alis®es depuis 2010 (Ga, Ge, Nb, TR, Be, Mo, Re, Te, Se, Graphite naturel, Ta, Sb, W, Li) et 2 monographies en 2013 (Co et PGE) ; r®vision de la liste des substances critiques pour lôUE	**Nom du projet ou de la mission** : Monographies substances **Ann®es** : depuis f®vrier 2011 **Lieu** : Orl®ans (France) **Principales caract®ristiques du projet** : £tude du march® de m®taux ç critiques è pour le Minist¯re de lô£cologie, du D®veloppement Durable et de lô£nergie fran- ais (MEDDE) et de la Commission Europ®enne (Ad Hoc working group) **Poste** : Ing®nieur g®ologue **Activit®s** : * £tude du march® de certains m®taux (ressources, production, demande, recyclage, prix et tendances ¨ court et moyen terme) * Identification des principaux acteurs fran- ais et europ®ens engag®s sur la fili¯re et ®valuation de leur vuln®rabilit® vis-¨ -vis de cette substance
4 : **Participation au groupe de travail 3 (OG3) du Partenariat Europ®en pour lôinnovation sur les Mati¯res Premi¯res** (Commission Europ®enne, DG-Entreprises et Industrie) OG3 : Am®liorer le cadre r®glementaire, les bases de connaissances et les infrastructures li®s aux mati¯res premi¯res de lôUE	**Nom du projet ou de la mission** : Partenariat Europ®en pour lôinnovation sur les Mati¯res Premi¯res (PEI-MP) **Ann®es** : novembre 2012 ï mai 2014 **Lieu** : Orl®ans (France), Bruxelles (Belgique) **Principales caract®ristiques du projet** : Promotion de lôinnovation le long de la cha´ne de valeur afin de r®duire la d®pendance europ®enne aux importations de mati¯res premi¯res tout en ma´trisant les impacts environnementaux et sociaux **Poste** : Expert de lôun des 5 groupes de travail **Activit®s** : Participation aux r®unions du groupe de travail 3. Parmi les th¯mes abord®s : - Politique sur les mati¯res premi¯res - Planification de lôusage des sols et conflits dôusage - Processus de d®livrance des permis (exploration et exploitation) - £tudes dôimpact environnemental, ®conomique et social - Acceptabilit® sociale des op®rations - D®veloppement dôune base de connaissance du potentiel min®ral europ®en - Renforcement de la formation et cr®ation de partenariats *Contribution ¨ la r®daction du Plan Strat®gique dôimpl®mentation (SIP) du PEI-MP
5 : **£tude pr®liminaire ¨ lôint®gration du Cameroun au Processus de Kimberley**	**Nom du projet ou de la mission** : Assistance Technique au Cameroun pour int®grer le Processus de Kimberley **Ann®es** : 2011 **Lieu** : Orl®ans (France) et Kinshasa (RD Congo) **Principales caract®ristiques du projet** : Audit de la fili¯re diamant au Cameroun, ®valuation du potentiel diamantif¯re du pays (ressources et capacit®s de production) et assistance ¨ la mise en place des structures internes pour int®gration au Processus de Kimberley **Poste** : Ing®nieur g®ologue **Activit®s** : *Assistance ¨ la mise en place des structures n®cessaires ¨ lôint®gration au Processus de Kimberley (®l®ments de tra- abilit®, contr¹les internes, certificats, etc.) *Pr®sentation technique de la candidature du Cameroun lors de lôAssembl®e G®n®rale du Processus de Kimberley ¨ Kinshasa (novembre 2011)
6 : **Audit de lôartisanat minier du Cameroun**	**Nom du projet ou de la mission** : Audit de la petite mine et de la mine artisanale pour le Minist¯re de lôIndustrie, des Mines et du D®veloppement Technologique (MINIMIDT) du Cameroun **Ann®es** : 2011 **Lieu** : Orl®ans (France) et Yaound® (Cameroun)

	Principales caract®ristiques du projet : Audit, sous forme dâanalyse des fili¯res, de la production artisanale dôor, de diamant et de saphir **Poste** : Ing®nieur g®ologue **Activit®s** : * Appropriation de la th®matique ¨ travers le projet * Restitution des r®sultats de lô®tude devant le MINIMIDT et la Banque Mondiale ¨ Yaound®
7 : **Veille ®conomique et r®daction dâarticles dans la revue Ecomine**	**Nom du projet ou de la mission** : Ecomine **Ann®es** : depuis f®vrier 2011 **Lieu** : Orl®ans (France) **Principales caract®ristiques du projet** : Veille ®conomique g®n®rale sur le secteur des mati¯res premi¯res min®rales et r®dactions dâarticles dâactualit® sp®cialis®e pour le Minist¯re de lô£cologie, du D®veloppement Durable et de lô£nergie fran-ais (MEDDE) dans la revue Ecomine **Poste** : Ing®nieur g®ologue **Activit®s** : * Veille ®conomique sur lâactualit® des mati¯res premi¯res min®rales * R®daction dâarticles sur lâactualit® des m®taux de base, des m®taux dâalliage, des m®taux pr®cieux et diamants, des m®taux sp®ciaux, sur lâactualit® des entreprises ainsi que sur des questions multilat®rales (lois anti-dumping, initiatives europ®ennes, etc.)

13. Rapports et publications

AUDION.A.S., HOCQUARD.C., LABBE.J.F., avec la collaboration de DUPUY J.J. ï Panorama mondial 2013 du march®du cobalt ï BRGM/RP-63626-FR ï Mai 2014 - 156 p., 45 fid., 33 tabl.

LAMOUILLE.B., AUDION.A.S., BOURBON.P., CASSARD.D., COLIN.S., DESMAZES.F., DESSANDIER.D., DUPUY.J.J., JOUBERT.M., LABBE.J.F., LAGARDE.P., LE.GLEUHER.M., LOIGEROT.S., MALLET.C., TAFFOUREAU.E., URVOIS.M., VINCHON.C., ZAMMIT.C. - Convention MEDDE/DEB - BRGM 2013 Rapport d'activit®- BRGM/RP-63161-FR ï Avril 2014 ï 93 p.

AUDION.A.S., BERTHIER.H., BLANC.C., DUPUY.J.J., HOCQUARD.C., PRIAN.J.P., SAVE.M. - £tat des lieux des ressources mini¯res terrestres de Polyn®sie fran-aise - Rapport de lancement - BRGM/RP-63331-FR ï F®vrier 2014 ï 22 p.

BERTRAND.G., DUPUY.J.J., MELLETON.J., TOURLIERE.B., CASSARD D., AUDION.A.S., ANGEL.J.M., GLOAGUEN.E., HUSSON.Y., BERTHIER.H. ï R®®valuation du potentiel fran-ais en ressources min®rales ï Retraitement des donn®es g®ochimiques de lôinventaire et ®tablissement de fiches de cibles mini¯res. ï BRGM/RP-62960-FR ï D®cembre 2013 ï 150 p., 34 fig., 4 tabl., 3 ann.

AUDION.A.S. ï £tude pilote dôune cible mini¯re en m®tropole : le gisement de tungst¯ne de Fumade (Tarn) ï Rapport final - BRGM/RP-62718-FR ï D®cembre 2013 ï 58 p., 8 ann., 1 CD

AUDION.A.S., LABBE.J.F., BARRY.A., PERRIN.J., ROUZEAU.O., TOURLIERE.B. - Preliminary works and field reconnaissance on the Axis prospecting permits for bauxite in Guinea, Final report - BRGM/RC-62924-FR ï Novembre 2013 ï 40 p., 1 ann.

BAILLY.L., AUDION.A.S. - £valuation du bassin G1 ¨ goethite de l'usine NYRSTAR d'Auby (59). Rapport final - BRGM/RC-62427-FR ï Juin 2013 ï 28 p.

AUDION.A.S., BAILLY.L., CHARLES.N., FULLGRAF.T., LASSERRE.J.L. - Iron ore exploration project (Phase 1) on the TSCI permit (Western C¹ te d'Ivoire): Geological model and preliminary resource estimation. Final report - BRGM/RC-61659-FRï Novembre 2012 - 211 p.

AUDION.A.S, BAILLY.L., CHARLES.N., FULLGRAF.T., LASSERRE.J.L. - Exploration for Iron ore on the South zone of the TSCI permit (C¹te d'Ivoire): geological model and preliminary resource estimation. Intermediate report - BRGM/RC-61335-FR ï Juillet 2012 - 130 p.

AUDION.A.S, GOURDIER.S. - Sites miniers satellites de Salsigne - Etude des al®as mouvement de terrain sur les concessions de Malabau, Pujol, Lastours, La Caunette, Salsigne, Villani¯re et Villardonnel. Rapport final - BRGM/RP-60247-FR ï Juillet 2012 ï 118 p., 4 annexes HT

CHRISTMANN.P., AUDION.A.S., BARTHELEMY.F., VARET.J. ï Vers une gouvernance des mati¯res premi¯res min®rales, *in* G®osciences nÁ15 ï Juin 2012 ï 8 p.

AUDION.A.S., LABBE.J.F. - Panorama 2011 du march® du Tungst¯ne. Rapport final - BRGM/RP-60461-FR ï Juin 2012 ï 109 p.

BRAUX.C., LABBE.J.F., AUDION.A.S., CHRISTMANN.P., HOCQUARD.C., LE.GLEUHER.M., LEBRET.P., URVOIS.M. - Appui aux politiques publiques et Intelligence ®conomique pour les ressources min®rales au BRGM activit® 2011 - Rapport final - BRGM/RP-61052-FR ï Avril 2012 ï 50 p

AUDION A.S., PIANTONE.P ï Panorama 2011 du march® du Tantale. Rapport final ï BRGM/RP-60463-FR ï D®cembre 2011 ï 86 p., 1 annexe

AUDION A.S. ï Panorama 2011 du march® de lôAntimoine. Rapport final ï BRGM/RP-60462-FR ï D®cembre 2011 ï 83 p., 2 annexes

AUDION A.S, BARTHELEMY.F. ï Audit de lôartisanat minier du Cameroun - BRGM/RC-60233-FR ï Septembre 2011 ï 150 p., 2 annexes

AUDION.A.S., LABBE.J.F. - Panorama 2010 du march® du Tellure. Rapport final - BRGM/RP-58930-FR ï Avril 2011 ï 81 p.

AUDION.A.S., MARTEL-JANTIN.B. ï Panorama 2010 du march® du Rh®nium. Rapport final - BRGM/RP-58929-FR ï Avril 2011 ï 84 p.

LABBE.J.F., MONTHEL.J., AUDION.A.S. - Evaluation du potentiel min®ral africain d®tenu par des soci®t®s "junior" pour Mn, Cr, V, Ti, Zr, Nb et Terres Rares. Rapport de phase 1 - BRGM/RC-59764-FR ï Avril 2011 - 93 p., 3 ann.

AUDION.A.S. - Exploration pour lôor en Baie James, Qu®bec : Projets Clearwater, Eastmain Mine et Eleonore South ï Rapport de stage de fin dô®tudes - Septembre 2010 ï 28 p., 16 annexes

AUDION.A.S. - Etude du fractionnement de lôuranium et des ®l®ments incompatibles dans un granite calco-alcalin fortement potassique hautement diff®renci® (Granite de la Chinchilla, Argentine) ï Rapport de master 2 (CNRS/G2R, Nancy) - Ao¾t 2010 ï 31 p., 36 annexes

LASSERRE.J.L., GLOAGUEN.E., LACOMME.A., MARENTHIER.M., GOUIN.J., YART.S., LAMBERT.A., AUGE.T., BERTRAND.G., URIEN.P., AUDION.A., CHAUVIN.C., RALAY.F., BANORO.M., CONDE.B., CONTE.T., DIALLO.A., KOUROUMA.S., SOUARE.S. - Exploration for Iron and Base metal on the Mitsubishi Corporation Permits in Central Guinea (Phase 3 Programme). Final report - BRGM/RC-57642-FR - Octobre 2009 - 210 p., 1 vol. ann. 3 DVD

AUDION.A.S. - Les roches s®dimentaires ¨ mati¯re organique en France et leur potentiel ®conomique : inventaire et perspectives pour lôexploration ; Exploration Fe-Ti en Guin®e ; Echantillonnage de sols agricoles (GEMAS) ï Rapport dôann®e c®sure (BRGM) ï Septembre 2009 ï 92 p.

LASSERRE.J.L., LACOMME.A., GLOAGUEN.E., YART.S., GOUIN.J., AUDION.A., CHAUVIN.C., RALAY.F. - Exploration for Iron and base metal on the Mitsubishi Corporation Permits in Central Guinea - Phase 3 program. June 2009 intermediate technical report - BRGM/RC-57444-FR ï Juin 2009 ï 72 p.

LACOMME.A., GLOAGUEN.E., YART.S., URIEN.P., BERTRAND.G., AUDION.A., CHAUVIN.C., RALAY.F. - Exploration for Iron on the Mitsubishi Corporation Permits in Central Guinea - Phase 3 program. Quarterly technical progress report. - BRGM/RC-57273-FR ï Avril 2009 - 49 p.

AUDION.A.S., MASSIOT.C. - Etude des plagioclases du complexe ultrabasique stratifi® du Bushveld (Afrique du Sud) ï Projet en laboratoire (CNRS/CRPG, Nancy) - Mai 2008 ï 28 p.

6 Maxime PICAULT

PICAULT Maxime
06/08/1988
141 all® Jean Marie LEHN, 45160 Olivet, FRANCE
+ 336.78.24.80.56
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maximepicault@aol.com
m.picault@variscan.fr

FORMATION & DIPLĎMES

2011 Formation en alternance au dipl¹ me universitaire de lôENAG (®cole nationale dôapplication des
(en cours) g®osciences) au sein de la soci®®Variscan Mines
BRGM (Bureau de recherche g®ologique et mini¯re) ï 45006 ORLEANS

2010 Master mention ç Ressource et G®odynamiqueè (ex EGERM : Exploration et Gestion des Ressources Min®rale)
Universit®de Qu®bec ¨ Montr®al (UQê M) *1* Universit®d'Orl®ans - ORLEANS

2009 Licence mentionç Sciences de la Terre et de l'Universè
Universit®d'Orl®ans - ORLEANS

FORMATION PROFESSIONNELLE

2012 : ÅCamp de terrain - Cartographie g®ologique et m®allog®nique du secteur volcano-plutonique du mont Tamgalount (Kelaat-MôGouna, Maroc) et de ces min®ralisations aurif¯res de types ®pithermaux acides et ®pithermaux neutres

ÅCamp de terrain - Log stratigraphique en carri¯re et stratigraphie s®quentielle des s®ries calcaro-gr¯seuse en Bourgogne et ®tude de la mise en place des niveaux gr¯so-charbonneux du bassin de Lod¯ve

ÅCamp de terrain - M®allog®nie des granites ¨ m®taux rares de Montebras et dôEchassi¯re (massif central) ainsi que des pegmatites de type LCT des Monts dôAmbazac (massif central) et comparaison de leurs diff®rents modes de mise en place

2011 : ÅCamp de terrain - G®odynamique du bassin ®vaporitique de Sorbas (Espagne) et de ces environs et m®allog®nie des gites de types ®pithermaux acides du secteur de Rodalquilar (Espagne)

Å Camp de terrain - Cartographie g®ologique dans les C®vennes et r®alisation dôun mod¯le g®ologique tridimensionnelle sur GeoModeller

ÅStage en entreprise : Variscan Mines ï 45074 ORLEANS
ç R®alisation et exploitation dôun SIG dans le cadre dôune demande de permis exclusif de recherche mini¯re (PER) è

2010 : Å£change avec l'Universit®de Qu®bec ¨ Montr®al (UQê M)
Camp de terrain - Abitibi, dans les Appalaches et en Mauricie - m®allog®nie r®gionale / d®formation et m®tamorphisme des gites min®raux

ÅStage de recherche : BRGM (bureau de recherche g®ologique et mini¯re)- 45006 ORLEANS
çCaract®risation p®tro-structurale et min®ralogique d'un gisement magmatique ¨ lithium- m®taux rares è

ÅCamp de terrain - G®odynamique et coupe des Alpes, ®tude m®allog®nique des filons ¨ barytine fluorine de Langeac et cartographie en terrain volcanique dans le Massif Central

2009 : ÅCamp de terrain multidisciplinaire dans le massif des C®vennes - cartographie, p®dologie, s®dimentologie, g®ologie structurale et m®tallog®nie

ÅCamp de terrain - Massif central et Pyr®n®es, ®tude du m®tamorphisme Brioude/Langeac et cartographie des Corbi¯res (Pyr®n®es)

ÅStage en entreprise : IMERYS -Kaolins de Bretagne - 56270 PLOEMEUR : cartographie et relev®topographique de la carri¯re de kaolin de Kerbrient

2008 : ÅManutentionnaire : TNT- 45140 ORMES

ÅCamp de terrain - Massif central et Pyr®n®es, ®tude de la cha´ne des Puys et cartographie du Mas d'Azil (Pyr®n®es)

DIVERS

Langues :

- Anglais parl®, lu, ®crit
- Espagnol parl®, lu

Divers

- Permis B
- Bonne ma´trise de l'outil informatique: Word, Excel, Adobe Illustrator, Photoshop, Power Point, ArcGIS, Maplnfo, Surpac Minex etc ...

Loisirs

- Min®ralogie
- Escalade

9. Voyage : Mexique, Egypt

10.
11. Guillaume RAOULT

RAOULT Guillaume
150 Route de Sandillon
45650 Saint-Jean-le-Blanc France
Port : +336.75.76.05.50
Mail : **g.raoult@variscan.fr**
N®le 15/12/1988
Situation familiale : C®libataire

Situation actuelle : G®ologue

Exp®rience : 1 an

Formation :

- *2009 - 2011* **: master ressources et g®odynamique** (OSUC - Observatoire des Sciences de lõUnivers en r®gion Centre ï Orl®ans)

- Sept. 2010 ï D®c. 2010 : **DESS international** en ressources mini¯res : Universit®du Qu®bec ¨ Montr®al (UQAM) en ®change (Session dôAutomne)

- *2006 - 2009* **: licence en Science de la Terre et de lõUnivers ¨ lõUniversit®de Bretagne Occidentale de Brest ï** Mention Assez Bien **ï**

  - Ann®e 2008-2009 pass®e en ®change ¨ lõUniversit®LAVAL, Qu®bec, CANADA

- 2003 ï 2006 : **baccalaur®at Scientifique** au Lyc®e de Kerneuzec (Quimperl®)

Capacit®s linguistiques :

Fran-ais : langue maternelle
Anglais : bon niveau (®crit et oral)
Espagnol : niveau Baccalaur®at

Connaissances informatiques :

Maitrise du pack Microsoft Office 2010
Logiciel de g®ologie : Arc Gis, Grapher, Surfer, Geomodeller, Envi, Micromine
Bases de donn®es : GKR (Geologic Knowledge Representation), Microsoft Access
Logiciels annexes ; Photoshop, Acrobat Pro, Illustrator,

Exp®rience associative :

2006 ï 2007 : Vice-Pr®sident charg®de la communication de lôAssESciB (Association des £tudiants en Sciences de Brest)
2007 ï 2008 : Pr®sident de Gaµa (Association des ®tudiants en Sciences de la Terre ¨ Brest)
2009 ï 2010 : Vice-Pr®sident de Tribu-Terre (Association des ®tudiants en Sciences de la Terre ¨ Orl®ans)

2003 ï 2006 : Membre de lôassociation de min®ralogie de Pont-Aven ï Nizon
2011 ï 2013 : Membre de la Society of Economic Geology (SEG)

Synth¯se des comp®tences :

Lors des deux premi¯res ann®es de sa formation universitaire (2006 ï 2008), ¨ Brest, G. RAOULT a acquis des connaissances g®n®rales sur la g®ologie et lôensemble de ses domaines, tout en approfondissant quelques peu les connaissances scientifiques g®n®rales. En tant que pr®sident dôassociation, il a organis®plusieurs sorties g®ologiques dôinitiation ¨ la min®ralogie et ¨ la g®ologie g®n®rale gr©ce au soutien de plusieurs ®tudiants en th¯se.

La troisi¯me ann®e de licence (2008-2009) sôest d®roul®e au Qu®bec, ¨ lôUniversit®Laval ¨ Qu®bec. Cette troisi¯me ann®e lui a permis de d®couvrir le domaine minier en allant visiter la mine Lapa en Abitibi avec G. Beaudoin et lôensemble des ®tudiants de sa promotion dans le cadre dôun enseignement. Par ce m°me enseignement, il a ®galement pu d®couvrir une bonne partie de la g®ologie arch®enne dôAbitibi. Durant cette ann®e, il a ®galement suivi des enseignements concernant les techniques dôexploration par g®ophysique, concernant ®galement les d®p¹ ts quaternaires et le m®tamorphisme g®n®ral. Une veille sismique a ®galement ®t®r®alis®e. Pour finir son ann®e, il a r®alis®un Projet de Fin dôEtude concernant des roches issues de la suture de Yarlung-Zangbo dans lôHimalaya en collaboration avec R. HEBERT et R. BEZARD, ¨ ce moment-l¨, respectivement professeur et chercheuse. Ce projet sôest sold®par une publication en tant que co-auteur dôun article paru dans Gondwana Research (2010).

Lô®t®faisant suite ¨ cette ann®e dô®change ¨ lôUniversit®Laval (®t®2009), a ®t®occup®par un stage volontaire (sans obligation universitaire) dans une carri¯re appartenant au groupe cimentier international VICAT, sous la tutelle dôE MATHIEU et R. CHAUX. Ce stage, dôune dur®e de trois mois, a ®t®r®alis®en collaboration ®troite avec une ®tudiante du BTS de Nancy r®alisant son stage de fin dô®tude. Durant ce stage, des campagnes de prospection ®lectromagn®tique et ®lectrique ont ®t®r®alis®es et trait®es. Ces nombreuses petites campagnes visaient ¨ circonscrire les buttes de calcaires parmi les d®p¹ ts de marnes. De tr¯s nombreuses analyses chimiques ont ®galement ®t®r®alis®es par Fluorescence X au sein du laboratoire de la cimenterie reli®e ¨ la carri¯re. Les ®chantillons analys®s provenaient de sondages dans diff®rentes carri¯res.

La suite du cursus universitaire (2009-2011) se d®roule ¨ Orl®ans, pour un Master en Ressources et G®odynamique. Lors de celui-ci, de nombreux enseignants excellant dans le domaine les ressources min®rales viennent compl®ter les connaissances re-ues ¨ lôuniversit®Laval. Ces enseignements ont ®t® propos®s par des professeurs comme E. MARCOUX, L. BARBANSON, Y. BRANQUET, M. VIDAL é
Au cours du troisi¯me semestre du Master Ressource et G®odynamique, un voyage de trois mois-et-demi ¨ Montr®al (Qu®bec) ¨ lôUniversit®du Qu®bec ¨ Montr®al (UQAM) a ®t®r®alis®. Ce second s®jour au Qu®bec a permis ¨ G. RAOULT de red®couvrir le sous-sol qu®b®cois, de mani¯re plus vaste et avec un regard plus pointu sur les ressources min®rales. La visite du niveau -1700m de la mine LaRonde en Abitibi ainsi que lôensemble des sorties g®ologiques r®alis®es dans cette m°me r®gion ainsi que dans les Appalaches ont offert la possibilit®de r®fl®chir ¨ plus grande ®chelle sur le potentiel minier qu®b®cois.

La fin du cursus du Master Ressources et G®odynamique dôOrl®ans sôest traduit par un stage professionnel de six mois dans lôenceinte de la m°me carri¯re que lors du premier stage r®alis®au sein du groupe VICAT. Durant ce stage, G. RAOULT a pu °tre form®¨ lô®chantillonnage et ¨ lôensemble des techniques qui sôy rapprochent (quartage, ®tuvage, broyage, analyses Fluorescence X). Lô®chantillonnage concernait aussi bien un ®chantillonnage au marteau de bancs de marnes et calcaires que lô®chantillonnage de cuttings de sondages de prospection. Ce stage sôest sold®par des r®sultats tr¯s satisfaisant et une mention ç Tr¯s Bien è pour le dernier semestre.

Par la suite, d¯s le mois suivant (Novembre 2011), G. RAOULT a ®®embauch®¨ Variscan Mines afin de r®aliser une synth¯se de lôinventaire min®ralogique des diff®rents d®partements fran-ais ¨ lôaide du GKR, logiciel de base de donn®es cr®® par M. BONNEMAISON. Il a ®®appel®¨ participer ¨ la r®daction et ¨ la r®vision de plusieurs PERM (Permis Exclusif de Recherches de Mines), dossiers permettant la demande de permis dôexploration. Dôune mani¯re plus g®n®rale, il alimente la base de donn®es GKR en associant les documents pdf aux sites concern®s. Quelques travaux de cartographie lui sont parfois demand®s. Par la suite, il est form®au logiciel MICROMINE, visant ¨ repr®senter en 3D les donn®es disponibles sur les anciens sites miniers concern®s par des demandes de PERM. Cette formation servira par la suite ¨ mod®liser les ressources et r®serves des projets miniers. Ses comp®tences de g®ologue de terrain sont ®galement mises ¨ lô®preuve lors de sorties sur le terrain pour ®chantillonner. Il se forme ®galement ¨ la pratique de la communication en participant ¨ des r®unions organis®es par Variscan Mines pour informer les populations concern®es par les demandes de PERM.

Publication :

Jingen Dai, Chengshan Wang, R®jean H®bert, Yalin Li, Hanting Zhong, Raoult Guillaume, Rachel Bezard, Yushuai Wei (2010) - Late Devonian OIB alkaline gabbro in the Yarlung Zangbo Suture Zone: Remnants of the Paleo-Tethys? ï Gondwana Research (2010), doi:10.1016/j.gr.2010.05.015

ANNEXE 4e : rapport dâaudit associ®au rapport dâactivit®de 2014

Variscan Mines Limited

ABN 16 003 254 395

Financial Report for the year ended 30 June 2014

DIRECTORS' REPORT

Your directors submit their report for the year ended 30 June 2014.

Directors

The names and details of the Company's directors in office during the financial year and until the date of this report are as follows. Directors were in office for this entire period unless otherwise stated.

Patrick Elliott, BCom, MBA, CPA
Chairman

Patrick was appointed a Director of the Company on 22 December 2008 and is a company director specialising in the resources sector with over 40 years' experience in investment and corporate management. His early career was at Consolidated Gold Fields Australia Limited and covered investment analysis and management, minerals marketing (copper, tin, rutile and zircon). In 1979 he went into investment banking and became Head of Corporate Finance for Morgan Grenfell Australia Limited in 1982. Patrick subsequently became Managing Director of Natcorp Investments Ltd in 1986 which owned a number of manufacturing businesses. After its takeover he became an active early stage venture capital investor with an emphasis on resources.

Patrick is Chairman of Argonaut Resources NL and Chairman of Cap-XX Limited (Australian company listed on AIM). He is also a director of a number of privately owned companies.

During the past three years Patrick has also served as a director of the following other listed companies:

- Argonaut Resources NL – appointed June 2003
- Australia Oriental Minerals NL – appointed November 1998, resigned May 2012
- Global Geoscience Limited – appointed April 2003
- Cuesta Coal Limited – appointed October 2011

Gregory Jones, BSc (Hons 1) (UTS), MAusIMM
Managing director

Greg was appointed Chief Executive Officer of the Company on 1 January 2009 and Managing Director from 20 April 2009. He is a geologist with over 33 years of exploration and operational experience gained in a broad range of metalliferous commodities both within Australia and overseas. Greg has held senior positions in a number of resource companies including Western Mining Corporation and Sino Gold Limited and his experience spans the spectrum of exploration activity from grass-roots exploration through to resource definition and new project generation, as well as mine geology, ore resource/reserve generation and new mine development.

Greg was awarded the Institute Medal for academic excellence whilst at university and is credited with several economic discoveries including the Blair nickel and the Orion gold deposits in Western Australia.

During the past three years Gregory has also served as a director of the following other listed companies:

- Eastern Iron Limited – appointed April 2009
- Silver City Minerals Limited – appointed April 2009
- Thomson Resources Ltd – appointed July 2009
- Moly Mines Limited – appointed August 2014

Kwan Chee Seng
Non-executive director

Chee Seng was appointed a Director of the Company on 17 February 2009. Chee Seng has investments in the renewable sustainable energy, base metal resources and the biotechnology businesses. He has extensive experience in senior management and in business.

In March 2009, Chee Seng launched his fund management business with the incorporation of Luminor Capital Pte Ltd and Luminor Pacific Fund 1 Ltd (Fund 1). Recently he has launched Luminor Pacific Fund 2 Ltd (Fund 2). The Fund 1 and Fund 2 have been approved by the Economic Development Board of Singapore under the Global Investor Program.

In December 2012, Chee Seng acquired a major shareholder stake in Singapore listed GRP Limited, and in March 2013 he was appointed Executive Director of GRP. He has previously served as Non-Executive Director of Singapore listed companies Van der Horst Energy Limited (from March 2008 to November 2011) and Viking Offshore and Marine Ltd (from mid-2009 to end 2010).

During the past three years Mr Kwan has not served as a director of any other ASX listed company.

Dr Foo Fatt Kah, MB, BCh, BAO, MBA

Non-executive director

Dr Foo was appointed a Director of the Company on 7 October 2009. Dr Foo has over 20 years' experience in the investment banking, fund management and advisory businesses spanning Europe and Asia. He was previously Head of Asian Equities for SG Securities Asia (the Asian Investment Banking business for Societe Generale) covering 10 Asian countries ex-Japan. Since 2004 Dr Foo has been active as an investor, overseeing investments in Resources, Energy and Healthcare.

Dr Foo is qualified in Medicine (MB, B Ch, BAO) and Business Administration (M.B.A.) from the Queen's University, United Kingdom, with further continuing education qualifications from Insead on Economic Value Added (EVA) and International Project Management. He has experience with listed companies in Singapore, being previously Executive Director of CyberVillage Holdings Ltd and currently Lead Independent Director of PEC Ltd.

During the past three years Dr Foo has not served as a director of any other ASX listed company.

Alan Breen, HNDip Extraction Metallurgy, MBA

Non-executive director

Alan was appointed as a non-executive director on 6 October 2011. Alan is a metallurgist and with over 35 years operational and executive management experience across a diverse range of commodities in Australasia, Europe and Africa. Alan held senior and executive management roles with Xstrata, Rio Tinto Aluminium and at Ok Tedi Mining where he held the position of Managing Director for 4 years.

Alan has previously held Director positions with Britannia Refined Metals Limited, Brittannia Recycling Limited, MIM Holdings (UK) Ltd and Ok Tedi Mining Limited.

During the past three years Alan has not served as a director any other ASX listed company.

Dr Jack Testard

Executive director (appointed 14 May 2014)

Jack was appointed a Director of the Company on 14 May 2014. Jack is a French geologist with over 40 years of experience in Europe, Africa, CIS countries, Turkey, Saudi Arabia and Guyana. Jack was formerly Head of the Minerals Resources Division of the BRGM (Bureau de Recherches Géologiques et Minières - the French Geological Survey), President of GIP GEODERIS and Manager of the Ovacik gold mine in Turkey under Normandy La Source. Dr Testard is President of Variscan Mines SAS, the wholly owned French subsidiary of Variscan Mines Limited, based out of Orleans, France.

Jack is currently President of the French Chamber of Mines, Treasurer of the Federation of Minerals and Non Ferrous Metals (FEDEM) and a Director of the Société de l'Industrie Minérale (SIM).

During the past three years Jack has not served as a director of any other ASX listed company.

Kantilal Champaklal

Alternate director to Kwan Chee Seng (resigned 6 March 2014)

Kantilal resigned as an alternate director to Mr Kwan on 6 March 2014.

Directors' interests in shares and options

As at the date of this report, the interests of the Directors in the shares and options of Variscan Mines Limited were:

Directors	Shares directly and indirectly held	Options directly and indirectly held
P Elliott	2,352,345	1,600,000
G Jones	2,505,000	5,550,000
C S Kwan	52,396,526	2,000,000
F K Foo	1,403,000	1,600,000
A Breen	-	1,000,000
J Testard	200,000	1,500,000

Company secretary

Ivo Polovineo, FIPA

Ivo Polovineo was appointed Company Secretary of the Company on 31 December 2010. Ivo has over 30 years' experience in corporate accounting, finance and company secretarial work for a diverse range of companies. He has spent the past 20 years in senior management roles in the resources sector including seven years as Company Secretary (and five years as CFO) of Sino Gold Mining Limited (a former ASX 100 company) until December 2009.

Ivo is currently also Company Secretary of Thomson Resources Ltd, Silver City Minerals Limited, KBL Mining Limited, and is a Director of Eastern Iron Limited.

Principal activities

The principal continuing activity of the consolidated entity is the exploration for economic base metals, precious metals, tin and tungstn.

Results

The net result of operations of the consolidated entity after applicable income tax was a loss of $5,717,244 (2013: loss $7,849,724) which includes the write-off of exploration expenditure during the year of $1,531,881 (2013: $3,482,189).

Dividends

No dividends were paid or proposed during the year.

Review of operations

The most significant developments in the Company's operations and financing activities were:

Exploration

France

Variscan was granted its first French exploration licence in June 2013 following three years of patient work to identify and secure high quality projects in regions of demonstrated mineral endowment outside Australia. In the last 12 months the Company has received approvals for a second licence and has a number of others well advanced within the approvals process.

Saint Pierre

The Saint Pierre PER was granted in February 2014 and covers an area of 386 square kilometres over an important gold district believed to have been the third largest gold producer in France.

Within the licence lies the La Bellière gold mine which is recorded to have produced about 334,000 ounces of gold* (plus silver) from 1906 to 1952, up to a maximum depth of 170 metres intermittently over a strike length of about 1.6 kilometres. The average production grade was 12 g/t gold, mined from a series of stacked, high grade veins hosted within an east-west oriented shear zone. The high grade quartz – sulphide veins individually vary in true thickness from 1 to 16 metres and dip steeply to the south.

Variscan has commenced compiling and electronically converting all available records from the old mining area as well as former exploration conducted by the BRGM (Bureau de Recherches Géologiques et Minières - the French Geological Survey) during the 1980's. With the help of structural studies currently being conducted by the University of Orleans, the Company is constructing a 3D model of the mine which will be used to help elucidate the complex structural controls on mineralisation and target possible surface core drilling. This work is now well advanced.

In addition, to the north and south of La Bellière old data indicates the presence of parallel shears, highlighting the potential for additional gold deposits within the immediate proximity of the mine and throughout the remainder of the St Pierre PER. The Company has commenced a detailed auger soil geochemistry programme in the mine region to help generate additional drilling targets.

Tennie

The Tennie PER covers 205 square kilometres of the eastern section of a Palaeozoic sedimentary package which hosts the Rouez copper-gold-lead-zinc-silver deposit owned by the French energy group, TOTAL. Rouez is considered to be possibly either volcanogenic massive sulphide (VMS) or a hybrid sedimentary exhalative (SEDEX) type and shares a number of geological similarities to deposits such as Rio Tinto and Aljustrel within the Iberian Pyrite Belt of Spain and Portugal.

In late 2013 Variscan commenced an auger soil geochemical survey within the PER which is believed to be the first significant mineral exploration programme conducted in France for decades. The initial programme involves shallow hand auger drilling on a 200 x 200 metre grid over the accessible areas of fertile Brioverian rocks, to penetrate the thin transported loess horizon that blankets the area and thus may hide potential mineral deposits. Work is continuing.

Future Projects

Variscan has six other exploration licence applications within the approvals process, each of them over projects with good potential for short term resource generation and/or major new discoveries. The Company has deliberately targeted more advanced project areas containing previously defined mineralised zones or evidence of substantial old mine workings to help fast track the discovery of economic deposits.

Australia

In 2014 Variscan relinquished a number of its Australian grass roots exploration properties due to its focus in France. Joint venture interest for new exploration properties has been very subdued for the last few years and despite the good quality of some of the tenements, efforts to attract additional joint venture funding was not successful to maintain many of the tenements.

During the year exploration of Variscan's current joint venture properties was subdued in line with the general restricted risk capital availability in the bearish markets.

** C Louis. Les exploitations minières dans le Massif Armoricain. Déclin ou progrès. In: Norois. N°141, 1989. pp. 5-32*

During 2014 a total of $0.26 million was spent by Variscan's joint venture partners verses $0.7 million from the previous year.

Investments

Variscan maintains a diversified portfolio of investments within a number of ASX-listed resource companies. The value of the Variscan shareholdings in its ASX listed resource companies at the end of the year stood at approximately $3.8 million.

Eastern Iron

Eastern Iron Limited (ASX: EFE) continued with its Mine Feasibility Study on the Nowa Nowa iron project located near Bairnsdale in eastern Victoria, 270 kilometres east of Melbourne.

During the year Eastern Iron undertook a short program of reverse circulation (RC) drilling to upgrade part of the Inferred Mineral Resource at Five Mile to higher confidence categories for inclusion within a mining study. The results were consistent with assays reported from earlier drilling completed by the Victorian Department of Mines in the 1950's. Significantly it was noted that the thickest intersections were in the easternmost holes NRC044, NRC045 and NRC047 with the resource still open in this direction.

Additional confirmatory metallurgical work was also completed using large, pilot-scale, dry, low intensity magnetic separation (Dry LIMS) equipment to enhance recoveries. Overall results exceeded expectations with significant improvement in the average product grade to 58% iron (versus 56% iron in the feasibility study), at an average iron recovery of more than 90%.

Upgrade factors (i.e. from feed grade to product grade) suggest that the Dry LIMS is highly effective in its application to the Nowa Nowa ore, even at a relatively coarse feed size of -6mm. The technique was also successful in reducing sulphur grades to well below 1% sulphur in product.

Also during the year Eastern Iron announced a number of significant steps in the progression of the project. These included –

1. The successful granting of a mining licence (MIN 5571)
2. Reaching a native title agreement with GLaWAC representing the Gunaikurnai people, the recognised native title holders of the area.
3. The agreement by the Victorian Government to contribute up to $300,000 towards feasibility study relating directly to the infrastructure requirements of the project.

Following a decision by South East Fibre Exports Pty Ltd (SEFE) the owners of the SEFE bulk ship loader and wharf facility at the Port of Eden, not to enter into a formal agreement to allow the use of the SEFE facility for loading iron ore the company commenced review of other shipping alternatives including the use of the multi user "Naval" wharf which is adjacent to the SEFE wharf.

On 2 September 2014 Eastern Iron reported that it had completed a detailed heli-borne electromagnetic versatile time-domain electromagnetic geophysical system (VTEM) survey over the Nowa Nowa exploration licence. The survey was completed following a review of previous exploration and the identification of extensive Silurian volcanics believed to be the same rocks that host VMS deposits in Victoria and NSW such as Woodlawn and Benambra, approximately 100 kilometres to the north.

Drilling carried out by previous explorers within the Nowa Nowa area intersected significant copper, lead, zinc and gold mineralisation in altered volcanics and sediments, with a best intersection of 13.6 metres assaying 3.8% copper at the Three Mile prospect in the south eastern corner of the licence.

Although final processing of the survey data has yet to be completed, preliminary results indicates the VTEM survey has defined three strong conductors, one of which is located at the Three Mile prospect.

Silver City Minerals

Silver City Minerals Limited (ASX: SCI) continued its well-funded programme of exploration within its extensive portfolio of tenements around Broken Hill, NSW and into its new Sellheim copper/gold project in Queensland.

At Sellheim Silver City can earn up to an 80% interest in a joint venture over the historic Sellheim gold district near Charters Towers, Queensland, which is considered to have significant potential for large gold deposits associated with intrusive rocks. Work by Silver City included completing a large induced polarisation (IP) programme to test beneath the elluvial goldfield and old copper-gold workings. The survey produced a number of very strong (greater than 100 mV/V) and discrete chargeability anomalies grouped in an east-west oriented corridor approximately 1.5 kilometres wide and 4 kilometres long.

Silver City tested a number of the anomalies, completing seven diamond core and reverse circulation holes for a total of 2,268.4 metres. The company reported that the drilling returned a number of intersections of gold, copper and silver mineralisation predominantly hosted in skarn alteration and quartz-sulphide veins. The best intersection recorded was 11.1 metres at 0.66 g/t gold and 0.28% copper from 496.9 metres in hole 14SH004 hosted in magnetite-quartz skarn close to a major fault and breccia complex.

Silver City believes that the mineralised skarns formed as a result of fluids emanating from the tonalite intrusion immediately west of Mount Richardson (a north-trending zone of silicification and phyllic alteration with gossanous quartz-sericite rocks and tourmaline breccias), or from other discrete intrusive stocks. The company has identified a structural corridor at Mount Richardson which it considers to be highly prospective for gold-copper mineralisation. This will be tested with further drilling later in 2014.

In the Broken Hill region, drilling below and along strike from old mine workings at Allendale generated a number of high grade, but generally thin lead-zinc-silver intersections within a mineralised corridor approximately 75 metres wide and 450 metres long. Intersections recorded included 10 metres at 3.4% lead, 6.2% zinc and 26 g/t silver in drillhole 12AN035. However, the discontinuous nature of the known mineralisation has not allowed the generation of sufficient tonnage for open pit mining and Silver City completed deeper exploration via a helicopter-borne electromagnetic (EM) survey.

At Razorback West, Silver City believes that the geochemical anomalies previously identified in shallow rotary air blast (RAB) drilling might represent the northern extension to the famous Broken Hill "line of lode" corridor, offset westward by at fault structure known as the Stephens Creek Shear Zone.

An induced polarisation (IP) geophysical survey by Silver City generated a number of significant chargeability anomalies coincident with the surface lead-zinc geochemical anomalies and a distinctive ridge of elevated gravity. The company drilled a number of RC holes into the IP/geochemical anomalies intersecting intervals up to 15 metres wide containing concentrations of blue quartz and disseminated pyrite and pyrrhotite (iron sulphides) with minor sphalerite veins (zinc sulphide) typical of BHT deposits. Evaluation work is continuing.

Thomson Resources

Thomson Resources Ltd (ASX: TMZ) continued exploration of its base and precious metal targets in the Cobar Basin and Thomson Fold Belt of north-western NSW. The Thomson Fold Belt targets are covered by the margin of the Eromanga Basin and are hosted within rocks believed to be the northern continuation of the Cobar Basin.

Thomson completed drilling at its wholly owned F1 target within the Falcon project area. Three holes were completed, defining another Intrusion-Related mineral system, hosted entirely in granite at the relatively shallow depth of 100 metres below cover. A sheeted vein system with silica and carbonate alteration was intersected with anomalous gold, molybdenum, tungsten, lead and arsenic results recorded.

During the year Thomson acquired a number of new tin, base and precious metal projects outside the Thomson Fold Belt. These included the Havilah Project near Mudgee, central NSW which lies within the Silurian Hill End Trough. It is believed to have strong potential for volcanogenic massive sulphide (VMS) deposits also found in the region such as Woodlawn and Lewis Ponds.

Previous work at Havilah has defined zinc, lead, gold and silver anomalism in soil and rock chip sampling coincident with a strong sericite-pyrite-silica alteration zone hosted in rhyolitic to dacitic volcaniclastics, a typical setting for VMS deposits. Historical drilling largely targeted more distal parts of the alteration system, returning intercepts including 4 metres at 4.0 g/t gold, 81 g/t silver from 2 metres depth in CPDH10.

To test the Havilah and other key prospects within the Thomson portfolio, a VTEM survey was flown. VTEM is widely considered the best helicopter TEM massive sulphide detection and imaging tool with notable successes including the discovery of the Mallee Bull deposit in the Cobar Basin. A total of 564 line kilometres was acquired over five targets: Havilah, Wilga Downs, Furneys, Kenilworth and the Wilgaroon tin-tungsten project. Processing of results is in progress.

WPG Resources

WPG Resources Ltd (ASX: WPG) is an iron ore, coal and gold exploration and development company with exploration tenements in South Australia. WPG's current focus is on two advanced gold projects in the Gawler Craton, South Australia - Tunkillia (WPG holds approximately 70%) and Tarcoola (WPG holds 100%) where previous feasibility and scoping studies at Tarcoola, had defined a significant gold resource. In July 2014, WPG announced that it would fast track development of the Tarcoola project with the objective of commencing operations late next year. The company stated that a review of data had confirmed that the Tarcoola gold project could be successfully developed into a heap leach mining operation with an initial mine life of four to five years.

AGUIA Resources

Aguia Resources Limited (ASX: AGR) is an exploration company that has interests in substantial phosphate and potash projects in Brazil, including three highly prospective and potentially large scale phosphate projects, the Lucena and Mata da Corda Phosphate Projects and the Tres Estradas carbonatite-style phosphate project in Rio Grande do Sul, southern Brazil.

Competent Persons Statement

The information in this report that relates to Exploration Results is based on information compiled by Greg Jones, BSc (Hons), who is a member of the Australasian Institute of Mining and Metallurgy. Mr Jones is a Director and full-time employee of Variscan Mines Limited and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Jones consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

Significant changes in the state of affairs

The Directors are not aware of any significant changes in the state of affairs of the Group occurring during the financial period, other than as disclosed in this report.

Significant events after the reporting date

There were, at the date of this report, no matters or circumstances which have arisen since 30 June 2014 that have significantly affected or may significantly affect the operations of the Group, the results of those operations, or the state of affairs of the Group, in future financial years.

Indemnification and insurance of directors and officers

The Company has not, during or since the end of the financial period, in respect of any person who is or has been an officer of the Company or a related body corporate, indemnified or made any relevant agreement for indemnifying against a liability incurred as an officer, including costs and expenses in successfully defending legal proceedings.

Insurance premiums

During the financial period the Company has paid premiums to insure each of the directors and officers against liabilities for costs and expenses incurred by them in defending any legal proceedings arising out of their conduct while acting in the capacity of director or officer of the Company, other than conduct involving a wilful breach of duty in relation to the Company.

The premiums paid are not disclosed as such disclosure is prohibited under the terms of the contract.

Environmental performance

Variscan holds exploration licences issued by New South Wales Department of Trade and Investment - Resources and Energy and the South Australian Department for Manufacturing, Innovation, Trade, Resources and Energy which specify guidelines for environmental impacts in relation to exploration activities. The licence conditions provide for the full rehabilitation of the areas of exploration in accordance with the Departments' guidelines and standards. There have been no significant known breaches of the licence conditions.

Likely developments and expected results

As the Company's areas of interest are at an early stage of exploration, it is not possible to postulate likely developments and any expected results. The Company is hoping to identify other precious, base metal and tin / tungsten exploration and evaluation targets within France and western Europe.

Shares under option or issued on exercise of options

Details of unissued shares or interests under option for Variscan Mines Limited as at the date of this report are:

No. shares under option	Class of share	Exercise price of option	Expiry date of options
9,590,000	Ord	$0.18	27 Nov 2014
1,500,000	Ord	$0.18	27 Nov 2014
10,900,000	Ord	$0.30	25 Nov 2015
1,000,000	Ord	$0.25	6 Oct 2014
2,300,000	Ord	$0.14	31 Oct 2015
25,290,000			

The holders of these options do not have the right, by virtue of the option, to participate in any share issue of the Company or of any other body corporate or registered scheme.

There were no shares issued during or since the end of the financial year as a result of exercise of the above options.

Refer to the remuneration report and Note 19 for further details of the options outstanding.

Remuneration report (audited)

This remuneration report for the year ended 30 June 2014 outlines the remuneration arrangements of the Company and the Group in accordance with the requirements of the Corporations Act 2001 (the Act) and its regulations. This information has been audited as required by section 308(3C) of the Act.

The remuneration report details the remuneration arrangements for key management personnel (KMP) who are defined as those persons having authority and responsibility for planning, directing and controlling the major activities of the Company and the Group, directly or indirectly, including any director (whether executive or otherwise) of the parent company.

Details of key management personnel

Details of KMP including the top five remunerated executives of the Parent and Group are set out below.

Directors	
Patrick Elliott	Chairman (Non-Executive)
Gregory Jones	Managing Director
Kwan Chee Seng	Non-Executive Director
Dr Foo Fatt Kah	Non-Executive Director
Alan Breen	Non-Executive Director
Dr Jack Testard	Executive Director (appointed 14 May 14) President of Subsidiary – Variscan Mines SAS
Kantilal Champaklal	Alternate director for Kwan Chee Seng (resigned 6 Mar 14)
Executives	
Ivo Polovineo	Company Secretary
Wendy Corbett	Managing Geologist
Michelle Lilley	Financial Controller
Greg De Ross	Managing Director of Subsidiary – Eastern Iron Limited (Deconsolidated 11 March 2014)
Michel Bonnemaison	CEO of Subsidiary – Variscan Mines SAS

Remuneration philosophy

The objective of the Company's remuneration framework is to ensure reward for performance is competitive and appropriate for the results delivered. The framework aligns executive reward with achievement of strategic objectives and the creation of value for shareholders. The Board believes that executive remuneration satisfies the following key criteria:

- Competitiveness and reasonableness.
- Acceptability to shareholders.
- Performance linkage/alignment of executive compensation.
- Transparency.
- Capital management.

These criteria result in a framework which can be used to provide a mix of fixed and variable remuneration, and a blend of short and long term incentives in line with the Company's limited financial resources.

Fees and payments to the Company's Non-Executive Directors and Senior Executives reflect the demands which are made on, and the responsibilities of, the Directors and the senior management. Such fees and payments are reviewed annually by the Board. The Company's Executive and Non-Executive Directors, Senior Executives and Officers are entitled to receive options under the Company's Employee Share Option Plan ("ESOP").

Non-executive directors remuneration arrangements

Directors are entitled to remuneration out of the funds of the Company but the remuneration of the Non-Executive Directors (NED) may not exceed in any year the amount fixed by the Company in general meeting for that purpose. The aggregate remuneration of the NED's has been fixed at a maximum of $250,000 per annum to be apportioned among the NED's in such a manner as the Board determines. Directors are also entitled to be paid reasonable travelling, accommodation and other expenses incurred in consequence of their attendance at Board meetings and otherwise in the execution of their duties as Directors.

The Chairman's fee is set at $50,000 p.a. and NED fees at $36,000 p.a. which are consistent with industry average fees. At present, no Committee fees are paid to Directors.

Service agreements

Remuneration and other terms of employment for key management personnel are formalised in employment contracts and contractor agreements. Details of these arrangements are set out below:

Managing Director – Greg Jones

- Contract term: No fixed term. Either party may terminate the letter of employment with one months' notice.
- Remuneration: $280,642 p.a. (2013: $280,000) as at 30 June 2014 to be reviewed annually
- Termination payments: A 3 month severance pay with an additional 3 months after more than five years.

Executive Director – Jack Testard

- Contract term: No fixed term.
- Remuneration: Annual salary equivalent to Euro 65,532 (2013: 60,762) as at 30 June 2014, to be reviewed annually.
- Termination payments: Nil.

Company Secretary – Ivo Polovineo

- Contract term: 12 month rolling contract. Either party may terminate the contract with one months' notice.
- Remuneration: $1,300 (2013: $1,300) per day plus GST as at 30 June 2014.
- Termination payments: Nil.

Managing Geologist – Wendy Corbett

- Contract term: Rolling contract. Either party may terminate the agreement with one months' notice.
- Remuneration: $108.16 per hour (2013: $108.16) plus GST for consultancy services as at 30 June 2014.
- Termination payments: Nil.

Financial Controller – Michelle Lilley

- Contract term: No fixed term. Either party may terminate the agreement with one months' notice.
- Remuneration: $92.77 per hour (2013: $92.56) as at 30 June 2014.
- Termination payments: A 1 month severance pay with an additional 2 months after more than five years.

CEO (Variscan Mines) – Michel Bonnemaison

- Contract term: No fixed term.
- Remuneration: Annual salary equivalent to Euro 162,462 (2013: 154,980) as at 30 June 2014, to be reviewed annually.
- Termination payments: In the case of redundancy one month payment for each year of service

Managing Director (Eastern Iron) – Greg De Ross (Subsidiary deconsolidated 11 Mar 14)

- Contract term: No fixed term. Either party may terminate the letter of employment with two months' notice.
- Remuneration: $284,572 p.a. (2013: $283,920) as at 30 June 2014 to be reviewed annually.
- Termination payments: A 3 month severance pay with an additional 3 months after more than five years.

Directors and KMP remuneration (consolidated) for the year ended 30 June 2014

	Short-term benefits		Post employment	Share-based payments		
	Cash salary and fees $	Consulting fees $	Super-annuation $	Options $	Total $	Consisting of options %
Directors						
P Elliott	50,000	-	-	-	50,000	0%
G Jones	256,881	25,294 *	26,101	-	308,276	0%
C S Kwan	36,000	-	-	-	36,000	0%
F K Foo	36,000	-	-	-	36,000	0%
A Breen	33,024	-	3,055	-	36,079	0%
J Testard	92,711	-	-	-	92,711	0%
Total Directors	504,616	25,294	29,156	-	559,066	
Other key management personnel						
I Polovineo	62,400	27,571 *	-	-	89,971	0%
W Corbett	-	91,427 *	2,250	-	93,677	0%
M Lilley	106,081	-	9,813	-	115,894	0%
M Bonnemaison	235,769	-	-	-	235,769	0%
G De Ross	181,354	-	16,775	10,580	208,709 *	5%
Other KMP	585,604	118,998	28,838	10,580	744,020	
Totals	1,090,220	144,292	57,994	10,580	1,303,086	

*Eastern Iron Limited remuneration from 1 July 2013 to 11 March 2014 (date of deconsolidation).

Directors and KMP remuneration (consolidated) for the year ended 30 June 2013

	Short term benefits		Post employment	Share-based payment		
	Cash salary and fees $	Consulting fees $	Super-annuation $	Options $	Total $	Consisting of options %
Directors						
P Elliott	50,000	-	-	-	50,000	0%
G Jones	252,294	36,330	25,976	3,510	318,110	1%
C S Kwan	36,000	-	-	-	36,000	0%
F K Foo	36,000	-	-	-	36,000	0%
A Breen	33,024	-	2,972	-	35,996	0%
Total Directors	407,318	36,330	28,948	3,510	476,106	
Other key management personnel						
I Polovineo	61,800	38,400	-	12,285	112,485	11%
W Corbett	-	126,739	3,270	6,885	136,894	5%
M Lilley	121,903	-	10,971	-	132,874	0%
N Maund (a)	196,724	44,955	15,622	-	257,301	0%
J Testard	76,383	-	-	8,100	84,483	10%
M Bonnemaison	194,822	-	-	8,100	202,922	4%
G De Ross	259,642	-	23,368	7,800	290,810	3%
Other KMP	911,274	210,094	53,231	43,170	1,217,769	
Totals	1,318,592	246,424	82,179	46,680	1,693,875	

(a) Not considered to be key management personnel for the year ending 30 June 2014.

Compensation options: granted and vested during the year (parent entity)

There we no share-based payments (options) granted during the financial year to Directors and Key Management Personnel.

The value of options granted during the period is recognised in compensation over the vesting period of the grant, in accordance with Australian Accounting Standards.

For details on the valuation of the options, including models and assumptions used, please refer to Note 19.

There were no alterations to the terms and conditions of options granted as remuneration since their grant date. There were no forfeitures during the period.

The Company has established an ESOP for the benefit of Directors, officers, senior executives and consultants.

Directors' Benefits, Emoluments and Share Options

During its annual budget review the Board reviews the Directors' Emoluments. Remuneration levels, including participation in the Company's ESOP, are set to provide reasonable compensation in line with the Company's limited financial resources. During the year no Director of the Company has received or become entitled to receive a benefit (other than a benefit included in Note 22 of the financial statements) by reason of a contract made by the Company or a related corporation with the Director or with a firm of which he is a member, or with a company in which he has a substantial financial interest.

Due to the difficulty in the measurement of performance using quantitative indicators in the mineral exploration industry, there is no formal link between financial performance of the group and remuneration levels.

There is no retirement scheme for Non-Executive Directors

End of Audited Remuneration report.

Meetings of directors

The following table sets out the number of Directors' meetings (including meetings of committees of Directors) held during the financial year and the number of meetings attended by each Director.

	Board of directors		Remuneration committee		Audit committee	
	Held	Attended	Held	Attended	Held	Attended
Directors						
P Elliott	4	4	1	1	2	1
G Jones	4	4	1	1	2	2
C S Kwan	4	3	1	1	-	-
F K Foo	4	4	-	-	2	2
A Breen	4	4	-	-	-	-
J Testard	1	1	-	-	-	-
K Champaklal	1	1	-	-	-	-

Auditor's independence

HLB Mann Judd

Accountants | Business and Financial Advisers

VARISCAN MINES LIMITED

AUDITOR'S INDEPENDENCE DECLARATION

As lead auditor for the audit of the consolidated financial report of Variscan Mines Limited for the year ended 30 June 2014 I declare that, to the best of my knowledge and belief, there have been no contraventions of:

(a) the auditor independence requirements of the *Corporations Act 2001* in relation to the audit; and

(b) any applicable code of professional conduct in relation to the audit.

This declaration is in relation to the Variscan Mines Limited and the entities it controlled during the year.

Sydney, NSW
30 September 2014

M D Muller
Partner

HLB Mann Judd (NSW Partnership) ABN 34 482 821 289

Non-audit services

The following non-audit services were provided by the Company's primary auditor, HLB Mann Judd. The Directors are satisfied that the provision of non-audit services is compatible with the general standard of independence for auditor's imposed by the Corporations Act. The nature and scope of each type of non-audit service provided means that auditor independence was not compromised.

HLB Mann Judd received or is due to receive the following amounts for the provision of non-audit services:

- Tax advisory services $5,000

Signed at Sydney this 30th day of September 2014 in accordance with a resolution of the Directors.



Greg Jones
Managing Director

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

For the year ended 30 June 2014

	Note	2014 $	2013 $
Revenue and other income	3	1,995,045	2,287,040
ASX and ASIC fees		(50,398)	(49,223)
Auditors' remuneration	5	(108,323)	(95,241)
Contract admin/geological services		(149,238)	(205,213)
Depreciation expense	13	(77,558)	(86,585)
Directors' fees		(289,314)	(360,213)
Exploration expenditure written-off	14	(1,531,881)	(3,482,189)
Finance costs		(279,900)	-
Impairment of investment		(784,909)	(1,476,368)
Interest on convertible note	17	(563,634)	(924,679)
Loss on options – mark to market		(117,221)	(85,960)
Operating lease rental expense		(117,589)	(108,222)
Loss on disposal of subsidiary		(471,845)	-
Employee costs net of on-costs recharged to exploration projects		(1,046,133)	(1,137,770)
Share of net losses of associate accounted for by the equity method	9	(1,389,073)	(163,944)
Other expenses		(777,904)	(733,891)
(Loss) before income tax expense		(5,759,875)	(6,622,458)
Income tax benefit/(expense)	4	42,631	(1,227,266)
(Loss) after tax		(5,717,244)	(7,849,724)
Other comprehensive income/(loss)			
Items that may be reclassified to profit or loss			
Net fair value gains/(losses) on available-for-sale financial assets		93,671	(668,732)
Income tax on items of other comprehensive income/(loss)		(28,102)	200,620
Other comprehensive income/(loss) for the period, net of tax		65,569	(468,112)
Total comprehensive (loss) for the period		(5,651,675)	(8,317,836)
(Loss) for the period is attributable to:			
Non-controlling interests		24,816	(633,183)
Owners of the parent		(5,742,060)	(7,216,541)
		(5,717,244)	(7,849,724)
Total comprehensive (loss) for the period is attributable to:			
Non-controlling interests		24,816	(633,183)
Owners of the parent		(5,676,491)	(7,684,653)
		(5,651,675)	(8,317,836)
(Loss) per share			
Basic (loss) per share (cents per share)	21	(3.27)	(4.12)
Diluted (loss) per share (cents per share)	21	(3.27)	(4.12)

The Consolidated Statement of Comprehensive Income should be read in conjunction with the accompanying notes

CONSOLIDATED STATEMENT OF FINANCIAL POSITION

As at 30 June 2014

	Note	2014 $	2013 $
Assets			
Current assets			
Cash and cash equivalents	6	2,408,993	9,333,933
Receivables	7	414,913	567,987
Tenement security deposits	12	30,000	170,000
Total current assets		2,853,906	10,071,920
Non-current assets			
Investments – available for sale	8	1,433,127	1,400,439
Investment in associates	9	1,850,000	468,000
Derivative financial instruments	11	955	81,176
Receivables	7	32,156	31,932
Tenement security deposits	12	20,000	115,850
Property, plant and equipment	13	203,165	233,771
Deferred exploration and evaluation expenditure	14	918,297	5,793,879
Deferred tax asset	4	828,869	814,339
Total non-current assets		5,286,569	8,939,386
Total assets		8,140,475	19,011,306
Liabilities			
Current liabilities			
Trade and other payables	15	364,555	691,204
Provisions	16	97,103	139,494
Derivative liability	17	-	2,139
Convertible note	17	-	1,969,654
Total current liabilities		461,658	2,802,491
Non-current liabilities			
Provisions	16	54,497	61,867
Total non-current liabilities		54,497	61,867
Total liabilities		516,155	2,864,358
Net assets		7,624,320	16,146,948
Equity			
Equity attributable to equity holders of the parent			
Contributed equity	18	14,526,115	14,515,132
Reserves	20	3,547,839	4,514,098
Accumulated losses		(10,449,634)	(9,004,793)
Parent interests		7,624,320	10,024,437
Non-controlling interests	10	-	6,122,511
Total equity		7,624,320	16,146,948

The Consolidated Statement of Financial Position should be read in conjunction with the accompanying notes

CONSOLIDATED STATEMENT OF CASH FLOWS

For the year ended 30 June 2014

	Note	2014 $	2013 $
Cash flows from operating activities			
Payment to suppliers and employees		(2,463,896)	(2,777,015)
Consultancy fees and rental income received		280,568	276,226
R&D tax offset		956,555	1,232,116
Interest received		225,159	524,507
Net cash flows used in operating activities	29	(1,001,414)	(744,166)
Cash flows from investing activities			
Purchase of plant and equipment		(83,916)	(97,489)
Proceeds from sale of plant and equipment		-	19,656
Sale of mining tenements		200,000	-
Expenditure on mining interests (exploration)		(3,535,397)	(3,221,941)
Purchase of equity investments		(30,000)	-
Tenement security deposits & bank guarantees (paid)/recovered		222,500	(37,500)
Cash forgone on disposal of subsidiary		(86,556)	-
Net cash flows from investing activities		(3,293,369)	(3,337,274)
Cash flows from financing activities			
Proceeds from issue of shares		16,875	1,348,661
Payment of share issue costs		-	(54,400)
Repayment of convertible note		(2,350,000)	-
Convertible note costs		(308,288)	(201,370)
Net cash flows (used in)/from financing activities		(2,641,413)	1,092,891
Net decrease in cash and cash equivalents		(6,936,196)	(2,988,549)
Net foreign exchange differences		11,256	(51,027)
Cash and cash equivalents at beginning of period		9,333,933	12,373,509
Cash and cash equivalents at end of period	29	2,408,993	9,333,933

The Consolidated Statement of Cash Flows should be read in conjunction with the accompanying notes

CONSOLIDATED STATEMENT OF CHANGES IN EQUITY

For the year ended 30 June 2014

		Consolidated				
	Note	Contributed equity $	Accumulated losses $	Reserves $	Non-controlling interest $	Total equity $
At 1 July 2012		14,515,132	(1,849,638)	2,837,018	5,419,932	20,922,444
(Loss) for the period		-	(7,216,541)	-	(633,183)	(7,849,724)
Other comprehensive income		-	-	(468,112)	-	(468,112)
Total comprehensive (loss) for the period		-	(7,216,541)	(468,112)	(633,183)	(8,317,836)
Transactions with owners in their capacity as owners:						
Issue of share capital (net of share issue costs)		-	-	-	1,421,467	1,421,467
Transfer expired options to Retained Earnings		-	504,113	(389,548)	(114,565)	-
Investment revaluation reserve adjustment	20	-	(442,727)	442,727	-	-
Deferred tax adjustment	20	-	-	745,611	-	745,611
Adjustment relating to impairment of assets	20	-	-	845,817	-	845,817
Share-based payments	20	-	-	50,815	28,860	79,675
Foreign currency translation	20	-	-	449,770	-	449,770
At 30 June 2013	20	14,515,132	(9,004,793)	4,514,098	6,122,511	16,146,948
At 1 July 2013		14,515,132	(9,004,793)	4,514,098	6,122,511	16,146,948
(Loss) for the period		-	(5,742,060)	-	24,816	(5,717,244)
Other comprehensive income		-	-	65,569	-	65,569
Total comprehensive (loss) for the period		-	(5,742,060)	65,569	24,816	(5,651,675)
Transactions with owners in their capacity as owners:						
Issue of share capital (net of share issue costs)		16,875	-	-	255,155	272,030
Transfer expired options to Retained Earnings		-	282,550	(47,880)	(234,670)	-
Expiry of Convertible Note Option	20	-	1,095,168	(1,095,168)	-	-
Non-Controlling interest disposal of Eastern Iron Limited		(5,892)	2,919,501	229,108	(6,178,392)	(3,035,675)
Share-based payments		-	-	-	10,580	10,580
Foreign currency translation	20	-	-	(117,888)	-	(117,888)
At 30 June 2014	20	14,526,115	(10,449,634)	3,547,839	-	7,624,320

The Consolidated Statement of Changes in Equity should be read in conjunction with the accompanying notes

1. Corporate information

The financial report of Variscan Mines Limited (Variscan or the Company) (formerly PlatSearch NL) for the year ended 30 June 2014 was authorised for issue in accordance with a resolution of the Directors on 30 September 2014.

On 10 January 2014 the Company changed its name from PlatSearch NL to Variscan Mines Limited.

Variscan Mines Limited (the parent) is a company limited by shares incorporated and domiciled in Australia whose shares are publicly traded on the Australian Securities Exchange under ASX Code VAR.

The consolidated financial statements comprise the financial statements of Variscan Mines Limited and its subsidiaries (the Group or Consolidated Entity).

The nature of the operations and principal activities of the Consolidated Entity are described in the Directors' Report.

2. Summary of significant accounting policies

Basis of preparation

The financial report is a general purpose financial report, which has been prepared in accordance with the requirements of the Corporations Act 2001, Australian Accounting Standards and other authoritative pronouncements of the Australian Accounting Standards Board. It has been prepared on a historical cost basis except for investments in listed shares and derivative financial instruments, which are measured at fair value.

Statement of compliance

The financial report complies with Australian Accounting Standards and International Financial Reporting Standards ("IFRS") as issued by the International Accounting Standards Board (IASB).

Basis of consolidation

The consolidated financial statements comprise the financial statements of Variscan Mines Limited (Variscan or the Company) and its subsidiaries (collectively, the Group) as at 30 June each year.

The financial statements of subsidiaries are prepared for the same reporting period as the parent company, using consistent accounting policies.

All intercompany balances and transactions, income and expenses and profit and losses resulting from intra-group transactions have been eliminated in full.

Non-controlling interests are allocated their share of profit after tax in the statement of comprehensive income and are presented within equity in the consolidated statement of financial position, separately from the equity of the owners of the parent. Losses are attributable to the non-controlling interest even if that results in a deficit balance.

Subsidiaries are fully consolidated from the date on which control is transferred to the Group and cease to be consolidated from the date on which control is transferred out of the Group. At this date, any retained interest in the entity is remeasured to its fair value with the change in carrying amount recognised in profit or loss. The fair value is the initial carrying amount for the purposes of subsequently accounting for the retained interest as an associate.

Business combinations

Business combinations are accounted for using the acquisition method. The consideration transferred in a business combination shall be measured at fair value, which shall be calculated as the sum of the acquisition-date fair values of the assets transferred by the acquirer, the liabilities incurred by the acquirer to former owners of the acquiree and the equity issued by the acquirer, and the amount of any non-controlling interest in the acquiree. For each business combination, the acquirer measures the non-controlling interest in the acquiree either at fair value of at the proportionate share of the acquiree's identifiable net assets.

Acquisition-related costs are expensed as incurred.

When the Group acquires a business, it assesses the financial assets and liabilities assumed for appropriate classification and designation in accordance with the contractual terms, economic conditions, the Group's operating or accounting policies and other pertinent conditions as at the acquisition date. This includes the separation of embedded derivatives in host contracts by the acquiree.

If the business combination is achieved in stages, the acquisition date fair value of the acquirer's previously held equity interest in the acquiree is remeasured at fair value as at the acquisition date through profit or loss.

Any contingent consideration to be transferred by the acquirer will be recognised at fair value at the acquisition date. Subsequent changes to the fair value of the contingent consideration which is deemed to be an asset or liability will be recognised in accordance with AASB 139 either in profit or loss or in other

comprehensive income. If the contingent consideration is classified as equity, it shall not be remeasured.

Cash and cash equivalents

Cash and short-term deposits in the Statement of Financial Position comprise cash at bank and in hand and short-term deposits readily convertible to a known amount of cash and subject to an insignificant risk of change in value.

For the purposes of the Statement of Cash Flows, cash and cash equivalents consist of cash and cash equivalents as defined above, net of outstanding bank overdrafts, if any.

Trade and other receivables

Trade receivables, which generally have a 30 day term, are recognised initially at fair value and subsequently measured at amortised cost using the effective interest method, less an allowance for impairment.

An allowance for doubtful debts is made when there is objective evidence that the Company will not be able to collect the debts. Bad debts are written off when identified.

Exploration, evaluation, development and restoration costs

Exploration and evaluation

Exploration and evaluation expenditure incurred by or on behalf of the Company is accumulated separately for each area of interest. Such expenditure comprises net direct costs and an appropriate portion of related overhead expenditure, but does not include general overheads or administrative expenditure not having a specific connection with a particular area of interest.

Exploration and evaluation costs in relation to separate areas of interest for which rights of tenure are current are brought to account in the year in which they are incurred and carried forward provided that:

Such costs are expected to be recouped through successful development and exploitation of the area, or alternatively through its sale.

Exploration and/or evaluation activities in the area have not yet reached a stage which permits a reasonable assessment of the existence or otherwise of economically recoverable reserves.

Once a development decision has been taken, all past and future exploration and evaluation expenditure in respect of the area of interest is aggregated within costs of development.

Exploration and evaluation – impairment

The Group assesses at each reporting date whether there is an indication that an asset has been impaired and for exploration and evaluation costs whether the above carry forward criteria are met.

Accumulated costs in respect of areas of interest are written off or a provision made in the Statement of Comprehensive Income when the above criteria do not apply or when the Directors assess that the carrying value may exceed the recoverable amount. The costs of productive areas are amortised over the life of the area of interest to which such costs relate on the production output basis.

Provisions are made where farm-in partners are sought and there is a possibility that carried-forward expenditures may have to be written off in the future if a farm-in partner is not found. In the event that farm-in agreements are reached or the Company undertakes further exploration in its own right on those properties, the provisions would be reviewed and if appropriate, written back.

Development

Development expenditure incurred by or on behalf of the Company is accumulated separately for each area of interest in which economically recoverable reserves have been identified to the satisfaction of the Directors. Such expenditure comprises net direct costs and, in the same manner as for exploration and evaluation expenditure, an appropriate portion of related overhead expenditure having a specific connection with the development property.

All expenditure incurred prior to the commencement of commercial levels of production from each development property is carried forward to the extent to which recoupment out of revenue to be derived from the sale of production from the relevant development property, or from the sale of that property, is reasonably assured.

No amortisation is provided in respect of development properties until a decision has been made to commence mining. After this decision, the costs are amortised over the life of the area of interest to which such costs relate on a production output basis.

Restoration

Provisions for restoration costs are recognised when the Company has a present obligation (legal or constructive) as a result of a past event, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and a reliable estimate can be made of the amount of the obligation.

If the effect of the time value of money is material, provisions are determined by discounting the expected cash flows at a pre-tax rate that reflects current market assessments of the time value of money and, where appropriate, the risks specific to the liability.

When discounting is used, the increase in the provision due to the passage of time is recognised as a finance cost.

Investments and other financial assets

Investments and financial assets in the scope of AASB 139 Financial Instruments: Recognition and Measurement are categorised as either financial assets at fair value through profit or loss, loans and receivables, or available for sale financial assets. The classification depends on the purpose for which the investments were acquired. Designation is re-evaluated at each financial year end, but there are restrictions on reclassifying to other categories.

When financial assets are recognised initially, they are measured at fair value, plus, in the case of assets not at fair value through profit or loss, directly attributable transaction costs.

Recognition and derecognition

All purchases and sales of financial assets are recognised on the trade date i.e the date that the Group commits to purchase the asset. Regular way purchases or sales are purchases or sales of financial assets under contracts that require delivery of the assets within the period established generally by regulation or convention in the market place. Financial assets are derecognised when the right to receive cash flows from the financial assets have expired or have been transferred.

Financial assets at fair value through profit or loss

Financial assets classified as held for trading are included in the category "financial assets at fair value through profit or loss". Financial assets are classified as held for trading if they are acquired for the purpose of selling in the near term with the intention of making a profit. Derivatives are also classified as held for trading unless they are designated as effective hedging instruments. Gains or losses on financial assets held for trading are recognised in profit or loss and the related assets are classified as current assets in the Statement of Financial Position.

Loans and receivables

Loans and receivables including loan notes and loans to KMP are non-derivative financial assets with fixed or determinable payments that are not quoted in an active market. Such assets are carried at amortised cost using the effective interest method. Gains and losses are recognised in profit or loss when the loans and receivables are derecognised or impaired. These are included in current assets, except for those with maturities greater than 12 months after reporting date, which are classified as non-current.

Available for sale securities

Available for sale investments are those non-derivative financial assets, principally equity securities, that are designated as available for sale or are not classified as any of the three preceding categories. After initial recognition available for sale securities are measured at fair value with gains or losses being recognised as a separate component of equity until the investment is derecognised or until the investment is determined to be impaired, at which time the cumulative gain or loss previously reported in equity is recognised in profit or loss.

The fair values of investments that are actively traded in organised financial markets are determined by reference to quoted market bid prices at the close of business on the reporting date. For investments with no active market, fair values are determined using valuation techniques. Such techniques include: using recent arm's length market transactions; reference to the current market value of another instrument that is substantially the same; discounted cash flow analysis and option pricing models making as much use of available and supportable market data as possible and keeping judgemental inputs to a minimum.

Investments in associates

The Group's investment in its associates is accounted for using the equity method of accounting in the consolidated financial statements and at cost in the parent. The associates are entities over which the Group has significant influence and that are neither subsidiaries nor joint ventures.

The Group generally deems they have significant influence if they have over 20% of the voting rights.

Under the equity method, investments in the associates are carried in the consolidated Statement of Financial Position at cost plus post-acquisition changes in the Group's share of net assets of the associates. Goodwill relating to an associate is included in the carrying amount of the investment and is not amortised. After application of the equity method, the Group determines whether it is necessary to recognise any impairment loss with respect to the Group's net investment in associates.

The Group's share of its associates' post-acquisition profits or losses is recognised in the Statement of

Comprehensive Income, and its share of post-acquisition movements in reserves is recognised in reserves. The cumulative post-acquisition movements are adjusted against the carrying amount of the investment. Dividends receivable from associates are recognised in the parent entity's Statement of Comprehensive Income, while in the consolidated financial statements they reduce the carrying amount of the investment.

When the Group's share of losses in an associate equals or exceeds its interest in the associate, including any unsecured long-term receivables and loans, the Group does not recognise further losses, unless it has incurred obligations or made payment on behalf of the associate.

The reporting dates of the associates and the Group are identical and the associates' accounting policies conform to those used by the Group for like transactions and events in similar circumstances.

Interest in jointly controlled operations – joint ventures

The Group has an interest in exploration joint ventures that are jointly controlled. A joint venture is a contractual arrangement whereby two or more parties undertake an economic activity that is subject to joint control. A jointly controlled operation involves use of assets and other resources of the venturers rather than establishment of a separate entity. The Group recognises its interest in the jointly controlled operations by recognising the assets that it controls and the liabilities that it incurs. The Group also recognises the expenses that it incurs and its share of any income that it earns from the sale of goods or services by the jointly controlled operations.

Plant and equipment

Plant and equipment is stated at historical cost less accumulated depreciation and any accumulated impairment losses.

Depreciation is calculated on a straight-line basis over the estimated useful life of the asset, namely motor vehicles and plant and equipment – depreciated over 2 - 10 years (2013: 2-8 years).

Impairment

The carrying values of plant and equipment are reviewed for impairment when events or changes in circumstances indicate the carrying value may not be recoverable.

An item of plant and equipment is derecognised upon disposal or when no further future economic benefits are expected from its use or disposal.

Any gain or loss arising on derecognition of the asset (calculated as the difference between the net disposal proceeds and the carrying amount of the item) is included in the income statement in the period the item is derecognised.

Leases

In determination of whether an arrangement is or contains a lease is based on the substance of the arrangement and requires an assessment of whether the fulfilment of the arrangement is dependent on the use of a specific asset or assets and the arrangement conveys a right to use the asset.

Leases where the lessor retains substantially all the risks and benefits of ownership of the asset are classified as operating leases.

Operating lease payments are recognised as an expense in the income statement on a straight-line basis over the lease term.

Trade and other payables and provisions

Trade payables and other payables are carried at amortised cost. They represent liabilities for goods and services provided to the Group prior to the end of the financial year that are unpaid and arise when the Group becomes obliged to make future payments in respect of the purchase of these goods and services.

Provisions are recognised when the Company has a present obligation (legal or constructive) as a result of a past event, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and a reliable estimate can be made of the amount of the obligation.

Where the Company expects some or all of a provision to be reimbursed, for example under an insurance contract, the reimbursement is recognised as a separate asset but only when the reimbursement is virtually certain. The expense relating to any provision is presented in the Statement of Comprehensive Income net of any reimbursement.

If the effect of the time value of money is material, provisions are determined by discounting the expected future cash flows at a pre-tax rate that reflects current market assessments of the time value of money and where appropriate, the risks specific to the liability.

When discounting is used, the increase in the provision due to the passage of time is recognised as a finance cost.

Borrowing costs

Borrowing costs directly attributable to the acquisition, construction or production of a qualifying asset (i.e.an asset that necessarily takes a substantial period of time to get ready for its intended use or sale) are capitalised as part of the cost of that asset. All other borrowing costs are expensed in the period they occur. Borrowing costs consist of interest and other costs that an entity incurs in connection with the borrowing of funds.

Convertible notes

The component of convertible notes that exhibits characteristics of a borrowing is recognised as a liability in the Statement of Financial Position, net of transaction costs. On issue of convertible note, the fair value of the liability component is determined using a market rate for an equivalent non-convertible note and this amount is carried as a liability on the amortised cost basis until extinguished on conversion or redemption. The increase in the liability due to the passage of time is recognised as a finance cost. The component of the note that exhibits characteristics of a derivative is recognised as a liability in the Statement of Financial Position. The option is carried at fair value and is subsequently remeasured at each reporting date, with any movement recognised in the income statement.

The remainder of the proceeds is allocated to the equity component and is recognised in shareholders' equity, net of tax effects. The carrying amount of the equity component is not remeasured in subsequent years.

Convertible notes are classified as non-current liabilities unless the Group has an unconditional obligation to settle the liability within 12 months after the reporting date.

Employee entitlements

Wages, salaries, annual leave, and long service leave

Liabilities for wages and salaries are recognised and are measured as an amount unpaid at the reporting date at current pay rates in respect of employee's services up to that date.

Superannuation

The Company contributes to defined contribution superannuation funds for its employees. The cost of these contributions is expensed as incurred. A liability in respect of superannuation at the current superannuation guarantee rate has been accrued at the reporting date.

Share-based payment transactions

In addition to salaries, the Group provides benefits to certain employees (including Directors) of the Group in the form of share-based payment transactions, whereby employees render services in exchange for shares or rights over shares ("equity-settled transactions").

There is currently an Employee Share Option Plan in place to provide these benefits.

The cost of these equity-settled transactions with employees is measured by reference to the fair value at the date at which they are granted. The fair value of the options is determined by using the binomial option pricing model.

In valuing transactions settled by way of issue of options, no account is taken of any vesting limits or hurdles, or the fact that the options are not transferable.

The cost of equity-settled transactions is recognised, together with a corresponding increase in equity, over the period in which the vesting conditions are fulfilled, ending on the date on which the relevant employees become fully entitled to the award (the vesting period).

The cumulative expense recognised for equity-settled transactions at each reporting date until vesting date reflects (i) the extent to which the vesting period has expired and (ii) the Group's best estimate of the number of equity instruments that will ultimately vest. No adjustment is made for the likelihood of market performance conditions being met as the effect of these conditions is included in the determination of fair value at grant date. The Statement of Comprehensive Income charge or credit for a period represents the movement in cumulative expense recognised as at the beginning and end of that period.

No expense is recognised for awards that do not ultimately vest, except for awards where vesting is only conditional upon a market condition.

If the terms of an equity-settled award are modified, at a minimum an expense is recognised as if the terms had not been modified. In addition, an expense is recognised for any modification that increases the total fair value of the share-based payment arrangement, or is otherwise beneficial to the employee, as measured at the date of modification.

If an equity-settled award is cancelled, it is treated as if it had vested on the date of the cancellation, and any expense not yet recognised is recognised immediately. However, if a new award is substituted for the cancelled award and designated a replacement award on the date it is granted, the cancelled and the new award are treated as if there was a modification of the original award, as described in the previous paragraph.

The dilutive effect, if any, of outstanding options is reflected as additional share dilution in the computation of earnings per share except where such dilution would serve to reduce a loss per share.

Revenue recognition

Revenue is recognised to the extent that it is probable that the economic benefits will flow to the Group and the revenue can be reliably measured. The following specific recognition criteria must also be met before revenue is recognised.

Rendering of services

Revenue from consulting services are recognised when provided.

Interest

Revenue is recognised as interest accrues using the effective interest method.

Royalties

Royalties are recognised in accordance with substance of the relevant agreement.

Contract exploration

Contract exploration revenue (consulting fees) earned from third parties is recognised when rights to receive the revenue are assured.

Income tax

Current tax assets and liabilities for the current and prior periods are measured at the amount expected to be recovered from or paid to the taxation authorities. The tax rates and tax laws used to compute the amount are those that are enacted or substantively enacted by the reporting date.

Deferred income tax is provided on all temporary differences at the reporting date between the tax bases of assets and liabilities and their carrying amounts for financial reporting purposes.

Deferred income tax liabilities are recognised for all taxable temporary differences:

- Except where the deferred income tax liability arises from the initial recognition of an asset or liability in a transaction that is not a business combination and, at the time of the transaction, affects neither the accounting profit nor taxable profit or loss.
- In respect of taxable temporary differences associated with investments in subsidiaries, associates and interests in joint ventures, except where the timing of the reversal of the temporary differences can be controlled and it is probable that the temporary differences will not reverse in the foreseeable future.

Deferred income tax assets are recognised for all deductible temporary differences, carry-forward of unused tax assets and unused tax losses; to the extent that it is probable that taxable profit will be available against which the deductible temporary differences, and the carry-forward of unused tax assets and unused tax losses can be utilised:

- Except where the deferred income tax asset relating to the deductible temporary difference arises from the initial recognition of an asset or liability in a transaction that is not a business combination and, at the time of the transaction, affects neither the accounting profit nor taxable profit or loss.
- In respect of deductible temporary differences associated with investments in subsidiaries, associates and interests in joint ventures, deferred tax assets are only recognised to the extent that it is probable that the temporary differences will reverse in the foreseeable future and taxable profit will be available against which the temporary differences can be utilised.

The carrying amount of deferred income tax assets is reviewed at each reporting date and reduced to the extent that it is no longer probable that sufficient taxable profit will be available to allow all or part of the deferred income tax asset to be utilised.

Deferred income tax assets and liabilities are measured at the tax rates that are expected to apply to the year when the asset is realised or the liability is settled, based on tax rates (and tax laws) that have been enacted or substantively enacted at the reporting date.

Income taxes relating to items recognised directly in equity are recognised in equity and not in the Statement of Comprehensive Income.

Other taxes

Revenues, expenses and assets are recognised net of the amount of GST except:

- Where the GST incurred on the purchase of goods and services is not recoverable from the taxation authority, in which case the GST is recognised as part of the cost of acquisition of the asset or as part of the expense item as applicable.
- Receivables and payables are stated with the amount of GST included.

The net amount of GST recoverable from, or payable to, the taxation authority is included as part of

receivables or payables in the Statement of Financial Position.

Cash flows are included in the Statement of Cash Flows on a gross basis and the GST component of cash flows arising from investing and financial activities, which is recoverable from, or payable to, the taxation authority are classified as operating cash flows.

Commitments and contingencies are disclosed net of the amount of GST recoverable from, or payable to, the taxation authority.

Currency

Functional currency translation

The functional and presentation currency for the parent company is Australian dollars ($). The functional currency of overseas subsidiaries is the local currency.

Transactions and balances

Transactions in foreign currencies are initially recorded in the functional currency by applying the exchange rates ruling at the date of the translation. Monetary assets and liabilities denominated in foreign currencies are retranslated at the rate of exchange at the reporting date.

Non-monetary items that are measured in terms of historical cost in a foreign currency are translated using the exchange rate as at the date of the initial transaction. Non-monetary items measured at fair value in a foreign currency are translated using the exchange rates at the date when the fair value was determined.

Translation of Group Companies' functional currency to presentation currency

The results of the French subsidiary are translated into Australian Dollars (presentation currency) as at the date of each transaction. Assets and liabilities are translated at exchange rates prevailing at reporting date.

Impairment of assets

The Group assesses at each reporting date whether there is an indication that an asset may be impaired. If any such indication exists, or when annual impairment testing for an asset is required, the Group makes an estimate of the asset's recoverable amount. An asset's recoverable amount is the higher of its fair value less costs to sell and its value in use and is determined for an individual asset, unless the asset does not generate cash inflows that are largely independent of those from other assets or groups of assets and the asset's value in use cannot be estimated to be close to its fair value. In such cases the asset is tested for impairment as part of the cash-generating unit to which it belongs. When the carrying amount of an asset or cash-generating unit exceeds its recoverable amount, the asset or cash-generating unit is considered impaired and is written down to its recoverable amount.

In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset. Impairment losses relating to continuing operations are recognised in those expense categories consistent with the function of the impaired asset unless the asset is carried at revalued amount (in which case the impairment loss is treated as a revaluation decrease).

An assessment is also made at each reporting date as to whether there is any indication that previously recognised impairment losses may no longer exist or may have decreased. If such indication exists, the recoverable amount is estimated. A previously recognised impairment loss is reversed only if there has been a change in the estimates used to determine the asset's recoverable amount since the last impairment loss was recognised. If that is the case the carrying amount of the asset is increased to its recoverable amount. The increased amount cannot exceed the carrying amount that would have been determined, net of depreciation, had no impairment loss been recognised for the asset in prior years. Such reversal is recognised in profit or loss unless the asset is carried at revalued amount, in which case the reversal is treated as a revaluation increase. After such a reversal the depreciation charge is adjusted in future periods to allocate the asset's revised carrying amount, less any residual value, on a systematic basis over its remaining useful life.

Contributed equity

Ordinary shares are classified as equity. Incremental costs directly attributable to the issue of new shares or options are shown in equity as a deduction, net of tax, from the proceeds.

Recoverable amount of assets

At each reporting date, the Group assesses whether there is any indication that an asset may be impaired. Where an indicator of impairment exists, the Group makes a formal estimate of recoverable amount. Where the carrying amount of an asset exceeds its recoverable amount the asset is considered impaired and is written down to its recoverable amount.

Recoverable amount is the higher of fair value less costs to sell and value in use.

Significant accounting judgements, estimates and assumptions

The carrying amounts of certain assets and liabilities are often determined based on estimates and assumptions of future events. The key estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of certain assets and liabilities within the next annual reporting period is:

Share-based payment transactions

The Company measures the cost of equity-settled share-based payments at fair value at the grant date using the Binominal formula taking into account the terms and conditions upon which the instruments were granted, and estimates of volatility as detailed in Note 19.

Derivative financial instruments

The Company values its equity in the form of options in listed public companies using the Binomial method of valuation methodology taking into account the terms and conditions on which the instruments are granted as detailed in Note 11. The net gain or loss for the period is brought to account in the Statement of Comprehensive Income.

Capitalisation and write-off of capitalised exploration costs

The determination of when to capitalise and write-off exploration expenditure requires the exercise of judgement based on assessments of results, various assumptions and other factors such as historical experience, current and expected economic conditions.

Earnings per share

Basic earnings per share is calculated as net profit attributable to members of the Group, adjusted to exclude any costs of servicing equity divided by the weighted average number of ordinary shares.

Diluted earnings per share is calculated as net profit attributable to members of the Group, adjusted for:

- Costs of servicing equity.
- The after tax effect of dividends and interest associated with dilutive potential ordinary shares that have been recognised as expenses.
- Other non-discretionary changes in revenues or expenses during the period that would result from the dilution of potential ordinary shares.

divided by the weighted average number of ordinary shares and dilutive potential ordinary shares, adjusted for any bonus element.

Segment reporting

Operating segments are reported in a manner consistent with the internal reporting provided to the chief operating decision maker. The chief operating decision maker, who is responsible for allocating resources and assessing performance of the operating segments, has been identified as the Managing Director.

Accounting standards issued but not yet effective

Australian Accounting Standards and interpretations that have been issued or amended but are not yet effective have not been adopted by the Consolidated Entity for the year ended 30 June 2014. The Consolidated Entity plans to adopt the following standards which are considered relevant, at their application dates as detailed below.

AASB 9 Financial Instruments (Application date 1 January 2017)

AASB 9 includes requirements for the classification and measurement of financial assets resulting from the first part of Phase 1 of the IASB's project to replace IAS 39 Financial Instruments: Recognition and Measurement (AASB 139 Financial Instruments: Recognition and Measurement).

These requirements improve and simplify the approach for classification and measurement of financial assets compared with the requirements of AASB 139. The main changes from AASB 139 are described below.

(a) Financial assets are classified based on (1) the objective of the entity's business model for managing the financial assets; (2) the characteristics of the contractual cash flows. This replaces the numerous categories of financial assets in AASB 139, each of which had its own classification criteria.

(b) AASB 9 allows an irrevocable election on initial recognition to present gains and losses on investments in equity instruments that are not held for trading in other comprehensive income. Dividends in respect of these investments that are a return on investment can be recognised in profit or loss and there is no impairment or recycling on disposal of the instrument.

(c) Financial assets can be designated and measured at fair value through profit or loss at initial recognition if doing so eliminates or significantly reduces a measurement or recognition inconsistency that would arise from measuring assets or liabilities, or recognising the gains and losses on them, on different bases.

It is anticipated that the application of this standard will not have a material effect on the Group's results or financial reports in future periods.

AASB 2010-7 Amendments to Australian Accounting Standards arising from AASB 9 (December 2010)[AASB 1, 3, 4, 5, 7, 101, 102, 108, 112, 118, 120, 121, 127, 128, 131, 132, 136, 137, 139, 1023, & 1038 and interpretations 2, 5, 10, 12, 19 & 127] (Application date 1 January 2017)

The requirements for classifying and measuring financial liabilities were added to AASB 9. The existing requirements for the classification of financial liabilities and the ability to use the fair value option have been retained. However, where the fair value option is used for financial liabilities the change in fair value is accounted for as follows:

- The change attributable to changes in credit risk are presented in other comprehensive income (OCI)
- The remaining change is presented in profit or loss

If this approach creates or enlarges an accounting mismatch in the profit or loss, the effect of the changes in credit risk are also presented in profit or loss.

It is anticipated that the application of this standard will not have a material effect on the Group's results or financial reports in future periods.

3. Revenue and other income

	2014 $	2013 $
Revenue		
Interest received – other persons/corporations	209,056	495,279
Consulting fees	222,533	242,864
Rental income	51,709	41,460
Other Income		
Gain on options – mark to market	-	14,676
Gain on derivatives	2,139	30,171
Gain on sale of tenements	200,000	-
R&D tax concession offset	964,269	1,462,590
Victorian government infrastructure grant	300,000	-
Unrealised gain on foreign currency	43,190	-
Other	2,149	-
	1,995,045	2,287,040

4. Income tax

	2014 $	2013 $
Income tax expense		
The major components of income tax expense are:		
Current income tax	-	-
Current income tax benefit		
Deferred income tax	-	-
Relating to origination and reversal of temporary differences	(42,631)	1,227,266
Recognition of previously unrecognised losses	-	-
Income tax (benefit)/expense reported in the Statement of Comprehensive Income	(42,631)	1,227,266
Amounts charged or credited directly to equity		
Deferred income tax related to items charged directly to equity		
Unrealised (gain)/loss on available for sale investments	(28,101)	583,737
Income tax benefit/(expense) reported in equity	(28,101)	583,737

	2014 $	2013 $
Reconciliation		
Prima facie income tax (benefit)/expense on operating profit/(loss) at 30%	(1,727,963)	(1,986,737)
Non-deductible expenses	179,005	39,841
Under provision in prior year	-	189,740
Tax losses of subsidiaries not recognised	(414,850)	855,671
Recognition / de-recognition of tax losses and other temporary differences	1,921,177	2,128,751
Income tax (benefit)/expense	(42,631)	1,227,266
Recognised deferred tax assets and liabilities		
Opening deferred tax balance	(814,339)	(1,457,868)
Charged to income expense / (benefit)	(42,631)	1,227,266
Charged to equity (credit)	28,101	(583,737)
Closing balance	(828,869)	(814,339)
Amounts recognised in the Statement of Financial Position		
Deferred tax asset	1,011,530	1,118,846
Deferred tax liability	(182,661)	(304,507)
Net deferred tax balance	828,869	814,339

Deferred income tax at 30 June relates to the following:

	2014 $	2013 $
(i) Deferred tax liabilities		
Derivatives	287	24,353
Available for sale investments	128,017	99,916
Capitalised exploration	54,357	180,238
Gross deferred tax liabilities	182,661	304,507
(ii) Deferred tax assets		
Carry-forward tax losses	182,661	304,507
Equity accounted investment	667,200	242,221
Provisions	28,308	39,798
Share issuance costs	98,652	98,652
Interest on convertible notes	-	367,490
Available for sale investments	34,709	66,178
Gross deferred tax assets	1,011,530	1,118,846
Net deferred tax assets	828,869	814,339

Franking credits of $2,810,116 (2013: $2,810,116) are available for subsequent years.

The above amounts represent the balance of the franking account as at the end of the reporting period, adjusted for:

- Franking credits that will arise from the payment of the amount of the provision for income tax,
- Franking debits that will arise from the payment of dividends recognised as a liability at the reporting date, and
- Franking credits that will arise from the receipt of dividends recognised as receivables at the reporting date.

The consolidated amounts include franking credits that would be available to the parent entity if distributable profits of subsidiaries were paid as dividends.

Tax consolidation

Variscan Mines Limited and its 100% owned subsidiaries (Bluestone 23) formed a tax consolidated group with effect from 1 November 2007. Variscan Mines Limited is the head entity of the tax consolidated group. No amounts have been recognised in the financial statements in respect of this agreement on the basis that the possibility of default is remote.

There are $209,090 (2013: $7,358,489) unrecognised tax losses attributable to Variscan Mines SAS (2013: Eastern Iron and Variscan Mines SAS), subsidiaries which are not tax consolidated with the parent company.

5. Auditors' remuneration

	2014 $	2013 $
Amounts received or due and receivable by:		
HLB Mann Judd, for:		
Audit and review of the financial report of Variscan Mines Limited	65,703	64,347
Tax advisory services	5,000	-
	70,703	64,347
Amounts received or due and receivable **Barnes Dowell James**, for:		
Audit and review of the financial report of Eastern Iron Limited	25,500	23,000
Other services	3,500	-
Amounts received or due and receivable **SEFAC**, for:		
Audit and review of the financial report of Variscan Mines SAS	8,620	7,894
Total Auditors' Remuneration for the Group	108,323	95,241

6. Cash and cash equivalents

	2014 $	2013 $
Cash at bank and in hand	789,168	740,004
Short-term deposits	1,619,825	8,593,929
Refer Note 29	2,408,993	9,333,933

Cash at bank earns interest at floating rates based on daily bank deposit rates. The carrying amount of cash and cash equivalents represents fair value.

Short-term deposits are made for varying periods of between one day and six months, depending on the immediate cash requirements of the Group, and earn interest at the respective short-term deposit rates.

7. Receivables – current

	2014 $	2013 $
Current		
R&D tax concession offset	271,988	257,339
GST receivables	30,718	53,251
Interest receivable	21,611	37,716
Prepayments	47,516	63,488
Other debtors	43,080	156,193
	414,913	567,987
Non-current		
Rental bonds	32,156	31,932
	32,156	31,932

Receivables are non-interest bearing and generally 30 day terms and trading terms are being followed by debtors and there are no overdue amounts. An allowance for impairment loss is recognised when there is objective evidence that it is impaired. No allowance for impairment loss is required. The amounts not past due have been assessed to be not impaired.

8. Investments

	2014 $	2013 $
Investment – available for sale – WPG (a)	426,721	333,051
Investment – available for sale – AGR (b)	47,000	64,625
Investment – available for sale SCI (c)	959,406	1,002,763
	1,433,127	1,400,439

(a) The market value on ASX of Variscan's 10,407,837 shares in WPG Resources Ltd (WPG) at 30 June 2014 was $426,721 ($0.041 per share) and on 24 September 2014 it was $447,537 ($0.043 per share).

(b) The market value on ASX of the Group's 1,175,000 shares in Aguia Resources Limited (AGR) at 30 June 2014 was $47,000 ($0.04 per share) and on 24 September 2014 it was $47,000 ($0.04 per share).

(c) The market value of the Group's 14,536,449 shares in Silver City Minerals Limited (SCI) at 30 June 2014 was $959,406 ($0.066 per share) and on 24 September 2014 it was $625,067 ($0.043 per share).

9. Investment in associates

The Group's interest in the below investments in associates have been brought to account using the equity method in accordance with Australian Accounting Standard AASB 128 Investments in Associates as the Directors consider that significant influence exists. The Company's share in any retained profits or reserves of the associated company are not available to Variscan until such time as those profits and reserves are distributed by the associated company.

	Thomson Resources Ltd		Eastern Iron Limited	
	2014 $	2013 $	2014 $	2013 $
Interest in associates	%	%	%	%
Ownership interest	25.65	25.65	36.74	-
	$	$	$	$
Carrying amount	-	468,000	1,850,000	-
Share of associate's losses	(450,018)	(163,944)	(939,055)	-
Carrying amount of investment in associate				
Balance at beginning of financial period	468,000	900,000	-	-
- opening value of associate	-	-	3,465,000	-
- share purchase	-	-	15,000	-
- share of associate's net losses for the financial period	(450,018)	(163,944)	(939,055)	-
- impairment of investment	(17,982)	(268,056)	(690,945)	-
Carrying amount of investment in associate at the end of the financial period	-	468,000	1,850,000	-
Summarised Balance Sheet				
Total current assets	1,034,371	1,602,542	296,648	-
Total non-current assets	2,465,170	3,673,800	5,956,649	-
Total current liabilities	(81,691)	(108,292)	(525,471)	-
Total non-current liabilities	(19,579)	(15,324)	-	-
Net assets	3,398,271	5,152,726	5,727,826	-
Reconciliation to carrying amounts:				
Opening net assets 1 July	5,152,726	5,791,884	8,283,856	-
(Loss) for the period	(1,754,455)	(639,158)	(2,556,030)	-
Closing net assets	3,398,271	5,152,726	5,727,826	-
Group's share in %	25.65	25.65	36.74	-
Group's share in $	871,657	1,321,674	2,104,403	-
Summarised statement of comprehensive income				
Revenue	417,196	1,235,810	1,168,206	-
(Loss) for the period	(1,754,455)	(639,158)	(2,556,030)	-
Other comprehensive income	-	-	-	-
Total comprehensive income	(1,754,455)	(639,158)	(2,556,030)	-

Thomson Resources Ltd

Thomson Resources Ltd (ASX Code: TMZ) is an Australian minerals explorer. An impairment adjustment of $17,982 (2013: $268,056) was made to reflect the equity value of the investment at 30 June 2014 of Nil.

Eastern Iron Limited

Eastern Iron Limited (ASX Code: EFE) is an Australian minerals explorer. An impairment adjustment of $690,945 (2013: Nil) was made to reflect the fair value of the investment on ASX at 30 June 2014 of $1,850,000.

10. Non-controlling interests

	2014 $	2013 $
Contributed equity	7,907,335	7,652,180
Reserves	353,987	578,077
Accumulated losses	(2,082,930)	(2,107,746)
Non-Controlling interest on disposal of Eastern Iron Limited	(6,178,392)	-
	-	6,122,511

11. Derivative financial instruments

		2014 $	2013 $
Share options – AGR	(a)	-	-
Share options – SCI	(b)	955	81,176
Share options – TMZ	(c)	-	-
		955	81,176

(a) The Variscan group holds 200,000 (2013:200,000) options in Aguia Resources Limited (AGR) with an exercise price of $0.50 and an expiry date of 31 December 2014. A valuation of these options has been obtained using the Black, Scholes, Merton methodology model with a Binomial Variation and the following assumptions: expected volatility of 57.06%, risk-free interest rate of 2.71%, dividend yield nil and an option life of 0.5 years. This results in a fair value of $Nil at 30 June 2014.

(b) Variscan's 3,000,000 options in Silver City Minerals Limited (SCI) expired on 1 July 2013. In November 2011 SCI announced a non-renounceable rights issue to issue one option for every three shares held at an issue price of $0.01 per option. The Variscan Group purchased 4,775,061 listed options in December 2011 for $47,750. The options have an exercise price of $0.25 and an expiry date of 19 December 2014. The market value on ASX of the Group's 4,775,061 (2013: 4,775,061) options in Silver City Minerals Limited (SCI) at 30 June 2014 was $955 ($0.0002 per option).

(c) Variscan holds 5,000,000 (2013: 5,000,000) options in Thomson Resources Ltd (TMZ) with an exercise price of $0.30 and an expiry date of 11 December 2014. A valuation of these options has been obtained using the Black, Scholes, Merton methodology model with a Binomial Variation and the following assumptions: expected volatility of 57.26%, risk-free interest rate of 2.71%, dividend yield nil and an option life of 0.5 years. This results in a fair value of $Nil at 30 June 2014.

The fair value of share prices are as identified in Note 8.

12. Tenement security deposits

	2014 $	2013 $
Current		
Cash at bank – bank deposits	-	170,000
Cash with government mines departments	30,000	-
	30,000	170,000
Non-Current		
Cash at bank – bank deposits	-	10,000
Cash with government mines departments	20,000	105,850
	20,000	115,850

These deposits are restricted so that they are available for any rehabilitation that may be required on exploration tenements (refer to Note 26). The bank deposits are interest earning.

13. Property, plant and equipment

	Motor vehicle	Plant and equipment	Total
Year ended 30 June 2013	$	$	$
Opening net book amount	41,833	252,369	294,202
Additions	-	101,806	101,806
Disposals	(32,699)	(19,656)	(52,355)
Depreciation expense	(8,611)	(77,974)	(86,585)
Foreign exchange differences	3,944	(27,241)	(23,297)
Closing net book amount	4,467	229,304	233,771
At 30 June 2013			
Cost	24,167	442,823	466,990
Accumulated depreciation	(19,700)	(206,714)	(226,414)
Foreign exchange differences	-	(6,805)	(6,805)
Net book amount	4,467	229,304	233,771
Year ended 30 June 2014			
Opening net book amount	4,467	229,304	233,771
Additions	43,372	20,544	63,916
Disposals	-	-	-
Disposal of subsidiary	(2,452)	(17,209)	(19,661)
Depreciation expense	(8,158)	(69,400)	(77,558)
Foreign exchange differences	(822)	3,519	2,697
Closing net book amount	36,407	166,758	203,165
At 30 June 2014			
Cost	42,430	415,841	458,271
Accumulated depreciation	(6,023)	(249,083)	(255,106)
Net book amount	36,407	166,758	203,165

14. Deferred exploration and evaluation expenditure

	2014 $	2013 $
Costs brought forward	5,793,879	5,096,763
Costs incurred during the year	3,885,862	4,184,305
Disposal of subsidiary	(7,235,467)	-
Expiry of options acquired on acquisition of tenements	-	(5,000)
Foreign currency translation differences	5,904	-
Expenditure written off during the year	(1,531,881)	(3,482,189)
Costs carried forward	918,297	5,793,879
Exploration expenditure costs carried forward are made up of:		
Expenditure on joint venture areas	131,190	1,780,230
Expenditure on non joint venture areas	787,107	4,013,649
Costs carried forward	918,297	5,793,879

The above amounts represent costs of areas of interest carried forward as an asset in accordance with the accounting policy set out in Note 2. The ultimate recoupment of deferred exploration and evaluation expenditure in respect of an area of interest carried forward is dependent upon the discovery of commercially viable reserves and the successful development and exploitation of the respective areas or alternatively sale of the underlying areas of interest for at least

their carrying value. Amortisation, in respect of the relevant area of interest, is not charged until a mining operation has commenced.

In accordance with Note 2, the Directors write off exploration expenditure where they assess that the asset is impaired. Exploration expenditure is written off either by a reassessment by the Group that has reduced the interpreted potential of the licence for mineral deposits and, or a joint venture partner has withdrawn from a project.

15. Current liabilities – payables

	2014 $	2013 $
Trade creditors *	131,948	372,566
Accrued expenses	65,197	170,905
GST payable	2,852	3,359
Accrued payroll and payroll deductions	164,558	144,374
	364,555	691,204

* Trade creditors are non-interest bearing and are generally settled on 30 day terms.

16. Liabilities – provisions

	2014 $	2013 $
Current		
Annual Leave	97,103	139,494
Non-current		
Long Service Leave	54,497	61,867

Annual leave is accrued for all permanent eligible employees and provided for based on current salaries. Long service leave is accrued for all permanent eligible employees with greater than two years' service and provided for based on current salaries.

17. Derivative liability/convertible note

The Company completed a capital raising in December 2010 via a private placement of 16,666,667 convertible notes at 15 cents each which raised $2,500,000 in additional working capital.

The convertible notes had an initial maturity date of 9 December 2013 which was subsequently extended to 1 April 2014 and redeemed in full on that date.

The general terms of the issue are:

(a) Convertible notes with a conversion price of 15 cents per share.

(b) The Company may redeem the notes at any stage and must redeem all convertible notes on the maturity date or upon an event of default.

(c) Each convertible note will accrue interest at 8% per annum to be paid each half year in arrears in cash, the first instalment to be paid on 30 April 2011.

(d) Noteholders will receive one share option for every two convertible notes they subscribe to, providing the notes are converted into ordinary shares and at the time of conversion. The share options will have an exercise price of 25 cents and an expiry of 9 December 2014.

In accordance with requirements of the relevant Australian Accounting Standards and International Financial Reporting Standards based on the accounting policy described in Note 2 the proceeds have been initially accounted for as follows:

	$
Gross proceeds	2,500,000
Less issue costs	(150,000)
Net Allocation	2,350,000
Allocated as follows:	
Convertible note liability	744,587
Derivative liability (1)	510,245
Equity (2)	1,095,168
	2,350,000

(1) Represents the valuation of the option entitlement per (d) above.

(2) Represents the value of the conversion function per (a) above.

The balances and movements of the convertible note and derivative liability components at 30 June 2014 are as follows:

	2014 $	2013 $
Convertible Note Liability		
Opening balance	1,969,654	1,246,345
Add interest expense	563,634	924,679
Less interest paid	(183,288)	(201,370)
Redemption of convertible note	(2,350,000)	-
Closing balance	-	1,969,654
Derivative Liability		
Opening balance	2,139	907
Revaluation adjustment	(2,139)	1,232
Closing balance	-	2,139

18. Contributed equity

	2014 $	2013 $
Share capital		
175,737,592 (2013: 175,287,592) ordinary shares fully paid	14,756,951	14,735,576
Partly paid shares		
450,000 ordinary shares paid to $0.01 with $0.24 unpaid	-	4,500
Share issue costs	(230,836)	(224,944)
	14,526,115	14,515,132

		Number	$
Movements in ordinary shares on issue			
At 1 July 2012		175,287,592	14,740,076
Shares issued		-	-
At 30 June 2013		175,287,592	14,740,076
Conversion of partly paid shares	(i)	450,000	16,875
At 30 June 2014		175,737,592	14,756,951

(i) Sale and transfer of 450,000 forfeited partly paid shares offered at auction held on 18 October 2013. Refer to comments below under terms and conditions.

Terms and conditions of contributed equity

Ordinary shares

Ordinary shares have the right to receive dividends as declared and, in the event of winding up the Company, to participate in the proceeds from the sale of all surplus assets in proportion to the number of and amounts paid up on shares held.

Ordinary shares entitle their holder to one vote, either in person or by proxy, at a meeting of the Company.

In respect to members who hold shares which are paid to $0.01, the number of votes to which that member is entitled on a poll in respect of those part paid shares shall be that fraction of one vote which the amount paid up bears to the total issued price thereof. The shares were issued under the Platinum Search Share Incentive Plan, which was replaced by the Variscan Employee Share Option Plan on 25 November 1993.

On 4 September 2013 the company issued call notices to the holders of the 450,000 unquoted partly paid shares on issue to call up the full amount of 24 cents per share which were unpaid at the date of the notices. The calls were not paid by the due date of 18 September 2013 and were therefore forfeited. These shares were subsequently sold as fully paid shares by public auction.

Options

Options do not carry voting rights or rights to dividends until options are exercised.

19. Share-based payments

Types of share-based payment plans

Share-based payments

An Employee Share Option Plan (ESOP) has been established where selected officers, employees and consultants of the Company can be issued with options over ordinary shares in Variscan Mines Limited. The options, issued for nil consideration, will be issued in accordance with a performance review by the Directors. The options cannot be transferred and will not be quoted on the ASX. Options expire if not exercised 90 days after a participant resigns from the Company.

There have been no cancellations or modifications to any of the plans during 2014 and 2013.

Summary of options granted by the parent entity

	2014 no.	2013 no.
Outstanding at the beginning of the year	26,190,000	23,890,000
Granted during the year	-	2,300,000
Expired during the year	(900,000)	-
Outstanding at the end of the year	25,290,000	26,190,000

The outstanding balance as at 30 June 2014 is represented by:

- 9,590,000 which expire on 27 November 2014 exercisable at $0.18 per share
- 1,500,000 which expire on 27 November 2014 exercisable at $0.18 per share (not vested)
- 10,900,000 which expire on 25 November 2015 exercisable at $0.30 per share
- 1,000,000 which expire on 6 October 2014 exercisable at $0.25 per share
- 2,300,000 which expire on 31 October 2015 exercisable at $0.14 per share

Weighted Average disclosures for options granted by the parent entity

	2014	2013
Weighted average exercise price of options at 1 July	$0.23	$0.24
Weighted average exercise price of options granted during period	-	$0.14
Weighted average exercise price of options outstanding at 30 June	$0.23	$0.23
Weighted average exercise price of options exercisable at 30 June	$0.23	$0.23
Weighted average contractual life	0.92	1.87
Range of exercise price	$0.14 - $0.30	$0.14 - $0.30

Option pricing model and terms of options

The following table lists the inputs to the options model and the terms of options granted in **Variscan Mines Limited**:

Issue date	Number of options issued	Exercise price	Expiry date	Expected volatility	Risk-free rate	Expected life years	Estimated fair value	Model used	
Nov 09	8,250,000	$0.18	27 Nov 14	122.91%	4.99%	5.0	$0.0636	Binomial	(a)
Dec 09	840,000	$0.18	27 Nov 14	122.91%	4.99%	4.9	$0.0536	Binomial	(b)
Aug 10	2,000,000	$0.18	27 Nov 14	80.00%	4.64%	4.3	$0.0700	Binomial	(c)
Nov 10	6,250,000	$0.30	25 Nov 15	80.00%	5.32%	5.0	$0.0500	Binomial	(d)
Dec 10	1,900,000	$0.30	25 Nov 15	80.00%	5.37%	4.9	$0.0600	Binomial	(e)
May 11	950,000	$0.30	25 Nov 15	121.29%	5.19%	4.5	$0.0663	Binomial	(f)
Nov 11	1,000,000	$0.25	6 Oct 14	118.33%	3.49%	3.0	$0.0452	Binomial	(g)
Dec 11	1,800,000	$0.30	25 Nov 15	30.86%	4.75%	4.0	$0.0035	Binomial	(h)
Oct 12	2,300,000	$0.14	31 Oct 15	60.37%	2.58%	3.0	$0.0135	Binomial	(i)
	25,290,000								

(a) Issued by Variscan Mines Limited to Directors and approved by shareholders at the General Meeting held on 26 November 2009. Expensed in the income statement. The options vested on the grant date of 26 November 2009.

(b) Issued by Variscan Mines Limited to employees and consultants under the Company's ESOP. Expensed in the income statement. The options vested on the grant date of 18 December 2009.

(c) 2,000,000 options were issued to the Company's Business Development Manager and expensed in the income statement. 500,000 options vested immediately with the remaining 1,500,000 vesting upon performance hurdles.

(d) 6,250,000 options were issued to Directors of the Company and approved by shareholders at the Company's AGM held on 25 November 2010. The options vested immediately and were expensed in the income statement.

(e) 1,900,000 options were issued to employees and consultants under the Company's ESOP. The options vested immediately and were expensed in the income statement.

(f) 950,000 options were issued to employees and consultants under the Company's ESOP. The options vested immediately and were expensed in the income statement.

(g) 1,000,000 options were issued to Alan Breen, Non-executive Director of the Company, and approved by shareholders at the Company's AGM held on 29 November 2011. The options vested immediately and were expensed in the income statement.

(h) 1,800,000 options were issued to employees/consultants under the Company's ESOP. The options vested immediately and were expensed in the income statement.

(i) 2,300,000 options were issued to employees/consultants under the Company's ESOP. The options vested immediately and were expensed in the income statement.

20. Reserves

	2014 $	2013 $
Share-based compensation reserve	1,222,877	1,270,757
General reserve	-	(229,108)
Investment revaluation reserve	2,038,465	1,972,896
Foreign currency translation reserve	286,497	404,385
Convertible note option reserve	-	1,095,168
	3,547,839	4,514,098

Share-based compensation reserve	(i)		
Balance at the beginning of financial year		1,270,757	1,609,490
Share-based payment expense		-	50,815
Transfer expired options to Retained Earnings		(47,880)	(389,548)
Balance at end of financial year		1,222,877	1,270,757
General reserve	(ii)		
Balance at the beginning of financial year		(229,108)	(229,108)
Disposal of subsidiary		229,108	-
Balance at end of financial year		-	(229,108)
Investment revaluation reserve	(iii)		
Balance at the beginning of financial year		1,972,896	406,853
Change in fair value of investments available for sale		65,569	(468,112)
Impairment of investments		-	845,817
Investment revaluation reserve adjustment		-	442,727
Deferred tax adjustment		-	745,611
Balance at end of financial year		2,038,465	1,972,896
Foreign currency translation reserve	(iv)		
Balance at the beginning of financial year		404,385	(45,385)
Effect of exchange rate fluctuation		(117,888)	449,770
Balance at end of financial year		286,497	404,385
Convertible note option reserve	(v)		
Balance at the beginning of financial year		1,095,168	1,095,168
Transfer expired options relating to convertible note to retained earnings		(1,095,168)	-
Balance at end of financial year		-	1,095,168

(i) **Share-based compensation reserve**

The share-based compensation reserve is used to recognise the fair value of options issued but not exercised as described in Note 2 and referred to in Note 19.

(ii) **General reserve**

The general reserve represents the change in the value of non-controlling interests resulting from the exercise of Eastern Iron Limited options during the prior periods. This was reversed on deconsolidation of the subsidiary.

(iii) **Investment revaluation reserve**

The investment revaluation reserve arises in connection with the accounting for investments as per Note 8.

(iv) **Foreign currency translation reserve**

The foreign currency translation reserve arises from the translation of foreign currency subsidiaries.

(v) **Convertible note option reserve**

The convertible note option reserve is used to record the fixed equity component of the convertible notes. Refer to Note 17. This amount was transferred to retained earnings on redemption of the convertible note.

21. Earnings/(loss) per share

	2014	2013
(Loss) used in calculating basic and diluted (loss) per share	(5,742,060)	(7,216,541)
	Number	**Number**
Weighted average number of ordinary shares outstanding during the year used in calculation of basic EPS	175,597,044	175,305,592
	Cents per share	**Cents per share**
Basic (loss) per share	(3.27)	(4.12)
Diluted (loss) per share	(3.27)	(4.12)

The number of potential ordinary shares that are dilutive and included in determining diluted EPS are nil (2013: nil) relating to share options issued. There are no instruments excluded from the calculation of diluted earnings per share that could potentially dilute basic earnings per share in the future because they are antidilutive for all of the periods presented.

Conversion, call, subscription or issue after 30 June 2014: Since the end of the financial year there have been no other conversions to, call of, or subscriptions for ordinary shares or issues of potential ordinary shares since the reporting date and before the completion of these financial statements.

22. Key management personnel

Key management personnel (KMP) remuneration, shares and options

	2014 $	2013 $
Compensation for key management personnel		
Short-term employee benefits	1,234,512	1,565,016
Post-employment benefits	57,994	82,179
Share-based payments	10,580	46,680
Total compensation	1,303,086	1,693,875

Shareholdings of key management personnel

Fully paid ordinary shares held in Variscan Mines Limited

	Balance at 1 July no.	Granted as remuneration no.	Received on exercise of options no.	Net other change * no.	Balance at 30 June no.
2014					
P Elliott	2,352,345	-	-	-	2,352,345
G Jones	2,200,000	-	-	305,000	2,505,000
C S Kwan	52,396,526	-	-	-	52,396,526
F K Foo	1,403,000	-	-	-	1,403,000
I Polovineo	-	-	-	70,000	70,000
J Testard	-	-	-	200,000	200,000
M Bonnemaison	219,629	-	-	-	219,629
Total	58,571,500	-	-	575,000	59,146,500
2013					
P Elliott	2,352,345	-	-	-	2,352,345
G Jones	2,200,000	-	-	-	2,200,000
C S Kwan	50,625,425	-	-	1,771,101	52,396,526
F K Foo	-	-	-	1,403,000	1,403,000
M Bonnemaison	219,629	-	-	-	219,629
Total	55,397,399	-	-	3,174,101	58,571,500

* Other change consists of shares purchased and sold by KMP on market.

Option holdings of key management personnel

Share options held in Variscan Mines Limited

	Balance at 1 July no.	Granted as remuner-ation no.	Options exer-cised no.	Net change other # no.	Balance at 30 June no.	Balance vested at 30 June no.	Vested and exercisable no.
2014							
P Elliott	1,600,000	-	-	-	1,600,000	1,600,000	1,600,000
G Jones	6,300,000	-	-	(750,000)	5,550,000	5,550,000	5,550,000
C S Kwan	2,000,000	-	-	-	2,000,000	2,000,000	2,000,000
F K Foo	1,600,000	-	-	-	1,600,000	1,600,000	1,600,000
K Champaklal(a)	1,000,000	-	-	-	1,000,000	1,000,000	1,000,000
A Breen	1,000,000	-	-	-	1,000,000	1,000,000	1,000,000
I Polovineo	1,250,000	-	-	-	1,250,000	1,250,000	1,250,000
W Corbett	1,000,000	-	-	-	1,000,000	1,000,000	1,000,000
M Lilley	900,000	-	-	-	900,000	900,000	900,000
J Testard	1,500,000	-	-	-	1,500,000	1,500,000	1,500,000
M Bonnemaison	1,500,000	-	-	-	1,500,000	1,500,000	1,500,000
Total	19,650,000	-	-	(750,000)	18,900,000	18,900,000	18,900,000
2013							
P Elliott	1,600,000	-	-	-	1,600,000	1,600,000	1,600,000
G Jones	6,300,000	-	-	-	6,300,000	6,300,000	6,300,000
C S Kwan	4,000,000	-	-	(2,000,000)	2,000,000	2,000,000	2,000,000
F K Foo	1,600,000	-	-	-	1,600,000	1,600,000	1,600,000
K Champaklal(a)	-	-	-	1,000,000	1,000,000	1,000,000	1,000,000
A Breen	1,000,000	-	-	-	1,000,000	1,000,000	1,000,000
I Polovineo	600,000	650,000	-	-	1,250,000	1,250,000	1,250,000
W Corbett	750,000	250,000	-	-	1,000,000	1,000,000	1,000,000
M Lilley	900,000	-	-	-	900,000	900,000	900,000
N Maund (b)	2,000,000	-	-	-	2,000,000	500,000	500,000
J Testard	900,000	600,000	-	-	1,500,000	1,500,000	1,500,000
M Bonnemaison	900,000	600,000	-	-	1,500,000	1,500,000	1,500,000
Total	20,550,000	2,100,000	-	(1,000,000)	21,650,000	20,150,000	20,150,000

(a) K Champaklal resigned as an alternate Director on 6 March 2014.

(b) Not considered to be key management personnel for the year ending 30 June 2014.

(2014: Expiry of options), (2013: Adjustment for options held on behalf of other parties)

No shares were issued as a result of the exercise of compensation options to KMP.

Options held by Directors may be exercised at any time. Shares and options held by Directors include those held by the Directors and their Director-related entities, including the spouses of such Directors and relatives of such Directors. All shares and options, excluding those held under the Employee Share Option Plan, were issued or granted on terms no more favourable than to other shareholders or option holders.

23. Related party disclosures

Subsidiaries

The consolidated financial statements include the financial statements of Variscan Mines Limited (the Parent Entity) and the following subsidiaries:

		% Equity interest		$ Investment	
Name	Country of incorporation	2014	2013	2014	2013
Bluestone 23 Pty Ltd	Australia	100	100	5,000	5,000
Eastern Iron Limited *	Australia	-	45.3	-	3,100,385
PlatSearch Australia Limited	Australia	100	100	5	5
Variscan Mines SAS	France	100	100	1,007,679	1,007,679

* Eastern Iron Limited was deconsolidated on 11 March 2014.

Subsidiary deconsolidated during the year

In March 2014, Eastern Iron Limited (Eastern Iron) issued shares through a placement and appointed a new board member which reduced Variscan's shareholding in Eastern Iron from 45% to 39% and Variscan's interest in the Board of Eastern Iron from (3 of 6 directors) to (3 of 7 directors). Management assessed that from 11 March 2014, Variscan no longer meets the definition of control and subsequently deconsolidated Eastern Iron. The Group retains significant influence over Eastern Iron and accounts for the retained interest as an associate. At the time the Group lost control of the subsidiary, the assets, liabilities and non-controlling interest of the subsidiary were deconsolidated and a loss on disposal was recognised in the Consolidated Statement of Comprehensive Income.

Transactions with directors and key management personnel

The Company has an agreement with Luminor Capital Pte Ltd which is entitled to a cash fee of 6% of equity funds raised by Luminor Capital and other parties. Mr Kwan and Dr Foo, Directors of Variscan, have an interest in and are directors of Luminor Capital and Mr Champaklal, alternate Director (resigned 6 March 2014) for Mr Kwan, is a director of Luminor Capital. No fees have been paid to date.

Variscan Mines SAS signed an agreement in January 2013 with E-Mines of which Michel Bonnemaison is a Director. The agreement is for E-Mines to provide geological services, sample preparation and analytical services to Variscan Mines SAS. A total of $538,700 was paid to E-Mines during the year ended 30 June 2014 (2013: $354,794).

Services provided by Directors and Key Management Personnel related entities were under normal commercial terms and conditions. There are no long term service agreements and hence no liabilities will arise from termination of such agreements. No other benefits have been received or are receivable by Directors, other than those already disclosed in the notes to the accounts.

Transactions with associated companies

During the year the Company provided technical and administrative support services to its associated company Thomson Resources Ltd (TMZ) and Eastern Iron Limited (EFE). Services provided to TMZ amounted to $110,086 (2013: $125,507) and EFE $105,228 (2013: $113,933) consisting of payments received for consulting, use of office space and office services.

24. Joint ventures

The Company is a party to a number of exploration joint venture agreements to explore for copper, gold, zinc, lead, uranium and heavy minerals. Under the terms of the agreements the Company may be required to contribute towards the exploration and other costs if it wishes to maintain or increase its percentage holdings. The joint ventures are not separate legal entities. There are contractual arrangements between the participants for sharing costs and future revenues in the event of exploration success. There are no assets and liabilities attributable to Variscan at reporting date resulting from these joint ventures, other than exploration expenditure costs carried forward as detailed in Note 14. Costs are accounted for in accordance with the terms of joint venture agreements and in accordance with Note 2. Percentage equity interests in joint ventures at 30 June 2014 were as follows:

Variscan Mines Limited (New South Wales – gold, base metals and iron)	% interest 2014	% interest 2013
Hillston – diluting to 16%	39.2%	39.2%
Mundi Plains	20%	20%
Mundi Plains – cover rights	-	0%
Eastern Iron Projects – Eastern Block Tenements	-	51%

Variscan Mines Limited South Australia – base metals and gold	% interest 2014	% interest 2013
Quinyambie – diluting to 15%	52.6%	52.6%
Callabonna – diluting to 30%	100%	100%
Kalabity – diluting to 32% - tenement relinquished	-	80%
Junction Dam –base and precious metals rights	16%	16%
Junction Dam – uranium rights	0%	4.98%
Officer Basin – EL applications only	-	50%

Eastern Iron * Tenements in NSW - iron	% interest 2014	% interest 2013
Eastern Block Tenements	-	49%
Western Block Tenements	-	100%

Eastern Iron * Queensland - iron	% interest 2014	% interest 2013
Hawkwood – EFE can earn 80%	-	0%

* Eastern Iron Limited was deconsolidated on 11 March 2014.

25. Segment information

The operating segments identified by management are as follows:

1. Exploration projects funded directly by Variscan ("Exploration") operating in France and Australia and;
2. Investments in other companies ("Investing").

Regarding the Exploration segment, the Chief Operating Decision Maker (the Board of Directors) receives information on the exploration expenditure incurred. This information is disclosed in Note 14 of this financial report. No segment revenues are disclosed as each exploration tenement is not at a stage where revenues have been earned. Furthermore, no segment costs are disclosed as all segment expenditure is capitalised, with the exception of expenditure written off which is disclosed in Note 14.

Regarding the Investing segment, the Chief Operating Decision Maker reviews the value of investments and derivatives held in other exploration companies. The changes in the value of investments and derivatives are disclosed in Notes 8, 9 and 11 of this financial report. Segment revenues are disclosed in the statement of comprehensive income as '(Loss) on options'. Financial information about each of these tenements is reported to the Managing Director on an ongoing basis.

Corporate office activities are not allocated to operating segments as they are not considered part of the core operations of any segment and comprise of the following:

- Interest revenue
- Corporate costs
- Depreciation and amortisation of non-project specific property, plant and equipment.

The Group's accounting policy for reporting segments is consistent with that disclosed in Note 2.

The Group's geographical segments are determined based on the location of the Group's assets.

	Geographical segments							
	Australia		France		Eliminations		Consolidated	
	2014 $'000	2013 $'000	2014 $'000	2013 $'000	2014 $'000	2013 $'000	2014 $'000	2013 $'000
Revenue								
Revenue from outside the group	1,719	2,036	276	251	-	-	1,995	2,287
Results								
Segment results before income tax	(7,031)	(4,858)	1,271	(1,764)	-	-	(5,760)	(6,622)
Income tax expense							43	(1,227)
Profit after income tax expense							(5,717)	(7,849)
Assets								
Segment assets	9,824	24,355	1,612	634	(3,296)	(5,978)	8,140	19,011
Liabilities								
Segment liabilities	565	3,040	1,364	1,615	(1,413)	(1,791)	516	2,864
Other segment information								
Plant and equipment	8	45	195	189	-	-	203	234
Other non-current assets	6,137	12,928	787	-	(1,840)	(4,223)	5,084	8,705
Depreciation	19	28	59	59	-	-	78	87

26. Contingent liabilities

The Group's bankers have provided guarantees totalling $50,000 (2013: $180,000) in respect of exploration tenements and the guarantees are secured against short term deposits of these amounts. The Company does not expect to incur any material liability in respect of the guarantees. There are nil (2013: $105,850) guarantees in respect of exploration tenements that are secured against deposits held by Mines Departments.

27. Commitments

Lease commitments

The Company has obligations under the terms of an operating lease agreement for its office premises as follows:

	2014 $	2013 $
Payable not later than one year	26,543	79,629
Payable later than one year and not later than five years	-	26,543
	26,543	106,172

The Company's lease of its office premises is for a two year period (with an option to renew for two years) expiring on 31 October 2014.

Exploration licence expenditure requirements

In order to maintain the Group's tenements in good standing with the various mines departments, the Group will be required to incur exploration expenditure under the terms of each licence. These expenditure requirements will diminish as the Group joint ventures projects to third parties. It is the Group's exploration strategy to farm-out to larger companies to fund drilling programmes. In addition, the Group has commitments to expend funds towards earning or retaining an interest under joint venture agreements.

	2014 $	2013 $
Payable not later than one year	-	33,853
Payable later than one year but not later than five years	-	50,000
	-	83,853

It is likely that variations to the terms of current and future joint ventures, the granting of new licences and changes in licence areas at renewal or expiry, will change the expenditure commitment to the Group from time to time.

28. Events after the reporting date

There were, at the date of this report, no matters or circumstances which have arisen since 30 June 2014 that have significantly affected or may significantly affect the operations of the Group, the results of those operations, or the state of affairs of the Group, in future financial years.

29. Cash flow statement

	2014 $	2013 $
Reconciliation of net cash outflow from operating activities to operating profit after income tax		
Operating profit after income tax	(5,717,244)	(7,849,724)
Depreciation	77,558	86,585
Exploration expenditure written-off	1,531,881	3,482,190
Non cash adjustments on convertible note	734,375	924,679
Share of associate's net losses	1,389,073	163,944
Share-based payment expense	10,580	(363,052)
Loss on disposal of subsidiary	471,845	-
Non cash movements in investments	41,240	2,302,868
Impairment of investments	784,909	268,056
Provisions for annual leave and long service leave	29,590	62,539
Tax expense/(benefit)	(14,530)	643,529
Foreign exchange variances	14,064	-
Exploration adjustments and differences in closing creditors/accruals	(139,388)	(256,654)
Gain on sale of tenement	(200,000)	-
Transfer of debt to capital	-	(420,999)
Other	(70,221)	342,477
Change in assets and liabilities:		
(Increase)/decrease in receivables	(234,328)	(238,668)
(Decrease)/increase in trade and other creditors	289,182	108,064
Net cash outflow from operating activities	(1,001,414)	(744,166)

For the purpose of the Statement of Cash Flows, cash includes cash on hand, at bank, deposits and bank bills used as part of the cash management function. The Group does not have any unused credit facilities.

	2014 $	2013 $
The balance at 30 June comprised:		
Cash and cash equivalents	789,168	740,004
Money market securities – bank deposits (Note 6)	1,619,825	8,593,929
Cash on hand	2,408,993	9,333,933

30. Financial risk management objectives and policies

The Company's Board considers the Company's overall risk management framework and policies, including quarterly review by the Board of the Company's financial position and financial forecasts and maintaining adequate insurances.

AASB 7 requires the disclosure of qualitative and quantitative information about exposure to risks arising from financial instruments, including specified minimum disclosures about credit risk, liquidity risk and market risk, including sensitivity analysis to market risk.

Capital management

The Group considers its capital to comprise its ordinary share capital and its retained earnings, net of accumulated losses.

In managing its capital, the Group's primary objective as an explorer is to maintain a sufficient funding base to enable the Group to meet its working capital and strategic investment needs. The Group has no debt hence has a nil gearing ratio.

In making decisions to adjust its capital structure to achieve these aims, either through altering its new share issues, or consideration of debt, the Group considers not only its short-term position but also its long-term operational and strategic objectives.

Financial instrument risk exposure and management

As is common with all other businesses, the Group is exposed to risks that arise from its use of financial instruments. These main risks, arising from the group's financial instruments are interest rate risk, liquidity risk, share market risk and credit risk. This note describes the Group's objectives, policies and processes for managing those risks and the methods used to measure them. Further quantitative information in respect of these risks is presented throughout these financial statements.

There have been no substantive changes in the Group's exposure to financial instrument risks, its objectives, policies and processes for managing those risks or the methods used to measure them from previous periods unless otherwise stated in this note.

General objectives, policies and processes

The Board has overall responsibility for the determination of the Group's risk management objectives and policies and has the responsibility for designing and operating processes that ensure the effective implementation of the objectives and policies to the Group's finance function. The Board receives quarterly reports through which it reviews the effectiveness of the processes put in place and the appropriateness of the objectives and policies it sets.

The overall objective of the Board is to set policies that seek to reduce risk as far as possible without unduly affecting the Group's competitiveness and flexibility. Further details regarding these policies are set out below:

Liquidity risk

Liquidity risk arises from the Group's management of working capital. It is the risk that the Group will encounter difficulty in meeting its financial obligations as they fall due.

The Group's policy is to ensure that it will always have sufficient cash to allow it to meet its liabilities when they become due. To achieve this aim, it seeks to maintain cash balances (or agreed facilities) to meet expected requirements for a period of at least 45 days.

The Board receives cash flow projections on a monthly basis as well as information regarding cash balances. At the balance sheet date, these projections indicated that the Group expected to have sufficient liquid resources to meet its obligations under all reasonably expected circumstances.

Interest rate risk

At reporting date, the Group is exposed to floating weighted average interest rates at 30 June 2014 for financial assets as follows:

	2014 $	2013 $
Weighted average rate of **cash** balances	0.00%	0.24%
Cash balances	$789,168	$740,004
Weighted average rate of **term deposits**	3.74%	4.03%
Term deposits	$1,619,825	$8,593,929

All other financial assets and liabilities are non-interest bearing

The Group's exposure to interest rate risk and the effective weighted average interest rate for each class of financial asset and financial liability is set out in the following tables:

Risk exposure and responses	Pre tax loss		Equity	
Judgements of reasonably possible movements:	Lower/ (higher)		Lower/ (higher)	
Consolidated	2014 $	2013 $	2014 $	2013 $
+1% (100 basis points)	16,198	93,339	16,198	93,339
-1% (100 basis points)	(16,198)	(93,339)	(16,198)	(93,339)

Share market risk

The Company relies greatly on equity markets to raise capital for its exploration activities and is thus exposed to equity market volatility. When market conditions require, for prudent capital management, in consultation with its professional advisers the Group looks to alternative sources of funding, including the sale of assets and royalties.

Credit risk

Credit risk arises principally from the Group's cash, cash equivalents, receivables and tenement security deposits.

The Group's exposure to credit risk arises from potential default of the counter party, with the maximum exposure equal to the carrying amount of these instruments.

The Group trades only with recognised, creditworthy third parties, and as such collateral is not requested nor is it the Group's policy to securitise its trade and other receivables.

In addition, receivable balances are monitored on an ongoing basis with the result that the Group's exposure to bad debts is not significant.

Foreign currency risk

The Group is exposed to foreign currency risk on purchases that are denominated in a currency other than the Australian dollar. The Group does not enter into derivative financial instruments to hedge such transactions denominated in a foreign currency. At 30 June 2014 the Group had no material exposure to foreign currencies and therefore no sensitivity analysis has been performed.

Other receivables

Other receivables comprise GST. Credit worthiness of debtors is undertaken when appropriate.

Equity price risk

Price risk arises from investments in equity securities. All significant equity investments held by Variscan are publicly traded on the ASX. The price risk for listed securities is material in terms of the possible impact on profit and loss or total equity and as such a sensitivity analysis is completed below. The capacity of the Company to raise capital from time to time may be influenced by either or both market conditions and the price of Variscan's quoted shares at that time.

At balance date, the Group is exposed to a stock exchange risk on its investments (Note 8). The Group's exposure to share price movement is set out in the following tables:

Risk exposure and responses	Pre tax loss		Equity	
Judgements of reasonably possible movements in share prices:	Lower/ (higher)		Lower/ (higher)	
Consolidated	2014 $	2013 $	2014 $	2013 $
+20%	-	-	286,625	280,088
-20%	-	-	(286,625)	(280,088)

At balance date, the Group is exposed to a stock exchange risk on its derivative financial instruments (Note 11). The Group's exposure to movements in the value of share options is set out in the following tables:

Risk exposure and responses	Pre tax loss		Equity	
Judgements of reasonably possible movements in share prices:	Lower/ (higher)		Lower/ (higher)	
Consolidated	2014 $	2013 $	2014 $	2013 $
+20%	191	16,235	191	16,235
-20%	(191)	(16,235)	(191)	(16,235)

Accounting policies

Accounting policies in relation to financial assets and liabilities and share capital are contained in Note 2.

Fair value of financial assets and liabilities

The fair value of all monetary financial assets and financial liabilities of the Variscan Group approximate their carrying value.

There are no off-balance sheet financial asset and liabilities at year-end.

All financial assets and liabilities are denominated in Australian dollars, except for a bank account held by Variscan SAS, the French subsidiary.

Fair value risk

The group uses three different methods in estimating the fair value of a financial investment. The methods comprise -

- Level 1 – the fair value is calculated using quoted prices in active markets; and
- Level 2 – the fair value is estimated using inputs other than quoted prices included in Level 1 that are observable for the asset or liability, either directly (as prices) or indirectly (derived from prices)
- Level 3 – the fair value is estimated using inputs other than quoted prices.

The fair value of the financial instruments as well as the methods used to estimate the fair value are summarised in the table below.

2014	Quoted market price (Level 1)	Valuation technique – market observable inputs (Level 2)	Valuation technique – non market observable inputs (Level 3)	Total
Financial assets	$	$	$	$
Investments available for sale	1,433,127	-	-	1,433,127
Total financial assets	1,433,127	-	-	1,433,127
Derivative assets				
Derivatives – fair value through the income statements	-	955	-	955
Derivative assets	-	955	-	955

Quoted market price represents the fair value determined based on quoted prices on active markets as at the reporting date without any deduction for transaction costs.

The fair value of derivatives that do not have an active market are based on valuation techniques. Level 2 derivatives include market observable inputs whilst level 3 derivatives do not include market observable inputs.

Transfer between categories

There were no transfers between levels during the year.

31. Parent entity information

Information relating to the parent entity Variscan Mines Limited:	2014 AUD$'000	2013 AUD$'000
Current assets	3,574	8,456
Total assets	7,840	14,617
Current liabilities	161	172
Total liabilities	216	2,236
Issued capital	14,526	14,509
Accumulated losses	(10,164)	(6,467)
Investment revaluation reserve	2,039	1,973
Convertible note option reserve	-	1,095
Share based payment reserve	1,223	1,271
Total shareholders' equity	7,624	12,381
Profit of the parent entity	(5,820)	(5,517)
Total comprehensive income/(loss) of the parent entity	66	(468)
	(5,754)	(5,985)
Contingent liabilities of the parent entity – refer to Note 26	50	180

Contractual commitments by the parent entity

The parent entity has lease commitments as stated in Note 27. The parent entity holds the lease commitment for its subsidiaries.

DIRECTORS' DECLARATION

In accordance with a resolution of the directors of Variscan Mines Limited, I state that:

In the opinion of the directors:

(a) The financial statements and notes of the consolidated entity are in accordance with the Corporations Act 2001, including:

  (i) Giving a true and fair view of the consolidated entity's financial position as at 30 June 2014 and of its performance for the year ended on that date.

  (ii) Complying with Australian Accounting Standards (including the Australian Accounting Interpretations) and the Corporations Regulations 2001.

(b) The financial statements and notes also comply with International Financial Reporting Standards as disclosed in note 2.

(c) There are reasonable grounds to believe that the Company will be able to pay its debts as and when they become due and payable.

(d) This declaration has been made after receiving the declarations required to be made to the Directors in accordance with section 295A of the Corporations Act 2001 for the financial year ending 30 June 2014.

On behalf of the Board



Greg Jones
Managing Director
Sydney, 30 September 2014

HLB Mann Judd

Accountants | Business and Financial Advisers

VARISCAN MINES LIMITED

INDEPENDENT AUDITOR'S REPORT

To the members of Variscan Mines Limited

Report on the Financial Report

We have audited the accompanying financial report of Variscan Mines Limited ("the company"), which comprises the consolidated statement of financial position as at 30 June 2014, the consolidated statement of comprehensive income, the consolidated statement of changes in equity and the consolidated statement of cash flows for the year then ended, notes comprising a summary of significant accounting policies and other explanatory information, and the directors' declaration, for the consolidated entity. The consolidated entity comprises the company and the entities it controlled at the year's end or from time to time during the financial year.

Directors' Responsibility for the Financial Report

The directors of the company are responsible for the preparation of the financial report that gives a true and fair view in accordance with Australian Accounting Standards and the *Corporations Act 2001* and for such internal control as the directors determine is necessary to enable the preparation of the financial report that gives a true and fair view and is free from material misstatement, whether due to fraud or error.

In Note 2, the directors also state, in accordance with Accounting Standard AASB 101: *Presentation of Financial Statements*, that the consolidated financial statements comply with International Financial Reporting Standards.

Auditor's Responsibility

Our responsibility is to express an opinion on the financial report based on our audit. We conducted our audit in accordance with Australian Auditing Standards. Those standards require that we comply with relevant ethical requirements relating to audit engagements and plan and perform the audit to obtain reasonable assurance about whether the financial report is free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial report. The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatement of the financial report, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the company's preparation of the financial report that gives a true and fair view in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the company's and its controlled entities' internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by the directors, as well as evaluating the overall presentation of the financial report.

Our audit did not involve an analysis of the prudence of business decisions made by directors or management.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

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VARISCAN MINES LIMITED

INDEPENDENT AUDITOR'S REPORT (CONTINUED)

Independence

In conducting our audit, we have complied with the independence requirements of the *Corporations Act 2001*. We confirm that the independence declaration required by the *Corporations Act 2001*, given to the directors of the company on 30 September 2014, would be in the same terms if provided to the directors as at the time of this auditor's report.

Opinion

In our opinion:

(a) the financial report of Variscan Mines Limited is in accordance with the *Corporations Act 2001*, including:

  (i) giving a true and fair view of the consolidated entity's financial position as at 30 June 2014 and its performance for the year ended on that date; and

  (ii) complying with Australian Accounting Standards and the *Corporations Regulations 2001*; and

(b) the financial statements also comply with International Financial Reporting Standards as disclosed in Note 2.

Report on the Remuneration Report

We have audited the Remuneration Report included in pages 7 to 10 of the directors' report for the year ended 30 June 2014. The directors of the company are responsible for the preparation and presentation of the Remuneration Report in accordance with section 300A of the *Corporations Act 2001*. Our responsibility is to express an opinion on the Remuneration Report, based on our audit conducted in accordance with Australian Auditing Standards.

Opinion

In our opinion, the Remuneration Report of Variscan Mines Limited for the year ended 30 June 2014 complies with section 300A of the *Corporations Act 2001*.

HLB Mann Judd

M. Muller

HLB Mann Judd
Chartered Accountants

M D Muller
Partner

Sydney, NSW
30 September 2014

PLATSEARCH NL

ACN 003 254 395

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Monsieur le Pr®sident
VARISCAN MINES
16, rue L®onard de Vinci
45000 ORLEANS
France

Sidney, le 30 janvier 2013

Monsieur le Pr®sident,

Je vous confirme bien volontiers, en ma qualit®de directeur g®n®ral de la soci®®PlatSearch, soci®®de droit Australien dont le si¯ge social est situ®¨ Level 1, Chandos Street, St Leonards NSW 2065, PO Bex 956, Crow Nest NSW 1585, Australie, immatricul®e ¨ Sidney sous le num®ro ACN 003 254 395 (ç **PlatSearch** è) , associ®unique de la soci®®VARISCAN MINES SAS, soci®®par actions simplifi®e au capital de 800.000 euros, dont le si¯ge social est situ®au 16 rue L®onard de Vinci, 45000 ORLEANS, immatricul®e sur le num®ro SIRENE 528 859 846 RCS ORLEANS (ç **VARISCAN** è), dument habilit®¨ lœeffet des pr®sentes,

<u>après avoir rappelé que</u> :

(i) PlatSearch est une soci®®de droit australien, cr®®e et 1987 et cot®e sur le march® des actions de Sidney (ç *Australian Securities Exchange* è), dont lœactivit®consiste ¨ cr®er des structures dœexploration mini¯res. A la fin de lœann®e 2012, la soci®® d®tenait 27 permis dœexploration dans diff®rents pays, essentiellement en Australie, et avait conclu 25 *joint venture* dœexploration mini¯re ;

(ii) Au 30 septembre 2012, les ç actifs liquides è (ç *liquid assets* è selon la d®finition comptable en Australie) du Groupe PlatSearch, sœ®levaient ¨ la somme de 14,7 millions de dollars australiens (soit environ 11.600.000 euros) et celui-ci disposait

en liquidité d'une somme disponible de 9,7 millions de dollars canadiens (soit environ 7.600.000 euros). Le capital de la société PlatSearch NL s'élevait au 30 juin 2012 ¨ 14.515.132 dollars australiens ;

déclare que :

(i) La société PlatSearch NL fera ses meilleurs efforts afin que VARISCAN puisse respecter ses engagements financiers nécessaires ¨ son activité et dispose d'une trésorerie suffisante ¨ cet effet, soit par un capital suffisant, soit par apport en compte courant ;

(ii) L'engagement de la Société PlatSearch NL au titre des présentes est une lettre d'intention, au sens des articles 2287-1 et 2322 du Code civil français.

Ce courrier, destiné exclusivement ¨ VARISCAN, peut être communiqué par VARISCAN aux autorités administratives françaises, dans le cadre de ses demandes de permis d'explorer qu'elle a déposés ou souhaiterait déposer auprès desdites autorités administratives françaises. Ce courrier ne saurait être utilisé ¨ d'autres fins et donc ne saurait être communiqué ¨ d'autres personnes tierces ¨ votre société (¨ l'exception des commissaires aux comptes et conseil de votre société).

Je vous prie d'agréer, Monsieur le Président, l'expression de mes salutations distinguées.

PlatSearch NL Représentée par Mr. Greg Jones	

ANNEXE 4f : accord de joint-venture avec la soci®t® Juniper Capital Partner Limited

SALAU TUNGSTEN

FARM-IN AND JOINT VENTURE AGREEMENT

Between

VARISCAN MINES SAS

and

JUNIPER CAPITAL PARTNERS LIMITED

Resources Legal Pty Ltd
1A Rosemead Rd
Hornsby NSW 2077
Ph +612 9476 4480
Fax +612 9476 4148
Email: daven.timms@resourceslegal.com.au

Ref: DPT VAR 0114 Salau FJVA

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Salau Tungsten Farm-in and Joint Venture Agreement

Dated

10th May 2014

Parties

Farminor and Manager	Name	**Variscan Mines SAS** (registered in France)
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	Email	m.bonnemaison@variscan.fr
	Fax	+33 238 510327
	Authorised Officer	Dr Michel Bonnemaison Directeur General
Farminee	Name	**Juniper Capital Partners Limited** (registered in the BVI under number LP015389)
	Address	One Raffles Quay Level 25, North Tower Singapore 048583
	Email	akejriwal@junipcap.com
	Fax	
	Authorised Officer	Shahzad, Ashfaq, CEO Juniper Capital Partners Limited

Recitals

A. The Farminor proposes to make application in its own name for the Tenements set out in Schedule 2.

B. The Joint Venturers have agreed to enter into a joint venture to explore for Minerals in the area of the Tenements on the terms and conditions set out in this agreement.

C. The Manager has agreed to act as the first manager of the Joint Venture in accordance with this agreement.

Agreed

1 Definitions and interpretation

1.1 Definitions

Unless the context otherwise requires, the following expressions have the respective meanings in this agreement (including the Recitals):

Agreed Interest Rate means LIBOR plus 2 percent, calculated on a daily basis and compounded with monthly resets, or such other interest rate agreed by the parties.

Approvals Period has the meaning given to it in clause 2.2.

Approved Programme and Budget means a work programme and budget relating to Joint Venture Activities for a particular period which has been approved or deemed to have been approved by the Management Committee under this agreement.

Area of Influence has the meaning specified in Schedule 1.

Assign means to sell, assign, farm-in, farm-out, transfer, sub-lease or otherwise deal with the whole or any part of a Joint Venture Interest.

ASX means ASX Limited (ACN 008 624 691), or its lawful successor.

Auditor means a registered company auditor under the laws of France appointed by the Management Committee at the cost of the Joint Venture to conduct an audit each Year of the accounts of the Joint Venture.

Authorisation is any consent, authorisation, registration, filing, lodgement, notification, agreement, certificate, commission, lease, licence, permit, approval or exemption from, by or with an Authority (including the Tenements).

Authorised Officer means the person nominated by a party on page 1 of this agreement, or any person replacing the nominated person as its authorised officer by notice given in accordance with this agreement.

Authority is any government department, local government council, government or statutory authority or any other party under a Law which has a right to impose a requirement or whose consent is required with respect to Joint Venture Activities.

Bankable Feasibility Study means a Feasibility Study that is of a standard suitable to be submitted to a financial institution as the basis for lending of funds for the development and operation of the Mining activities contemplated in the study and is capable of supporting a Decision to Mine.

Breach Default Event is the happening of an Insolvency Event in relation to a Joint Venturer or a Joint Venturer committing a material breach of any of its material obligations under this agreement (other than an Unpaid Monies Default Event), including where an Encumbrance (other than an Encumbrance approved by the Joint Venturers under this agreement) is created over or attached to the Joint Venture Interest of a Joint Venturer.

Called Sum means the Percentage Share of funds required to be contributed by a Joint Venturer, in accordance with this agreement, to finance Joint Venture Activities.

Commencement Date means the date on which the last of the Conditions Precedent have been satisfied or waived in accordance with this agreement or, if there are no Conditions Precedent, then the date of this agreement.

Conditions Precedent means the conditions specified in Schedule 1 which are required to be satisfied or waived for this agreement to be effective.

Corporations Act means the *Corporations Act 2001* (Commonwealth of Australia).

Decision to Mine means a decision made by the Management Committee to proceed to Development and Mining of a Deposit located within the Tenements.

Default Event means a Breach Default Event or an Unpaid Monies Default Event.

Defaulting Joint Venturer means a Joint Venturer which has committed a breach of this agreement, whether as an Unpaid Monies Default Event or a Breach Default Event or to which (or to a Related Body Corporate of which) a Breach Default Event relates, which breach has not been remedied by the Joint Venturer.

Deposit means an Ore body located within the Tenements.

Development means the development of a commercial Mining operation for Minerals.

Due Date means the date on which a payment is due under this agreement.

Earn-in Date means the date on which the Farminee has satisfied its Earning Obligation and receives the Earned Interest from the Farminor. The Earn-in Date is also the date on which a Joint Venture is formed under the terms of this agreement.

Earned Interest means an 80% Joint Venture Interest earned in the Tenements under this agreement.

Earning Obligation means 2.5 million Euros in Expenditure to be undertaken and incurred by the Farminee in enabling the Manager to carry out Exploration in or about the Tenements.

Earning Period means the period commencing on the Commencement Date and ending on the Earn-in Date.

Emergency means a situation involving actual or reasonably apprehended substantial damage to or loss of Joint Venture Property or Joint Venture Activities or serious injury to persons or loss of life.

Encumbrance means any security interest, mortgage, pledge, lien, charge, title retention arrangement, trust or power or other form of security or interest having effect as a security for the payment of any monetary obligation or interest or the observance of any other obligation whether existing or agreed to be granted or created.

Expenditure has the meaning specified in Schedule 3.

Expert means a person independent of the parties who is suitably qualified and capable of making an expert determination under this agreement in accordance with, and subject to, the Institute of Arbitrators & Mediators Australia Expert Determination Rules.

Exploration means searching for, discovery and delineation of commercial Deposits in the JV Area and the evaluation of such Deposits, including prospecting, surface mapping, sampling, aerial mapping and reconnaissance, drilling, trenching and related field work, geophysical and geochemical testing, core sampling; assaying; exploration declines; test mining; analysis and evaluation of activities undertaken and results obtained, conducting preliminary feasibility studies, preparing Feasibility Studies reports, and planning, supervising and administrating all activities undertaken, including the reopening of blocked declines, development work and bulk sampling, for the purposes of a Feasibility Study, but does not include Development, Mining or Treatment.

Facility means the finance facility in the amount of 25 million Euros to be established by the Farminee for the benefit of the Joint Venture.

Feasibility Study means a study of the technical, commercial and economic feasibility of Development and Mining in the JV Area and producing Minerals in significant commercial quantities, which includes all available exploration, geological, engineering and other relevant data and capital and operating cost estimates and (if appropriate) marketing studies in sufficient detail to enable options for optimum Development, Mining and Treatment to be identified in reasonable detail, including:

(a) exploration results and estimates of Mineral Resources, and Proven and Probable Ore Reserves (all as defined in the JORC Code);

(b) the proposed methods of Development, Mining and Treatment, including the extraction, beneficiation and transportation of the Ore and the Treatment and production of Minerals, including waste disposal;

(c) an estimate of operating levels, environmental costs, shutdown and rehabilitation costs, including an estimate of required capital expenditure and operating costs;

(d) an economic evaluation of the proposed Development, Mining and Treatment and the marketing and sale of the Minerals including a comparative analysis of the effect of various assumptions, financing methods, operating costs and taxation; and

(e) a schedule of relevant Authorisations required to be obtained before Mining may commence,

and includes any preliminary, scoping or pre-feasibility study.

Gross Negligence means such wanton and reckless conduct as constitutes an utter disregard for the harmful, foreseeable and avoidable consequences which result from that conduct.

Insolvency Event means the happening of any of the following events in relation to a body corporate:

(a) it is unable to pay all its debts as and when they become due and payable;

(b) a resolution is validly passed to wind up the body corporate voluntarily or to appoint an administrator, receiver or controller;

(c) it, or any other person, makes an application to a court for its winding up, being an application that is not stayed, withdrawn or dismissed within 7 days;

(d) an order is made for it to be wound up; or

(e) it proposes to enter into or enters into any form of arrangement (formal or informal) with its creditors or any of them.

Joint Venture means the unincorporated joint venture to be established by and under this agreement.

Joint Venture Activities means all Exploration activities involved in the acquisition, use, development, operation and maintenance of Joint Venture Property and all other activities, undertakings, and operations engaged in by the Joint Venturers under this agreement, but do not, unless otherwise agreed in writing, include Development, Mining, Treatment or the marketing or sale of Minerals.

Joint Venture Expenditure means all costs reasonably and properly incurred by the Manager on behalf of the Joint Venture in connection with Joint Venture Activities under an Approved Programme and Budget or incurred in an Emergency or as a permitted cost overrun or as otherwise approved by the Management Committee.

Joint Venture Intellectual Property means all business names, trademarks, copyright, patents, patent applications, discoveries, inventions, and similar rights developed by the Manager under an Approved Programme and Budget in the course of Joint Venture Activities.

Joint Venture Interest means the following rights, liabilities and obligations of a Joint Venturer determined under this agreement:

(a) the obligation, subject to the terms of this agreement, to contribute its Percentage Share of all Joint Venture Expenditure;

(b) the ownership of and the right to receive in kind and to dispose of for its own account its Percentage Share of Minerals produced by the Joint Venture;

(c) the beneficial ownership as a tenant in common of an undivided share in its Percentage Share of Joint Venture Property; and

(d) all other rights, liabilities and obligations accruing to or incurred by the Joint Venturers in or arising out of this agreement in its Percentage Share.

Joint Venture Property means all rights, titles, interest, claims, benefits and all other property of whatever kind, real or personal, from time to time owned by any Joint Venturer for the purposes of the Joint Venture, and includes the Tenements and the Joint Venture Intellectual Property.

Joint Venturer means a party which holds a Joint Venture Interest, but does not include a party in its capacity as Manager.

JORC Code means the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves as adopted by the Australasian Joint Ore Reserves Committee (JORC), which is sponsored by the Australian mining industry and its professional organisations, for the purposes of compliance with the Listing Rules.

JV Area means the area of the Tenements set out in Schedule 2 and depicted on the JV Area map annexed to Schedule 2 (if any), and any other Tenements applied for or acquired for the purposes of this agreement, or such other area as is agreed in writing by all Joint Venturers.

Law means applicable legislation including regulations, by-laws, and other subordinate legislation, the requirements and guidelines of any Authority including the Listing Rules, with which a party is legally required to comply, and common law and equity.

Listing Rules means the ASX Listing Rules or, to the extent that a party or its Related Body Corporate is bound thereby, the listing rules of another recognised stock exchange.

Majority Vote means a resolution voted in favour by representatives entitled to vote and be present at the meeting which satisfies the Passmark, excluding for this purpose the votes held by a Defaulting Joint Venturer.

Management Committee means the committee of Joint Venturers, including the Manager, established under this agreement to supervise the management of the Joint Venture.

Management Fee means the remuneration payable by the Joint Venturers to the Manager under this agreement as specified in Schedule 1.

Manager means the person or entity named as Manager in Schedule 1 or such other person or entity as may be engaged or appointed by the Management Committee as Manager from time to time under this agreement.

Mineral or **Minerals** means the mineral or minerals specified in Schedule 1.

Minimum Interest means the Percentage Share specified in Schedule 1.

Mining means all operations associated with the extraction of Ore on a commercial basis, including pre-stripping, and removal and disposal of overburden and waste, but does not include Exploration, Development or Treatment.

Mining Act means the mining legislation noted in Schedule 1.

Mining Information means all information, data and records relating to the Tenements and Joint Venture Activities including all surveys, maps, aerial photographs, electronically stored data, drawings, memoranda, drill cores, drill core logs, geophysical, geological or drill maps, sampling and assay reports and notes.

Nominated State is the country specified in Schedule 1.

Non-Defaulting Joint Venturer means a Joint Venturer which is not a Defaulting Joint Venturer and is not a Related Body Corporate of a Defaulting Joint Venturer.

Ore means any mineral or mixture of Minerals of intrinsic economic interest located in or on the Earth's crust at a concentration above background level.

Particulars means the particulars of a party and the Joint Venture given on page 1 of this agreement, or any particular amended by the party by notice given in accordance with this agreement.

Passmark means the requirements needed to be satisfied as specified in Schedule 1 to pass a resolution of the Management Committee by a Majority Vote.

Paying Joint Venturer means a Joint Venturer, not being a Defaulting Joint Venturer, which makes a payment of Unpaid Monies on behalf of a Defaulting Joint Venturer in order to remedy an Unpaid Monies Default Event.

PER means Permis Exclusif de Recherche, a French exploration licence.

Percentage Share means the percentage Joint Venture Interest that a Joint Venturer has in the Joint Venture in accordance with this agreement.

Proposed Programme and Budget means a work programme and budget for a given Year, or other relevant period, in relation to the conduct of Joint Venture Activities proposed in accordance with this agreement.

Rehabilitation Obligations means the obligations of the Joint Venturers under the relevant Mining Act, all Tenements and Authorisations, and all applicable statutory and contractual obligations relating to the rehabilitation, revegetation and cleaning up of the JV Area during and following completion of Joint Venture Activities.

Related Body Corporate means a related body corporate as defined in the Corporations Act.

Shutdown Costs means all costs associated with shutting down all Joint Venture Activities within the JV Area including the costs associated with satisfaction of the Rehabilitation Obligations and any redundancy or termination benefits or payments to any consultant or contractor or employee who is engaged by the Manager in the conduct of Joint Venture Activities, but only to the extent of the period for which an employee was engaged in Joint Venture Activities.

Tenement means the mining exploration tenement or tenements, or tenement application or applications, listed in Schedule 2 and includes any PER, lease, licence, claim, permit or other authority issued or to be issued under the Mining Act on the application or authority of one or more of the Joint Venturers for the purposes of the Joint Venture which confers or may confer a right to prospect, explore for or mine any Mineral in the JV Area, or which may facilitate the enjoyment of such right, and includes any application for, and any extension, renewal, conversion or substitution of, any of those tenements.

Third Party means a person not a party, or the Related Body Corporate of a party, to this agreement.

Treatment means the processing, smelting, and refining of Ore up to and including a product stage, and includes crushing, weighing, sampling, assaying, refining, treatment, transportation, handling, storage, loading and delivery of the Mineral and its associated Ore, overburden and waste, but does not include Mining.

Ultimate Holding Company means an ultimate holding company as defined in the Corporations Act.

Unanimous Vote means a resolution in respect of the matters specified in Schedule 1, or otherwise specified in this agreement, which is voted in favour by all representatives entitled to vote and be present at the meeting, excluding for this purpose the votes held by a Defaulting Joint Venturer.

Unpaid Monies are monies due for payment under this agreement, and include monetary compensation and damages payable by a Defaulting Joint Venturer which is agreed, awarded or determined following an unremedied Breach Default Event for so long as it is unpaid, and interest and costs payable or reimbursable in accordance with this agreement.

Unpaid Monies Default Event is the failure by a Joint Venturer to pay Unpaid Monies on or before the Due Date.

VAT Law means applicable legislation providing for value added taxes in France.

Wilful Misconduct means an act or omission that is a reckless and intentional disregard of:

(a) any provision of this agreement;

(b) any Approved Programme or Budget, except in the case of an Emergency;

(c) any Law required to be observed in connection with Joint Venture Activities; or

(d) the terms or conditions of a Tenement,

but does not include any error of judgement or mistake made by the Manager or any of its directors, employees, agents or contractors in the exercise, in good faith, of any function, authority or discretion conferred upon the Manager.

Year means the year specified in Schedule 1.

1.2 Interpretation

In this agreement, unless the context otherwise requires:

(a) the singular includes the plural and vice-versa;

(b) headings do not affect the interpretation of this agreement;

(c) a reference to a party means a party to this agreement as listed in the Particulars and includes that party's executors, administrators, substitutes, successors and permitted Assigns;

(d) references to a part, clause, schedule, exhibit and annexure refers to a part, clause, schedule, exhibit or annexure of, in or to this agreement;

(e) a reference to this agreement includes all schedules, exhibits and annexures to this agreement;

(f) a reference to any legislation or legislative provision includes any statutory modification or re-enactment of, or legislative provision substituted for, and any subordinated legislation issued under, that legislation or legislative provision;

(g) a reference to a day, month or year is relevantly to a calendar day, calendar month or calendar year;

(h) the expressions "including", "includes" and "include" have the meaning as if followed by "without limitation";

(i) where a word or phrase is defined, its other grammatical forms have a corresponding meaning;

(j) a party may exercise a right or remedy or give or refuse its consent in its absolute and unfettered discretion (including by imposing conditions), unless this agreement expressly states otherwise; and

(k) no rule of construction is to apply to the disadvantage of a party on the basis that that party drafted the whole or any part of this agreement.

2 Conditions precedent

2.1 Coming into effect of agreement

This clause 2 and clauses 1 (definitions), 17 (confidentiality), 22 (notices) and 0 (ancillary) come into effect immediately. The remainder of this agreement comes into effect on the Commencement Date and the Joint Venture is formed on the Earn-in Date.

2.2 Satisfaction of Conditions Precedent

(a) Each party must use all reasonable endeavours (other than waiver) at its cost to ensure that the Conditions Precedent are satisfied on conditions acceptable to it as soon as reasonably practicable, and within the time specified in Schedule 1 (**Approvals Period**).

(b) Each party must keep each other informed of its progress in obtaining satisfaction of any Condition Precedent it is required to obtain and any circumstance that may result in any of those conditions not being satisfied in accordance with its terms.

(c) Each party must give the other parties notice within 7 days after receiving notice of the conditions whether the conditions for the satisfaction of a Condition Precedent (if any) are acceptable, or unacceptable, to it.

2.3 Failure to satisfy Conditions Precedent

If all Conditions Precedent are not satisfied, or otherwise waived, within the Approvals Period, or if a party gives notice to the other parties within the Approvals Period that the conditions of satisfaction of a Condition Precedent imposed by a Third Party are unacceptable to it, any party may terminate this agreement by notice to the others.

2.4 Consequence of failure to satisfy Conditions Precedent

If a party terminates this agreement by notice for failure to obtain satisfaction of a Condition Precedent for any reason, then each party is released from all further obligations under this agreement, other than the obligations of confidentiality, and no party has any claim against another party as a consequence of the termination.

3 Representations and Warranties

3.1 Warranties

(a) The Farminor warrants as at the date of this agreement, for the benefit of the Farminee, that it intends to apply for the Tenements in its own name, free of Encumbrances or claims by Third Parties, at its sole cost.

(b) The Farminor warrants that it is a 100%-owned subsidiary of Variscan Mines Limited (ACN 003 254 395), formerly PlatSearch NL, a company incorporated in Australia and listed on ASX with the ticker code VAR.

3.2 Mutual Warranties

Each party warrants for the benefit of each other party that:

(a) (**Incorporation**) it is validly incorporated, organised and subsisting in accordance with the laws of its place of incorporation;

(b) (**Power and capacity**) it has full power and capacity to enter into and perform its obligations under this agreement;

(c) (**Corporate authorisations**) all necessary authorisations for the execution, delivery and performance by it of this agreement in accordance with its terms have been obtained;

(d) (**No legal impediment**) its execution, delivery and performance of this agreement complies with its constitution and does not constitute a breach of any law or obligation, or cause a default under any agreement by which it is bound; and

(e) (**No trust**) it enters into and performs this agreement on its own account and not as trustee for or nominee of any other person.

3.3 Mutual Covenants

Each party covenants and agrees as a separate covenant with the other party:

(a) to perform every obligation and commitment that it has in relation to the Tenements under the Mining Act or other applicable legislation;

(b) to perform its obligations under or relating to the fulfilment of any contract that relates to this agreement;

(c) not to do or cause to be done any act matter or thing whereby the continued enjoyment of the Tenements by a party might be jeopardised;

(d) not to engage either alone or in association with another or others or through a Related Body Corporate in any activity within the Area of Influence except as provided or authorised by or under this agreement;

(e) to act co-operatively, honestly and reasonably in all its dealings with each other and the Manager concerning this agreement provided that, except as expressly provided by this agreement, no party is under any fiduciary or other duty to the other parties or the Manager;

(f) that it will take full responsibility for environmental liabilities and Rehabilitation Obligations associated with a Tenement caused while it is sole-funding Expenditure on Exploration and Development on that Tenement;

(g) that each party has the unrestricted right to engage in and receive the full benefit of any competing activities outside the Area of Influence; and

(h) subject to the confidentiality provisions of this agreement, that each Joint Venturer is entitled to use and apply Mining Information outside the JV Area, provided that such activities are carried out in a manner which does not prejudice, impair or impede Joint Venture Activities.

4 Earn-in

4.1 Expenditure Requirements

(a) The Farminee shall have earned its Earned Interest in the Tenements when it has expended the amount of the Earning Obligation on the Tenements within 36 months of the Commencement Date.

(b) The Farminee must spend the Earning Obligation, in total, within 36 months of the Commencement Date. The Farminee agrees and acknowledges that the Earning Obligation shall be a binding obligation of the Farminee, subject to the terms of this agreement, upon execution of

this agreement, provided that the Farminee shall not be under any obligation to spend any amount before the Commencement Date.

(c) For the avoidance of doubt, the Farminee is sole spending on the Tenements to earn the Earned Interest.

(d) Once the Farminee earns the Earned Interest, the Farminor is free carried as to a 20% Joint Venture Interest to the earlier of completion of a Bankable Feasibility Study or Expenditure of 25 million Euros, whichever comes first. For the avoidance of doubt, the Farminor is under no obligation at any time to contribute to Expenditure, or reimburse any Expenditure incurred during the period commencing on the Commencement Date and ending on completion of a Bankable Feasibility Study or Expenditure of 25 million Euros by the Farminee.

(e) Notwithstanding anything to the contrary in this agreement, the Farminor is solely responsible for the preparation of the application for the PER and the Tenements. The Farminor shall bear all costs and expenses relating to the application for the PER and the Tenements and all formalities relating to the grant and maintenance of the PER and the Tenements up until the Commencement Date.

4.2 Earn-in Rights and Obligations

(a) The Farminor grants to the Farminee the sole and exclusive right to access and explore the Tenements at the Farminee's sole cost during the Earning Period and acknowledges that the Farminee may lodge a caveat or register this agreement against the Tenements or take other reasonable actions to protect its interest under this agreement.

(b) During the Earning Period, the Farminee, acting through the Manager, must undertake, incur and satisfy the Earning Obligation in carrying out Exploration in the JV Area. Any amount spent by the Farminee on the Tenements, including any amount spent pursuant to clause 4.3(a) below shall be deemed included in and shall count towards the satisfaction of the 2.5 million Euros Earning Obligation of the Farminee.

(c) On the Farminee satisfying the Earning Obligation in the JV Area before the end of the Earning Period, the Farminee will earn its Earned Interest.

(d) The Farminee may withdraw from this agreement by giving not less than 30 days' prior notice to that effect to the Farminor and, from the effective date of such notice of withdrawal, the Farminee will not:

(i) incur any further liability in respect of the Tenements or be liable to fund any further Expenditure in the JV Area; and

(ii) will not be entitled to acquire any right, title or interest in the Tenements

but will remain liable for any obligations accruing under this agreement prior to the effective date of the withdrawal.

(e) Once the Farminee satisfies the Earning Obligation within the Earning Period, it is entitled to call for and obtain a transfer from the Farminor of the Earned Interest. The Farminor covenants that it will have sufficient interest in the Tenements at the end of the Earning Period to be able to carry out its transfer obligations under this clause.

(f) Upon the Farminee undertaking, incurring and satisfying the Earning Obligation, the Farminee shall earn its Earned Interest and a Joint Venture will be formed under this agreement.

(g) For the avoidance of doubt, if the Farminee does not satisfy the Earning Obligation in the JV Area before the end of the Earning Period, the Farminee shall be deemed to have withdrawn from this agreement and the provisions of clause 4.2(d) shall apply.

(h) During the Earning Period, the Farminor must not voluntarily relinquish acreage or surrender any other rights held under a Tenement. If the Farminor is required to do so under the Mining Act it must first agree with the Farminee the area of the Tenements to be surrendered to comply with the compulsory relinquishment provisions of the Mining Act. During the period between the Earn-in Date and the date of transfer of title to the Tenements to the Farminee, the Farminor shall hold the Tenements on trust for the Farminee.

4.3 Covenants of the Manager

(a) The Manager covenants that, during the Earning Period, it will, acting on behalf of the Farminee and towards the satisfaction of the Earning Obligation:

(i) conduct all Exploration on the Tenements in accordance with good and generally accepted mining exploration practice;

(ii) provide the Farminee with Exploration reports quarterly, including copies of all reports filed under the Mining Act;

(iii) give a half yearly technical presentation to the Farminee on the outcome of Exploration activities in the Tenements; and

(iv) not permit the creation of any Encumbrance or sell, assign or otherwise deal with or dispose of the whole or any part of its interest in the Tenements, except with the prior consent of the Farminee.

Without limiting the generality of the foregoing, the obligations of the Manager in conducting Exploration on behalf of the Farminee towards the satisfaction of the Earning Obligation shall be the same as the obligations set forth in clause 9 of this agreement, *mutatis mutandi (*for sake of clarity, for the purposes of this clause 4.3, the terms "Management Committee" and "Joint Venturer", and the term "Joint Venture Activities", used in clause 9, shall read as "Farminee", and "Exploration activities", respectively).

(b) The Farminor covenants that it will not, during the Earning Period, permit the creation of any Encumbrance or sell, assign or otherwise deal with or dispose of the whole or any part of its interest in the Tenements, except with the prior consent of the Farminee.

(c) No later than three (3) months after the Commencement Date, and thereafter no later than one (1) month prior to the beginning of each quarter (Q+1), the Manager shall provide the Farminee with a Proposed Programme and Budget which must include details of the programme of Exploration activities proposed for the next quarter (Q+1) and an itemised budget specifying all estimated Expenditure proposed to be charged by the Manager on a monthly basis under this agreement. Not less than 14 days after provision of a Proposed Programme and Budget, and by no later than the end of each quarter (Q), the Farminee must adopt, with or without amendment, after discussion with the Manager as the case may be, an Approved Programme and Budget for the next quarter (Q+1). Once the Proposed Program and Budget is approved by the Farminee, the Manager shall implement it without substantial variation.

(d) On or before the 10th day of each new quarter (Q+1), the Manager must submit to the Farminee a billing statement of proposed Expenditure specifying the sum to be paid by the Farminee to finance Exploration activities set out in an Approved Programme and Budget during the next quarter (Q+1). The Manager covenants that, during the Earning Period, it will not, when conducting exploration on behalf of the Farminee, engage or incur any substantial Expenditure, cost, obligation or expense outside the Approved Programme and Budget without the prior written approval of the Farminee. Should expenditures incurred by the Manager breach of this clause by more than 5% of the total for the each quarter, these shall be borne solely by the Manager, unless the Farminee agrees otherwise in writing.

(e) The Manager shall be bound by the same reporting obligations as those set forth in clause 11.2 of this agreement, *mutatis mutandi (*for sake of clarity, for the purposes of this clause 4.3, the terms "Management Committee" and "Joint Venturer", and the term "Joint Venture Activities", used in clause 11.2 shall read as "Farminee", and "Exploration activities", respectively).

(f) Upon the Farminee satisfying the Earning Obligation, the Farminor covenants to (i) execute and deliver to the Farminee a deed of transfer of the Tenements (in respect of the PER, such deed shall be substantially in the form of the agreement attached hereto as Exhibit A), and (ii) file such deed of transfer with the relevant governmental authorities and take all other actions necessary to obtain the transfer of title to the Tenements to the Farminee so that the Farminor and the Farminee are co-owner of the Tenements according to their respective Percentage Share.

5 Establishment of Joint Venture

5.1 Formation of the Joint Venture

With effect from the Earn-in Date, the Joint Venturers agree to establish the Joint Venture as an unincorporated joint venture according to the terms and conditions contained in this agreement.

5.2 Objects and scope of the Joint Venture

(a) The objects of the Joint Venture are to:

(i) maintain the Tenements and explore the JV Area for Minerals; and

(ii) if exploration indicates the probable existence of a commercially minable Mineral resource in any part of the JV Area, carry out a Feasibility Study, including the construction and operation of a pilot plant (if required) to test the feasibility of a production process.

(b) The scope of Joint Venture Activities under this agreement does not extend to Development or Mining or any other activity, unless all Joint Venturers otherwise agree in writing.

5.3 Development and Mining

(a) The Manager or any Joint Venturer may propose to the Management Committee that the Joint Venture undertake Development and Mining of one or more Deposits in a defined area of the Tenements (**Development Proposal**) which proposal must include a Bankable Feasibility Study.

(b) If the Management Committee decides by Majority Vote to accept the Development Proposal and make a Decision to Mine, each Joint Venturer must participate in an application for a mining lease over the area of the Tenements agreed to be mined (**ML Area**), and the Joint Venturers which voted to proceed with the Development Proposal (**Proceeding Joint**

Venturers) are deemed forthwith to be parties to a separate Mining joint venture agreement over the ML Area in relation to the Development Proposal on the same terms and conditions as this agreement (excluding dilution rights), with such modifications as the Proceeding Joint Venturers may agree, including:

(i) provisions dealing with Development, financing the Development, Treatment, Mining, rehabilitation and abandonment;

(ii) provisions dealing with disposition of the Minerals produced by the Joint Venture;

(iii) the execution of cross charges which encumber each party's Joint Venture Interest, and its interest in any contracts for, and the proceeds of, sale of Minerals in favour of each other party and the Manager as security for its performance of its duties and obligations arising under the Mining joint venture agreement; and

(iv) the management fee to be payable to the Manager during Development, Treatment and Mining.

(c) If a Decision to Mine is made by Majority Vote, a Joint Venturer that did not vote for the Development Proposal (**Non-Proceeding Joint Venturer**):

(i) is deemed to have offered to sell its Joint Venture Interest in the ML Area to the Proceeding Joint Venturers; and

(ii) within 30 days from the date the Majority Vote was passed the Proceeding Joint Venturers may elect to acquire, and the Non-Proceeding Joint Venturer must sell and transfer, such Joint Venture Interest (and if more than one, in proportion to their Percentage Shares or in such other proportions as they may agree in writing),

at a value agreed within the 30 day period or, failing agreement, at its market value at that date as determined by an Expert appointed under this agreement, who must make such determination within 30 days of his or her appointment. If all the Joint Venture Interest of the Non-Proceeding Joint Venturer in the ML Area is not acquired by the Proceeding Joint Venturers, no Development may proceed under that Development Proposal.

(d) Upon completion of the transfer of all the Non-Proceeding Joint Venturers' Joint Venture Interests in the ML Area:

(i) the ML Area is held by the Joint Venturers on trust for and at the expense of the Proceeding Joint Venturers as beneficial owners; and

(ii) the Non-Proceeding Joint Venturers cease to have any beneficial rights with respect to the Development Proposal or the ML Area.

(e) If no Joint Venturer votes for the Development Proposal within the required period then the Development Proposal will not proceed, but this does not prevent a further proposal for Development and Mining being later submitted to the Management Committee for approval.

(f) The JV Area (if any) outside a ML Area remains subject to this agreement.

5.4 Rights, obligations and liabilities of Joint Venturers

(a) The rights, duties, obligations and liabilities of the Joint Venturers arising out of this agreement are several in proportion to their respective Percentage Shares and are neither joint nor joint and several.

(b) Prior to completion of a Bankable Feasibility Study, the Farminee must provide sufficient funding, up to the amount of the Facility, to enable the Manager to undertake, incur and satisfy agreed Programmes and Budgets. The Farminee is sole spending during the period commencing on the Earn-in Date and ending on completion of a Bankable Feasibility Study, up to the amount of the Facility.

(c) Nothing in this agreement is to be construed or interpreted as constituting a partnership between the parties or making any Joint Venturer the agent or representative of any other Joint Venturer, except when the Manager acts as manager for the Joint Venturers, and not, if applicable, as a Joint Venturer.

(d) Each Joint Venturer must indemnify and hold harmless each other Joint Venturer from and against all damage, loss, expense or liability of any nature (other than consequential, economic or indirect losses, including any lost production or loss of profits) suffered or incurred by the other Joint Venturers caused by the Joint Venturer's breach of this agreement or its negligent act or omission in the course of Joint Venture Activities.

6 Joint Venture Property

6.1 Joint Venture Interests

(a) The Joint Venture Interests of the Joint Venturers as at the Commencement Date are:

Joint Venturer	Percentage Share
Farminor	100%
Farminee	0%
	100%

(b) The Joint Venture Interests of the Joint Venturers upon satisfaction of the Earning Obligation and as at the Earn-in Date are:

Joint Venturer	Percentage Share
Farminor	20%
Farminee	80%
	100%

6.2 Use and ownership of Joint Venture Property

(a) All Joint Venture Property is owned by the Joint Venturers severally as tenants in common in the proportions of their respective Percentage Shares from time to time.

(b) If Minerals are extracted from the JV Area, title to and the risk of loss of, or damage to, those Minerals passes to each Joint Venturer in proportion to its Percentage Share at the point where the Minerals are first extracted.

(c) To the extent that ownership of any Joint Venture Property is not registered or recorded in the names of the individual Joint Venturers pro

rata in proportion to their respective Percentage Shares, then the person registered or recorded as owner holds the property on trust for all the Joint Venturers pro rata in proportion to their respective Percentage Shares.

6.3 Use of Joint Venture Property

(a) Each Joint Venturer must ensure that its Percentage Share of all Joint Venture Property that it controls is available for the purpose of Joint Venture Activities for the duration of the Joint Venture.

(b) Each Joint Venturer must make available to the Manager from time to time as reasonably required by the Manager all Mining Information (if any) held by the Joint Venturer or in which it has a beneficial interest relating to the Tenements as at the Commencement Date.

6.4 Joint Venture Intellectual Property

Each Joint Venturer and its Related Bodies Corporate are entitled to use Joint Venture Intellectual Property, on a non-exclusive world-wide royalty-free basis, including any modifications and enhancements, outside the JV Area in activities other than Joint Venture Activities provided that the intended use of such Joint Venture Intellectual Property is first disclosed to each of the other Joint Venturers and is subject to the obligations of confidentiality contained in this agreement.

6.5 No partition of Joint Venture Property

(a) Subject to any Law or contrary provision of this agreement, each Joint Venturer waives any right it may have to partition or divide the Joint Venture Property, whether by way of physical partition, judicial sale or otherwise.

(b) Nothing in this clause affects a Joint Venturer's right and obligation to take separately its Percentage Share of any Mineral or to make an Assignment or disposal as permitted by this agreement.

6.6 No Encumbrances without consent

A Joint Venturer must not create or permit the creation of any Encumbrance over the whole or any part of its Joint Venture Interest without the consent of all the Joint Venturers, which consent must not be unreasonably withheld or delayed. Notwithstanding the foregoing, the Farminee shall be entitled to create Encumbrances over its Joint Venture Interest for the purposes of financing the Joint Venture Activities.

6.7 Perpetuity period

If the vesting of any interest of any Joint Venturer in any Joint Venture Property would be void under the rule against perpetuities at common law (if applicable) or under any statute imposing perpetuity periods, then that interest terminates 80 years (less 1 day) from the date of this agreement.

7 Management Committee

7.1 Establishment of Management Committee

(a) A Management Committee is established on the Earn-in Date. Each Joint Venturer must appoint a representative to the Management Committee in writing.

(b) The role of the Management Committee is to make, subject to this agreement, all strategic decisions relating to the conduct of Joint Venture Activities, including the consideration and approval of any Proposed Programme and Budget and other management plans, and any

amendments to any Approved Programme and Budget and approved management plans.

(c) Unless the Joint Venturers otherwise unanimously agree, the Joint Venturer with the largest individual Joint Venture Interest must appoint (and may dismiss) its representative to be chair of the Management Committee. The Joint Venturer appointing the chair must cause the chair to preside at all meetings of the Management Committee.

(d) The Manager must appoint (and may dismiss) a person, who may be one of its employees, to be secretary of the Management Committee. The Manager must cause the secretary to prepare agendas for meetings, keep proper minutes of all meetings and coordinate communications among the Joint Venturers regarding meetings of the Management Committee.

(e) For any meeting of the Management Committee, a Joint Venturer may in writing appoint a person as an alternate representative for its representative and may remove any person so appointed.

(f) At meetings of the Management Committee each representative present must act solely as representative of the Joint Venturer that appointed him or her but a representative may also represent the Manager at Management Committee meetings.

(g) Each representative has full power and authority to represent and bind the Joint Venturer which appointed him or her in all matters decided by the Management Committee, and the Joint Venturer is bound by all votes cast by its representative.

(h) Any decision made by the Management Committee under this agreement is deemed to be a decision of all the Joint Venturers, and each Joint Venturer is bound as if that decision was an agreement entered into by them.

7.2 Functions of Management Committee

Except as otherwise provided in this agreement, the Management Committee may decide all matters relating to the conduct of Joint Venture Activities, including:

(a) all strategic decisions relating to the conduct of Joint Venture Activities;

(b) establishing policies from time to time covering Joint Venture Activities;

(c) approval of any Proposed Programme and Budget and other management plans;

(d) approving cost overruns by the Manager incurred under any Approved Programme and Budget; and

(e) the appointment of an Auditor.

7.3 Meetings of the Management Committee

(a) All meetings of the Management Committee must be held at the office of the Manager, unless otherwise agreed by the Joint Venturers.

(b) The Manager shall ensure that a meeting of the Management Committee is convened at least once each Year to approve a Proposed Programme and Budget for the next period.

(c) The Manager shall ensure that the secretary calls meetings and gives at least 15 days prior written notice to the Manager and all Joint Venturers entitled to be present specifying the nature of the business to be discussed and including all documentation required to be considered at

the meeting. Meetings may be held on less than 15 days' notice if agreed in writing by all Joint Venturers entitled to be present.

(d) Meetings may be convened in person, or by video meeting or conference telephone call at which all representatives of all Joint Venturers have the opportunity to be present. All persons participating in the video meeting or conference telephone call must be able to hear each of the others.

(e) If the existing chair of the Management Committee is not present within 15 minutes after the time appointed for holding the meeting, the representatives present must elect one of themselves to be chair of the meeting.

(f) Each Joint Venturer must bear all expenses incurred by its representatives in attending meetings of the Management Committee.

(g) A representative of the Manager must attend every meeting of the Management Committee at the cost of the Joint Venturers, unless the Management Committee otherwise decides for a particular meeting or for a particular subject matter at any meeting.

7.4 Quorum

(a) A quorum for any meeting of the Management Committee is present if the representative of each Non-Defaulting Joint Venturer is in attendance at such meeting.

(b) If a quorum is not present within 30 minutes from the time appointed for the meeting, the meeting must be adjourned to the same place, day and time in the next week.

(c) If a quorum is not present at a reconvened meeting then, provided the reconvened meeting is conducted as a personal meeting (not by video or telephone meeting) and all Joint Venturers were given at least 7 days' notice of the reconvened meeting, the representative(s) present at the reconvened meeting are deemed to constitute a quorum for the purposes of the business before that meeting.

7.5 Voting and decision making

(a) On any resolution or at any meeting of the Management Committee, a Joint Venturer (other than a Defaulting Joint Venturer) may cast, through its representative, the number of votes equal to its Percentage Share.

(b) At meetings of the Management Committee, the Manager or its representative is not entitled to vote, and the chair does not have a second or casting vote.

(c) Unless otherwise specified in this agreement, all decisions of the Management Committee must be determined by Majority Vote. A decision specified in Schedule 1 must be made by Unanimous Vote.

(d) A resolution in writing (which may consist of one or several documents in the same terms) signed by at least one representative of each of the Joint Venturers or approved by facsimile or by authenticated email transmitted by at least one representative of each Joint Venturer and subsequently confirmed in writing is as valid and effectual as if it had been passed at a duly convened meeting of the Management Committee.

7.6 Minutes

A copy of the minutes of each Management Committee meeting must be given to each Joint Venturer as soon as practicable, but no later than 14 days, after each meeting. The minutes of a meeting must be submitted for approval at the next meeting held after that 14 day period and, if approved, must be signed by

the chair of the later meeting and when signed are evidence of the proceedings and the decisions of the meeting to which they relate. The Manager may act on any matter approved by the Management Committee notwithstanding that the minutes have not been approved.

7.7 Sub-committees

The Management Committee may from time to time create sub-committees (comprising such persons as the Management Committee thinks fit) to consider and report back to the Management Committee on any particular issues relating to Joint Venture Activities.

7.8 Loss of rights of participation and voting

Unless otherwise agreed by all Non-Defaulting Joint Venturers, a Defaulting Joint Venturer (through its representative and alternate) is not entitled to attend or to vote at any meeting of the Management Committee or any subcommittee formed under this agreement or join in voting on a resolution, nor will the presence of the representative of any such Joint Venturer be necessary to form a quorum at any meeting, until the relevant Default Event has been remedied.

8 Manager

8.1 Appointment of Manager

The Joint Venturers severally appoint the Manager to be manager of Exploration Activities during the Earning Period and manager of the Joint Venture and agent of the Joint Venturers for the purposes of this agreement from the Commencement Date, and the Manager accepts that appointment, on and subject to the provisions of this agreement.

8.2 Term of appointment of Manager

The appointment of the Manager continues:

(a) until this agreement is terminated for any reason;

(b) until the Manager resigns, having given at least 90 days' notice to the Joint Venturers of its intention to resign as Manager; or

(c) until the Manager suffers an Insolvency Event or commits a material breach or default in the performance of a material obligation under this agreement and fails to remedy the default within 60 days of receipt of a written notice of default served by a Joint Venturer, in which case the manager may be removed by Majority Vote.

Notwithstanding anything to the contrary in this agreement, the Manager may also be removed by the Assignee of the Joint Venturers in case of transfer of 80% or more of their Joint Venture Interest pursuant to clause 13.

8.3 Remuneration of the Manager

(a) In consideration of the performance by the Manager of its obligations under this agreement, each Joint Venturer must pay the Manager its Percentage Share of the Management Fee payable as part of each Called Sum.

(b) The Management Fee may be varied by the Management Committee by Unanimous Vote.

8.4 Appointment of new Manager

(a) Upon the termination of the appointment of the Manager, the Joint Venturers must promptly appoint a new Manager under the terms of this agreement, if this agreement is not otherwise terminated.

(b) The Joint Venturers must not reappoint a Manager removed for default or following an Insolvency Event of the Manager.

(c) If a new Manager cannot be appointed and act immediately, the Joint Venturer holding the largest Joint Venture Interest must act as interim Manager until the new Manager is appointed and commences its duties.

(d) Upon the new or interim Manager commencing its duties, the previous Manager must immediately deliver to the new or interim Manager all Joint Venture Property and all documents, books, records and accounts relating to the Joint Venture held by it or under its control.

(e) If title to any Joint Venture Property is held in the name of the previous Manager, it must promptly transfer such title to the new or interim Manager at the cost of the Joint Venture.

8.5 Liability of Manager

Except as a Joint Venturer to the extent of its Percentage Share, the Manager is not liable to the Joint Venturers for any loss or damage sustained or liability incurred in connection with the Joint Venture, even if arising from the negligence of the Manager or any person for whom the Manager may be vicariously liable, except where, in the circumstances of the particular case, the Manager (or that person) has committed fraud or Gross Negligence or Wilful Misconduct.

8.6 Full indemnity of Manager by Joint Venturers

Each Joint Venturer severally, to the extent of its Percentage Share, must indemnify and hold harmless the Manager, its directors, employees, agents and contractors (**Indemnified Persons**) from and against all damage, loss, expense or liability of any nature suffered or incurred by the Indemnified Persons (including any claims made by Third Parties) in connection with Joint Venture Activities, including any personal injury, disease, illness or death, or physical loss of or damage to property, of the Indemnified Persons or any Third Party, except, in respect of an Indemnified Person, where that Indemnified Person has committed fraud or Gross Negligence or Wilful Misconduct.

8.7 Limited indemnity by Manager of Joint Venturers

The Manager must indemnify and hold harmless the Joint Venturers, its and their respective directors, employees, agents and contractors (**JV Indemnified Persons**) from and against all damage, loss, expense or liability of any nature suffered or incurred by the JV Indemnified Persons (including any claims made by Third Parties) in connection with its management of Joint Venture Activities while it is the Manager, including any personal injury, disease, illness or death, or physical loss of or damage to property, of the JV Indemnified Persons or any Third Party, caused by the fraud or Gross Negligence or Wilful Misconduct of the Manager, its directors, employees, agents and contractors.

9 Functions, powers and duties of Manager

9.1 Functions of the Manager

The Manager reports to the Management Committee and must:

(a) by itself or through its employees, agents or contractors, manage, direct and control Joint Venture Activities as agent for and on behalf of the Joint Venturers;

(b) exercise and discharge its powers and duties under this agreement in accordance with Approved Programmes and Budgets, and decisions made by the Management Committee;

(c) conduct Joint Venture Activities in a good, workmanlike and commercially reasonable manner in accordance with good international mining

exploration industry methods, procedures and practices, and with the standard of diligence and care, normally exercised by duly qualified persons in the performance of comparable work; and

(d) act in utmost good faith in all its dealings, as Manager, with each Joint Venturer.

9.2 Rights, powers and duties of Manager

In the course of managing, supervising and conducting Joint Venture Activities, the Manager is entitled to have possession and control of all Joint Venture Property and must, either itself or through such third parties as it may engage:

(a) **(Proposed Programmes and Budgets)** prepare and submit to the Management Committee for approval all Proposed Programmes and Budgets and all other estimates and reports required by this agreement;

(b) **(Approved Programmes and Budgets)** carry out effectively and efficiently the work required to implement all Approved Programmes and Budgets;

(c) **(tenders and contracts)** obtain, evaluate and accept quotes and tenders (within the limits determined by the Management Committee), and enter into, administer and enforce, as agent of the Joint Venturers, all contracts required for the performance of works and services necessary to perform this agreement and undertake Joint Venture Activities;

(d) **(personnel)** engage, dismiss, supervise and control all management, technical and labour personnel necessary for performance of its obligations under this agreement including determining the terms and conditions of such engagement and conducting all industrial relations;

(e) **(payment and bank accounts)** pay on behalf of the Joint Venturers out of funds provided by the Joint Venturers all costs and expenses incurred by the Manager in the conduct of Joint Venture Activities and for such purpose open, maintain and operate one or more separate bank accounts (within which its own funds are not commingled) on behalf of the Joint Venturers for the purposes of the Joint Venture;

(f) **(drawdown of Facility)** draw down the Facility only in accordance with approved Programmes and Budgets;

(g) **(Laws and Authorisations)** comply with all Laws and Authorisations applicable to the conduct of Joint Venture Activities, including those relating to health, safety and environmental protection, and ensure that all Authorisations required to conduct Joint Venture Activities are applied for, obtained and maintained;

(h) **(Tenements)** keep and renew the Tenements in good standing (including paying all rents, taxes, expenditures and other outgoings by the Due Date), and manage, administer, protect and enforce the rights and obligations of the holders under the Tenements;

(i) **(Security Bonds)** arrange for the provision by the Joint Venturers of, such security deposits, performance bonds and guarantees and other instruments for the performance of the Joint Venturers' obligations under any Tenements, licences, leases, contracts, service agreements or any other agreement authorised by the Management Committee;

(j) (**statutory reports**) prepare, file and lodge all statutory reports as and when required under the Mining Act and any other applicable Laws in respect of the JV Area (other than reports required to be submitted by the Joint Venturers in their individual capacities as Joint Venturers);

(k) (**greenhouse reporting**) prepare, file and lodge all reports of greenhouse gas emissions, energy production and energy consumption attributable to Joint Venture Activities as may be required under applicable Laws;

(l) **(rehabilitation)** establish a rehabilitation fund, formulate a rehabilitation programme and carry out the Rehabilitation Obligations;

(m) **(insurances)** effect and maintain all insurances appropriate in relation to Joint Venture Property and Joint Venture Activities, or as required by Law, and any additional insurances which the Management Committee requires to be effected, provided that the Manager must wherever possible procure that all such insurances include a provision that the insurer has no right of subrogation against any Joint Venturer or the Manager and that the Joint Venturers and Manager are to be named, to the extent of their interests, on each policy of insurance;

(n) **(insurance certificates)** if requested, provide full details to a Joint Venturer of all insurances effected by the Manager under this agreement, including certificates of currency;

(o) **(no Encumbrances)** keep the Joint Venture Property free and clear of all Encumbrances, except for those Encumbrances specifically permitted under this agreement, or approved by the Management Committee, or existing at the time of, or created concurrent with, the acquisition of such Joint Venture Property, or liens arising in the ordinary course of business which the Manager must arrange to be released or discharged in a diligent manner;

(p) **(disposal of surplus equipment)** dispose of by Assignment, abandonment or other transfer Joint Venture Property which the Manager classifies as surplus and is no longer needed for Joint Venture Activities and which the Management Committee approves for disposal;

(q) **(litigation)** institute, defend, compromise or settle any court or arbitration proceedings or insurance claims commenced or threatened by or against the Manager or a Joint Venturer affecting or relating to Joint Venture Activities or Joint Venture Property, provided that:

(i) unless otherwise instructed by a Joint Venturer, the Manager may conduct such proceedings or claims for and on behalf of and in the name of each Joint Venturer;

(ii) the Manager must regularly report to the Joint Venturers the conduct of such commenced or threatened proceedings and claims, including any proceedings and claims related to environmental impacts, and keep the Joint Venturers informed of the progress of such proceedings and claims; and

(iii) the Manager may not institute, compromise or settle any court or arbitration proceedings or insurance claims exceeding an amount determined by the Management Committee without the prior approval of the Management Committee;

(r) **(emergencies)** take such action as the Manager may consider necessary or advisable to prevent or respond to an Emergency;

(s) **(other incidental)** do all other acts and things that are reasonably necessary or desirable to fulfil its functions or are incidental to its powers and duties.

9.3 Limitation on Manager's obligations

Notwithstanding anything to the contrary elsewhere in this agreement, the performance by the Manager of its obligations under this agreement is subject to

the Manager being provided with sufficient funds by the Joint Venturers to enable the Manager to perform those obligations.

9.4 Manager may delegate

The Manager may delegate to a Third Party, including a Related Body Corporate, any of its rights, remedies, powers, discretions and obligations, provided that:

(a) the Manager may only delegate its rights, remedies, powers, discretions and obligations with the prior approval of the Management Committee;

(b) any delegation does not relieve the Manager of any of its obligations or responsibilities under this agreement;

(c) the Manager informs the Management Committee at its next meeting of the identity of the delegate and the matter which has been delegated; and

(d) the delegation is at no additional cost to the Joint Venturers.

9.5 Agreement with a Related Body Corporate

The Manager may not enter into an agreement with a Joint Venturer or a Related Body Corporate of a Joint Venturer or the Manager for the supply of goods or services or both under this agreement unless the proposed agreement is on terms and conditions which are no less favourable to the Joint Venturers than an arm's length commercial agreement with a Third Party supplier which is not a Related Body Corporate of the Manager or the Joint Venturer, and the proposed agreement is approved by the Management Committee.

9.6 Litigation

(a) A Joint Venturer has the right to participate separately, at its own expense, in litigation or administrative proceedings initiated by the Manager on behalf of the Joint Venturers.

(b) If a Joint Venturer elects to participate separately in litigation, that Joint Venturer:

(i) is considered to have a divergent interest to the other Joint Venturers and is not entitled to continue to receive reports or legally privileged material prepared or supplied by the Manager in relation to that litigation; and

(ii) is not entitled to require external lawyers appointed by the Manager to cease to act on the basis of a former client conflict of interest.

10 Programmes, Budgets and Called Sums

10.1 Proposed Programmes and Budgets

(a) By no later than the Budget Preparation Date specified in Schedule 1 in each Year or such other date as the Management Committee may agree, the Manager must provide the Joint Venturers with a Proposed Programme and Budget which must include details of the programme of Joint Venture Activities proposed for the next Year and an itemised budget specifying all estimated Expenditure proposed to be charged by the Manager on a monthly basis under this agreement.

(b) Each Proposed Programme and Budget must include expenditure on the Tenements sufficient to comply with minimum expenditure obligations under the Mining Act and the Tenements during that period.

10.2 Approved Programme and Budget

(a) Not less than 14 days after provision of a Proposed Programme and Budget, and by no later than the end of June in each Year or such other month as the Management Committee may determine, the Management Committee must meet (as many times as necessary) and discuss the Proposed Programme and Budget for the next Year, or appropriate period, and adopt, with or without amendment, an Approved Programme and Budget for that Year or period.

(b) Subject to the prior approval by the Management Committee to the awarding of all contracts to a value of more than the Contract Limit specified in Schedule 1, once the Proposed Program and Budget is approved by the Management Committee, the Manager must implement the Approved Programme and Budget, and give a copy to each Joint Venturer.

(c) An Approved Programme and Budget may be amended by the Manager with the approval of the Management Committee.

(d) If the Management Committee for any reason fails to approve a Proposed Programme and Budget, prior to the commencement of the Year to which it relates, the Management Committee must continue to meet and use all reasonable efforts to adopt an Approved Programme and Budget. In the meantime, the Manager must, subject to any contrary direction of the Management Committee and receipt of necessary funds, continue to:

(i) do (or, as appropriate, refrain from doing) whatever is necessary to maintain the Tenements in good standing and other Joint Venture Property in good condition; and

(ii) perform and discharge all its existing obligations as Manager under this agreement, the Mining Act, the Tenements or to Third Parties or otherwise; and

all costs and expenses incurred by the Manager in maintaining the Tenements and performing and discharging all its existing obligations is Joint Venture Expenditure and each Joint Venturer must pay its Percentage Share of those costs and expenses as a Called Sum when due under a billing statement rendered by the Manager.

10.3 Expenditure not covered by Programme and Budget

(a) The Manager must not undertake any Joint Venture Activities which are not substantially in accordance with an Approved Programme and Budget except:

(i) in case of an Emergency, the Manager may make such immediate expenditure as the Manager deems necessary for the protection of life or property including the Joint Venture Property, in which case the Manager must promptly notify the Joint Venturers of such expenditure; or

(ii) if the Manager expects there will be a cost overrun in carrying out an Approved Programme which cannot be avoided by proper diligence, care and operating practice, the Manager may exceed a current Approved Budget by not more than 10%; or

(iii) if otherwise permitted by this agreement or by the Management Committee.

(b) The Manager must report to the Joint Venturers as soon as reasonably practicable any unbudgeted expenditure incurred by the Manager for whatever reason.

10.4 Costs borne in proportion to Percentage Shares

(a) All Expenditure incurred in accordance with an Approved Programme and Budget or as permitted by this agreement must be borne and paid for by the Joint Venturers severally in proportion to their respective Percentage Shares on completion of a Bankable Feasibility Study or Expenditure of 25 million Euros, whichever comes first.

(b) On or before the 10th day of each new quarter (or such other date or period as the Management Committee directs), the Manager must submit to each Joint Venturer a billing statement of proposed Expenditure specifying the Called Sum to be paid by that Joint Venturer to finance Joint Venture Activities set out in an Approved Programme and Budget during the next quarter (or such other period as the Management Committee directs) and the amount paid cumulatively to date for the current Year.

(c) The billing statement for Called Sums rendered by the Manager must include all existing and expected charges and credits for Joint Venture Activities.

(d) All billing statements rendered by the Manager during any Year are presumed conclusively to be true and correct, except and only to the extent a Joint Venturer makes written objection thereto within 12 months after the date of such statement specifying the items excepted and the grounds for such exception, and makes claim for adjustment.

10.5 Payment of Called Sums

(a) A Joint Venturer must pay each Called Sum to the Manager within 7 days of receipt of a billing statement.

(b) All payments must be in Euros and made to a bank account nominated by the Manager.

11 Accounts, reports, audit and access

11.1 Joint Venture accounting

The Manager must maintain separate books, accounts and records for the Joint Venture of Expenditure in accordance with generally accepted accounting principles adopted from time to time by the Ordre des Experts-Comptables (Institute of Chartered Accountants) in France, consistently applied.

11.2 Reports to Joint Venturers

The Manager must keep the Joint Venturers informed of all Joint Venture Activities by submitting in writing to the Joint Venturers:

(a) within one month of the end of each quarter, quarterly progress reports which include statements of Expenditure and comparisons of such expenditures to the Approved Programme and Budget, including quarterly summaries of data acquired;

(b) within one month of the end of each Year or other relevant period, a detailed final report after completion of each Approved Programme and Budget, which must include comparisons between actual and budgeted Expenditure;

(c) as soon as possible thereafter, a report on the happening of any event or occurrence that:

(i) the Manager considers is likely materially to affect the interests of all or any of the Joint Venturers, or the value or worth of any of the Tenements; or

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(a) within one month of the end of each quarter, quarterly progress reports which include statements of Expenditure and comparisons of such expenditures to the Approved Programme and Budget, including quarterly summaries of data acquired;

(b) within one month of the end of each Year or other relevant period, a detailed final report after completion of each Approved Programme and Budget, which must include comparisons between actual and budgeted Expenditure;

(c) as soon as possible thereafter, a report on the happening of any event or occurrence that:

(i) the Manager considers is likely materially to affect the interests of all or any of the Joint Venturers, or the value or worth of any of the Tenements; or

(ii) would be required to be disclosed to the market by a Joint Venturer (or by a Related Body Corporate of a Joint Venturer) under the Listing Rules provided that, in respect of a foreign stock exchange, the Joint Venturer has previously informed the Manager of the disclosure requirements applying to the stock exchange on which its, or one of its Related Bodies Corporate, securities, are listed;

(d) within one month in each case of its completion, a copy of any material report concerning Joint Venture Activities produced by the Manager; and

(e) such other reports as the Management Committee may direct.

11.3 Annual Accounts and audit

(a) The Manager must prepare accounts for the Joint Venture reflecting the results for each Year of all transactions connected with Joint Venture Activities as disclosed by the records and accounts kept by the Manager and reflecting the Joint Venture Property in the possession or control of the Manager as at the end of such Year in accordance with this agreement (**Annual Accounts**) which Annual Accounts must be completed, audited by the Auditor and provided to the Joint Venturers (together with the Auditor's report) no later than 3 months after the end of the Year.

(b) Any Joint Venturer that requires any particular audit requirements to be satisfied by the Auditor may make known to the Manager in writing its additional particular requirements before the audit is completed. The Manager must provide the particular audit requirements to the Auditor forthwith and the additional cost of conducting any additional audit must be paid by that Joint Venturer.

(c) The Manager must rectify any issues or qualifications raised by the Auditor concerning the accounts of the Joint Venture or Joint Venture Activities as soon as is reasonably practicable.

11.4 Individual Joint Venturer recording responsibilities

(a) Each Joint Venturer is responsible, in respect of its Joint Venture Interest, for all financial and accounting records required by Law or to support its income tax returns or any other reports required by any Authority.

(b) The Manager must provide to each Joint Venturer such Joint Venture information prepared by the Manager in accordance with this agreement, as the Joint Venturer may reasonably require to prepare its financial and accounting records.

11.5 Joint Venturer access

A Joint Venturer is entitled during working hours, and the Manager must give, on reasonable notice at the Joint Venturer's expense and risk, access to, and the right to inspect any Joint Venture Property, including all books and records maintained by the Manager.

12 Dilution and withdrawal

12.1 Dilution

The Dilution provisions contained in Schedule 4 form part of this agreement.

12.2 Withdrawal

(a) A Defaulting Joint Venturer may not withdraw from this agreement while a Default Event it has committed has not been remedied in full.

(b) A Non-Defaulting Joint Venturer may, by giving 30 days' notice in writing to the other Joint Venturers, withdraw from this agreement and the Joint Venture, provided that a Joint Venturer may not give a notice of withdrawal unless it has first met and satisfied, or provided for, in full to the satisfaction of the continuing Joint Venturers, all of its obligations accruing to the date of withdrawal under this agreement, the Tenements (for the whole of the current Year), the Act and any other Law, including obligations in respect of any Emergency, environmental protection or Rehabilitation Obligations, or which are required to keep its Joint Venture Interest in good standing and its Percentage Share in Joint Venture Property in good condition.

(c) If the Joint Venture Interest of a Joint Venturer reduces by dilution, Assignment or any other means to less than the Minimum Interest, then that Joint Venturer is deemed to have withdrawn from the Joint Venture.

(d) Upon a withdrawal from the Joint Venture, unless otherwise provided in this agreement, the withdrawing Joint Venturer:

(i) surrenders absolutely to the other Joint Venturer (and if more than one, pro-rata in the proportion that their respective Percentage Shares bear to each other) all its Joint Venture Interest;

(ii) the withdrawing Joint Venturer must, within 30 days of withdrawal, execute and deliver all deeds and documents necessary for, and complete, the Assignment (and registration, if required by relevant laws) of its Joint Venture Interest to the remaining Joint Venturers;

(iii) the withdrawing Joint Venturer must pay any stamp duty and other transfer costs which become payable upon the withdrawing Joint Venturers transferring its Joint Venture Interest to the remaining Joint Venturers; and

(iv) upon approval and registration of the withdrawing Joint Venturer's Joint Venture Interest to the remaining Joint Venturers, the withdrawing Joint Venturer is released from all future obligations relating to the Joint Venture.

(e) Any withdrawal from the Joint Venture is without prejudice to any rights or obligations of the Joint Venturers arising prior to the withdrawal, and any surrender of a Joint Venture Interest is not to be taken as satisfaction, wholly or partly, of the obligations of a withdrawing Joint Venturer prior to withdrawal.

13 Assignment

13.1 Restriction on Assignment

(a) A Joint Venturer may not Assign the whole or any part of its Joint Venture Interest otherwise than:

(i) as permitted by this agreement; or

(ii) with the consent of all the other Joint Venturers, which they may give or refuse in their absolute discretion.

(b) Except as otherwise provided in this agreement, a Defaulting Joint Venturer may not Assign the whole or any part of its Joint Venture Interest.

(c) For sake of clarity, nothing herein shall prohibit, prevent or restrict, any change of control of a Joint Venturer or any assignment of shares in the capital of a Joint Venturer.

(d) Any purported dealing by a Joint Venturer with its Joint Venture Interest contrary to this agreement is void.

13.2 Assignment to Related Body Corporate

A Joint Venturer that is not a Defaulting Joint Venturer may at any time without obtaining the prior consent of the other Joint Venturers Assign the whole (but not part) of its Joint Venture Interest to a Related Body Corporate. If a Joint Venturer Assigns the whole of its Joint Venture Interest to a Related Body Corporate, then that Joint Venturer:

(a) must, within 14 days following the date of the Assignment, notify all of the other Joint Venturers of the identity of the Assignee and its relationship to the Joint Venturer;

(b) continues to be bound by this agreement and is not released from any of its obligations or discharged from any of its liabilities under this agreement, unless all the other Joint Venturers agree; and

(c) must, by the time that the Related Body Corporate to which the whole of its Joint Venture Interest has been Assigned ceases to be a Related Body Corporate of the Ultimate Holding Company of the Joint Venturer, ensure that all the rights Assigned to that Related Body Corporate have been re-Assigned to that Joint Venturer or Assigned to another Related Body Corporate of that Joint Venturer.

An Assignment made under this clause is free of any rights of pre-emption set out in this agreement.

13.3 Permitted right of pre-emption

(a) A Joint Venturer has the right of pre-emption on the terms and conditions set out in this clause in respect of a sale of the whole or part of the Joint Venture Interest by another Joint Venturer.

(b) Where a Joint Venturer receives a bona fide offer to purchase or farm-in to, or intends to make an offer to sell or farm-out, for a consideration involving payment of cash to the Joint Venture or a Joint Venturer in whatever form and over any period (including immediate cash, deferred cash, royalty, net smelter return, net profit interest and the like, and including payment of Expenditure on Exploration) the whole or part of its Joint Venture Interest which it is willing to accept and dispose of or farm-out, the Joint Venturer (**Selling Joint Venturer**) must promptly send written notice to the other Joint Venturers of the offer to purchase, or farm-in, or sell or farm-out making the same offer to the other Joint Venturers (**Offer**).

(c) The Offer must:

(i) set out all the details of the offer to purchase, farm-in, sell or farm-out that the Selling Joint Venturer has received or intends to make, including the identity of the proposed acquirer (if then known), to enable an assessment of the acquirer's financial standing including, where applicable, details of the financial standing of the acquirer's Ultimate Holding Company, and any proposed parent company guarantees; and

(ii) attach a copy of all of the Offer documents.

(d) Each other Joint Venturer (**Non-Selling Joint Venturer**) has the right for a period of 45 days following receipt of an Offer (**Option Period**) to accept the Offer in full for the whole of the Joint Venture Interest.

(e) To accept the Offer a Non-Selling Joint Venturer which wishes to accept the Offer must give written notice of acceptance to the Selling Joint Venturer during the Option Period.

(f) Where more than one Non-Selling Joint Venturer accept the Offer from the Selling Joint Venturer the accepting Non-Selling Joint Venturers are deemed to have accepted the Offer pro rata in proportion to their respective Percentage Shares, unless otherwise mutually agreed between them.

13.4 Selling Joint Venturer free to Assign

If none of the Non-Selling Joint Venturers accept the Offer and provided that no Joint Venturer would hold a Joint Venture Interest of less than the Minimum Interest as a consequence of the Assignment then, following the Option Period, the Selling Joint Venturer is free within 6 months from the date of the Offer and, subject to subsequent completion and delivery of the required Assignment documentation specified in this agreement, to Assign its Joint Venture Interest the subject of the Offer to the prospective acquirer at a price and subject to the terms and conditions which are no less favourable to the Selling Joint Venturer than the price, terms and conditions set out in the Offer.

13.5 Requirements of Assignee

An Assignment of part or all of a Joint Venture Interest is not effective unless and until the Assignee:

(a) obtains all relevant Authorisations; and

(b) executes and delivers to each Joint Venturer a form of assumption deed approved by the Joint Venturers (which approval must not be unreasonably withheld or delayed) under which the Assignee agrees to assume the obligations of the Assignor under, and be bound by the terms and conditions of, this agreement to the extent of the Joint Venture Interest Assigned or upon the Joint Venture Interest being earned under the terms of the Assignment.

13.6 Joint Venturer ceasing to be a Joint Venturer

(a) If an Assignment of the whole or part of a Joint Venture Interest is made in accordance with this agreement (other than an Assignment to a Related Body Corporate) the Assignor is released from its obligations under this agreement arising after the Assignment to the extent of the Joint Venture Interest Assigned, other than the obligations of confidentiality contained in this agreement.

(b) If a person ceases to be a Joint Venturer, that person is not relieved of any liability under this agreement which was incurred or arose on or before the date when it ceased to be a Joint Venturer, unless this agreement otherwise provides.

14 Default

14.1 Breach Default Events to be remedied

(a) The Manager or any Non-Defaulting Joint Venturer may at any time after a Breach Default Event occurs serve a written notice on the Defaulting Joint Venturer specifying the nature of the Breach Default Event and requiring it to be remedied. The Defaulting Joint Venturer must then:

(i) if the Breach Default Event is capable of being remedied, remedy the default within 14 days of its receipt of the notice of default; or

(ii) if the Breach Default Event is not remedied within 14 days or is not capable of being remedied, pay adequate monetary compensation

to the Non-Defaulting Joint Venturers, such payment to be made within 7 days of receipt of notification of the amount of compensation payable as determined under this agreement.

(b) The Joint Venturers must agree in writing the amount of adequate monetary compensation to be paid by the Defaulting Joint Venturer under this clause. If the Joint Venturers have not reached agreement within 14 days after the date on which notice of default is given, that amount must be determined by an Expert appointed under this agreement, who must make such determination within 30 days of his or her appointment.

(c) On agreement or determination of the amount of adequate monetary compensation under this clause, that amount, and any interest and costs payable or reimbursable under this agreement, becomes Unpaid Monies due under this agreement after the 7 day period referred to in the next clause.

14.2 Unpaid Monies Default Event to be remedied

(a) If an Unpaid Monies Default Event occurs, the Manager must promptly give to the Defaulting Joint Venturer a notice to pay all Unpaid Monies within 7 days after the Due Date (**Non-payment Notice**).

(b) If the Defaulting Joint Venturer fails to comply with the Non-payment Notice, the Manager must promptly give notice of such failure to all of the other Joint Venturers together with the amount of Unpaid Monies due but not paid (**Unpaid Monies Default Notice**).

(c) Each Joint Venturer receiving an Unpaid Monies Default Notice has the right (but not the obligation) after 7 days from receipt of the notice to pay to the Manager all or part of Unpaid Monies referred to in the Unpaid Monies Default Notice on behalf of the Defaulting Joint Venturer. A Joint Venturer which makes a payment of Unpaid Monies on behalf of the Defaulting Joint Venturer becomes a **Paying Joint Venturer**.

(d) All monies paid by the Manager or a Paying Joint Venturer on behalf of a Defaulting Joint Venturer to remedy an Unpaid Monies Default Event constitute a debt due by the Defaulting Joint Venturer.

(e) The rights of the Manager or a Paying Joint Venturer against a Defaulting Joint Venturer under this clause are in addition to any other rights or remedies available to it or them.

(f) Upon payment of all Unpaid Monies including all interest and costs payable or reimbursable in respect of the Default Event, the Defaulting Joint Venturer is released from liability to pay the Called Sum on which it defaulted, but otherwise remains liable to indemnify each other Joint Venturer and the Manager as provided in this agreement.

14.3 Interest and costs

(a) Interest at the Agreed Interest Rate is payable on all Unpaid Monies not paid on or before the Due Date, from, but excluding, the Due Date up to and including the date upon which the moneys are paid.

(b) All interest paid on Unpaid Monies by the Manager, a Paying Joint Venturer or a Non-Defaulting Joint Venturer directly attributable to a Default Event become Unpaid Monies due for payment by the Defaulting Joint Venturer to the payer on demand.

(c) A Defaulting Joint Venturer must pay or reimburse all reasonable costs and expenses (including legal costs and expenses on a full indemnity

basis) incurred by the Manager, a Paying Joint Venturer or a Non-Defaulting Joint Venturer consequent upon, or which are directly attributable to remedying, a Default Event. All reasonable costs and expenses so paid become Unpaid Monies due for payment by the Defaulting Joint Venturer to the payer on demand.

14.4 Period of Unpaid Monies Default

An Unpaid Monies Default Event must not be treated as having been remedied for the purposes of this agreement until:

(a) the Defaulting Joint Venturer has paid, or caused to be paid, all Unpaid Monies due to the Manager, the Paying Joint Venturer or the Non-Defaulting Joint Venturers (as the case may be); or

(b) the whole of the Joint Venture Interest of the Defaulting Joint Venturer is acquired pursuant to this agreement by a Non-Defaulting Joint Venturer or a Third Party.

15 Consequences of Default

15.1 Buy-Out Election following an Unpaid Monies Default Event

If an Unpaid Monies Default Event is not remedied within 14 days from the Due Date, a Non-Defaulting Joint Venturer may (but is not obliged to) give notice to each other Joint Venturer (including the Defaulting Joint Venturer) and the Manager stating that it wishes to acquire the whole (but not part) of the Defaulting Joint Venturer's Joint Venture Interest (**Buy-Out Election**), and.

(a) If a Non-Defaulting Joint Venturer makes a Buy-Out Election, any other Non-Defaulting Joint Venturer which wishes to make a Buy-Out Election must do so within 14 days of receiving notice of the first Buy-Out Election;

(b) If more than one Non-Defaulting Joint Venturer makes a Buy-Out Election, those Non-Defaulting Joint Venturers must acquire the Defaulting Joint Venturer's Joint Venture Interest severally in the proportion to their respective Percentage Shares, unless otherwise mutually agreed between them; and

(c) If the Unpaid Monies Default Event is remedied in accordance with this agreement before the Buy-Out Election is made, the right to make the Buy-Out Election in respect of that Unpaid Monies Default lapses.

15.2 Effect of Buy-Out Election

(a) If one or more Non-Defaulting Joint Venturer elect to acquire the whole of the Defaulting Joint Venturer's Joint Venture Interest (**Enforcing Joint Venturer**), then the Defaulting Joint Venturer must transfer the whole of the Defaulting Joint Venturer's Joint Venture Interest to the Enforcing Joint Venturers, and the Enforcing Joint Venturers must severally in the proportion to their respective Percentage Shares:

(i) cure any Default Event of the Defaulting Joint Venturer which is capable of being cured;

(ii) assume all future obligations and liabilities in respect of the whole of the Defaulting Joint Venturer's Joint Venture Interest;

(iii) pay the amount of consideration to the Defaulting Joint Venturer being the fair market value of the Joint Venture Interest being acquired by the Enforcing Joint Venturers as at the date of the Default Event, less:

A 10% of the fair market value, or such greater or lesser amount as determined by an Expert appointed under this agreement as being sufficient and appropriate compensation for the loss suffered by the Enforcing Joint Venturers for the loss of the Defaulting Joint Venturer's participation in the Joint Venture; and

B all amounts due from the Defaulting Joint Venturer to any party or Third Party under or under this agreement, including interest and costs; and

C all amounts paid by the Enforcing Joint Venturers to cure any Default Event of the Defaulting Joint Venturer, including interest and costs, and

D the amount of all liability of the Defaulting Joint Venturer to meet existing Rehabilitation Obligations as determined by the Manager as at the date of payment,

such fair market value and date to be agreed between the parties and, in default of agreement within 14 days, then as determined by an Expert appointed under this agreement, who must make such determination within 30 days of his or her appointment and who may determine that the Defaulting Joint Venturer's Joint Venture Interest has nil or a negative value.

(b) No payment is due to the Defaulting Joint Venturer if the amount of consideration payable is determined to be nil or negative and:

(i) the Defaulting Joint Venturer must, within 30 days of receipt of the notice of acquisition, execute and deliver all deeds and documents necessary for, and complete, the Assignment (and registration, if required by relevant laws) of its Joint Venture Interest to the Enforcing Joint Venturers;

(ii) the Defaulting Joint Venturer must pay any stamp duty and other transfer costs which become payable upon the Enforcing Joint Venturers acquiring its Joint Venture Interest;

(iii) each Enforcing Joint Venturer must pay any amounts deducted by them from the fair market value for payment to any party or Third Party, to that party or Third Party as soon as reasonably possible;

(iv) each Enforcing Joint Venturer must release the Defaulting Joint Venturer from all claims it has against the Defaulting Joint Venturer in connection with the Default Event; and

(v) upon completion of the Assignment of its Joint Venture Interest to the Enforcing Joint Venturers, including the payment of all transfer costs, the Defaulting Joint Venturer is released from its obligations under this agreement arising after completion of the Assignment, other than the obligations of confidentiality set out in this agreement.

15.3 Acknowledgement

The Joint Venturers acknowledge that the consideration for the acquisition by an Enforcing Joint Venturer of a Defaulting Joint Venturer's Joint Venture Interest (including the assumption of all future obligations and liabilities):

(a) is agreed following negotiations involving all Joint Venturers which accepted that the consideration does not constitute or give rise to a penalty, forfeiture or unjust enrichment; and

(b) represents a reasonable and good faith assessment of the just and fair compensation for the Defaulting Joint Venturer in all the circumstances surrounding the relevant Default Event.

15.4 Attorney

For so long as it is in default, each Defaulting Joint Venturer irrevocably appoints the Enforcing Joint Venturers jointly and severally as its lawful attorney to act for it in its name or otherwise as the Manager (acting reasonably) deems fit for the purposes of:

(a) doing all such acts and executing all such documents as may appear to the Enforcing Joint Venturers (acting reasonably) to be necessary or desirable to comply with the obligations and, to the extent necessary to perform obligations, to exercise the rights of the Defaulting Joint Venturer under this agreement.

(b) with the agreement of all other Non-Defaulting Joint Venturers (if any), terminating the Joint Venture and doing all things reasonably necessary or desirable for completion and winding up of Joint Venture Activities

The Defaulting Joint Venturer is bound by all acts of the Enforcing Joint Venturers as attorney under this clause.

15.5 Preservation of other rights

Nothing in this agreement affects the right of a party to:

(a) subject to observance of the Dispute resolution provisions of this agreement, commence litigation in respect of a Default Event; or

(b) exercise any other rights or remedies available to the party under this agreement or at law or in equity.

16 Term and termination of Joint Venture

16.1 Term of agreement

This agreement commences on the date of this agreement and continues until the earliest to occur of any of the following **Termination Events**:

(a) all of the Non-Defaulting Joint Venturers (for themselves and as attorney for each Defaulting Joint Venturer) agree in writing to terminate the Joint Venture;

(b) the Salau PER (as defined in Schedule 1) is not granted to the Farminor within five years of the date of this agreement; or

(c) the Joint Venturers cease to hold any interest in any Tenement,

and continues thereafter until completion of the winding up of Joint Venture Activities.

16.2 Winding up of Joint Venture Activities

(a) Immediately following the occurrence of a Termination Event, the Manager must commence winding up Joint Venture Activities including:

(i) arranging for an evaluation of the Shutdown Costs as at the date of the termination of the Joint Venture, including the cost of satisfying the Rehabilitation Obligations;

(ii) taking such steps to dispose of Joint Venture Property as it is directed to take by the Management Committee;

(iii) to the extent reasonably possible, meeting the Shutdown Costs from the proceeds of realisation of Joint Venture Property;

(iv) after paying the Shutdown Costs and satisfying all Rehabilitation Obligations distributing any net amount remaining from the proceeds of realisation of Joint Venture Property among the Joint Venturers pro rata in proportion to their respective Percentage Shares; and

(v) requiring payment of a Called Sum from each Joint Venturer to the extent that the proceeds of realisation of Joint Venture Property are insufficient to meet the Shutdown Costs and satisfy all Rehabilitation Obligations.

(b) If a Joint Venturer fails to pay any Called Sum to meet the Shutdown Costs, the Non-Defaulting Joint Venturers are obliged, severally in proportion to their respective Joint Venture Interests, to contribute any amount unpaid by the Defaulting Joint Venturer and the Defaulting Joint Venturer is liable to repay all amounts paid by the Non-Defaulting Joint Venturers, together with interest and costs payable under this agreement. The amount paid by the Non-Defaulting Joint Venturers is a debt payable by the Defaulting Joint Venturer to the Non-Defaulting Joint Venturers on demand.

16.3 Certain obligations continue beyond termination

Upon termination of this agreement for any reason, all rights and obligations of the Joint Venturers to each other in their capacity as Joint Venturers cease, other than:

(a) the obligations of confidentiality set out in this agreement; and

(b) the obligation to pay any actual or contingent liabilities relating to Joint Venture Activities, including the cost of all Rehabilitation Obligations, or otherwise arising from this agreement that have not been discharged as at the date of termination.

16.4 Extension of term

The Joint Venturers may at any time consult with each other for the purpose of determining whether the term of this agreement should be extended beyond the period it would otherwise expire. A failure by any Joint Venturer to agree to such extension may not be referred to any dispute resolution procedure.

17 Confidentiality

17.1 Agreement is confidential

The terms and conditions of this agreement and all information flowing to any Joint Venturer from Joint Venture Activities, or in relation to Joint Venture Activities, including Mining Information, other than information which is already within the public domain independently of any breach by a party of this agreement (**Confidential Information**) are confidential.

17.2 No disclosure except as permitted

Except as permitted by this agreement, each Joint Venturer and the Manager undertakes that it will keep confidential all Confidential Information received by it and that neither it nor its employees will, without the consent of each of the other Joint Venturers, disclose any Confidential Information to any Third Party, provided, however, that the Farminee shall be entitled to disclose the existence and terms of this agreement, as well as relevant Mining Information, to third parties for the purposes and needs of raising funds for the Exploration and Joint Venture Activities.

17.3 Permitted disclosure

A Joint Venturer may disclose Confidential Information:

(a) to the professional advisers or agents of that Joint Venturer;

(b) to a Related Body Corporate of that Joint Venturer;

(c) as required by Law or by any competent Authority, whether the obligation arises as a consequence of the act of the Joint Venturer or otherwise;

(d) to any stock exchange under Listing Rules that require disclosure;

(e) where reasonably necessary for the purposes of any arbitration or administrative or legal proceedings involving only the Joint Venturers; or

(f) to a Third Party, and its advisers, bona fide tendering for or negotiating the purchase of all or part of the interest of that Joint Venturer in the Joint Venture or for the provision of finance to that Joint Venturer but only if the Third Party and its advisers first covenant in writing to the disclosing Joint Venturer to preserve confidentiality of information disclosed in the same terms as this clause.

A Joint Venturer making a permitted disclosure under this clause must take all reasonable steps to ensure that the person to whom disclosure is made keeps confidential all Confidential Information disclosed.

17.4 Permitted disclosure by Manager

The Manager may disclose Information to any person it considers necessary or desirable in connection with the conduct of the Joint Venture Activities upon obtaining from such person an undertaking of confidentiality in writing to the Manager and the Joint Venturers to preserve the confidentiality of information disclosed as required by this agreement.

17.5 Confidential Information disclosed only as necessary

(a) Each Joint Venturer and the Manager must take all steps reasonably necessary to ensure that the Confidential Information obtained is disclosed to and known by only those persons who need to acquire that knowledge in the course of their duties.

(b) Each Joint Venturer, but not the Manager, may use for its own internal purposes not related to Joint Venture Activities any geological, geophysical, geochemical, metallurgical or operational concept, model or principle of any kind, even if derived from the Confidential Information.

17.6 Publicity and disclosure

(a) Except for an announcement or other disclosure required by Law or permitted by this agreement, no public announcement naming a Joint Venturer or other public disclosure may be made in relation to Joint Venture Activities or Joint Venture Property unless the text of the announcement or disclosure has been approved by the other Joint Venturers.

(b) To the extent that an announcement or other disclosure is required by Law, the Joint Venturers must use all reasonable endeavours to agree, as soon as reasonably practicable, the wording of such announcement or disclosure before it is made.

17.7 Obligations exist beyond termination

The obligations in relation to Confidential Information imposed by this agreement continue until all the Confidential Information ceases to be confidential despite the termination of this agreement for any reason.

18 Dispute Resolution

18.1 Limitation on proceedings

Subject to any matter specifically referred to Expert determination under this agreement, the parties agree that it is a condition precedent to the commencement of any litigation proceedings by a party in respect of a dispute under, or in relation to, this agreement (**Dispute**) that the party has complied fully with the agreed process of resolving a Dispute (**Dispute Resolution Process)** under this clause (regardless of the level or levels on which the Dispute has previously been considered) except where the Dispute is the non-payment of monies due or:

(a) if the party seeks urgent interlocutory, injunctive or declaratory relief; or

(b) if the other party has failed to observe the requirements of this clause and the party seeks to enforce compliance with the Dispute Resolution Process

in respect of the Dispute.

18.2 Dispute Resolution Process

The Dispute Resolution Process for this agreement is set out in Schedule 5.

19 Expert Determination

19.1 Expert determination

Where a matter is permitted or required by this agreement to be determined by an Expert, or if the parties otherwise agree, any party may refer the matter to the determination of an Expert and the following provisions apply:

(a) Subject to any other determination by the Expert, the costs of obtaining the determination must be at the cost and expense of the parties equally (except that each party must pay its own advisers, consultants and legal fees and expenses) unless the parties otherwise agree;

(b) The Expert determination must be conducted by a person or body agreed to by the parties or, failing agreement within 14 days after a party proposes a person or body, by the person or body nominated by the Institute of Arbitrators & Mediators Australia; and

(c) In making a determination:

(i) the Expert must act in that capacity and not as an arbitrator;

(ii) the Expert's finding is final and binding upon the parties in the absence of manifest error;

(iii) the Expert must determine which party or parties should bear the costs of any such determination and in what proportion. In making this decision, the Expert must consider the degree to which he or she considers such party was unreasonable in failing to agree to the matter; and

(iv) the Expert may employ consultants to assist the Expert to carry out his or her duties.

20 Force Majeure

20.1 Meaning of Force Majeure

In this agreement, the term "**Force Majeure**" means any cause which is not reasonably within the control of the Joint Venturer or the Manager claiming relief by reason of Force Majeure, which cause may include:

(a) an act of God, earthquake, lightning, fire, flood, storm, cyclone, explosion or epidemic;

(b) strike, lockout, stoppage, ban or other types of labour difficulty whether at the JV Area, railway or port or otherwise;

(c) war (whether declared or undeclared), blockade, act of the public enemy, act of terrorism, revolution, insurrection, riot, or civil commotion, sabotage, malicious damage, radioactive contamination, toxic or dangerous chemical contamination;

(d) action, inaction, embargo or restraint by an Authority (including heritage related restraints and, refusal or failure to grant any Authorisation despite timely reasonable endeavours to obtain the same);

(e) unavailability or mechanical and electrical breakdown and failure of equipment, plant, pipelines, transmission lines or transport; or

(f) any other cause whether specifically listed above or otherwise which is not reasonably within the control of the party claiming Force Majeure,

except where:

(g) the cause is the inability to obtain, use or pay, moneys for any reason; or

(h) the consequences of the cause could have been prevented, overcome or remedied by the exercise by the party affected of care and diligence normally exercised by duly qualified persons in the performance of comparable work.

20.2 Relief

If, as a direct result of an event or occurrence of Force Majeure (**Force Majeure Event**), a Joint Venturer or the Manager becomes unable, wholly or in part, to perform an obligation (other than an obligation to obtain, use or pay money) under this agreement (**Affected Party**):

(a) that Affected Party may give the other Joint Venturers and the Manager notice of the Force Majeure Event with reasonably full particulars and, insofar as is known to it, the probable extent to which it will be unable to perform, or be delayed in performing, that obligation;

(b) on giving the notice of the Force Majeure, that obligation is suspended but only to the extent that and for so long as it is affected by the Force Majeure Event;

(c) the Affected Party must use all reasonable diligence to remove, overcome or abate the effect of the Force Majeure Event as quickly as possible;

(d) if the Force Majeure Event cannot be removed, overcome or abated to an extent that allows resumption of performance within 6 months (or such other period as the Joint Venturers agree) from the date of the notice, the Joint Venturers must consider and determine whether this agreement must be modified or terminated; and

(e) notwithstanding the Force Majeure Event, the Joint Venturers must continue to pay the Manager such monies as are necessary keep the

Tenements in good standing and to maintain the other Joint Venture Property in good condition.

20.3 Labour disputes

The obligation to use all reasonable diligence to overcome or remove the effect of the Force Majeure does not require the Affected Party to:

(a) settle any strike, or other labour dispute; or

(b) contest the validity or enforceability of any law, regulation or legally enforceable order by way of legal proceedings,

on terms not acceptable to it solely for the purpose of removing the event of Force Majeure.

20.4 Resumption

The Affected Party must resume performance of its obligations as soon as, and to the extent that, it is no longer affected by the Force Majeure Event.

21 VAT Laws

21.1 Compliance with VAT Laws

The parties will comply with, and do all things reasonably necessary under, all VAT Laws.

22 Notices

22.1 Form of Notice

Unless expressly stated otherwise in this agreement, any notice, certificate, consent, approval, waiver or other communication in connection with this agreement (**Notice**) must be in writing or given by electronic transmission, signed by the sender (if an individual) or an Authorised Officer of the sender and marked for the attention of the person identified in the Particulars or, if the recipient has notified otherwise, then marked for attention in the last way notified.

22.2 When Notices are taken to have been given and received

(a) A Notice is regarded as given and received:

(i) if delivered by hand, when left at the address given in the Particulars;

(ii) if sent by pre-paid post, on the 3rd day following the date of postage;

(iii) if given by fax, on production of a transmission report by the machine from which the fax was sent which indicates that the fax was sent in its entirety to the recipient's fax number, unless the recipient informs the sender that the Notice is illegible or incomplete within 4 hours of it being transmitted; and

(iv) if sent by email, at the time shown in the delivery confirmation report generated by the sender's email system which indicates that the email was sent to the recipient's email address.

(b) A Notice delivered or received other than on a day on which trading banks are open for business in the capital city of the Nominated State (**Business Day**) or after 5.00pm (recipient's time) is regarded as received at 9.00am on the following Business Day. A Notice delivered or received before 9.00am (recipient's time) is regarded as received at 9.00am.

23 Ancillary provisions

23.1 Entire agreement

This agreement contains everything the parties have agreed and overrides and supersedes all earlier agreements in relation to the Joint Venture.

23.2 Assignment - Enurement

The Farminor acknowledges and agrees that the Farminee shall be entitled to transfer freely all its rights and obligations under this agreement to any subsidiary (the **SPV**) established for the purpose of carrying out the transactions contemplated under this agreement. The Farminee shall promptly notify such assignment to the Farminor. Upon completion of such assignment, the SPV shall be substituted for Juniper Capital Partners Limited under all the latter's rights and obligations under this agreement and any reference herein to Juniper Capital Partners Limited shall be read and construed as a reference to the SPV, which shall become the Farminee and a Joint Venturer under this agreement.

The provisions of this agreement enure for the benefit of and are binding on each party and their respective successors and permitted Assigns.

23.3 No reliance or inducement

Each party warrants and agrees that when entering into this agreement it relied exclusively on the terms expressly contained in this agreement and on:

(a) its own inspections, investigations, skill and judgement; and

(b) opinions and advice obtained by it,

and did not rely on any statements, inducements, undertakings, representations or advice given or made, whether orally or in writing, by or on behalf of any other party, including without limitation by any officer, employee or agent of any party.

23.4 Amendment

No modification, variation or amendment of this agreement is of any force unless it is in writing and has been signed by each of the parties.

23.5 Severability

If any provision of this agreement is void, illegal or unenforceable, it may be severed without affecting the enforceability of other provisions in this agreement.

23.6 Waiver

A waiver of any right, power or remedy under this agreement must be in writing signed by the party granting it. A waiver is only effective in relation to the particular right, power or remedy in respect of which it is given. It is not to be taken as an implied waiver of any other right, power or remedy or as an implied waiver of that right, power or remedy in relation to any other occasion.

23.7 Applicable law

(a) This agreement is governed by and must be construed in accordance with the laws of the Nominated State.

(b) The parties submit irrevocably to the non-exclusive jurisdiction of the Courts of the Nominated State and all Courts competent to hear appeals from those Courts.

23.8 Fees and charges

(a) Each party must bear its own costs for the preparation, execution, delivery and performance of this agreement.

(b) Unless otherwise agreed, all stamp duties and registration fees paid relating to the registration and performance of this agreement, and of all other documents arising out of this agreement, are Joint Venture Expenditure.

23.9 Counterparts

This agreement may be executed in any number of counterparts and by different parties in separate counterparts. Each counterpart when so executed is deemed an original but all of which together constitute one and the same instrument.

Schedule 1 Basic Particulars

Approvals Period: (Clause 2.2)
5 years from the date of this agreement, or such longer period as the parties may agree.

Area of Influence: (Clause 1.1)
the area within a Tenement and within 50 km of the outer boundary of a Tenement

Budget Preparation Date: (Clause 10.1(a))
1 June

Conditions Precedent: (Clause 2)

1. The establishment by the Farminee of the Facility.

   This Condition Precedent 1 is not capable of waiver.

2. The grant of the Salau PER.

   This Condition Precedent 2 is not capable of waiver.

Contract Limit: (Clause 10.2(b))
Euros 100,000.

Management Fee: (Clauses 1.1 and 8.3)
10% of all Expenditure made by the Manager under this agreement, according to the definition in clause 2(b) of Schedule 3, which is intended to reimburse, without profit, the Manager for its indirect or overhead costs which it, or its Related Bodies Corporate, incur in providing corporate, administration and other services for the Joint Venture.

Minerals(s): (Clause 1.1)
Tungsten, base metals, precious metals, and other metallic and non-metallic minerals.

Minimum Interest: (Clause 1.1)
5% Joint Venture Interest.

Mining Act: (Clause 1.1)
the mining legislation in France or Spain, as applicable.

Nominated State: (Clause 1.1)
France.

Passmark: (Clause 1.1)
50% Percentage Share of Joint Venturers entitled to vote.

Matters requiring a unanimous vote: (Clauses 1.1 and 7.5(c))

1. Variation of the Management Fee.
2. Suspension or termination of Joint Venture Activities for any reason, including extended Force Majeure.
3. Sale or disposition of any item of Joint Venture Property which exceeds Euros 50,000 and which is material to the operation of the Joint Venture.
4. Surrender of the whole or any part of the JV Area except as may be necessary for minor boundary adjustments, or as may be required under the Mining Act.
5. Any other matter which is specified elsewhere in this agreement as requiring a Unanimous Vote.

Salau PER: (Clause 1.1)	Means the PER to be granted in respect of an area covering the Salau tungsten mine
Year: (Clause 1.1)	a period of 12 calendar months commencing on and including the 1st day of July and ending on and including the following 30th day of June.

Schedule 2

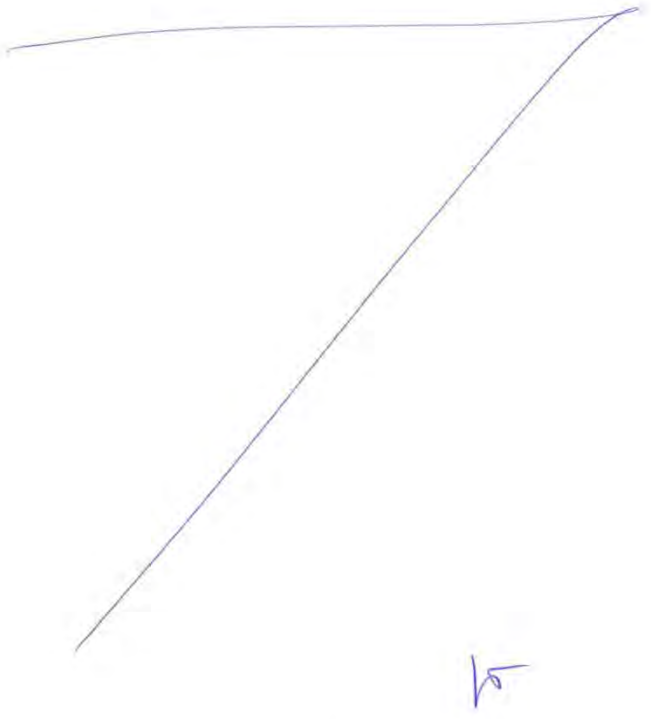
List of Tenements as at the Commencement Date

All Tenements are to be in name of Farminor:

No.	Name	Status	Area (km^2)	Grant date	Expiry date
	Application - Permis Exclusif de Recherches (France) (over the area of the Salau tungsten deposit)				
	Application - Exploration Licence (Spain) (over the southern extension of the Salau geological domain, which extends from France into Spain)				

Annexure to Schedule 2

JV Area Map (Map of the Tenements)



Schedule 3

Expenditure

1 Introduction

(a) It is the intent of this Schedule 3 that, except as otherwise provided by this agreement, the Manager does not gain or lose by reason of its duties and responsibilities under this agreement.

(b) Nothing in this Schedule 3 may be interpreted as:

(i) relating to the tax accounting of any party or of any joint venture or undertaking including such parties or any of them; or

(ii) an election by a party with respect to a matter under the tax laws or other laws of the jurisdiction to which a party may be subject or an election with respect to any method of accounting for the purpose of reporting to government or an election for any other purpose.

2 Definitions

Terms used in this Schedule 3 have the same meanings as defined in the agreement to which Schedule 3 is annexed and in addition:

Expenditure means expenditure in respect of the Exploration and Feasibility Study phases of the Joint Venture and includes:

(a) salaries, wages and on-costs of the Manager's employees engaged in Joint Venture Activities including the cost of:

(i) annual leave (including leave loading), sick leave, public holidays, long service leave and other benefits, assessments and obligations paid by agreement or required to be paid by law;

(ii) all taxes (including fringe benefits tax and payroll tax), workers' compensation and common law insurance in connection with such employees; and

(iii) payments for employee group life insurance, medical/dental services/hospitalisation, superannuation, pension, and other benefits of like nature,

all on a pro-rata basis for the time such employees are engaged in performing Joint Venture Activities;

(b) indirect administration and support services, comprising managerial, administrative, secretarial, legal, accounting and personnel services, to be taken to be an amount equal to 10% of total Expenditure excluding the items specified in this paragraph (b);

(c) payments for provision of the Manager's senior staff and technical services staff at an appropriate hourly or daily all-inclusive rate;

(d) reasonable travel and living expenses (other than as charged under paragraph (b)) of the Manager's employees and contract personnel whilst away from their regular place of employment all on a pro-rata basis for the time they are engaged in performing Joint Venture Activities;

(e) charges for provision of items of equipment from any machinery pool maintained by the Manager, which charges include depreciation, licensing, insurance and repairs (but not routine maintenance nor

fuel, each of which is to be separately charged to the Joint Venture) such charges being no more than the usual commercial rental rate for such items in the area in which they are being used;

(f) purchase (or depreciation, as appropriate), lease or hire of buildings, vehicles, plant and equipment used in Joint Venture Activities except for items provided from the Manager's machinery pool;

(g) routine maintenance of all buildings, machinery, plant and equipment (including the Manager's machinery pool items) used in Joint Venture Activities and repairs, insurance and licensing of all buildings, machinery, plant and equipment other than the Manager's machinery pool items, in accordance with usual reasonable accounting practices;

(h) premiums paid on insurance effected under this agreement and all damages paid in settlement of claims and costs not recovered from insurers;

(i) provision of accommodation and food in connection with field operations, camp establishment, field office costs, first aid and safety costs;

(j) costs incurred in complying with environmental protection and rehabilitation requirements imposed by an Authority, by law or under the conditions on which the Tenements are held;

(k) the cost of all consumables and expendable supplies, materials and stores, including fuel, oil, light, power, water, gas, field office supplies and tools;

(l) the cost of all freight and transport for or in connection with Joint Venture Activities, including transport of the Manager's machinery pool items to and from the JV Area;

(m) payments made to, or in respect of, contract personnel engaged in Joint Venture Activities including drilling, assaying, surveying, and geo-scientific tasks;

(n) costs of consultants engaged in Joint Venture Activities including legal and accounting fees and the cost of the Auditor; and

(o) any other cost or expense specified in this agreement as Expenditure, or which the parties agree to treat as Expenditure;

PROVIDED THAT where any of the above facilities or services are used not only for Joint Venture Activities but also for unrelated operations of the Manager the costs must be adjusted on a pro-rata basis on the proportion of time such facilities or services are used for Joint Venture Activities.

Schedule 4

Dilution Provisions – Optional and Default Dilution

Terms used in this Schedule 4 have the same meanings as defined in this agreement.

1.1 Dilution Notice

So long as no notice of a Buy-Out Election has been given, following completion of a Bankable Feasibility Study the Joint Venturer Interest of a Joint Venturer may be reduced and diluted in either of the following circumstances, whereupon the Joint Venturer becomes a **Diluting Joint Venturer**:

(a) If, within 14 days of the adoption by the Management Committee of an Approved Programme and Budget, but not otherwise, a Joint Venturer gives notice to the other Joint Venturers and the Manager that it does not wish to contribute to Joint Venture Activities under that Approved Programme and Budget (**Optional Dilution Notice**) for the purposes and duration of that Approved Programme and Budget; or

(b) If a Defaulting Joint Venturer fails to remedy a Breach Default Event or an Unpaid Monies Default Event within the period required by this agreement, upon all the Non-Defaulting Joint Venturers giving notice to the Defaulting Joint Venturer that they require its Joint Venture Interest to be reduced and diluted specifying the relevant Default Event which has not been remedied (**Default Dilution Notice**)

Provided that:

(c) a Joint Venturer may not give an Optional Dilution Notice in respect of an Approved Programme and Budget for Joint Venture Expenditure:

(i) for an Emergency, environmental protection or Rehabilitation Obligations; or

(ii) which is required to meet obligations lawfully prescribed by an Authority or by Law including maintenance of the Tenements in good standing and to keep other Joint Venture Property in good condition.

2.2 Effect of Dilution Notice

Upon an Optional Dilution Notice or a Default Dilution Notice being given, the Diluting Joint Venturer is not obliged to make any further contribution to that Approved Programme and Budget and its Joint Venture Interest must be reduced in accordance with the following formula (**Dilution Formula**), with the Joint Venture Interest of each other Joint Venturer which is not a Diluting Joint Venturer (**Non-Diluting Joint Venturer**) increasing pro-rata in the proportion that their respective Percentage Shares bear to each other:

$$JVI = \frac{DE}{TE} \quad x \quad 100$$

Where:

JVI = the ongoing Joint Venture Interest of the Diluting Joint Venturer after the Dilution Notice;

DE = the total Joint Venture Expenditure actually incurred by the Diluting Joint Venturer up to the date of the Dilution Notice; and

TE = the total Joint Venture Expenditure actually incurred by all Joint Venturers up to the date of the calculation.

2.3 Recalculation of Joint Venture Interests

(a) If a Dilution Notice has been received from or given to a Diluting Joint Venturer, then throughout the period of the applicable Approved Programme and Budget the Manager must recalculate the Joint Venture Interest of each Joint Venturer in accordance with the Dilution Formula and notify the Joint Venturers of their respective Joint Venture Interest:

(i) when the Joint Venture Interest of the Diluting Joint Venturer reduces by each multiple of 5 percentage points below its Joint Venture Interest immediately before the time at which it became a Diluting Joint Venturer;

(ii) when the Joint Venture Interest of a Diluting Joint Venturer reduces to the Minimum Interest or less;

(iii) on request in writing by any Joint Venturer; and

(iv) every 3 months as and from the date that the Non-Diluting Joint Venturers pay the first Called Sums after the Dilution Notice is given.

(b) On request by a Joint Venturer, the Diluting Joint Venturer must within 30 days of receiving the request, at its cost and expense:

(i) transfer to the Non-Diluting Joint Venturers sufficient Joint Venture Interest in the Tenements to give effect to the Dilution Notice and the Dilution Formula; and

(ii) execute and deliver all documents and pay any stamp duty and other transfer costs necessary to complete (and register, if required by relevant laws), the Assignment and transfer of the applicable Joint Venture Interest to the Non-Diluting Joint Venturers.

2.4 Additional Called Sums

(a) Within 7 days of receiving a Dilution Notice, the Manager must request additional Called Sums from the Joint Venturers in proportion to their respective Percentage Shares (other than the Diluting Joint Venturer) to replace the contributions not being made by the Diluting Joint Venturer.

(b) Within 14 days of receiving a request for further Called Sums, a Joint Venturer (other than a Diluting Joint Venturer) may elect:

(i) to proceed with the Approved Programme and Budget and pay the additional Called Sums; or

(ii) not to contribute to the Approved Programme and Budget and give a Dilution Notice.

2.5 Re-assessment of Programme and Budget

If a further Dilution Notice is given by another Joint Venturer, the Manager must, within 14 days of further Dilution Notice being given, call a meeting of the Management Committee to revise the Approved Programme and Budget. A Diluting Joint Venturer is entitled to vote at such meeting or any adjournment.

2.6 Withdrawal of Dilution Notice

Upon an Approved Programme and Budget being revised or confirmed at a meeting of the Management Committee, a Diluting Joint Venturer may within 14 days of that meeting give notice to the Manager and the other Joint Venturers withdrawing any prior Dilution Notice thereby electing to pay all further Called Sums.

Schedule 5

Dispute Resolution Process

2.1 Dispute Resolution Process

(a) Where a Dispute arises between the parties, a party may give notice to the other parties initiating a Dispute Resolution Process in respect of the Dispute (**Dispute Notice)** which Dispute Notice must:

(i) state that the notice is given under this subclause;

(ii) describe the nature of the Dispute; and

(iii) nominate a representative of the party who is authorised to negotiate and settle the Dispute on the party's behalf.

(b) (**Representative of other parties**) Each other party must within 7 days after receipt of a Dispute Notice nominate in writing to the other parties a representative authorised to negotiate and settle the Dispute on its behalf.

(c) **(Negotiation by Representatives)** The parties' representatives must negotiate in good faith with a view to resolving the Dispute within 21 days after the receipt of the Dispute Notice, (or such longer period as those representatives agree), failing which the Dispute must be immediately referred to the Chief Executive Officers of the parties.

(d) (**Chief Executive Officers**) The Chief Executive Officers must negotiate in good faith with a view to resolving the Dispute within 14 days of the Dispute being referred to them (or such longer period as the Chief Executive Officers agree) failing which, the Dispute may be immediately referred by a party by notice to mediation or Expert determination under this agreement.

2.2 Mediation

Mediation of a Dispute must:

(a) be conducted in the Nominated State by the person or body agreed to by the parties or, failing agreement within 35 days after receipt of the Dispute Notice, as nominated by the President for the time being of the Law Society or equivalent of the Nominated State on request by either party;

(b) be conducted in accordance with such rules as may be agreed to by the parties or, failing agreement within 35 days after receipt of the Dispute Notice, in accordance with the rules nominated by the person or body agreed or nominated to conduct the mediation;

(c) be at the cost and expense of the parties equally (except that each party must pay its own advisers, consultants and legal fees and expenses) unless the parties otherwise agree;

(d) if not earlier resolved, be continued for a period expiring on the date being 14 days after the nomination of the mediator (or such other period as the parties may agree) after which either party may at any time after that date seek Expert determination in accordance with this agreement or commence litigation proceedings in respect of the Dispute.

2.3 Dispute Resolution Process not to interrupt Joint Venture Activities

The parties must ensure that neither the commencement nor conduct of any Dispute Resolution Process, including mediation, or Expert determination, causes any interruption to Joint Venture Activities or to the performance by the parties of their respective obligations under this agreement, nor will it affect any of the time limits fixed in this agreement unless the performance of Joint Venture Activities or a party under this agreement is materially affected by the submission of the matter in dispute to arbitration, litigation or by the result of the litigation or arbitration.

2.4 Clause does not apply to matters where consent required

If this agreement refers to the parties reaching agreement on a matter or the consent of any party being given then, except where this agreement requires that consent or agreement is not to be unreasonably withheld or delayed, the Dispute Resolution Process cannot be used to resolve a dispute between the parties in relation to the reaching of that agreement or the giving of that consent.

Signing page

EXECUTED by **Variscan Mines SAS** by authority of its directors in the presence of:



.....

Signature of director

TESTARD Jack

.....

Name of director (block letters)



.....

Signature of director

GREG JONES

.....

Name of director

EXECUTED by **Juniper Capital Partners Limited** by authority of its directors in the presence of:



.....

Signature of director

SHAHZAD ASHFAQ

.....

Name of director (block letters)



.....

Signature of director

ALVIN HUNG

.....

Name of director

ANNEXE 4g : engagement financier de Juniper Capital Partner Limited

JUNIPER
CAPITAL PARTNERS

July 18th, 2014

M. Michel Bonnemaison
Variscan Mines (France) Limited,
16 rue Léonard de Vinci,
45074 Orléans Cedex 2
France

Dear M. Bonnemaison

THE SALAU PROJECT

We write to you to confirm that Juniper Capital Partners Limited, together with its clients and partners, will commit up to EUR25 million (Twenty five million euros) to advance the Salau Tungsten Project in Ariege towards a Bankable Feasibility Study in preparation for commercial production, subject to:

- Successful grant of a Permit Exclusif de Recherche for the project,
- Continued affirmation of the economic viability of the project to our satisfaction and fully at our discretion, and
- Agreement of the use of proceeds to our satisfaction and fully at our discretion.

Attached is a letter from our investing partners confirming the availability of funds.

Yours sincerely

Shahzad Ashfaq
Chief Executive Officer
For and on behalf of
Juniper Capital Partners Limited

APOLLO
Multi Asset Management

Mr. Shahzad Ashfaq
Chief Executive Officer
Juniper Capital Partners Limited
One Raffles Quay
Level 25, North Tower
Singapore 048583

18th July 2014

Dear Mr. Ashfaq

THE SALAU PROJECT

Apollo Multi Asset Management LLP confirms that, subject to contract and our final due diligence, we will be the financial partner with Juniper Capital Partners Limited ("Juniper") with respect to Juniper's investment in the Salau Project in France.

We also confirm and represent that Apollo Multi Asset Management LLP currently manages discretionary Investment Funds with assets under management significantly in excess of Euro 25 million and further, we confirm that the proposed investment in the Salau Project falls within the management mandate of our Funds

Yours sincerely,

Craig Wetton
Partner
Apollo Multi Asset Management LLP

Apollo Multi Asset Management LLP

Studio 25 Corston Business Park, Corston, Bath. BA2 9AP
Tel: +44 (0)1225 873324 Fax: +44 (0)1225 873580
and
Second Floor, Reigate Hill House, 28 Reigate Hill, Reigate, Surrey, RH2 9NG.
Tel: +44 (0)173 7237 280 Fax: +44 (0)20 3291 2867

Apollo Multi Asset Management LLP is a limited liability partnership registered in England and Wales under registered number OC339180 and is authorised and regulated by the Financial Conduct Authority. Registered office Chart House, 2 Effingham Road, Reigate, Surrey, RH2 7JN. A list of members is open to inspection at the registered office.

Dossier dâapplication dûun Permis Exclusif de Recherche de Mines ç COUFLENS è

ANNEXE 5

M£MOIRE TECHNIQUE

Le PERM ç Couflensè est le 9¯me titre minier sollicit® pour tungst¯ne, ®tain, bismuth, molybd¯ne, zinc, plomb, cuivre (m®taux de base), m®taux pr®cieux (or, argent) et substances connexes (notamment niobium et tantale) par la soci®t®Variscan Mines. Le choix du p®rim¯tre a ®t®guid®par les strat®gies dâexploration et dâexploitation telles quâexplicit®es dans lâannexe 9 de ce dossier.

Cette annexe comporte :

- **Annexe 5a** : travaux pr®liminaires ¨ la demande du PERM ç Couflens è.
  Apr¯s une analyse exhaustive des potentialit®s m®tallog®niques et mini¯res du socle varisque, Variscan Mines a retenu la France comme zone prioritaire. Cette ®tude pr®liminaire a consist® principalement en la mise en place dûune base de connaissances ®volutive, le GKR, dont les applications ont conduit ¨ la mise en place des strat®gies de lâentreprise

- **Annexe 5b** : justification de la demande du PERM ç Couflens è. Le PERM recouvre les formations carbonat®es Siluro-D®voniennes et lâintrusion granodioritique de la Fourque. Le m®tamorphisme de contact induit lors de lâascension de la granodiorite dans la s®rie s®dimentaire a initi® des transformations min®ralogiques importantes dans les calcaires de Salau. Des skarns ¨ pyrrhotite et scheelite ($CaWO_4$) se sont alors d®velopp®s

- **Annexe 5c** : carte g®ologique et min®ralisations du PERM ç Couflens è

- **Annexe 5d** : travaux projet®s sur le PERM ç Couflens è pour les 5 ann®es ¨ venir. Deux phases sont pr®vues :

    - Une premi¯re phase de 3 ann®es visant ¨ lâexploration syst®matique de tout le PERM avec ®tablissement dûun cadrage ®conomique. Une demande de PEX pourrait °tre assujettie ¨ cette phase

    - Une deuxi¯me phase de 2 ann®es, ®tablissant la pr®faisabilit®du projet.

ANNEXE 5a

Travaux prâliminaires ¨ la demande du PERM ç Couflens è

La sociâtâ Variscan Mines, a mis en place une base de connaissance novatrice, le GKR, sur les indices et gisements mâtallifâres de lâEurope Occidentale et de lâAfrique du Nord.
Lâanalyse des connaissances synthâtisâes par ce systâme dâorganisation des informations gâologiques et miniâres a conduit ¨ une sâlection de cibles potentiellement trâs intâressantes en France et au Maroc.

Ces travaux ont inclus une sârie dââtudes bibliographiques sous-traitâes par Variscan Mines Limited (anciennement PlatSearch) au BRGM et plusieurs missions dâexpertises de terrain pour un montant hors taxes de 100 kú.

De 2011 ¨ ce jour, Variscan Mines dâveloppe un important programme de R & D en mâtallogânie en partenariat avec la sociâtâ de conseil e-Mines et les universitâs dâOrlâans et de Paris VI. Dans ce cadre, une importante râactualisation des travaux de lâInventaire Minier National, de lâInventaire minâralogique de la France et des donnâes de la BSS (Banque de Donnâes du Sous-Sol) est en cours de râalisation. Lâensemble des informations recueillies ont âtâ intâgrâes et harmonisâes dans le systâme GKR de Variscan Mines. Ces travaux reprâsentent ¨ ce jour un investissement de lâordre de 500 kú.

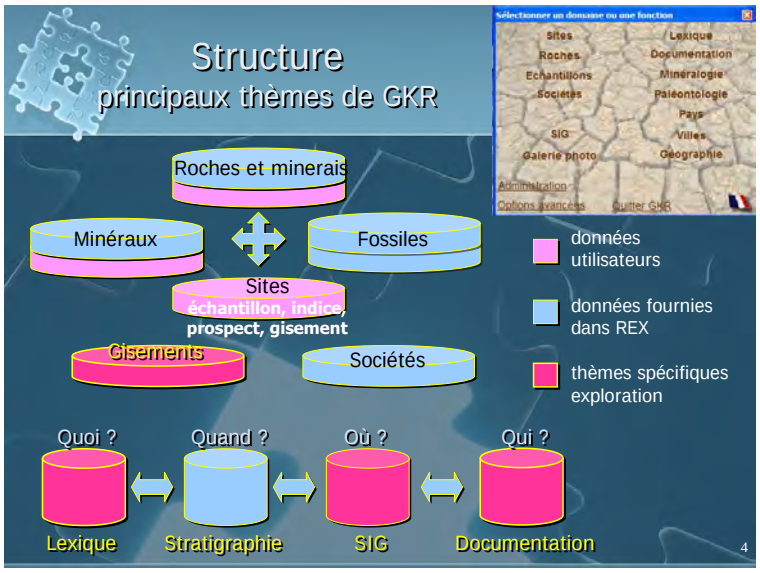
En particulier, une modâlisation 3D des informations concernant lâancienne mine de Salau en Ariâge, a abouti ¨ une reclassification du gisement et motivâ la prâsente demande de PERM.

Un SIG sous ArcView a parallâlement âtâ mis en place pour lâexploitation cartographique des donnâes de la base de connaissances ; les illustrations cartographiques de ce systâme ayant âtâ utilisâes pour la confection de ce rapport.

Installation d'un syst¯me GKR de gestion des donn®es ®conomiques, g®ologiques et mini¯res : analyse des potentiels en m®taux de base, m®taux pr®cieux et/ou critiques (W, Sn, Terres Rares, Nb, Ta, Li, é)

Le GKR est un SBA (Search Based Application) qui organise un ensemble d'informations g®ologiques, mini¯res ou ®conomiques complexes et h®t®rog¯nes pour orienter les strat®gies d'exploration mini¯re ou d'approvisionnement.

Il supprime les contraintes inh®rentes aux bases de donn®es classiques, centr®es sur un th¯me particulier. Son utilisation n'est pas astreinte ¨ une seule th®matique et son architecture offre une flexibilit® totale, chaque fiche s'adaptant au sujet ¨ traiter. Il int¯gre dans un m°me syst¯me des informations de structures et de th¯mes vari®s (documentaires, donn®es papier, fichiers informatiques pdf, ppt, pages Web, etc...). Il travaille simultan®ment en plusieurs langues et autorise une gestion ontologique et encyclop®dique des informations, aid® par des modules int®gr®s de min®ralogie, de stratigraphie, de p®trographie, de pal®ontologie et de g®ologie. Le stockage est virtuellement illimit® et les donn®es, modifiables et actualisables, peuvent °tre enrichies en permanence. Il int¯gre un SIG simplifi® qui permet une visualisation cartographique des informations, et une communication ais®e avec les SIG professionnels.



Nourri de bases de donn®es sur les ressources mini¯res (disponibles sur internet par exemple), le GKR devient une base de connaissance exhaustive et actualis®e autorisant des expertises, la r®alisation de cartes de synth¯se et de potentialit®s mini¯res, ou l'identification de m®tallotectes. Il permet en outre un acc¯s imm®diat et permanent ¨ la documentation g®n®rale et d®taill®e qui a permis d'établir ces documents synth®tiques.

Il est un outil de base pour une compagnie mini¯re ou un office minier national, en r®alisant des inventaires sectoriels sur une substance et/ou une unit® g®ographique, ou encore des inventaires complets hi®rarchis®s sur un pays ou un groupe de pays.

Ce progiciel est actuellement utilis® par plusieurs compagnies mini¯res pour mieux cibler leurs campagnes d'exploration.

Analyse des donn®es publiques par Variscan Mines

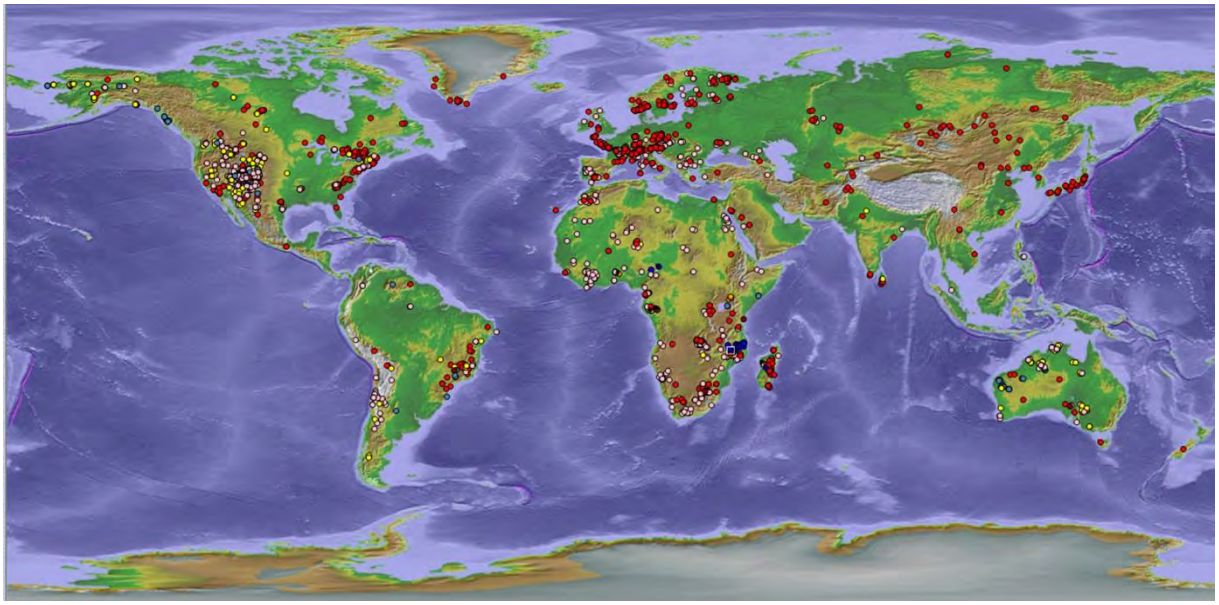
Les Services G®ologiques publient des bases de donn®es contenant des informations g®ologiques et mini¯res concernant ¨ peu pr¯s toutes les substances. Ces donn®es, qui sont mises ¨ jour avec une p®riodicit® variable, sont destin®es ¨ faciliter l'exploration ç greenfields è en assurant ainsi la promotion mini¯re.

Au total, c'est plusieurs centaines de milliers de fiches qui sont donc aujourd'hui disponibles sur internet et que Variscan Mines, en collaboration avec l'Universit® d'Orl®ans, a int®gr® dans

une base de connaissances unique, g®r®e sous GKR. Les fiches ainsi constitu®es ont ®t® enrichies de la surabondante information disponible sur internet quoique non organis®e.

Afin dôobtenir un filtrage aussi exhaustif que possible, les crit¯res dôanalyses retenus ne se sont pas limit®s aux seules substances ç d®clar®es è par les auteurs de fiches. En effet, certaines substances strat®giques comme les Terres Rares sont susceptibles dô°tre pr®sentes en quantit® importante dans la gangue de gisements exploit®s pour dôautres m®taux (W, Sn, Be, U, etcé) et ne sont donc pas explicit®es dans les fiches correspondantes. Il convenait donc de sôint®resser ®galement aux descriptions min®ralogiques, ou ¨ certaines associations min®rales typiques de gisements dont les mod¯les n'taient pas toujours connus lors de la r®alisation des fiches.

ê titre dôexemple, la figure suivante montre le r®sultat dôune extraction crois®e faisant intervenir ç substance utile è et ç min®ralogie è pour rechercher les gisements et indices de Terres Rares.



Carte des indices et gisements de terres rares (extrait GKR)

Enrichissement de la base de connaissances de Variscan Mines

Depuis sa cr®ation, Variscan Mines enrichit la base de connaissances g®ologiques et mini¯res quôelle a constitu®e sur les pays retenus prioritairement. Elle a pour cela cr®® un mod¯le de donn®es exhaustif, en permanence mis ¨ jour, et qui sera utilis® pour rassembler et organiser la totalit® de ses travaux dôexploration sur les PERM.

Ce mod¯le comprend :

- Les caract®ristiques g®n®rales de lôindice ou du gisement
- Les acteurs miniers impliqu®s
- La g®ologie r®gionale et le contexte g®odynamique associ®
- La g®ologie locale et la nature des formations encaissantes
- La g´tologie du gisement ou de lôindice
- Les caract®ristiques min®ralogiques d®taill®es
- Les relations structurelles, spatiales, temporelles, g®n®tiques et causales entre les gisements et indices
- Les donn®es de lôexploration

- Les donn®es de lœexploitation, de lœ®tat des ressources / r®serves et de la production
- Lœenvironnement minier
- La s®curit®
- Toute autre th®matique pertinente, librement impl®ment®e au fur et ¨ mesure des n®cessit®s.

Lœensemble des donn®es concernant les gisements, indices, productions ou acteurs peut °tre synth®tis® au niveau de fiches ç pays è rassemblant des informations extr°mement vari®es comme :

- Situation de lœexploration
- Situation de la production, de la consommation, de lœexportation é
- Situation juridique, strat®gie ®conomique é
- Risques, contraintes politiques, sociales é
- Prospective.

Ce travail de synth¯se a ®t®men®sur les pays suivants :

- France
- Espagne
- Portugal
- Maroc
- Tch®quie
- Norv¯ge.

La conclusion de ces ®tudes de synth¯se a ®t®de retenir la France comme zone prioritaire pour la recherche de tungst¯ne et m®taux connexes par Variscan Mines.

ANNEXE 5b

Justification du p®rim¯tre du PERM ç Couflens è

Le PERM ç Couflens è est lâexemple type de PERM choisi en fonction de la strat®gie dâexploration de Variscan Mines :

- Les m®taux recherch®s sont le tungst¯ne, lûor, le cuivre, le molybd¯ne et substances connexes

- Le mod¯le g´tologique recherch® est le mod¯le p®rigranitique consid®r® comme prioritaire par Variscan Mines

- Le PERM ç Couflens è renferme des occurrences connues et exploit®es ¨ la mine dâAnglade, signalant un gisement p®rigranitique de type skarn ¨ W dont les extensions s®tendent autour du massif, et en p®riph®rie des galeries de lâancienne exploitation. Des ®tudes r®centes entreprises par Variscan Mines r®v¯lent lâexistence dûun essaim de corps min®ralis®s et leurs satellites dans un environnement proche

- Le fort pendage, la puissance et la continuit® des corps min®ralis®s sont compatibles avec la mise en place dûune exploitation avec production souterraine, type dâexploitation privil®gi® par Variscan Mines

- Les nouvelles techniques de forage permettent dâexplorer le gisement de Couflens en profondeur et de d®couvrir ainsi de nouvelles ressources, exploration tr¯s difficile ¨ r®aliser du temps de la d®couverte et de lâancienne exploitation

- Le PERM ç Couflens è ne contient ¨ notre connaissance que la concession du Pic de la Fourque renonc®e.

1 Situation g®ologique et structurale du PERM ç Couflens è

1.1 Cadre g®ologique et g´tologique r®gional

Le gisement de tungst¯ne de Salau (commune de Couflens) est situ®dans le d®partement de lôAri¯ge, dans la zone axiale des Pyr®n®es centrales, ¨ proximit® (4 km) de la fronti¯re espagnole. Cõest une r®gion montagneuse avec des sommets d®passant 2 500 m, lâancienne exploitation ®tant situ®e entre 1 230 m et 1 850 m dâaltitude, et le village de Salau dans la vall®e ¨ 900 m.
Le contexte m®tallog®nique pyr®n®en comprend essentiellement des min®ralisations Zn-(Pb-Ge-Ba) de type SEDEX ordoviciennes et d®voniennes, fortement affect®es par les orogen¯ses hercyniennes et surtout pyr®n®ennes (Arrens, Pierrefitte, Argut, Sentein, Bentailloué). Ils ont fait l'objet d'exploitations ®pisodiques et locales mais pas d'estimations globales. La d®couverte dans ces gisements de trois nouveaux min®raux de germanium, la carboirite $FeAl_2GeO_5(OH)_2$ (1983), argutite (GeO_2) (1983) et la brunog®i®rite Fe_2GeO_4 (1972), atteste de la richesse en germanium de ces min®ralisations et, de mani¯re g®n®rale, de la cha´ne pyr®n®enne et du sud-ouest de la France, avec le grand gisement de Zn-Ge-Ag de Noailhac ï Saint-Salvy (Tarn). Il est int®ressant de noter aussi la richesse en barytine de certains gisements (Arrens).

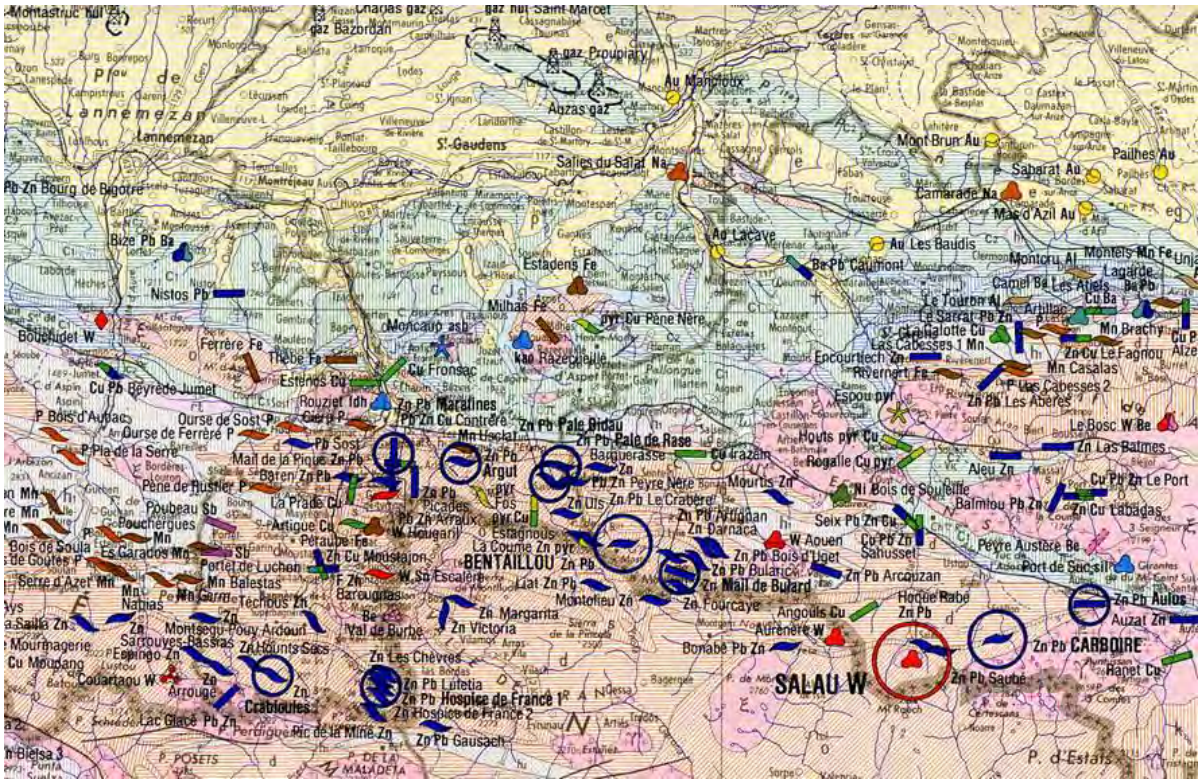


Figure 1 ï Cadre m®tallog®nique des Pyr®n®es centrales avec le gisement de Salau (carte des g´tes min®raux de la France, feuille Toulouse, £ditions BRGM)

Le tungst¯ne est pr®sent surtout dans des skarns : ¨ Salau et plus ¨ l'est ¨ Costabonne. L'or est fr®quent dans les alluvions de l'Ari¯ge mais aucun placer d'int®r°t ®conomique ni aucun gisement aurif¯re en place n'a pour l'instant pu °tre identifi®

Outre les m®taux, les Pyr®n®es rec¯lent des gisements de min®raux industriels tous exploit®s par Imerys. Le gisement de talc de Trimouns ï Luzenac est un des plus importants au monde, avec une production annuelle entre 350 et 400 kt et des r®serves de plus de 20 Mt. Sa gen¯se rel¯ve d'une m®tasomatose siliceuse de dolomies ordoviciennes au d®but de la collision pyr®n®enne (112 ï 90 Ma). Les albitites de Salvezines sont ®galement exploit®es pour les industries c®ramiques.

1.2 Cadre g®ologique et g´tologique local

La g®ologie locale est domin®e par des terrains pal®ozoµques carbonat®s pal®ozoµques, ordoviciens ¨ d®voniens, pliss®s et m®tamorphis®s dans le faci¯s schistes verts lors de lôorogen¯se hercynienne et repris par la tectonique pyr®n®enne. La carte g®ologique est celle dôAulus-les-Bains.

La lithostratigraphie comprend, de bas en haut :

- La s®rie la plus ancienne se situe au sud du gisement de Salau. Côest la formation p®litique et psammitique du Mont Rouch, compos®e dôune alternance de bancs de shales et de gr¯s gris-vert avec quelques pass®es conglom®ratiques, attribu®e, selon les auteurs, au Cambrien ou ¨ lôOrdovicien inf®rieur.
- La s®rie carbonat®e et p®litique de Salau, non dat®e mais attribu®e par analogie stratigraphique au Silurien sup®rieur - Ordovicien sup®rieur est la formation encaissante de la min®ralisation de tungst¯ne. Elle comprend ¨ la base des unit®s carbonat®es et p®litiques souvent noires, appel®s dans la mine ç marbres inf®rieurs graphiteux è, une alternance de couches d®cim®triques de calcaires et de shales gr®seux connues sous le nom de ç Barr®giennes è attribu®es au Silurien inf®rieur (20 ¨ 80 m de puissance), puis des calcaires massifs ¨ rubanement gris et blanc, puissants de 100 ¨ 130 m et dat®s ¨ leur sommet du D®vonien inf®rieur (Emsien). Ces calcaires contiennent, notamment dans la partie ouest des sulfures diss®min®s (pyrite, chalcopyrite, sphal®rite). Les variations lat®rales de faci¯s sont nombreuses, le calcaire devenant dolomitique vers lôest, avec des pass®es volcaniques tr¯s locales (Pouit et Alsac, 1978) ;
- Des shales bleut®s plus ou moins riches en lits gr®seux, attribu®s lôEifelien, puissants de 200 ¨ 250 m. Les ®tudes pal®og®ographiques concluent ¨ lôexistence ¨ cette ®poque dôune zone de haut-fond ¨ lôest de Salau, bord®e de d®p¹ ts d®tritiques assez grossiers.
- La s®rie carbonat®e de Salau est intrud®e par trois massifs granodioritiques : le petit pointement de Salau (ou de la Fourque) ®tant encadr® par deux grands massifs : celui dôAuzat ï Bassi¯s ¨ lôENE, et celui de Marimana ¨ lôOSO. Leur mise en place est ant®rieure aux plissements P3 (N 140 ÁE) et P4 (N 70 ÁE) qui affectent la s®rie, et pourrait °tre sub-contemporaine de la phase P2.

Ces trois massifs ont d®velopp® un m®tamorphisme de contact, dans laquelle les auteurs distinguent deux zones, interne et externe (Derr® *et al.*, 1980). ê Salau, la zone interne dôune cinquantaine de m¯tres de largeur montre des alternances de calcaires et shales transform®es en corn®ennes calciques ¨ diopside, v®suvianite et grossulaire. Dans la zone externe on observe la n®oformation dôalbite, ®pidote, chlorite, biotite et tr®molite caract®risant le faci¯s ç corn®ennes ¨ albite et ®pidote è. Le petit massif de granodiorite de Salau est accompagn® dôune aur®ole de m®tamorphisme de contact externe tr¯s allong®e sur 6 km selon un axe NE-SO qui rejoint le petit (0,6 km^2) massif granodioritique dôAuren¯re en Espagne, ®galement associ®¨ un skarn ¨ pyrrhotite-scheelite.

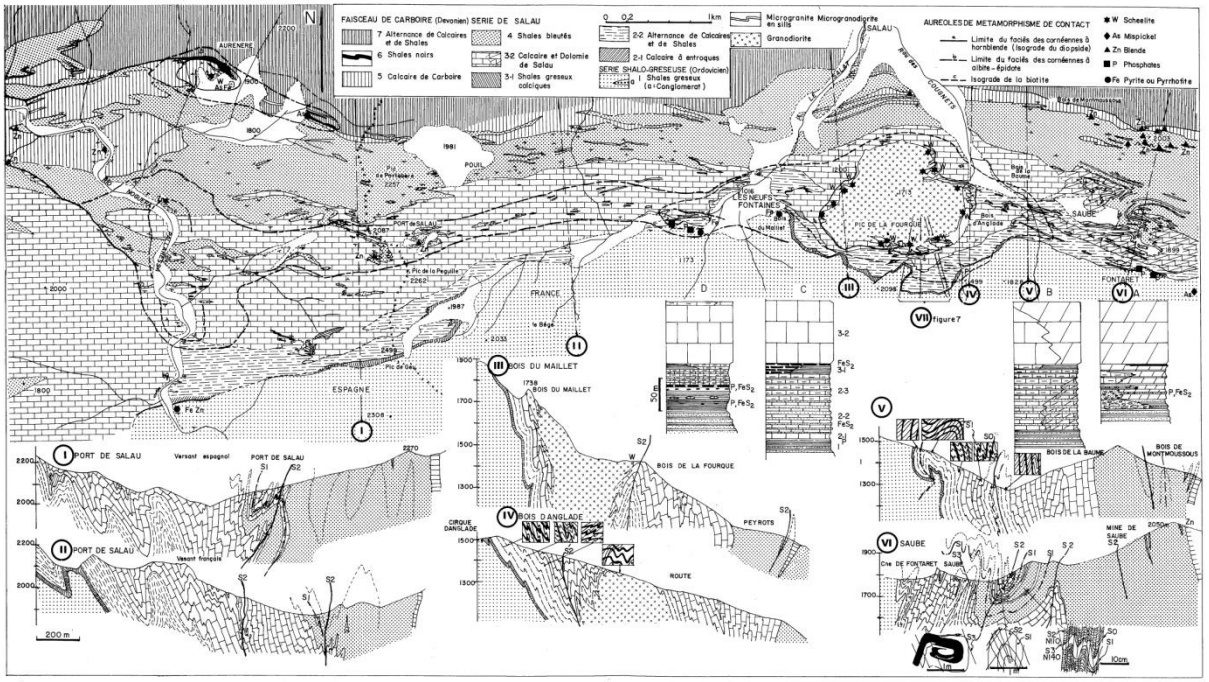


Figure 2 ï G®ologie r®gionale du gisement de Salau

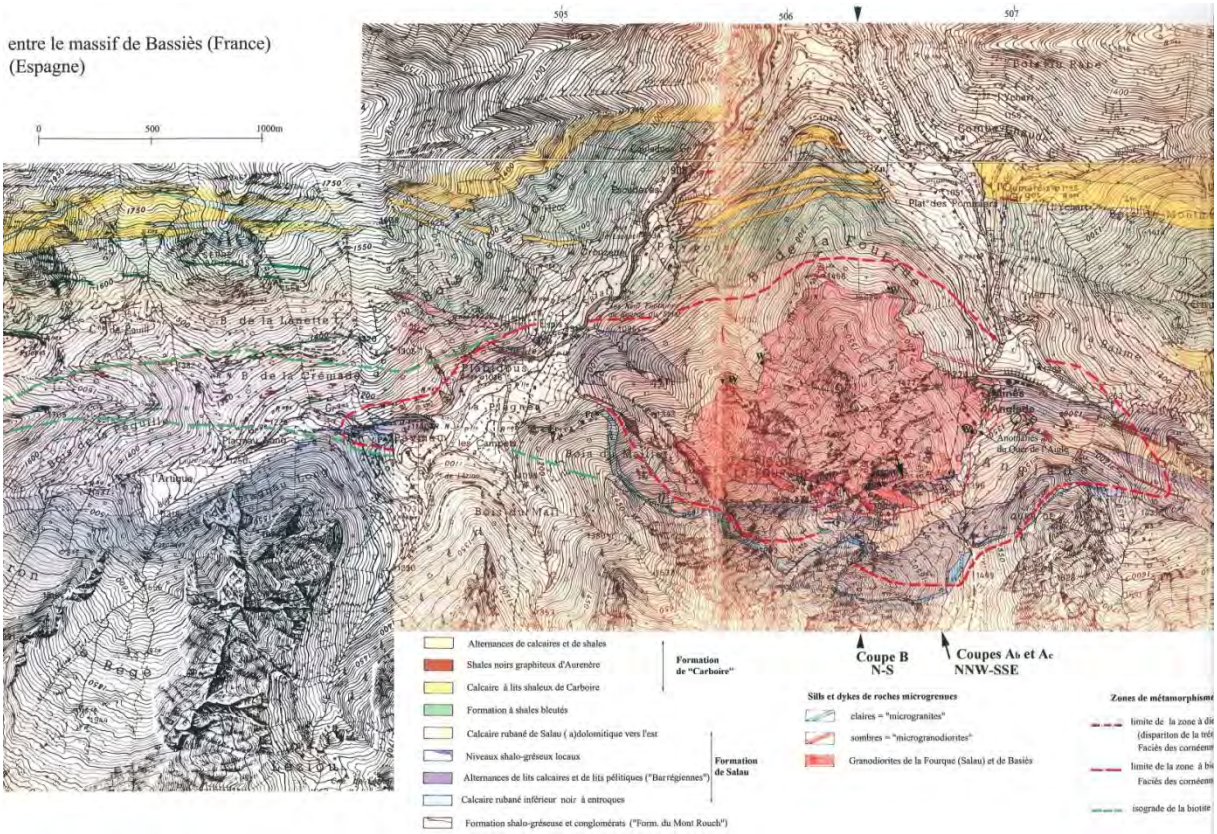


Figure 3 ï Aur®oles m®tamorphiques (tirets rouges) et limite de lôisograde biotite (vert) autour de lôintrusion de Salau

Lôintrusion de Salau (ou de la Fourque) montre plusieurs faci¯s. Au niveau du pic de la Fourque (1905 m), il sôagit dôune granodiorite ®quigranulaire ¨ grain fin (0,5 ï 1,5 mm) qui est le faci¯s

dominant du massif, passant localement ¨ des faci¯s plus riches en feldspath potassique. Elle pr®sente des faci¯s de bordure : une quartz-diorite (sans feldspath potassique), et une diorite quartzif¯re ¨ biotite et hornblende. Cette granodiorite, tr¯s probablement namurienne, vers 320 Ma, nôa pas fait lôobjet de datation radiom®trique.

1.3 Cadre m®tallog®nique du gisement de Salau

Le gisement de Salau est un skarn ¨ scheelite ï pyrrhotite (et or) form®au contact de lôintrusion de Salau et de la s®rie carbonat®ordovicienne.

Historique

La d®couverte de skarns ¨ scheelite dans les Pyr®n®es remonte ¨ 1951 avec Costabonne, ¨ environ 100 km ¨ lôest de Salau, suivi de nombreuses autres (Guitard et Laffitte, 1960). Le site de Salau, riche dôindices de surface (Bois dôAnglade, zone de la Fourque, Bois du Mailleté) ¨ pyrrhotite, scheelite, or (0,2 ¨ 3 g/t) et cuivre (0,3 %) fut jug®particuli¯rement favorable et fit lôobjet de recherches approfondies. La zone du ç bois dôAnglade è fut couverte par des campagnes de r®sistivit® et de magn®tisme, compl®t®es par des sondages (15 sondages totalisant 1,5 km).
En 1964, une premi¯re estimation faisait ®tat de 580 kt de minerai ¨ une teneur moyenne de 0,9 % WO_3, soit 5,2 kt WO_3.
En 1965-1966, le BRGM associ® ¨ deux soci®t®s priv®es, Omnimines et CMM, r®alisa de nouveaux travaux dans la zone du Bois dôAnglade, avec des sondages et des galeries de recherche aux niveaux 1430 m, 1452 m et 1475 m. Une nouvelle cubature du gisement est r®alis®e avec une teneur moyenne de 1,25 % WO_3 au lieu de 0,9 % WO_3. La d®cision de mise en exploitation n®cessite de nombreux travaux dôinfrastructure, notamment la construction dôune route de 4 km depuis le village de Salau, dôune usine de traitement souterraine install®e ¨ 1230 m dôaltitude, et dôhabitations pour les mineurs.

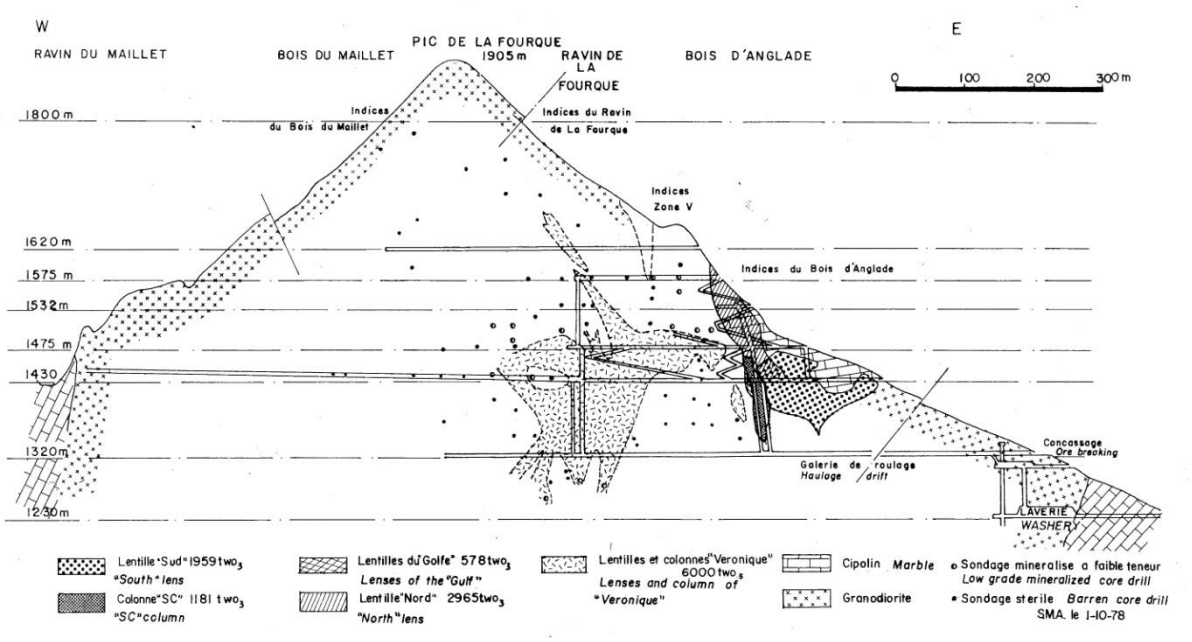


Figure 4 ï Coupe du gisement de Salau

Lôexploitation d®bute en 1970 avec un gisement qui comprend 4 corps min®ralis®s dont les morphologies refl¯tent les structures pliss®es des roches encaissantes qui ont contr¹l®la mise en place de lôintrusion.

- Le ç SC è, une colonne de 150 m de haut,
- La ç Formation sud è, une lentille verticale de 100 m de long, 80 m de hauteur, 0,35 ¨ 5 m d'épaisseur (soit 50 kt de minerai ¨ une t_m de 1,2 % WO_3) entre deux apophyses de granodiorite ;
- La ç Formation nord è et celle du ç Golfe è dans la goutti¯re form®e par une apophyse et la bordure sud du massif de granodiorite.

On distingue deux populations de minerai :

- Skarns ¨ pyrrhotite dominante et scheelite (minerai ¨ gangue carbonat®e) d®velopp®s aux d®pens de marbres graphiteux, dans les formations Sud et SC ;
- Skarns ruban®s (ou skarnoïdes) ¨ silicates calciques et pyrrhotite (minerai ¨ gangue silicat®e) d®velopp®s aux d®pens de corn®ennes ruban®es ¨ silicates calciques, dans les formations Nord et du Golfe.

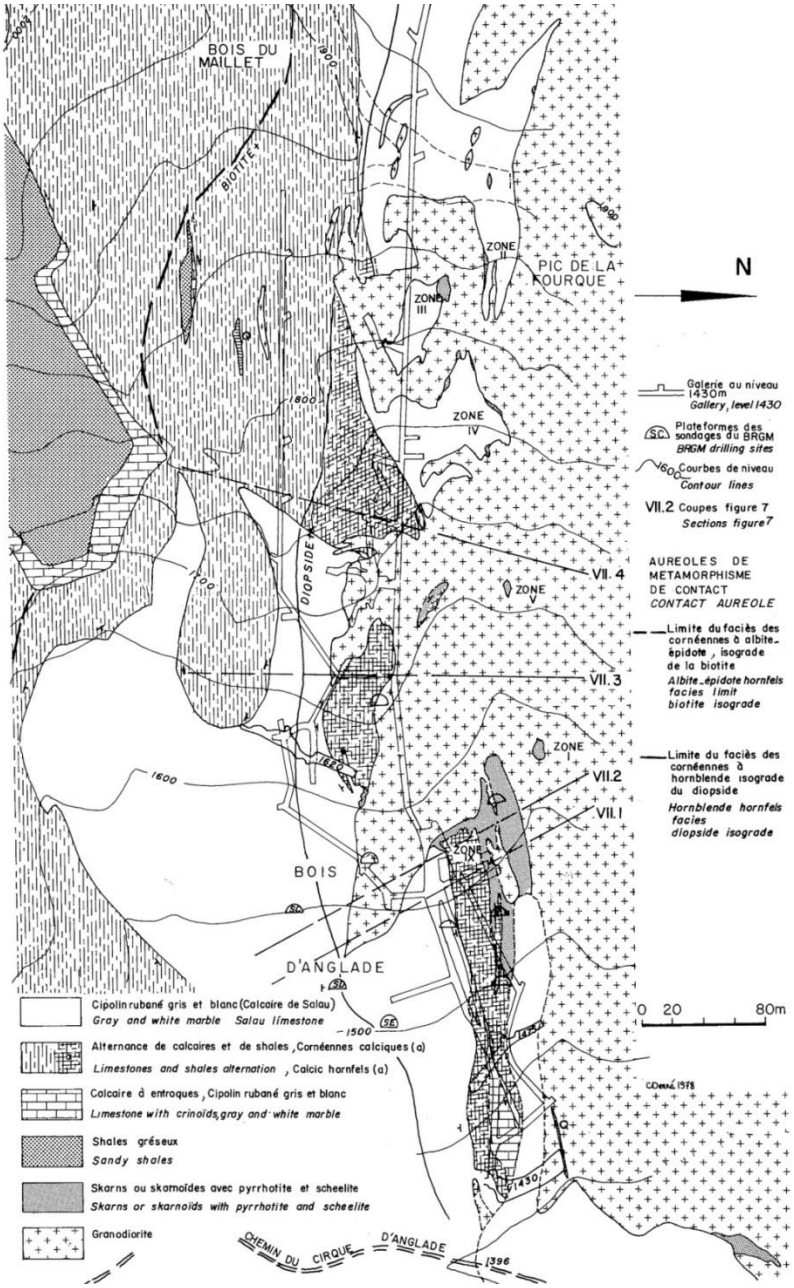


Figure 5 ï Zone d'exploitation : carte g®ologique et d®tails

La production commence en avril 1971. De nouveaux travaux de recherche d®but®s en 1972 aboutissent entre 1975 et 1978 ¨ la d®couverte d'une nouvelle zone min®ralis®e, V®ronique, 300 m ¨ l'ouest du gisement de d®part. Les r®serves sont estim®es ¨ 6 kT de WO_3 dans 200 kT de minerai ¨ plus de 2 % WO_3. Le minerai, de forme lenticulaire irr®guli¯re, est port® par des marbres graphiteux. Dans sa partie nord, il est assez semblable au minerai de la formation Nord et du Golfe (skarns ruban®s ¨ pyrrhotite-scheelite), alors que le nouveau minerai a une texture br®chique ¨ ®l®ments de roche encaissante ¨ ciment de pyrrhotite et de scheelite en gros cristaux (> 1 cm). D'autres corps de minerai sont d®couverts aux niveaux 1620 m (galerie de 282 m), et 1800 m (corps de minerai ®valu® ¨ 30 kT de minerai ¨ 1,25 % WO_3).
La production totale ¨ la fermeture en novembre 1986 aura ®t® de 13,95 kT de WO_3, ¨ partir de 930 kT d'un minerai ¨ 1,50 % WO_3. A cette date, les r®serves prouv®es et probables ®taient de 2,80 kT de WO_3, pour 160 kT de minerai ¨ 1,75 % WO_3.

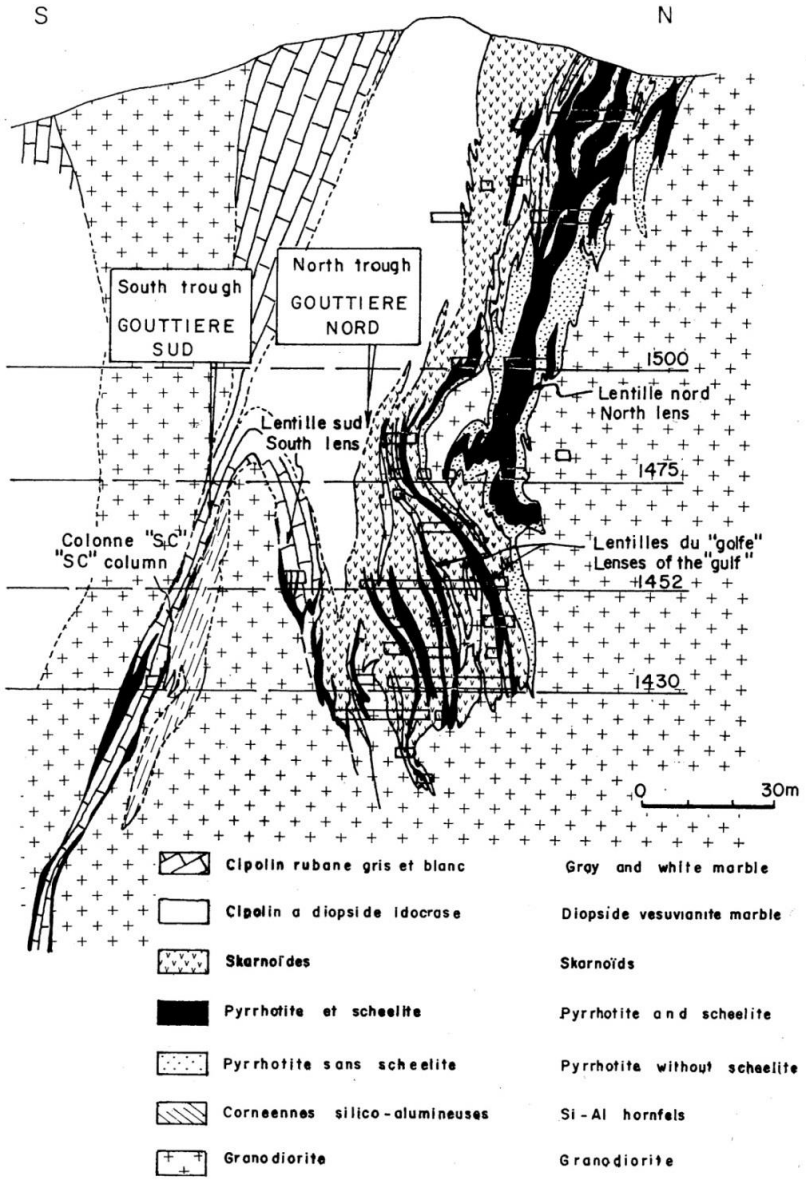


Figure 6 ï Corps min®ralis®1

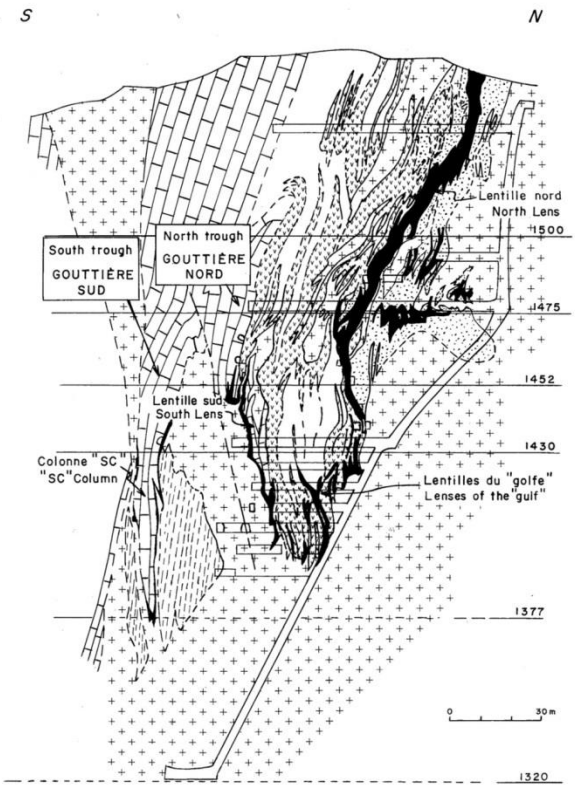


Figure 7 ï Coupe NS passant par le bois dÔAnglade et le golfe 1

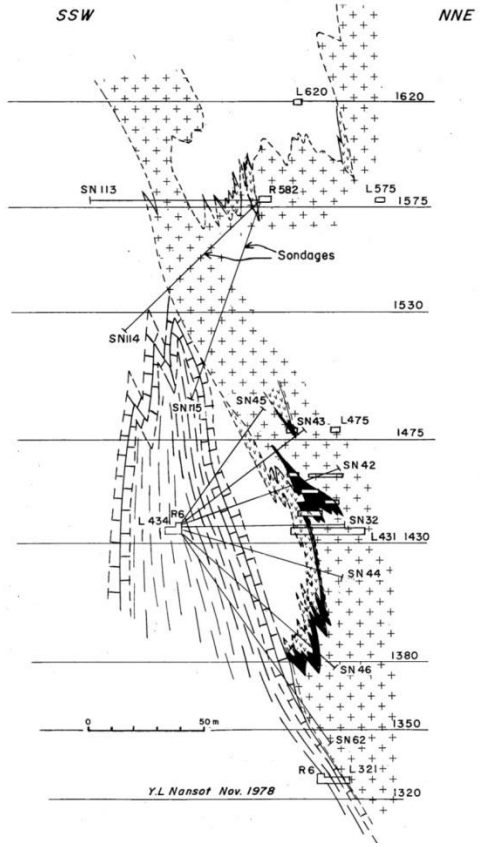


Figure 8 ï Coupe NS par V®ronique

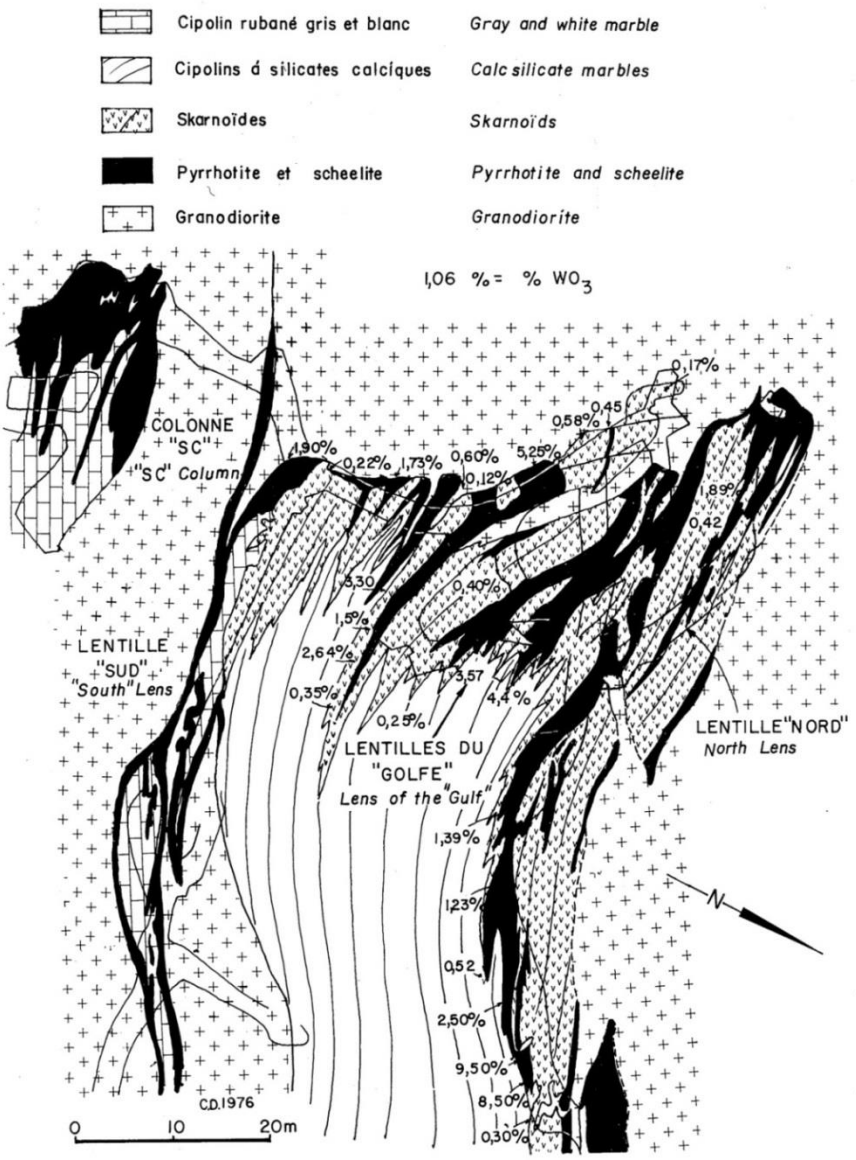


Figure 9 ï Coupe au niveau 1452 m du corps min®ralis® bois dôAnglade ï 1er golfe

La paragen¯se est tr¯s vari®e (Lafor° t *et al.*, 1983) mais seuls 4 min®raux sont fr®quents ¨ abondants et visibles macroscopiquement : pyrrhotite (dominante), scheelite, ars®nopyrite et chalcopyrite. La sphal®rite, la pyrite et la gal¯ne sont assez fr®quentes mais toujours en plages microscopiques dans la pyrrhotite. Tous les autres min®raux sont rares ¨ tr¯s rares et microscopiques : marcasite, or, cobaltite et gersdorffite, min®raux de bismuth (bismuthinite, bismuth natif, t®tradymite, kobellite, cosalite), stannite, et sulfures d'argent (argentite et argent natif), molybd®nite. On compte aussi des min®raux de germanium (carboirite et brunog®i®rite) tr¯s rares, mais qui indiquent une teneur en germanium significative qui reste ®videmment ¨ pr®ciser.

La teneur en cuivre est de 0,20 %. La scheelite est d®crite comme tr¯s peu molybdique mais aucune teneur ne semble fournie dans les documents. La pyrrhotite a une composition constante ¨ lô®chelle du gisement ($Fe_{0,914}S$), quel que soit le type de minerai. Sphal®rite et gal¯ne sont pr®sentes mais toujours en tr¯s faible quantit®.

La gangue du minerai ¨ scheelite comporte surtout quartz, calcite et ®pidote, auxquels sôassocient localement h®denbergite r®siduel, clinochlore, stilpnom®lane, microcline et tourmaline.

Des **teneurs en or** entre 0,2 et 3 g/t avaient ®t® mesur®es d¯s les premiers ®chantillonnages en 1962 dans la zone du Bois dôAnglade et vers lôouest sous le col de la Fourque. Une teneur moyenne de 10 g/t Au a ®t® mesur®e sur les analyses effectu®es sur 10 ®chantillons de pyrrhotite du corps min®ralis® ç V®ronique SE è (niveaux 1110 ï 1165 m), des teneurs plus faibles (0,2 g/t) sur les corps de minerai d®velopp®s aux d®pens des skarns ruban®s.

min®ral	abondance	remarques
pyrrhotite	abondant	massive, dominante
quartz	abondant	
calcite	abondant	
scheelite	fr®quent	dans la pyrrhotite et le quartz
ars®nopyrite	fr®quent	dans la pyrrhotite et les carbonates
chalcopyrite	fr®quent	avec la pyrrhotite
sphal®rite	fr®quent	avec la pyrrhotite ou la chalcopyrite, parfois massive
gal¯ne	fr®quent	tr¯s fine
pyrite	fr®quent	toujours secondaire, issue de la pyrrhotite
bismuth natif	rare	dans la pyrrhotite
bismuthinite	rare	
cobaltite	rare	avec ars®nopyrite
graphite	rare	dans la gangue
argent natif	en traces	
brunog®i®rite	en traces	
carboirite	en traces	
cosalite	en traces	
cubanite	en traces	
gersdorffite	en traces	
hessite	en traces	
kobellite	en traces	avec ars®nopyrite
mackinawite	en traces	
magn®tite	en traces	
marcasite	en traces	
molybd®nite	en traces	
or	en traces	associ® au bismuth
stannite	en traces	
t®tradymite	en traces	

Tableau 1 ï Paragen¯se essentielle du gisement de Salau (dôapr¯s Lafor°t *et al.*, 1983).

Lôor natif a ®t® observ® au microscope et il nôest pas surprenant dans ce type de gisement. Cependant il nôest pas possible aujourdôhui de proposer une teneur moyenne fiable pour lôensemble du gisement. Il reste que lôor est bien pr®sent ¨ Salau et constitue un bonifiant de premier ordre.
Les alt®rations hydrothermales associ®es au skarn sont nombreuses et vari®es (Derr® et al., 1980). Lôalt®ration la plus ®tendue correspond ¨ une chloritisation, associ®e ¨ une sausuritisation et ¨ une s®ricitisation des bordures du massif. Cette alt®ration rel¯ve du stade r®trograde et d®finit des enveloppes assez larges au sein desquelles on rencontre la min®ralisation. Les alt®rations plus sp®cifiquement li®es au minerai sont :

- une greisenisation et tourmalinisation (tourmaline brune), associ®es ¨ lôars®nopyrite ;
- une albitisation (jusquô 8,5 % Na_2O soit 80 % dôalbite), avec la scheelite-pyrrhotite ;
- une potassification plus tardive (jusquô 4,5 % K_2O) ¨ quartz-®pidote-chlorite-biotite n®oform®e et microcline.

Le minerai ¨ pyrrhotite-scheelite d®velopp® dans la granodiorite montre alors une paragen¯se ¨ quartz-calcite avec albite, muscovite, clinochlore et/ou ®pidote avec localement tourmaline.

Conditions de formation

Les ®quilibres inter-min®raux et les courbes d'®quilibre permettent de situer la formation du minerai entre 415 et 540 ÁC, avec une fS_2 de 10^{-6} ¨ 10^{-9} atm. Et une fO_2 de 10^{-21} ¨ 10^{-27} atm Les conditions de pression restent tr¯s impr®cises (120 ¨ 1250 bars) (Derr® *et al.*, 1980).

1.4 D®limitation du polygone du PERM ç Couflens è

D'autres sites min®ralis®s en scheelite existent en dehors du p®rim¯tre de la mine. Le plus important se localise sur la bordure ouest de l'intrusion, dans le secteur III. D'autres se situent sur le flanc nord-est. Compte tenu de l'accessibilit® difficile du secteur, il est tr¯s probable que de nombreux sites ¨ scheelite restent ¨ d®couvrir.
Le m®tallotecte du gisement est l'aur®ole m®tamorphique du massif de la Fourque. Aucun autre pointement de ce type n'est connu dans les alentours imm®diats. Le seul massif comparable portant un indice de scheelite (Aouen) est la montagne d'Escousse situ® une quinzaine de km au nord-ouest de Salau. Son contexte g®ologique, notamment l'extension de son aur®ole m®tamorphique et l'importance des niveaux carbonat®s, reste cependant mal connue.

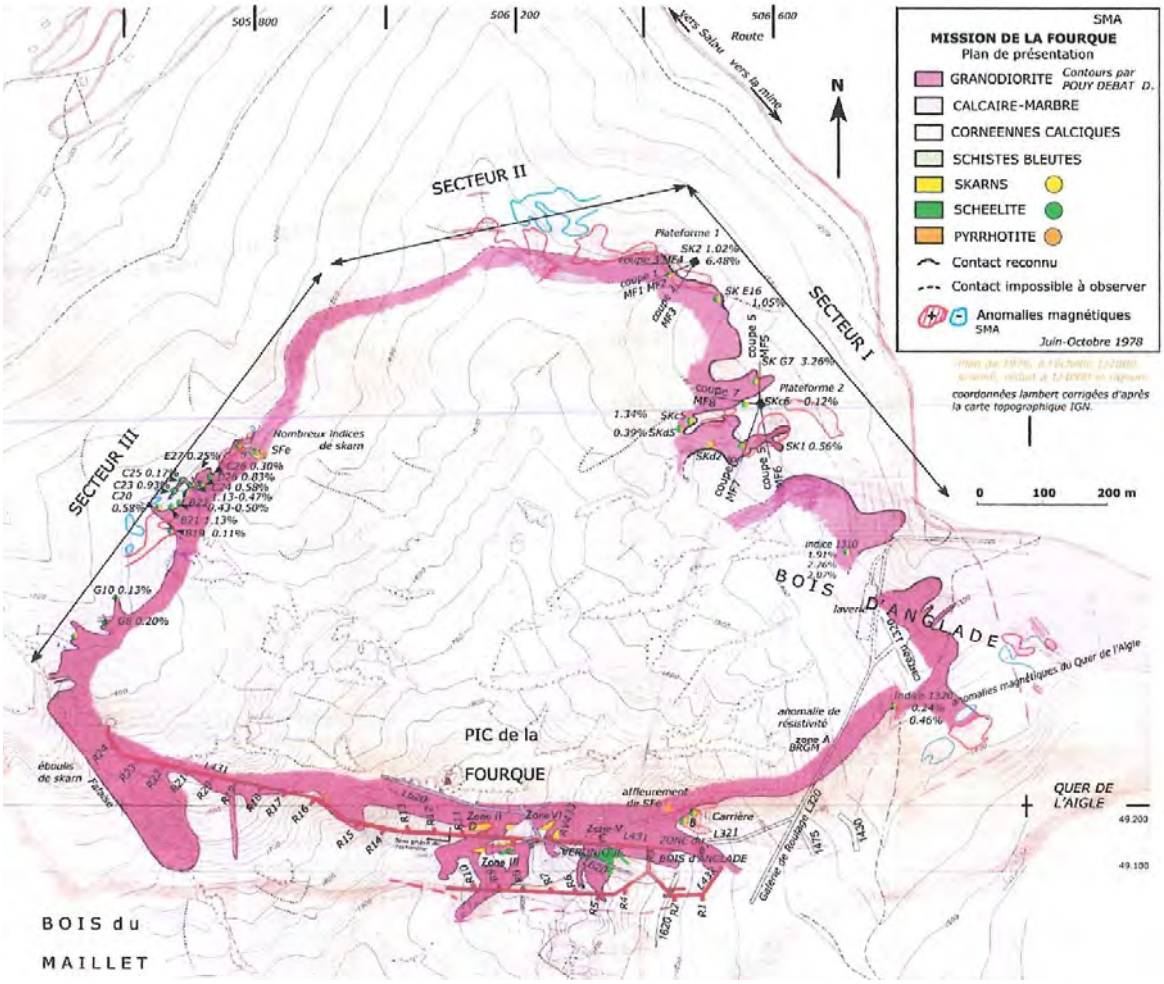


Figure 10 ï Secteurs min®ralis®s autour de l'intrusion de Salau

Le PERM est centr®e sur le massif de la Fourque et englobe tous les indices ¨ scheelite connus ¨ ce jour. Il s'®tend pr®f®rentiellement vers l'ouest afin d'englober la totalit®de l'aur®ole de m®tamorphisme de contact (aur®ole interne avec les faci¯s corn®ennes ¨ hornblende et externe ¨ albite-®pidote) ainsi que l'isograde de la biotite. Ce trac® engloberait ainsi d'®ventuelles coupoles superficielles du type de la Fourque.

1.5 Titres miniers caducs en relation avec le PERM ç Couflens è

Dans le p®rim¯tre du PERM ç Couflens è, le recensement des titres miniers caducs a ®t® effectu®afin de pouvoir localiser les diverses sources d'information possibles. La carte de ces titres est fournie en vue r®duite dans cette annexe et ¨ l'®chelle du 1 :50 000 en planche hors texte (annexe 8b)

L'historique des titres miniers couvert par le PERM ç Couflens è est le suivant:

- La concession renonc®e du pic de la Fourque, situ®e non loin du hameau de Salau, octroy®e le 01/05/1905 ¨ la Soci®t®Mini¯re d'Anglade pour l'exploitation de tungst¯ne et m®taux associ®s (cuivre). Cette concession a permis l'extraction de 150 000 t de minerai.

	RGF 93		WGS 84		Lambert 93	
Sommet	X_93_Dec	Y_93_Dec	X_WGS84	Y_WGS84	X_93	Y_93
A	1,133775	42,750988	1,133775	42,75099	547050	6185300
B	1,171817	42,783123	1,171817	42,78312	550250	6188800
C	1,191953	42,783464	1,191953	42,78346	551900	6188800
D	1,223137	42,761951	1,223137	42,76195	554400	6186350
E	1,225330	42,730059	1,225330	42,73006	554500	6182800
F	1,170971	42,712956	1,170971	42,71296	550000	6181000
G	1,136962	42,727659	1,136962	42,72766	547250	6182700

La carte ci-contre pr®sente la position de ce titre ; une carte d®taill®e ¨ l'®chelle du 1/50 000 est fournie comme planche hors texte (annexe 8b).

1.6 R®f®rences bibliographiques

Derr® C., Fonteilles M. et Nansot L.Y. (1980) ï Le gisement de scheelite de Salau, Ari¯ge, Pyr®n®es. 26¯ CGI, Gisements fran- ais, fascicule E 9, 42 p.

Guitard G. et Laffitte P. (1960) ï Les calcaires m®tamorphiques et les skarns du Pic de Costabonne (Pyr®n®es orientales*). Sc. Terre Nancy*, t. 6, 1-2, 57-137

Lafor°t C., Monchoux P., Oudin E., Tollon F. (1983) ï Inventaire min®ralogique de la France n Á11 (Ari¯ge). Editions BRGM

Pouit G. et Alsac C. (1978) ï Les faci¯s noirs tuffac®s du D®vonien et de l'Ordovicien des Pyr®n®es centrales et leurs min®ralisations Zn(Pb). *C.R. Acad. Sci. Fr.*, 287, s®rie D, 415-418

VARISCAN MINES

Annexe 8a

Carte des limites administratives du PERM "Couflens"

Echelle 1:50 000

Légende

- Emprise du PERM de Couflens
- Sommets du PERM

Limites administratives

Nature

- Limite d'arrondissement
- Limite de commune
- Limite de canton
- Limite de département
- Limite de région
- Frontière internationale

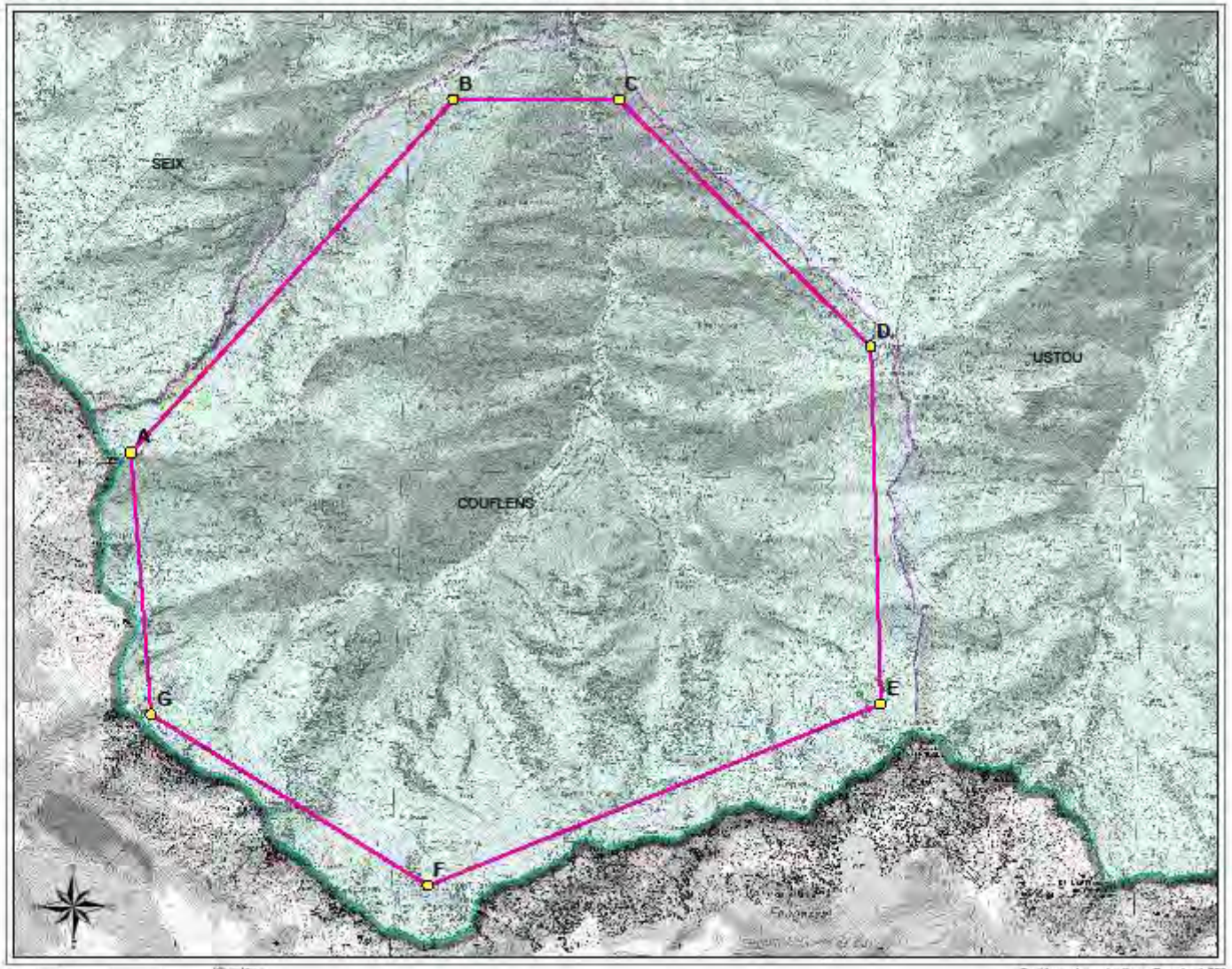
Coordonnées des Sommets

	Lambert 93	
	X_93	Y_93
A	547050	6185300
B	550250	6188800
C	551900	6188800
D	554400	6186350
E	554500	6182600
F	550000	6181000
G	547250	6182700

	WGS84	
	X_84	Y_84
A	1,193775	42,75099
B	1,171817	42,78312
C	1,191953	42,78346
D	1,223137	42,76195
E	1,225533	42,73006
F	1,170971	42,71296
G	1,196962	42,72766

1:50 000

Carte des limites administratives du PERM de Couflens



Système de projection : "Lambert 93"

ANNEXE 5c

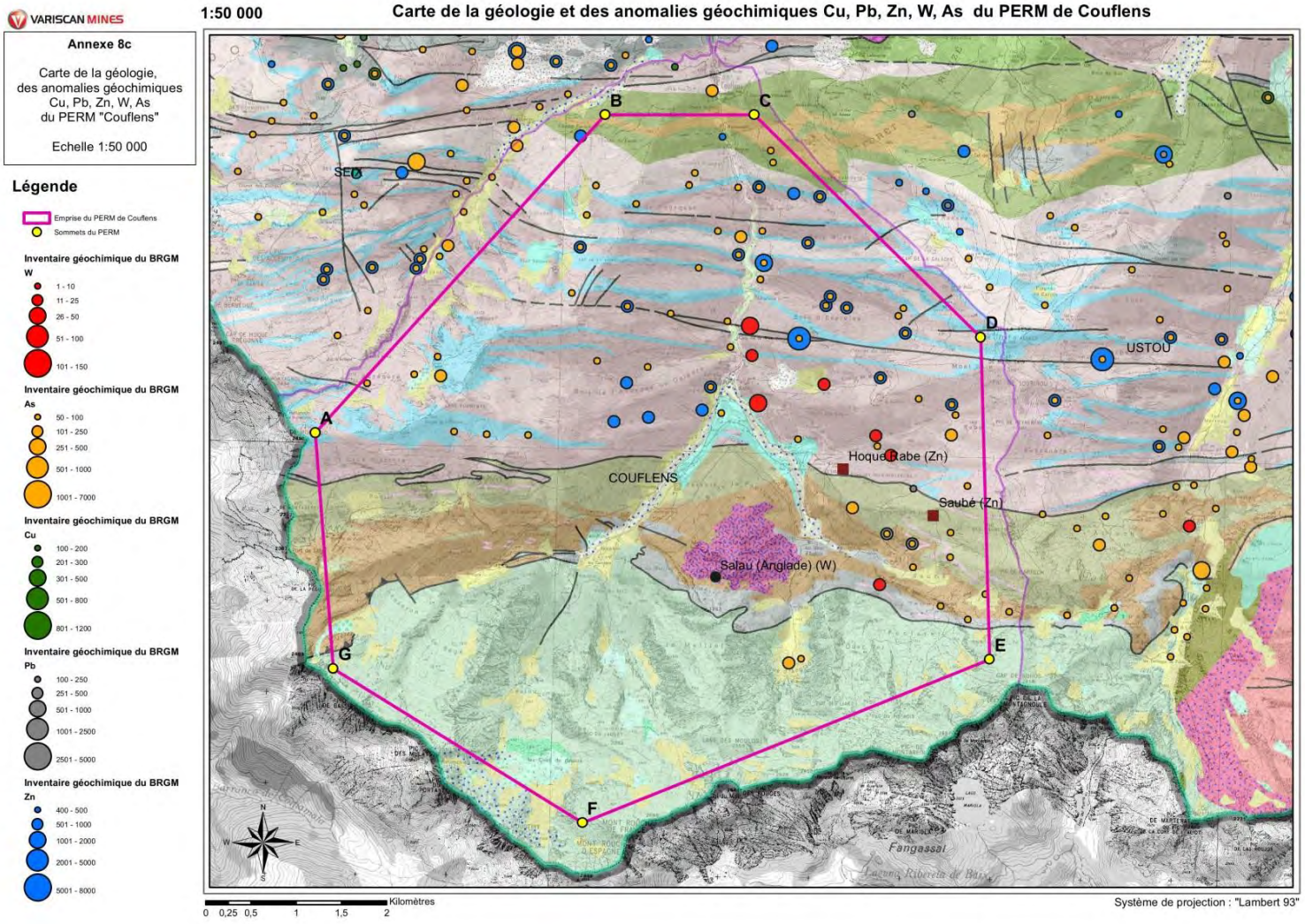
Carte de la g®ologie, des g´tes min®raux, et des anomalies g®ochimique en As et Sn du PERM "Couflens"

L®gende de la carte g®ologique harmonis®e de Couflens (page suivante)

Légende

Carte géologique harmonisée de l'Ariège au 1/50000





La carte ci-contre est une vue r®duite de la carte au 1/50 000 pr®sent®e en annexe 8c (planches hors textes)

ANNEXE 5d

Programme des travaux projet®s sur le PERM ç Couflens è

Le programme dêexploration envisag® par Variscan Mines est planifi® sur une p®riode de 5 ans ¨ compter de la date dôobtention des autorisations n®cessaires. Il sâagit dûun programme polyphas®, dont les t©ches sont engag®es simultan®ment d¯s la premi¯re ann®e. Au sein de chaque t©che, les ®tapes seront engag®es de mani¯re ¨ garantir un maximum dêefficacit® pour aboutir ¨ un d®veloppement durable du gisement.

ê partir de mai 2014 et afin de pr®parer ce programme de travaux, la soci®t® Variscan Mines, en association avec e-Mines, lûuniversit® dôOrl®ans (prof. E Marcoux) et lûuniversit® de Paris VI (prof. Ph. dôArco), a entrepris une ®tude g´ologique approfondie du gisement dôAnglade en prenant en compte les derniers mod¯les m®tallog®niques et les caract®ristiques ®conomiques des mines de tungst¯ne en op®ration dans le monde. Cette ®tude a ®galement fait appel ¨ des experts internationaux des g´tes de tungst¯ne comme Nigel Maund ou Nicholas le Boutillier.

Apr¯s avoir int®gr® dans un mod¯le 3D (logiciels Micromine et Surpac) les donn®es de d®tail des travaux ant®rieurs r®alis®s par la mine et les laboratoires universitaires, les conclusions r®v¯lent une tr¯s forte probabilit® pour lêexistence sous le Pic de la Fourque dûun gisement de tungst¯ne associant un fort tonnage ¨ une teneur ®lev®e.

Le mod¯le utilis® prend en compte une teneur de coupure de 0.3% WO_3, globalement 3 fois plus faible que celle utilis®e lors de lêexploitation. ê ce niveau de teneur, les volumes de min®ralisations ç utiles è deviennent vite consid®rables, alors que le mod¯le minier se simplifie. Par le pass®, les approches mini¯res nâavaient que peu int®gr® les indications de surface (pr®sence dôindices min®ralis®s et dâanomalies magn®tiques), informations qui int®gr®es au mod¯le 3D permettent de localiser des corps de minerais potentiels avec une tr¯s forte probabilit® de succ¯s.

Variscan Mines estime que le gisement du Pic de la Fourque pr®sente toutes les caract®ristiques dûun gisement de tungst¯ne de classe mondiale, capable de contribuer grandement ¨ lôind®pendance dâapprovisionnement de la France pour les prochaines d®cennies et dôinitier une fili¯re industrielle de premi¯re transformation pour ce m®tal strat®gique.

Afin de d®montrer la validit® de cette hypoth¯se, Variscan Mines avec lâappui de ses partenaires industriels et financiers, se propose de r®aliser des travaux suivant deux grandes approches men®es simultan®ment : lêexploration g®n®rale du PERM et lêestimation du nouveau gisement du Pic de la Fourque.

Premi¯re approche : exploration g®n®rale du PERM

Au cours des deux premi¯res ann®es, les travaux de surface seront focalis®s sur lôexploration exhaustive du PERM a priori dans la tranche des 500 premiers m¯tres. Cette exploration, sera fondamentalement guid®e par les travaux de g®ophysique h®liport®e (VTEM ou HELITEM) ; on recherchera en priorit® des extensions susceptibles de pr®senter un int®r°t ®conomique dans lôhypoth¯se dôune production souterraine profonde.

La d®couverte dôanomalies significatives dans le PERM pourra d®clencher une s®rie de travaux de surface tels que tranch®es dôexploration ou sondages dôexploration g®ologique. Il faut toutefois pr®ciser que ces travaux ne seraient engag®s dans les trois premi¯res ann®es que si lôaccessibilit® de lôanomalie ¨ tester le permettait sans difficult® majeure, lôinstallation de plateformes de sondages par h®licopt¯re ®tant a priori exclue ¨ ce stade.

En effet, la cible principale du PERM se localise au sein du massif de la Fourque. Les g´tes potentiels localis®s dans lôenvironnement du massif ne pr®sentent comme int®r°t majeur que dôapporter des ressources potentielles additionnelles au gisement d®j¨ connu.

Cet apport pourrait sôav®rer important si les espoirs fond®s sur le potentiel du gisement de la Fourque ®taient consid®r®s comme d®cevants, alors quôil ne rev°tirait aucun crit¯re prioritaire dans les premi¯res ann®es de lôexploitation si des r®serves importantes ®taient d®montr®es au sein du pic de la Fourque.

Deuxi¯me approche : Lôexploration souterraine

Plusieurs cibles dôint®r°t ®conomique potentiel ayant ®t® d®couvertes au sein du massif de la Fourque ou dans son environnement proche, il sôagira dans les 3 premi¯res ann®es dô®valuer les ressources mini¯res du nouveau gisement du pic de la Fourque par des travaux presque exclusivement souterrains et dô®tablir ¨ la suite la pr®faisabilit® du projet dôexploitation. Il est pr®matur® de d®tailler cette phase de ¨ ce stade des connaissances sur le PERM ç Couflens è, toutefois ces travaux feront tr¯s largement appel aux sous-traitances externes dôorganismes internationalement reconnus pour ®tablir :

- Les r®serves prouv®es suivant les normes internationales (JORC)
- Le design de la mine et des unit®s de production, avec phase de pilote pr®alable
- Lô®tude dôimpact.

Durant cette phase de travaux, en fonction des donn®es acquises et du r®sultat des interpr®tations, Variscan Mines entreprendra une d®marche de demande de permis dôexploitation afin dôacc®l®rer le d®veloppement ®conomique du projet.

1 Plan dôexploration de lôann®e 1

La premi¯re ann®e dôexploration est d®cisive pour le PERM ç Couflens è. Celle-ci suppose la r®alisation de travaux d®taill®s permettant de localiser les cibles qui seront ensuite test®es et ®ventuellement ®valu®es au cours des phases suivantes. En accord avec la strat®gie mini¯re de Variscan Mines, cette phase sera aussi exhaustive que possible car elle induira la strat®gie dôexploitation, susceptible dô°tre fortement influenc®e par lôexistence de plusieurs gisements int®grables dans un seul et m°me projet.

Le plan de travail pr®sent®a ®t®®tabli ¨ partir des connaissances acquises par Variscan Mines ¨ la suite de travaux pr®liminaires ¨ cette demande de PERM.

ê partir de juin 2013, la soci®t®Variscan Mines, en association avec e-Mines, lôuniversit®dôOrl®ans et lôuniversit®de Paris VI, a entrepris une ®tude g´ologique approfondie du gisement dôÂnglade en prenant en compte les derniers mod¯les m®tallog®niques et les caract®ristiques ®conomiques des mines de tungst¯ne en op®ration dans le monde. Cette ®tude a ®galement fait appel ¨ des experts internationaux des g´tes de tungst¯ne comme Nigel Maund ou Nicholas le Boutillier. Un mod¯le pr®visionnel 3D du gisement et de la partie haute de lôexploitation ont ®t®r®alis®s ¨ cette occasion.

Ces ®tudes ont int®gr®des connaissances plus g®n®rales concernant la g®ologie r®gionale des Pyr®n®es et la g®ologie d®taill®e du Prot®rozoµque sup®rieur et des intrusions associ®es. On sôest particuli¯rement attach®aux :

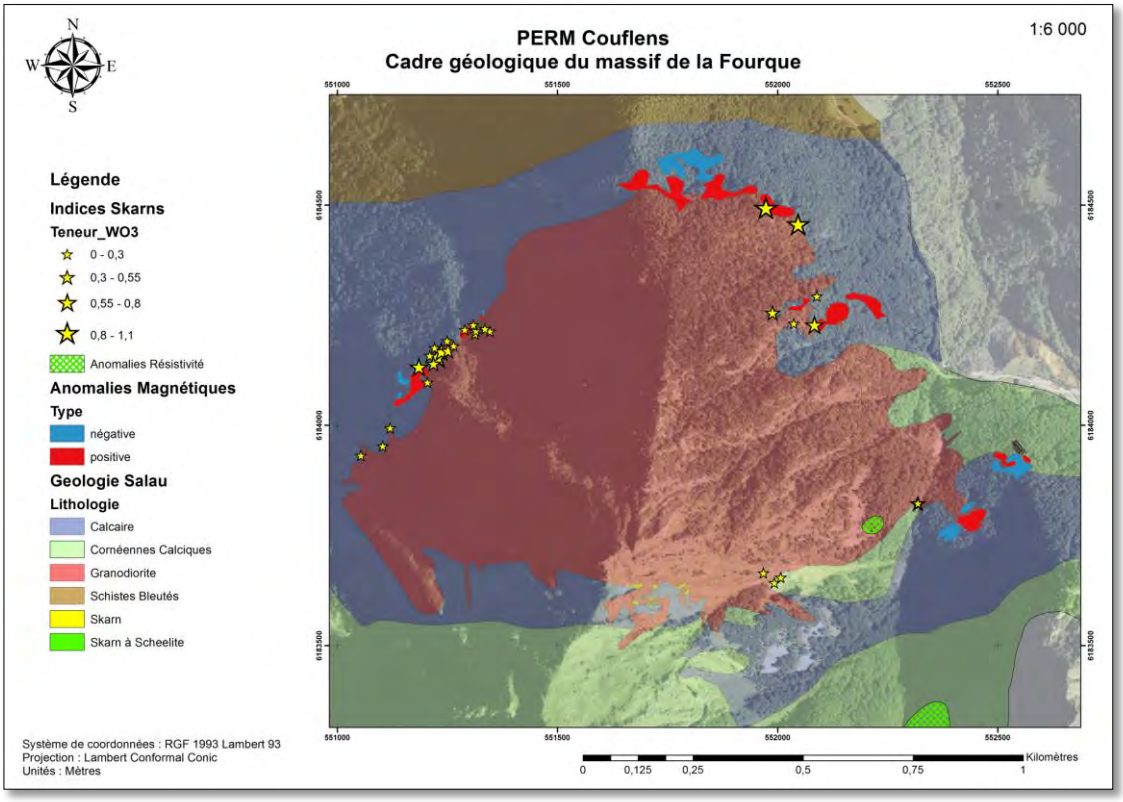
- synth¯ses g´ologiques sur les occurrences de la r®gion de Salau ;
- cartes g®ologiques au 1/80 000 et au 1/50 000 de la r®gion ;
- recherches bibliographiques sur la mine dôÂnglade et ses abords ;
- cartes de prospection g®ochimique (stream sediment) de la r®gion ;
- synth¯ses r®gionales sur lôinventaire des indices min®ralis®s ;
- recherches bibliographiques sur le mod¯le et ses variantes apparent®es au gisement du Pic de la Fourque ;
- analyse des principales technologies g®ophysiques susceptibles dô°tre mises en î uvre pour rechercher du gisement sur le PERM ç Couflens è, en particulier la technique VTEM mise en î uvre par Geotech Airborne Limited.

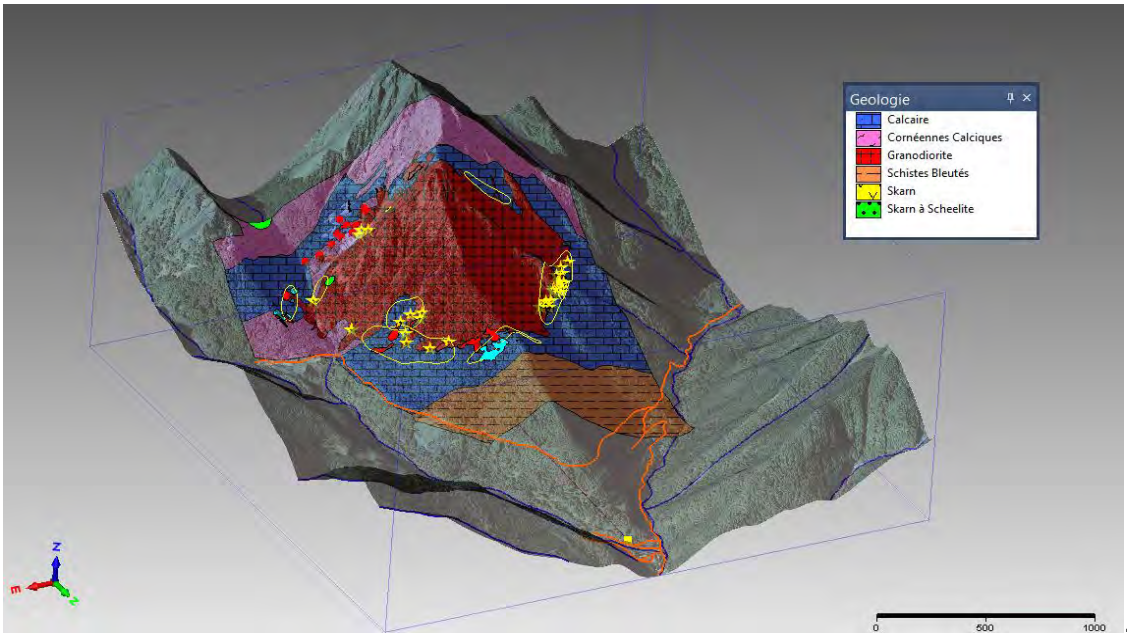
1.1 Hypothèses géologiques et choix des techniques exploratoires

La méthodologie de l'exploration est fortement guidée par la connaissance du modèle péribatholitique en sommet de coupole, modèle correspondant au gisement du pic de la Fourque.

Les implications en exploration à l'échelle du PERM sont les suivantes :

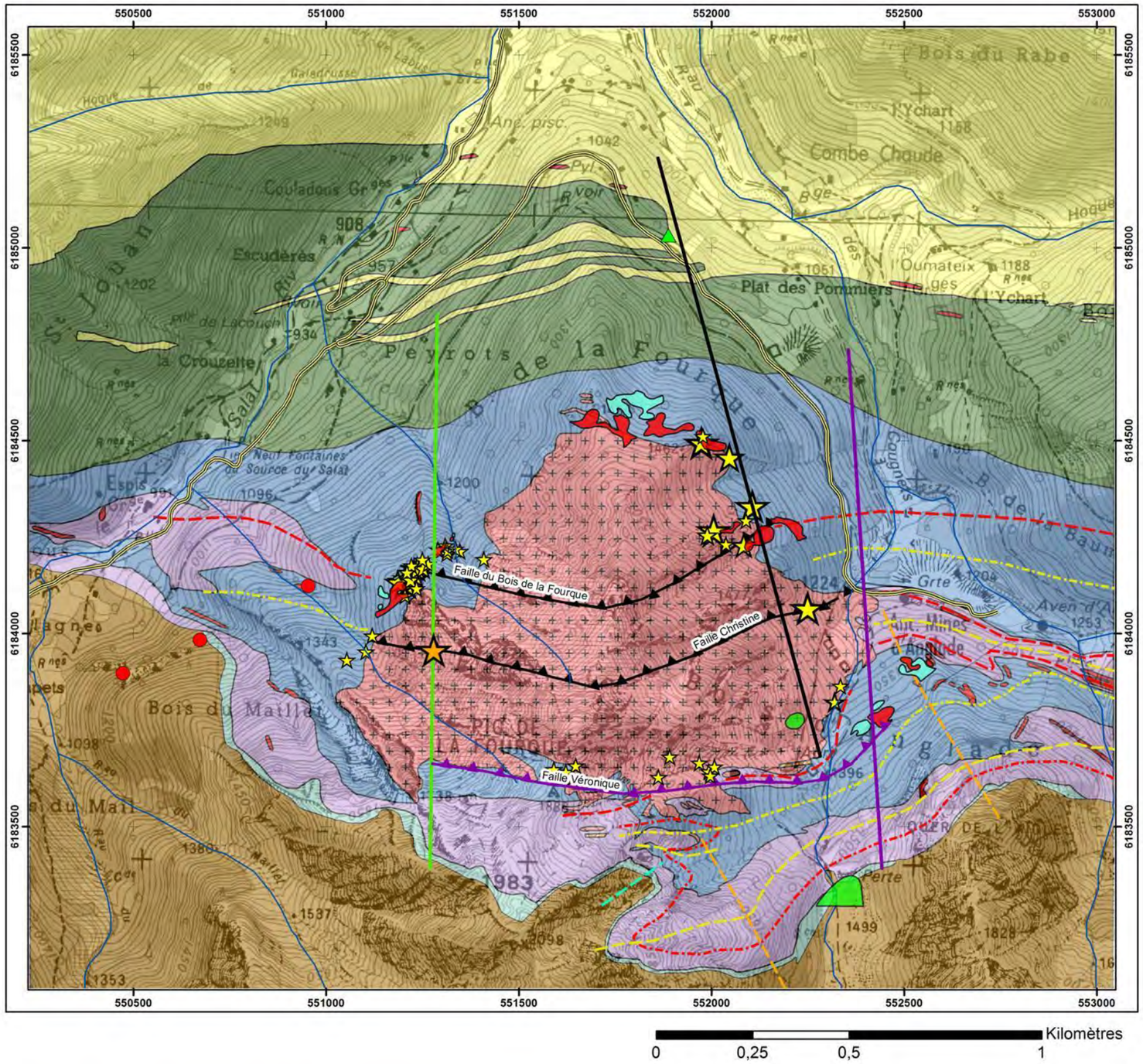
- Présence dans l'environnement de Salau d'indices minéralisés et d'anomalies pouvant être interprétées comme des minéralisations W de sommet de coupoles et aujourd'hui vierges de tous travaux d'exploration et présentant un fort potentiel





Contexte structural du Pic de la Fourque

(d'après la carte de Derré et Charruau, 1974-1978)



Légende

Indices
- Pyrrhotite
- Scheelite
- Sphalérite

Teneurs WO3 (%)
- 0 - 0,3
- 0,3 - 0,55
- 0,55 - 0,8
- 0,8 - 1,1
- > 1,1
- Lentille Christine

Eléments structuraux
- Failles potentielles
- Faille Véronique

Plis
- P1 antiforme
- P1 synforme
- P2 antiforme
- P2 synforme
- P3 antiforme
- P4 antiforme

Lithologie
- Quartz
- Granodiorite
- Microgranodiorite
- Calcaire de Carboire
- Schistes bleutés
- Calcaire supérieur
- Barrégiennes
- Calcaires inférieurs graphiteux
- Formation schisto-pélitique du Mont Rouch

Eléments administratifs
- Routes
- Cours d'eau

Traits de coupes structurales
- Coupe A
- Coupe B
- Coupe C

Anomalies géophysiques
- Anomalies Résistivité

Anomalies Magnétiques

Type
- négative
- positive

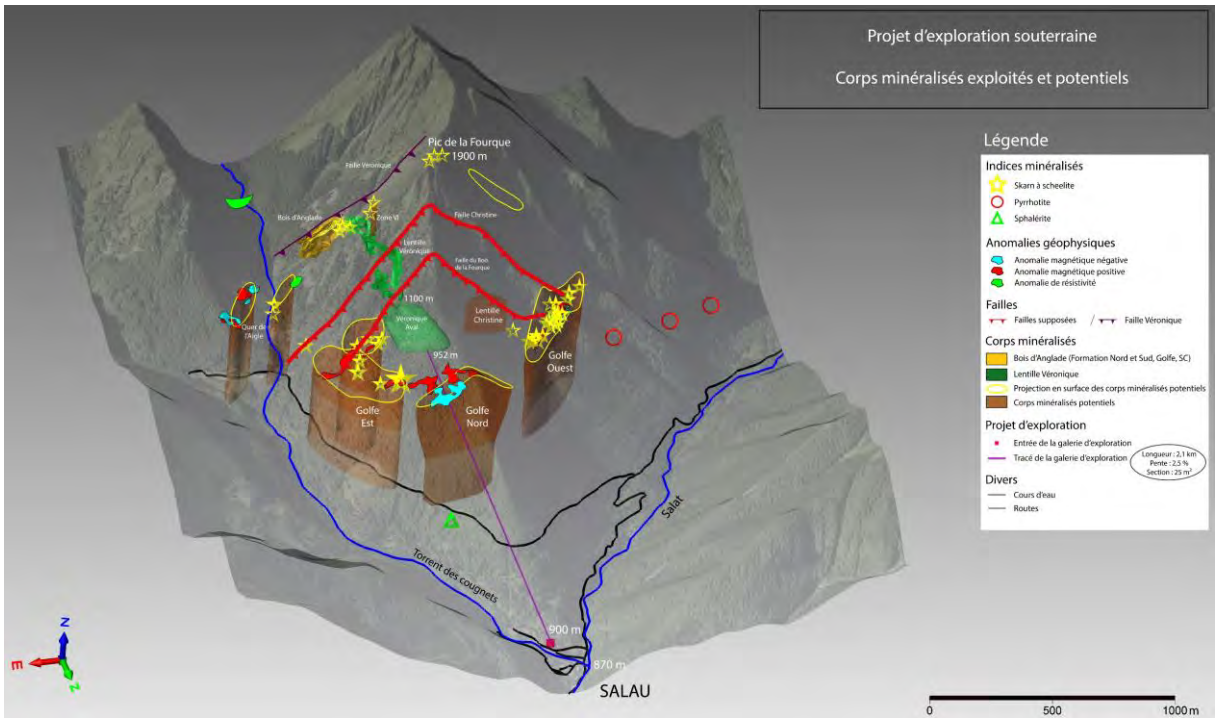
Système de coordonées : RGF 1993 Lambert 93
Projection : Lambert Conformal Conic
Unités : mètres

Contexte structural du Pic de la Fourque avec position de deux nouvelles structures min®ralis®es potentielles

- Localisation de deux structures tectoniques (Faille du bois de la Fourque et Faille Christine) pr®sentant toutes les caract®ristiques structurales de la Faille min®ralis®e exploit®e V®ronique. La position par rapport ¨ ces deux structures dôindices connus en surface ou dans la mine (lentille Christine), celle des anomalies magn®tiques ainsi que celle des axes de plis dans lôencaissant carbonat®, permet dôenvisager un potentiel minier des plus prometteurs pour ces deux structures

- Lôexploration globale du permis concerne une surface de 42 kmĮ, en zone de haute montagne, ce qui exclut une approche syst®matique de g®ophysique au sol et impose une technique h®liport®e de type VTEM ou HELITEM

- Les cibles ¨ rechercher pouvant °tre non affleurantes, les techniques g®ophysiques employ®es devront °tre p®n®tratives et devront permettre dôexplorer le permis jusquô 500 m de profondeur



- En raison de la situation en zone de montagne et de lôemprise du Parc naturel r®gional des Pyr®n®es ari¯geoises, la totalit®des travaux dôexploration des corps min®ralis®s sera entreprise ¨ partir dôouvrages souterrains.

1.2 Travaux de surface

1.2.1 Synth¯se des donn®es ant®rieures

Une synth¯se m®tallog®nique des donn®es publiques concernant la zone du PERM ç Couflens è a ®t® r®alis®e durant ces derniers mois par Variscan Mines afin de s®lectionner les limites les plus pertinentes pour le PERM ç Couflens è et de proposer et chiffrer un plan des travaux coh®rent.

Cette synth¯se est toutefois ¨ poursuivre afin de jeter les bases dûun syst¯me dôinformation optimis® pour g®rer lôensemble des travaux jusquõ la phase de faisabilit® bancaire.

On consid¯rera comme nul lôimpact environnemental de cette t©che limit®e ¨ des travaux de bureaux.

Variscan Mines estime ¨ 6 hommes-mois le temps n®cessaire pour r®aliser cette t©che. Un budget de 50 000 ú est planifi® pour la r®aliser.

1.2.1.1 Cr®ation dûun SIG du PERM ç Couflens è

Lôensemble des donn®es susceptibles dûune repr®sentation spatiale seront rassembl®es dans un SIG (ArcView). La g®odatabase incorporera le SIG r®gional d®j¨ constitu®¨ lô®chelle r®gionale en pr®alable ¨ la demande du PERM.

Les donn®es seront report®es ¨ lô®chelle du 1/10 000 et import®es sous Google-Earth. Elles incorporeront les cartes et documents issus des campagnes de terrain ou des travaux dôexploration ant®rieurs (g®ologie, g®ophysique, ®chantillonnage, sondages, travaux divers é)

1.2.1.2 Cr®ation dûune base de connaissances sur les indices et affleurements

Variscan Mines g¯re lôensemble de ses donn®es mini¯res sous GKR (Geologic Knowledge Representation). Lôensemble des donn®es de terrain et des ®tudes scientifiques entreprises sur les min®ralisations seront incorpor®es dans ce syst¯me.

1.2.1.3 Cr®ation dûun mod¯le 3D d®taill® du gisement dôAnglade

Lôexploitation des occurrences de la r®gion de Salau sôest effectu®e de mani¯re intermittente de 1905 ¨ 1958, puis de 1978 ¨ 1983. Variscan Mines entreprendra une recherche des archives de lôexploitation en vue de les exploiter dans un syst¯me moderne de repr®sentation 3D (MICROMINE). En effet, ce mod¯le 3D d®taill® du gisement dôAnglade constituera un ®l®ment important pour la planification, la r®alisation et lôinterpr®tation des r®sultats des phases de travaux qui seront r®alis®s par Variscan Mines au cours des trois ann®es du programme dôexploration.

Lors des phases amont de lôexploration g®ophysique, il sera possible dôavoir alors un ®talonnage pr®cis des anomalies magn®tiques et ®lectromagn®tiques qui seraient constat®es ¨ lôaplomb du gisement. Les param¯tres de r®f®rence ainsi d®finis seront utilis®s pour interpr®ter les cartes obtenues par le survol des 42 kmĮ qui lôentourent. Il constituera donc un ®l®ment d®terminant pour la hi®rarchisation des anomalies.

1.2.2 Synth¯se environnementale du PERM ç Couflens è

Afin dôappr®hender avec pr®cision lôimpact environnemental des travaux qui pourraient °tre entrepris dans le cadre dûune mise en exploitation du gisement, Variscan Mines contractera un organisme ind®pendant et agr®® par lôadministration pour r®aliser une synth¯se environnementale du PERM ç Couflens è. Les r®sultats de cette ®tude, entreprise d¯s les premiers stades de lôexploration, pourront ainsi °tre int®gr®s ¨ lô®tude de pr®faisabilit® qui suivra et en orienter les conclusions.

Les points suivants seront plus particuli¯rement d®taill®s :

- Milieux physiques et paysages
- Urbanisation, occupation des sols et contraintes administratives
- Par ailleurs, en collaboration ®troite avec les parties prenantes r®gionales et le parc naturel, Variscan Mines ®tudiera lôopportunit® de retraiter les tailings dans les installations de lôexploitation afin de les retirer des verses actuelles et de les stocker sous forme de back filling dans les chantiers souterrains. Si les conditions environnementales et ®conomiques le permettaient, cette op®ration pourrait restaurer le milieu naturel dans un ®tat proche de son ®tat initial avant la mise en exploitation de la mine historique dôAnglade.

Un budget de 75 000 ú est pr®vu pour la r®alisation de cette ®tude qui se poursuivrait durant la deuxi¯me ann®e de travaux en cas dôacceptabilit®.

1.2.3 Installation dôune base op®rationnelle

Lôexploration efficace du PERM suppose lôinstallation sur site dôun bureau technique dot®des locaux et des ®quipements n®cessaires.

Variscan Mines louera ou ach¯tera une maison et un terrain suffisants pour am®nager les locaux techniques supportant lôactivit® du plan de travaux des 5 premi¯res ann®es. Ces locaux seront fondamentalement utilis®s pour les t©ches suivantes :

- bureaux pour la r®alisation des documents g®ologiques et miniers ;
- stockage provisoire des ®chantillons de terrain ;
- logging et archivage provisoire des carottes de sondages.

Lôimpact environnemental de cette t©che sera limit®¨ celui de lôam®nagement dôun b©timent pour installation de bureau et a un lieu de stockages provisoire adapt®des ®chantillons et des carottes de sondage avant archivage en caroth¯que.

Un budget de 250 000 ú est pr®vu pour lôacquisition et lôam®nagement des locaux

Achat des ®quipements

Les ®quipements suivants seront acquis d¯s le d®but des travaux :

- £quipements des bureaux (mobilier, informatiqueé)
- V®hicules utilitaire diesel
- £quipements de terrain.

Un budget de 75 000 ú est pr®vu pour lôacquisition de ces ®quipements

Organisation dôune lithoth¯que et dôune caroth¯que

Durant les 5 ann®es dôexploration plusieurs milliers de m¯tres de carottes et dô®chantillons de roches seront pr®lev®s, ®tudi®s (p®trographie, g®ochimie Niton, min®ralogie, é), et archiv®s afin de permettre une ®ventuelle reprise pour ®tudes compl®mentaires.

Lôarchivage devra ob®ir aux r¯gles internationales (JORC ï NI 43 101), ce qui suppose lôorganisation dôune caroth¯que moderne avec stockage s®curis®.

Le r®sultat de ces ®tudes, les interpr®tations et leurs implications environnementales seront archiv®es dans le syst¯me GKR de Variscan Mines pour une exploitation par le SIG du PERM.

Variscan Mines sôengage ¨ conserver dans de bonnes conditions la totalit® des sondages dôexploration r®alis®s durant toute la dur®e de validit® du PERM. Un budget de 60 000 ú /an est pr®vu pour lôacquisition ou la mise ¨ disposition des locaux et des ®quipements n®cessaires.

1.2.4 Cartographie d®taill®e du PERM ç Couflens è

Cette cartographie est indispensable pour permettre une interpr®tation correcte des ®tudes g®ophysiques a®roport®es et h®liport®es. Elle sera men®e ¨ bien par le g®ologue en charge du projet, qui fera appel au fur et ¨ mesure des besoins ¨ des experts (g®ologie structurale, s®dimentologie, g´tologie) sous-trait®s ¨ diff®rentes universit®s, au BRGM ou ¨ des bureaux dô®tude.

Un budget de 50 000 ú est allou®¨ cette t©che

Lôimpact environnemental de cette op®ration peut °tre consid®r® comme nul, celle-ci se limitant ¨ des visites de terrain sans aucune r®alisation de travaux particuliers.

1.2.4.1 Cartographie g®ologique ¨ lô®chelle 1/10 000 du PERM

Le travail de cartographie consistera ¨ rechercher et ¨ g®or®f®rencer un maximum dôaffleurements (report®s sur SIG) afin de disposer dôune carte d®taill®e la plus factuelle possible pour une interpr®tation optimale des donn®es de la g®ophysique h®liport®e. Dans la mesure du possible on t©chera de localiser les apex granitiques et aplitiques susceptibles de porter ou dô°tre associ®s ¨ des min®ralisations de type p®rigranitique.

1.2.4.2 Recherche et ®chantillonnage des indices min®ralis®s

Le PERM ç Couflensè renferme de tr¯s nombreux indices min®ralis®s de tungst¯ne, ®tain, molybd¯ne, plomb, zinc ou cuivre, or et argent, dont lô®tude g´tologique syst®matique pr®cise sera r®alis®e.

Bien que souvent discrets, de tels indices peuvent fournir des indications pr®cieuses sur les probabilit®s dôexistence dôun apex granitique ¨ proximit®. Les techniques ¨ utiliser sont lôanalyse multi-®l®mentaire, qui peut °tre en partie r®alis®e ¨ la base avec un analyseur XRF. Les descriptions de ces indices, analyses et ®tudes p®trographiques seront ®galement int®gr®es dans le GKR de Variscan Mines.

Les analyses pour Au seront confi®es ¨ des laboratoires de renomm®e internationale (ALS, SGSé)

1.2.5 G®ophysique h®liport®e

La strat®gie arr°t®e par Variscan Mines est de rechercher les cibles ¨ sonder jusquô une profondeur de 500 m. Cet objectif impose les techniques g®ophysiques comme lôoutil principal pour rechercher de nouveaux filons et des diss®minations au sein du massif de la Fourque, ¨ sa p®riph®rie ou dans son proche environnement suivant lôaxe des isogrades du m®tamorphisme de contact.

La surface ¨ explorer de 42 kmĮ et la topographie montagneuse imposent lôemploi dôune technique h®liport®e, les m®thodes de g®ophysique au sol ®tant trop difficiles ¨ mettre en î uvre sur de telles surfaces accident®es.

Il sôagit donc de rechercher des lentilles de pyrrhotite massive riches en scheelite, des stockwerks et des diss®minations de scheelite au sein des corps magmatiques et dans leur encaissant carbonat® (skarns) imm®diat. Ces min®ralisations diss®min®es sont ®galement accompagn®es de sulfures, quoiquôen proportions bien plus r®duites.

Lôimpact environnemental de cette op®ration peut °tre consid®r®comme nul, celle-ci se limitant ¨ un survol du PERM par un h®licopt¯re. Les mesures de s®curit®li®es au survol a®rien seront prises par le sous-traitant, Fugro (HeliTEM) ou Geotech Airborne Limited (VTEM). Toutefois, en raison du caract¯re spectaculaire de certains capteurs, une campagne dôinformation sera effectu®e avant la r®alisation des travaux afin dô®viter de susciter des craintes ou des interrogations.

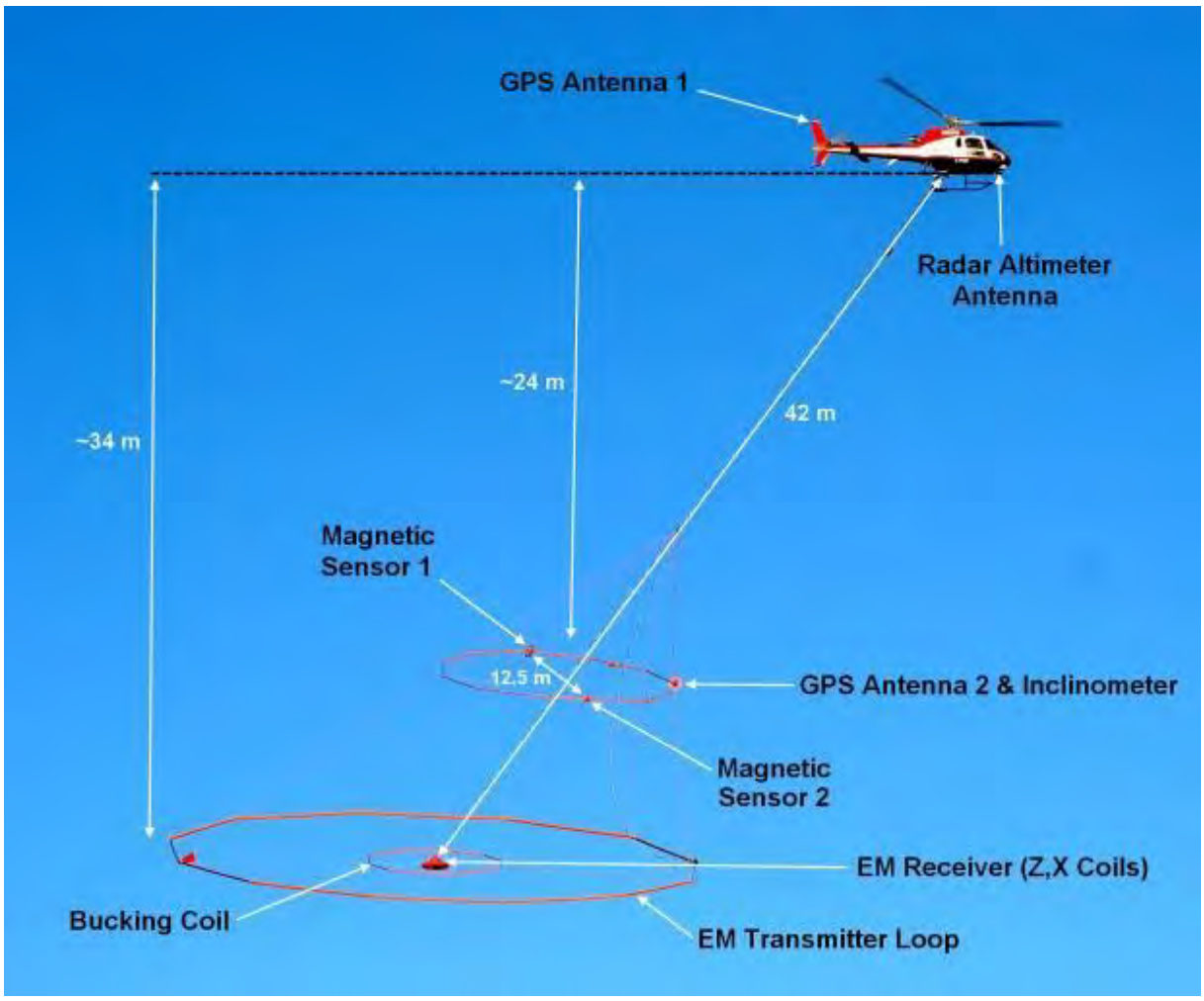
Variscan Mines entreprendra une campagne de magn®tom®trie et dô®lectromagn®tom®trie sur lôensemble du PERM ç Couflensè. Les lignes de vol seront espac®es de 100 m, le capteur embarqu® ®voluant ¨ plus de 40 m du sol pour ®viter tout risque de collision avec les arbres. Ce vol permettra une cartographie de haute d®finition, adapt®e ¨ la recherche des cibles potentielles du PERM, de taille petite ¨ moyenne suivant des consid®rations g®ologiques.

Le PERM ayant une superficie de 42 kmĮ, ce programme repr®sente environ **420 km** de lignes de vol. En consid®rant la mobilisation/d®mobilisation des ®quipements et lôinterpr®tation des donn®es, le budget pr®vu la premi¯re ann®e pour cette op®ration est de **120 000 ú.**

VTEM ou H®liTEM

La pr®sence habituelle de pyrrhotite (min®ral magn®tique) dans les failles min®ralis®es du type de la Faille V®ronique permettra de mettre en ®vidence de tels niveaux favorables ¨ forte profondeur. Une exploration exhaustive du PERM ç Couflens è par g®ophysique ne peut donc pas sôabstenir dôemployer une technique fond®e sur le caract¯re magn®tique de la min®ralisation.

Variscan Mines utilisera par ailleurs une technique ®lectromagn®tique, fond®e sur la conductivit® ®lectrique de la min®ralisation massive et/ou diss®min®e. Le croisement des deux techniques sera ®galement un crit¯re essentiel pour la s®lection et la hi®rarchisation des cibles ¨ tester prioritairement par des sondages depuis le fond de la mine. On pr®sentera ¨ la suite le ç VTEMÈ è de la soci®t®Geotech qui cumule les capteurs magn®tiques et ®lectromagn®tiques ; lôH®liTEM de Fugro offrant des caract®ristiques ®quivalentes.



VTEM [Plus] System avec Magnetic Gradiometer

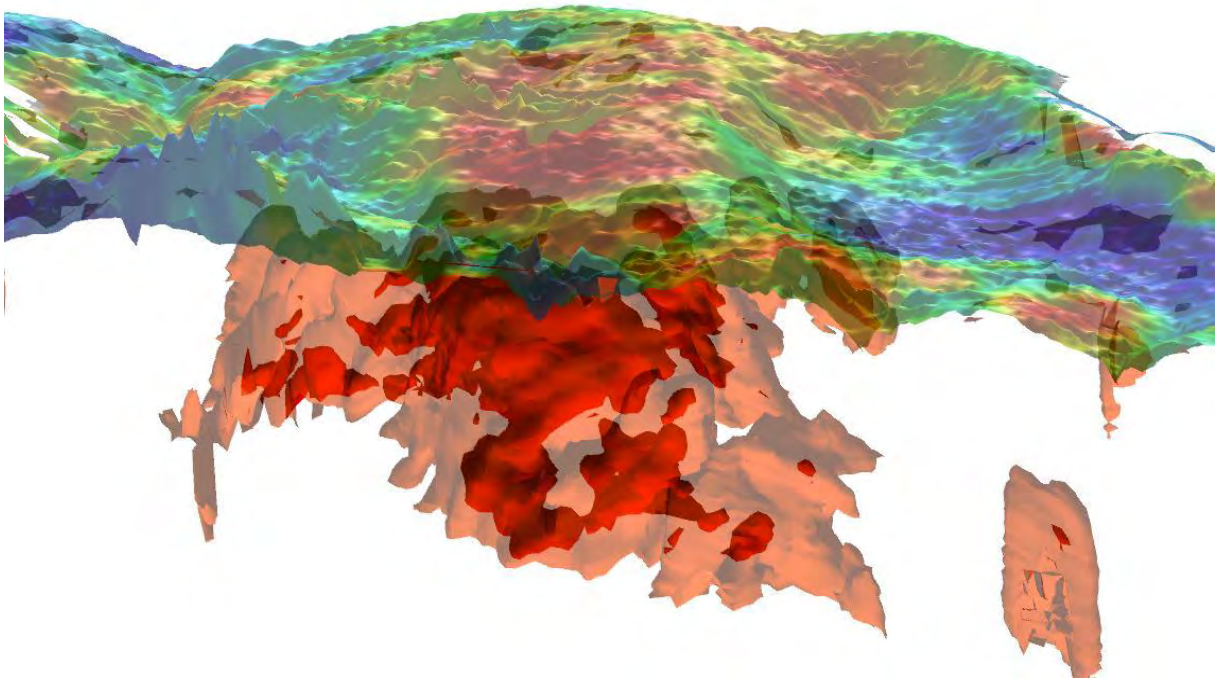


Pour les mesures de variations du champ magn®tique, le VTEM utilise des magn®tom¯tres de grande sensibilit® dans des configurations de capteurs multiples. Il est g®n®ralement mesur®, en

plus du champ magn®tique total, des valeurs de gradient vertical, transversal et/ou longitudinal en utilisant deux capteurs ou plus.

Le caract¯re extr°mement large de la bande passante et la qualit® d'®chantillonnage ¨ permettent de cartographier ¨ haute r®solution des cibles vari®es (profondes ou non). Le syst¯me enti¯rement calibr® am®liore ®norm®ment la pr®cision et la continuit® lat®rale des donn®es. La largeur de bande passante le rend capable de rep®rer des variations subtiles dans la conductivit® depuis la surface jusqu' plusieurs centaines de m¯tres de profondeur, couvrant une vaste gamme de cibles d'exploration.

Les techniques de traitement des donn®es permettent une repr®sentation cartographique en 3D de grande qualit®, et facilite l'interpr®tation des corps identifi®s dans le sous-sol.



Exemple de traitement 3D montrant un corps conducteur (minerai) en profondeur

1.2.6 Contr¹le au sol des anomalies

Les techniques a®roport®es ¨ haute d®finition telles que d®crites pr®c®demment ont la particularit® de g®n®rer un grand nombre d'anomalies qu'il faut imp®rativement hi®rarchiser avant de pouvoir envisager les phases ult®rieures de sondages d'exploration. D¯s ce stade, les implications financi¯res li®es aux priorit®s accord®es sont g®n®ralement ®lev®es et il convient, lorsque c'est possible, de tester au sol ces anomalies afin d'obtenir un maximum de connaissances pour garantir une hi®rarchisation pertinente.

Bien que ne pr®sentant pas d'impact environnemental, toutes ces ®tudes ne seront entreprises qu'apr¯s avoir obtenu les autorisations n®cessaires aupr¯s des propri®taires des terrains et accord® avec eux les ®ventuelles indemnisations li®es ¨ l'immobilisation momentan®e d'une partie des terrains.

Un budget de 75 000 ú est pr®vu pour cette phase de contr¹le au sol des anomalies

1.2.6.1 G®ologie d®taill®e

Il s'agira de v®rifier, ¨ l'aplomb des anomalies, toute information g®ologique susceptible de fournir une explication ¨ sa pr®sence. On recherchera en particulier toute trace d'apex granitique ou microgranitique qui aurait pu passer inaper- ue lors du balayage syst®matique du PERM, par d®finition moins exhaustif. On recherchera ®galement la pr®sence de volantes sulfur®es, de gossans, de stockwerks, de greisens, de skarns et de formations hydrothermales susceptibles d'être spatialement associ®es ¨ des structures min®ralis®es.

Cette phase de g®ologie de d®tail sera accompagn®e d'un ®chantillonnage en roche et le r®sultat des ®tudes int®gr® dans la base de connaissance GKR de Variscan Mines.

1.2.6.2 G®ochimie sol et/ou tari¯res ¨ main

Il est important de v®rifier si les anomalies mod®lis®es comme proche de la surface ou affleurantes ne d®veloppent pas ¨ leur aplomb des anomalies g®ochimiques multi-®l®mentaires permettant d'appr®hender la nature des min®ralisations concern®es, et par la m°me de les hi®rarchiser.

Si les conditions p®dologiques le permettent, les anomalies pr®alablement s®lectionn®es seront test®es par le biais d'une grille de g®ochimie sol, dont la maille de pr®l¯vement sera fonction de leur forme et de leur taille (r®guli¯re : 50 x 50 m ou 100 x 100 m ou irr®guli¯re : 100 x 50 m ou 200 x 50 m, les profils ®tant orient®s perpendiculairement ¨ l'allongement maximum de l'anomalie).

Les pr®l¯vements seront effectu®s dans le respect de l'environnement et des cultures et de la v®g®tation.

- En zone de prairie ou en sous-bois, l'®chantillon sera pr®lev® ¨ la base des racines. Une motte de 20 cm x 20 cm sera retir®e ¨ la pelle, le pr®l¯vement d'environ 250 g de terre effectu® au fond du trou, et la motte herbeuse sera ensuite remise en place.

- En zone de labour, les ®chantillons seront directement pr®lev®s ¨ la surface des mottes ou en fond de sillon (suivant la profondeur du labour).

L'®chantillon, g®or®f®renc® au GPS, sera s®ch®, tamis®¨ 125 Õm, et la fraction inf®rieure ¨ 125 Õm analys®e pour l'or et par ICP (35 ®l®ments).

Les sols pyr®n®ens sont adapt®s ¨ l'emploi de la g®ochimie sol. Toutefois, dans le cas d'anomalies g®ochimiques tr¯s ®tendues, la r®alisation de tari¯res ¨ main est une technique efficace pour mieux d®finir les anomalies (forme et intensit®), les pr®l¯vements au bed rock r®duisant largement l'aur®ole de dispersion des ®l®ments traceurs de la min®ralisation.

Le pr®l¯vement ¨ la tari¯re ¨ main consiste ¨ pr®lever un ®chantillon de saprolite une fois d®pass®s les sols superficiels. On pr®f¯rera une tari¯re h®licoµdale qui offre l'avantage de maintenir le mat®riel pr®lev® dans les spires.

Le temps de pr®l¯vement ®tant consid®rablement allong® par rapport ¨ celui de la g®ochimie sol classique, les pr®l¯vements seront ex®cut®s sur des profils perpendiculaires ¨ l'allongement maximum de l'anomalie, largement espac®s entre eux mais avec un pas de mesure resserr® (10 m) en raison de la relativement faible dispersion des ®l®ments chimiques ¨ la profondeur du pr®l¯vement.

Par la suite, les ®chantillons seront trait®s et analys®s comme des ®chantillons de sol.

1.2.6.3 Gravim®trie au sol

Le PERM ç Couflens è peut pr®senter des conditions justifiant une ®ventuelle mise en î uvre de cette technique dans des conditions optimales, ¨ savoir :

- Potentiel contraste de densit® associ® au corn®ennes de contact
- Densit® faible et relativement homog¯ne des roches encaissantes. Les corps de minerai, peuvent pr®senter un fort diff®rentiel de densit®, facile ¨ d®tecter et ¨ mod®liser
- Absence de roches basiques ou ultrabasiques dans les s®ries encaissantes. Ainsi, la pr®sence dûun corps lourd aura une forte probabilit® de correspondre ¨ un amas m®tallique (amas sulfur®, filon ou sill en sommet de coupole..), les autres roches de forte densit® ®tant absentes de lêenvironnement g®ologique local.

La gravim®trie au sol serait alors un compl®ment pour hi®rarchiser les anomalies d®tect®es au pr®alable.

1.3 £valuation des rejets (tailings) de lôancienne exploitation dôAnglade

Lôancienne exploitation dôAnglade a laiss® deux verses de tailings cumulant environ 700 000 m^3 de mat®riaux (2 MT) : le Plat des Pommiers et les rejets du carreau principal (1230) de la mine.

1.3.1 £tat des lieux



Tailing du Plat des Pommiers (ci-dessus) et du carreau principal de la mine (ci-dessous)







Vues de détail des tailings du carreau principal de la mine

Bien que dû un impact environnemental mesuré, ces taillings particulièrement peu fertiles, sont difficilement végétalisés et leur colonisation par des espèces locales poserait problème.
Les pentes sont soumises à une forte érosion, le matériel fin étant entrainé par le Salat.

On peut considérer qu'ils sont composés pour moitié de déblais inertes, résultant des infrastructures minières, l'autre moitié correspondant aux rejets du traitement minéralurgique.

Variscan Mines, en étroite collaboration avec le Parc naturel régional des Pyrénées ariégeoises examinera la possibilité de réhabiliter le site en lui restituant son aspect initial.

Cette opération pourrait être rendue possible si les traitements envisagés lors de l'exploitation du nouveau gisement étaient applicables à ces déblais pour permettre ensuite leur enfouissement et fossilisation dans la mine. Pour cela, une évaluation de la nature de ces tailings ainsi qu'une estimation précise de leur contenu métallifère devra être réalisée.

1.3.2 Potentiel minier

À titre d'hypothèse de travail, en appliquant les rendements minéralurgiques de l'ancienne exploitation, ces taillings renfermeraient environ 1 Mt titrant entre 0.3 % et 0.6 % de WO_3 (soit 3000 à 6000 t de WO_3) ainsi que des teneurs non connues en cuivre et en or, ce qui pourrait justifier une reprise de ces produits dans un nouveau procédé de traitement.

1.3.3 Travaux envisag®s

Un budget de lôordre de 0.3 ¨ 0.5 Mú sera allou®¨ cette op®ration qui ne sera entreprise que si les conclusions de lô®tude environnementale pr®liminaire jugeant de son opportunit®sôav®rait favorable.

1.3.3.1 Estimation des tonnages / teneurs



Sondeuse g®otechnique ECOFORE CE 603 G

Les hypoth¯ses de tonnage / teneur d®duites des op®rations mini¯res demandent ¨ °tre confirm®es par des travaux de sondages syst®matiques des tas de d®blais.
Sôagissant de sondages peu profonds, dans un mat®riau de faible duret®, une sondeuse g®otechnique semble °tre le mat®riel le plus indiqu® pour mener ¨ bien cette op®ration dô®valuation des d®blais.
Le pas de la grille de sondage devra °tre d®termin® par g®ostatistique.

En particulier, il semblerait hautement pr®visible que ces tailings soient fortement h®t®rog¯nes, lôexploitation ayant extrait des minerais diff®rents et employ® des traitements diff®rents au cours de son histoire.

La r®alisation de ces travaux pourra commencer d¯s la premi¯re ann®e, mais ils se poursuivront tr¯s certainement sur la deuxi¯me ann®e, leur mise en route d®pendant :

- De la dur®e de lô®tude environnementale pr®alable
- De la conclusion de cette ®tude
- Des d®lais administratifs relatifs aux autorisations de sondages g®otechniques des d®blais.

1.3.3.2 Estimation de l'aptitude au traitement

De par leur exposition aux intempéries pendant plus de 30 années, ces déblais ont subi une forte oxydation. Leur composition minéralogique est donc très différente de celle d'un minerai primaire tel qu'exploitable dans le nouveau gisement.

Des essais minéralurgiques seront donc indispensables afin de déterminer les processus permettant leur valorisation et l'opportunité d'adapter en conséquence l'usine de traitement du minerai. Cela suppose donc une bonne connaissance des tailings en préalable au design de la chaine de traitement lors de l'étude de faisabilité.

1.4 Travaux souterrains

La situation du gisement en zone de montagne, loin de constituer un handicap, permet d'envisager des méthodes d'exploration et d'exploitation qui garantissent un minimum d'impact environnemental ; la quasi-totalité des opérations (incluant le stockage des stériles) pouvant s'effectuer de manière souterraine, sans incidence directe sur la biosphère.

Cette situation rend toutefois très complexe l'exploration du gisement depuis la surface. En effet, les fortes pentes et les parois rocheuses rendent très difficile l'installation de plateforme de sondages qui nécessiteraient des travaux de viabilité importants ou l'usage constant d'hélicoptères, incompatibles avec le respect du parc naturel régional.

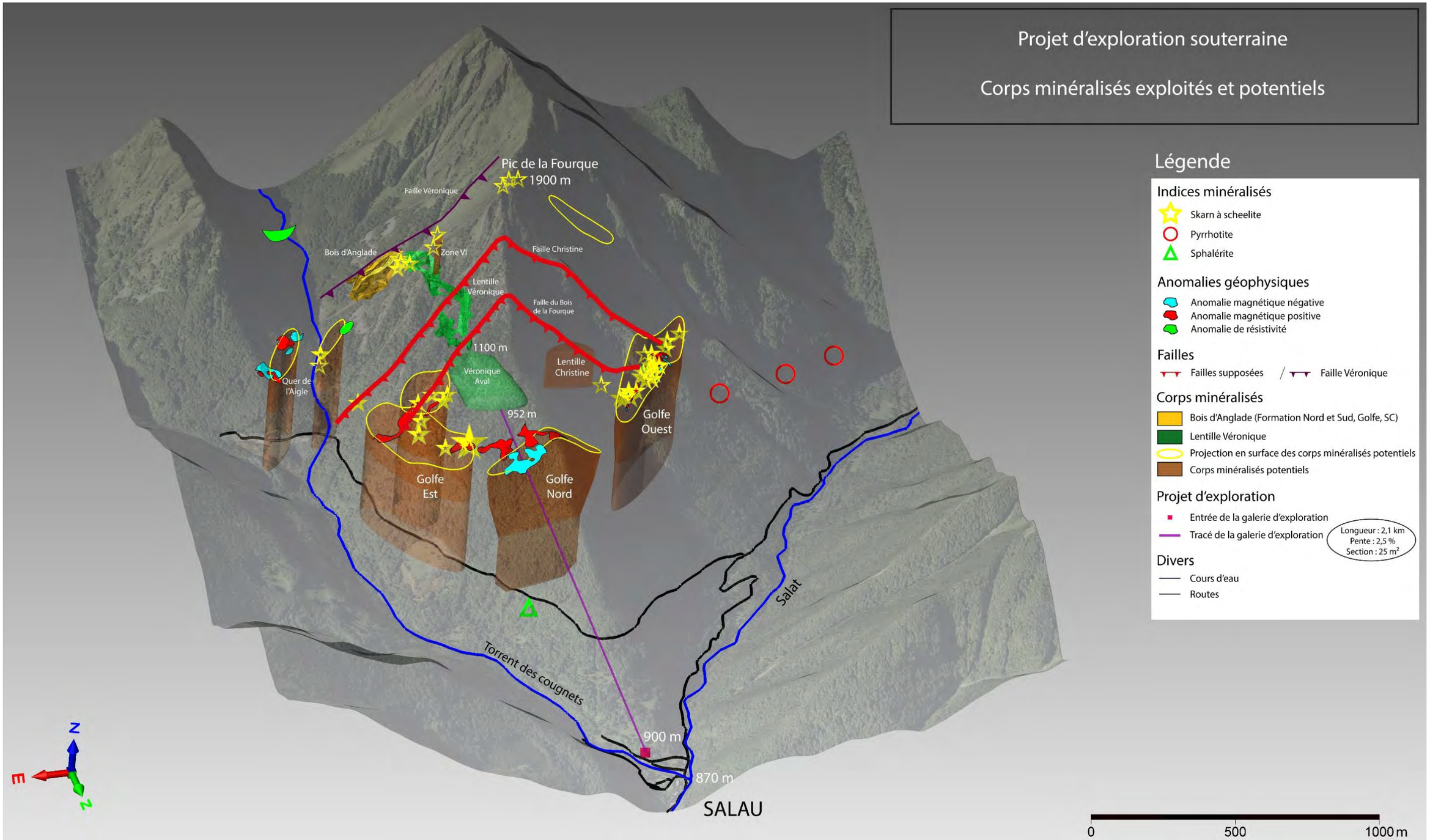
La disposition des corps minéralisés potentiels permet toutefois de réaliser les travaux de certification des ressources et des réserves par des travaux souterrains (sondages et galeries). Suivant la position des corps de minerais, ces travaux pourraient être entrepris à partir des anciennes galeries (partie haute du gisement), mais également à partir d'une galerie d'exploration nouvelle dont l'entrée se situerait à proximité du village de Salau, dans la vallée à la cote 900 m.

Le modèle 3D ci-contre localise sommairement les principaux corps minéralisés potentiels : failles minéralisées et golfes :

- Faille Véronique
- Faille Christine (incluant la lentille Christine)
- Faille du Bois d'Anglade
- Colonnes du Quer de l'Aigle
- Golfe est
- Golfe ouest
- Golfe nord.

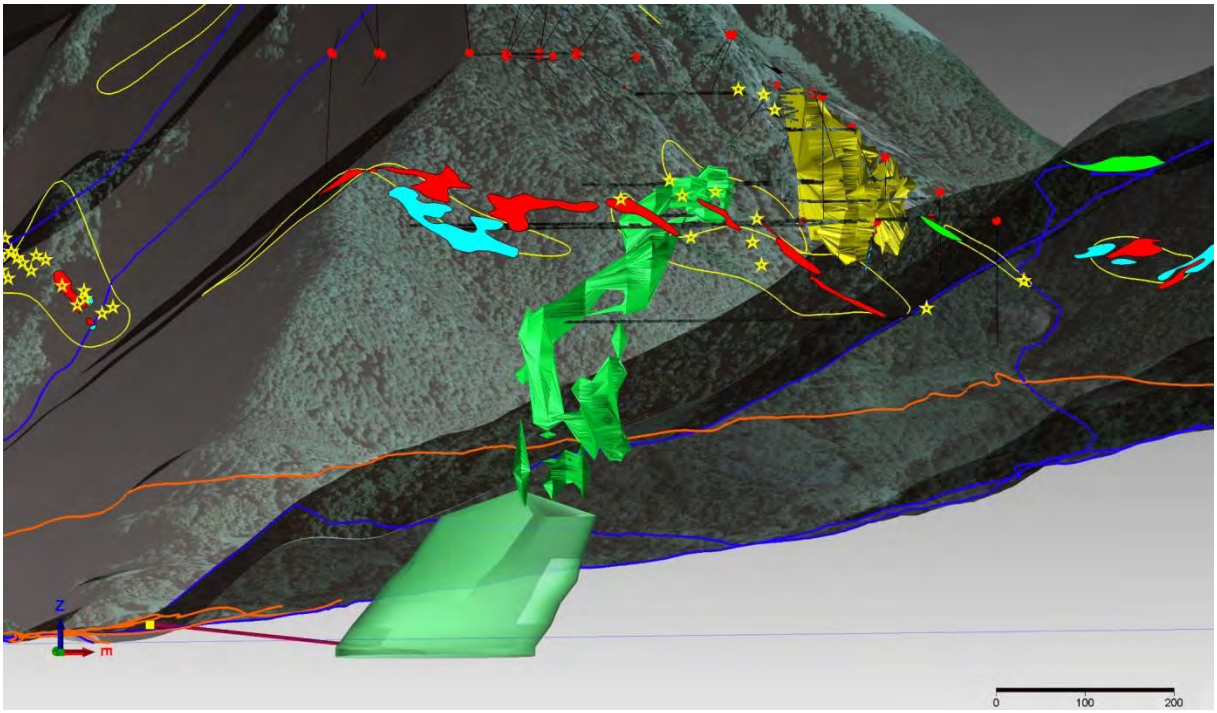
Une exploration souterraine étant beaucoup plus onéreuse qu'une exploration de surface, Variscan Mines s'est préalablement assurée de disposer des fonds nécessaires (25 Mú) pour réaliser cette tâche sur les 3 à 5 prochaines années, temps estimé nécessaire pour valider l'exploitabilité d'une nouvelle mine d'importance mondiale.

À l'inverse des travaux d'exploration minière établis depuis la surface, plus modestes et qui ne génèrent que peu d'emplois locaux, cette phase de l'exploration générerait une activité importante dans la vallée : mineurs, entreprises spécialisées dans la mise en sécurité des travaux souterrains, aération, installations électriques é .



Repr®sentation 3D du projet d'exploration souterraine (MicromineÊ)

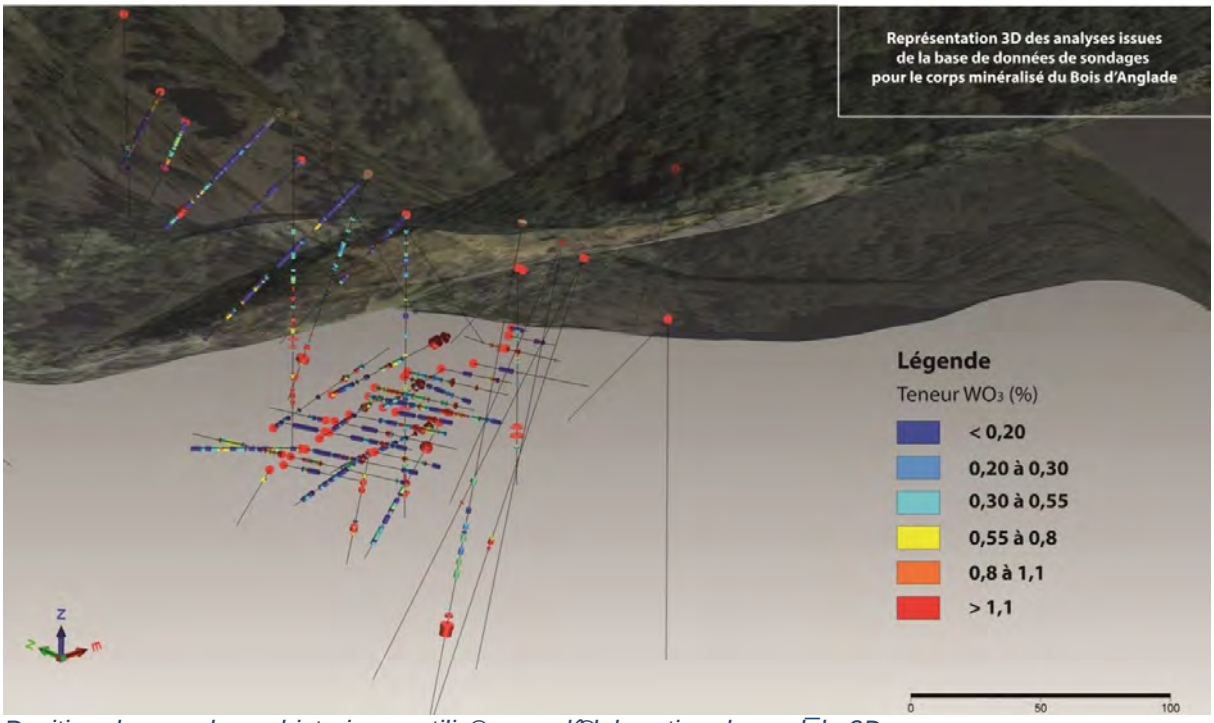
1.4.1 £valuation des ressources /r®serves en minerai de la partie haute du gisement par r®ouverture des anciens chantiers



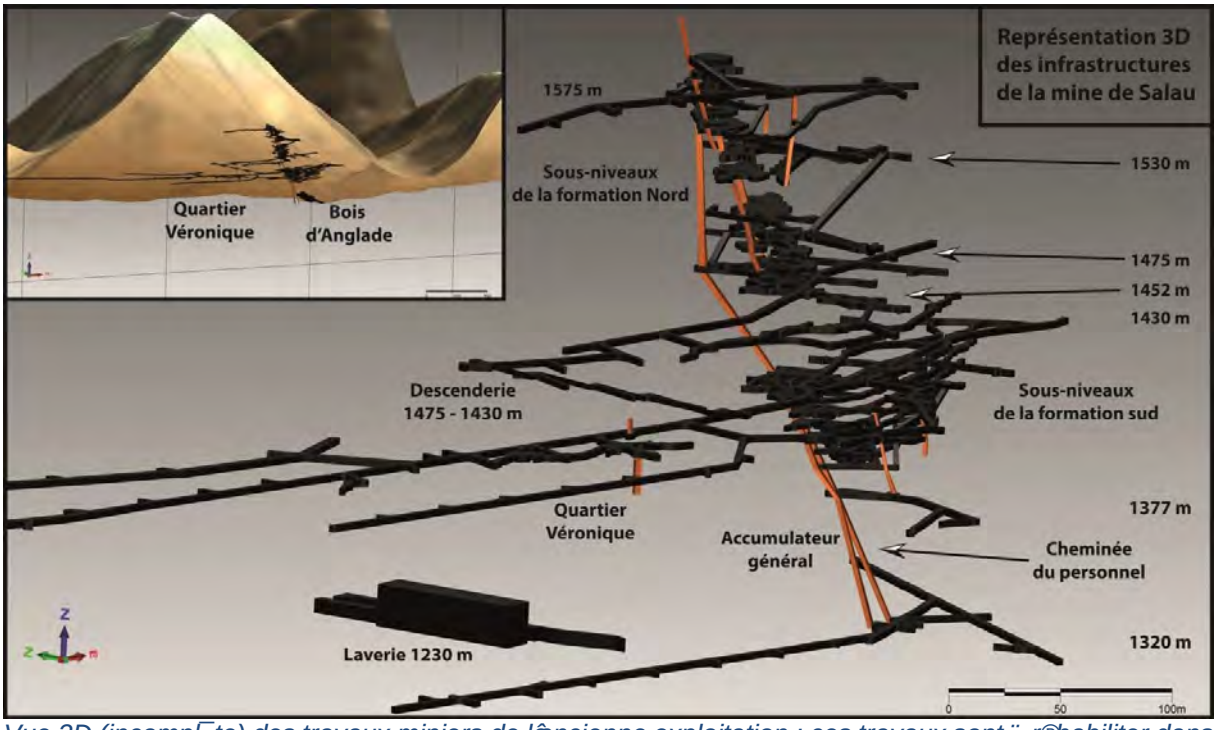
La coupe NS (le sud ¨ droite) ci-avant montre la disposition des deux corps de minerais exploit®s ¨ partir des galeries existantes :
ç Bois dÂnglade è en jaune et ç V®ronique è en vert soutenu.

Cette partie de la mine ancienne a ®t® exploit®e ¨ des teneurs sup®rieures ¨ 0.8 % WO_3, alors quûne approche conservatrice permet aujourdûhui de s®lectionner du minerai ¨ partir dûune teneur de coupure de 0.3 % WO_3.

On estime ainsi quûun important tonnage de minerai pourrait ° tre r®cup®r® dans cette zone. La totalit®des sondages r®alis®s durant la vie de la mine (ci-dessous) ayant disparue, il faudra certifier les valeurs historiques par des sondages de contr¹ les, qui pourront ° tre implant®s par un r®am®nagement des galeries existantes (lignes noires horizontales), a priori en bon ®tat de conservation en raison de la nature des roches (granite).

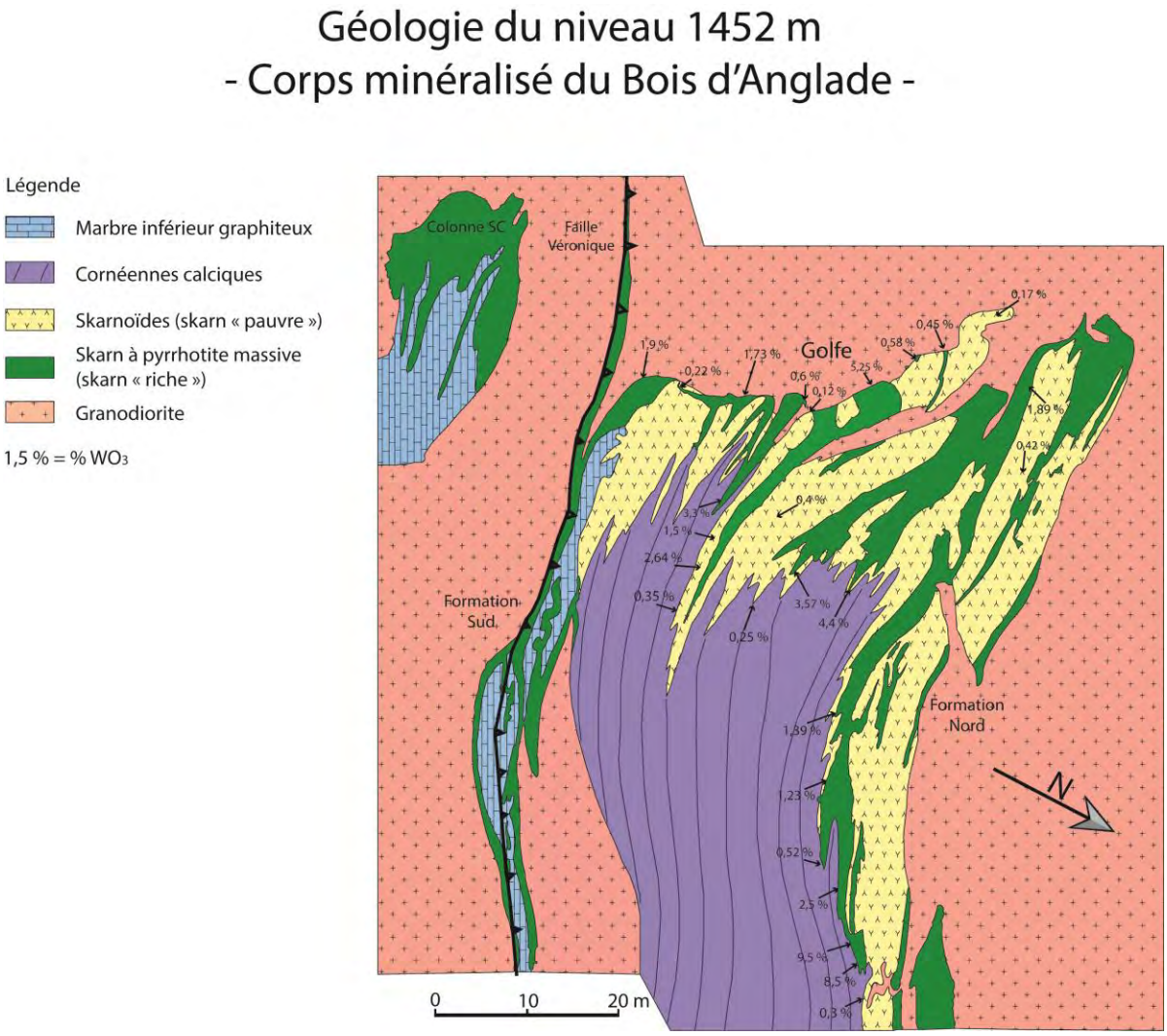


Position des sondages historiques utilis®s pour l®laboration du mod¯le 3D

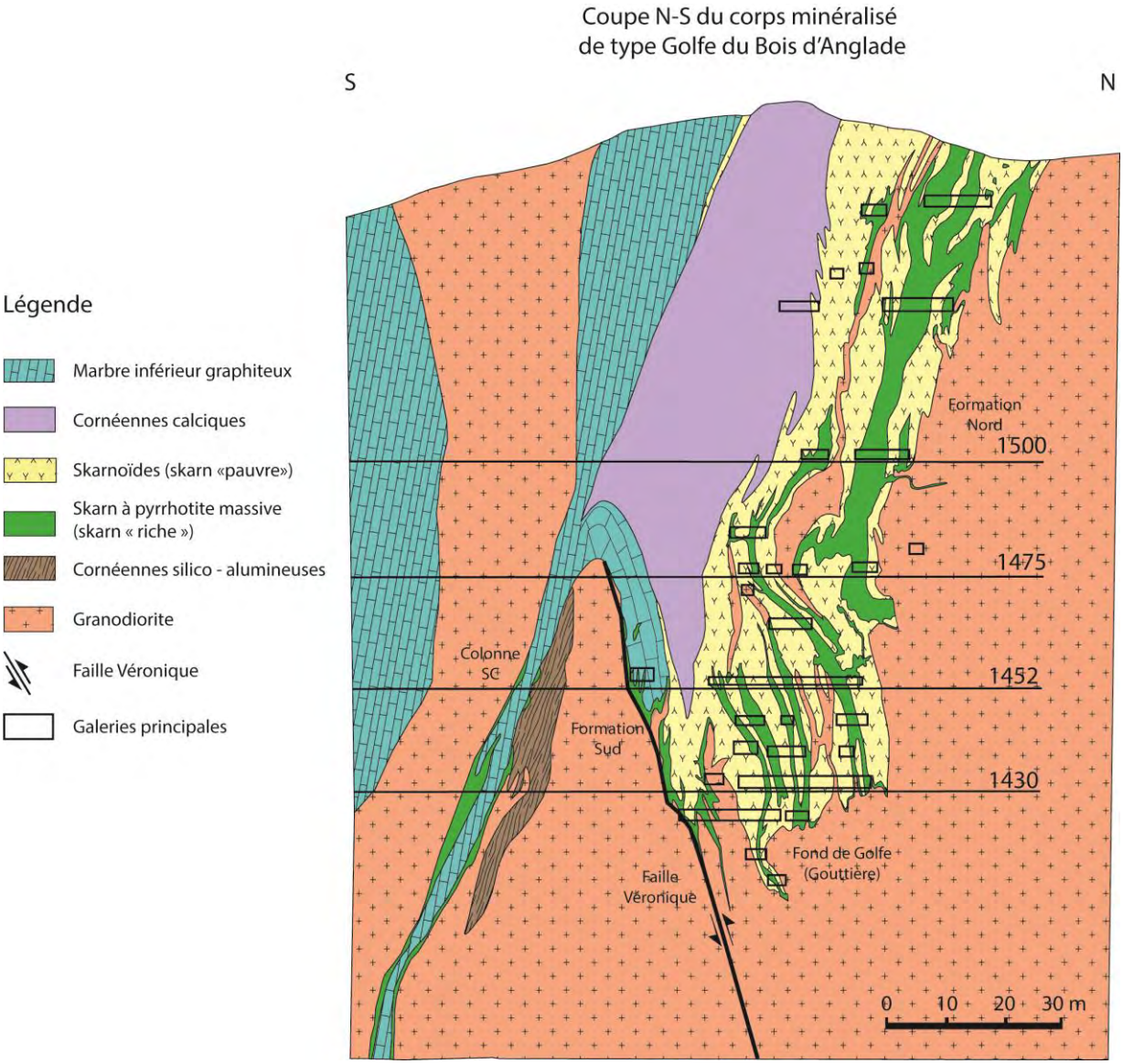


Vue 3D (incompl¯te) des travaux miniers de l'ancienne exploitation : ces travaux sont ¨ r®habiliter dans les 3 premi¯res ann®es du projet.

Les calculs effectu®s ¨ partir dûun mod¯le de blocs sur les min®ralisations du bois dôAnglade (corps min®ralis® et golfe) laissent supposer que le tonnage de minerai r®cup®rable est au moins ®quivalent au tonnage d®j¨ extrait. Par ailleurs, il faudrait ajouter ¨ ce potentiel la valeur induite par la pr®sence de m®taux valorisables, comme lôor et le cuivre, qui nôont jamais ®t® pris en compte dans lâancienne exploitation et dont lôimpact nous apparaît comme tr¯s significatif dans lô®conomie du projet.



G®ologie du niveau 1452 m pour le corps min®ralis® du Bois d'Anglade
Proportion de skarn pauvre dans le tonnage de la min®ralisation : 2580 t soit 46 %



Coupe N-S synthétique du corps minéralisé de type "Golfe" du Bois d'Anglade
Proportion de skarn pauvre dans le tonnage de la minéralisation : 3630 t soit 45 %

Le respect des pratiques du développement durable des gisements impose donc une étude exhaustive des minéralisations restantes dans l'emprise de l'ancienne exploitation. En effet, il nous apparaît comme difficilement concevable d'abandonner sans espoir de reprise une importante quantité de métaux dans l'emprise des vieux chantiers, ressources capables d'assurer à la future exploitation environ deux à trois années de production sur les seules minéralisations du bois d'Anglade.

Ces travaux d'évaluation seraient entrepris sitôt les autorisations pertinentes obtenues ; les demandes étant effectuées dès l'obtention du PERM. Ils sont estimés entre 5 et 7 Mú sur une durée de 3 ans en fonction du nombre de cibles à tester et des difficultés rencontrées.

Travaux préliminaires

L'échantillonnage des minéralisations dans l'emprise de l'ancienne exploitation ne peut s'envisager sans un accès aux chantiers miniers, et en particulier aux galeries de l'infrastructure.
Les informations recueillies auprès des équipes de Géodéris ayant été en charge des travaux de mise en sécurité de l'ancienne exploitation nous laissent supposer que ces galeries, creusées dans des roches résistantes, sont en bon état de conservation.

Toutefois, l'accès pour échantillonnage nécessitera une série d'importants travaux de réhabilitation :

- Vérification de la bonne tenue des ouvrages souterrains et remise en sécurité de ces derniers
- Installation de l'électricité, de l'eau et de l'aérage
- Dénoyage des galeries ; cette opération pouvant être menée « bien » partir des travaux envisagés dans la partie profonde du gisement
- Nettoyage des parois des galeries pour permettre leur échantillonnage et leur cartographie géologique détaillée.

Bien entendu, ces travaux préliminaires feront l'objet des demandes d'autorisation pertinentes auprès des services concernés.

Préalablement « toute réalisation, une étude de l'impact sur d'éventuelles colonies de chiroptères, qui auraient pu s'installer dans les anciens chantiers, sera entreprise en collaboration avec les spécialistes des associations concernées. Les mesures préventives pour le respect de la faune seront prises en conséquence (aménagement / préservation de galeries, d'anciens chantiers…).

Échantillonnage par rainurage des formations minéralisées



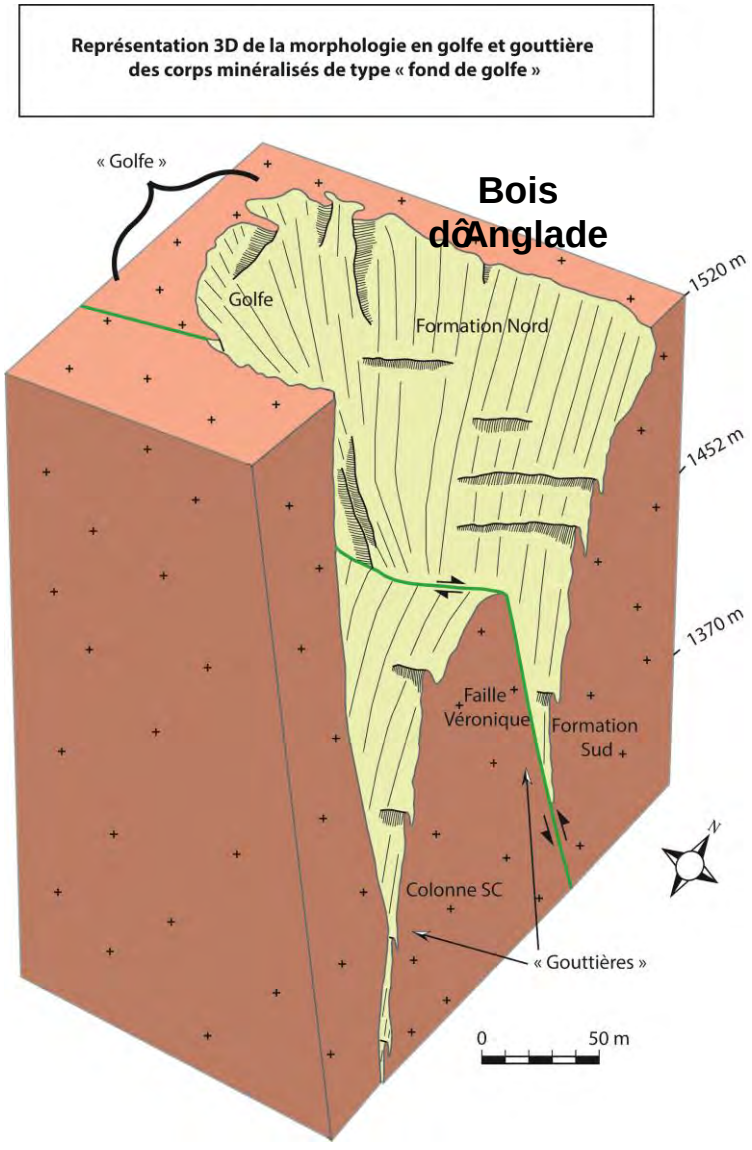
Rainureuse « double disque diamanté

L'échantillonnage par rainurage des parois des galeries permet d'obtenir des échantillons représentatifs des minéralisations. La nature des échantillons recueillis est assimilable « celle des carottes de sondages et leur interprétation dans le calcul géostatistique des modèles de bloc fiable.
Les anciennes exploitations ne s'étant pas intéressées aux minerais considérés comme de faible teneur (<0.8 % WO_3), leur échantillonnage systématique est nécessaire pour établir le potentiel minier du minerai resté en place.

Lôobservation directe de la min®ralisation et de son encaissant autorisera une ®tude exhaustive des structures g®ologiques, ®tape indispensable au design de la m®thode dôexploitation. Celles-ci peuvent sôav®rer complexe, comme lôindique le bloc diagramme des min®ralisations du Bois dôAnglade, pr®sent®¨ la suite.

Dans ce secteur de la mine, les 2 types de skarns sont observ®s au sein dôune structure complexe quôil conviendra de r®®chantillonner :

- Les skarns massifs issus de la transformation des marbres inf®rieurs graphiteux ou des marbres sup®rieurs se caract®risent seulement par une distribution en zones simples, monomin®rales. Ce type de skarn est toujours riche en scheelite (> 0,8 % WO_3), la phase hydrothermale tardive a compl¯tement t®lescop® la min®ralisation m®tasomatique pauvre en scheelite (0,2 ¨ 0,5 % WO_3)
  Une partie non n®gligeable de ce mat®riel est rest® en place lors de lôexploitation par sous niveaux
- Les ç skarnoµdes è, issus de la transformation des corn®ennes calciques, sont form®s par lôalternance de rubans riches en pyrox¯ne, ®pidote et titanite, et de rubans ¨ grenat, pyrox¯ne et ®pidote. Leur rubanement caract®ristique est h®rit® de celui des ç Barr®giennes è. Les skarnoµdes dispos®s en dents de peigne sur la bordure de la granodiorite sôtendent jusquõ une trentaine de m¯tres du contact. Ils sont particuli¯rement abondants dans les ç fonds de golfe è.
  Dans ce type de skarn, la teneur de coupure a ®t® la limite dôexploitation (0,8 % WO_3).
  Ce skarn m®tasomatique, qualifi® de ç pauvre è (< 0,8 % WO_3) nôa pas ®t® extrait.



Repr®sentation 3D de la morphologie des corps min®ralis®s de type "fond de Golfe" du Bois dôAnglade (modifi® d'apr¯s un document SMA)

Tests min®ralurgiques

Les anciens travaux offrent la possibilit® dâacc®der aux divers faci¯s min®ralis®s de la mine en divers points afin de pr®lever des ®chantillons non alt®r®s et de gros volume si n®cessaire.
Il est donc possible de r®aliser tr¯s rapidement les tests min®ralurgiques qui orienteront le mod¯le minier de la nouvelle exploitation. Ces travaux, qui seront entrepris d¯s la premi¯re ann®e, seront poursuivis tout au long du programme dâexploration, au fur et ¨ mesure des d®couvertes de nouveaux corps min®ralis®s. Ils viseront ¨ optimiser la r®cup®ration du tungst¯ne, mais aussi celle des autres m®taux valorisables : Au, Cu, Sn, et connexes.

Un enjeu fondamental pour la future exploitation est de conserver au fond de la mine la totalit® des produits fins issus de traitement du minerai afin dâ®viter la fabrication de verses telles que celles dâj¨ r®alis®es. Cette n®cessit® de produire un minerai finement broy® est incontournable car la fabrication dâun concentr® de scheelite est une ®tape indispensable ¨ lâextraction du tungst¯ne.

Stocker dans la mine la totalit® des roches extraites est une op®ration th®oriquement impossible ¨ cause du foisonnement. Par d®finition, des produits seront donc ramen®s au jour, la totalit® des cavit®s ne pouvant pas °tre rebouch®es, en particulier les infrastructures de la mine qui devront °tre maintenues tout au long de la vie de l'exploitation.
Un tri devra donc °tre effectu® : les mat®riaux pr®sentant un risque environnemental seront conserv®s au fond de la mine, les autres seront stock®s ou r®utilis®s en surface.

La granodiorite ¨ grain fin du pic de la Fourque pr®sente de bonnes caract®ristiques rh®ologiques qui en font un granulat parfaitement utilisable dans les ouvrages de viabilit® ou lâempierrement des pistes foresti¯res. Le creusement des infrastructures dans la roche st®rile au sein du massif ne pr®sente donc pas de probl¯mes particuliers, si ce nâest celui de la d®finition dâune aire de stockage provisoire pour g®rer la redistribution des granulats.

Dans le traitement historique du minerai, la totalit® de la roche extraite comme minerai ®tait broy®e avant de subir une flottation. Une partie importante de mat®riel st®rile et inerte ®tait ainsi ajout®e aux produits fins. En lâabsence de technologie ad®quate, ce traitement (fortement consommateur dâ®nergie) ®tait le seul envisageable ; il g®n®ra de grandes quantit®s de st®riles fins, quasiment ®quivalentes en poids au tonnage extrait de la mine.

Aujourdâhui, des trieuses de minerai sont disponibles pour s®parer le minerai ç utile è de la gangue pr®alablement aux op®rations de broyage fin, sur le produit concass®. Lâintroduction de ces techniques dans le processus de traitement pourrait optimiser grandement les co¾ts de production des concentr®s.
Ce syst¯me permettrait ainsi de s®parer une gangue st®rile, r®utilisable comme granulat, des faci¯s min®ralis®s qui seraient les seuls ¨ subir le traitement. Il fonctionne par ®jection pneumatique des faci¯s min®ralis®s apr¯s une analyse continue de la teneur en W par XRF. Ce proc®d® physique sâeffectue ¨ sec et ne fait intervenir aucun produit chimique.



Illustration dûne trieuse de minerai par XRF sur granulom®trie grossi¯re (10 ¨ 200 mm). Ce syst¯me permet un tri pr®alable des minerais ¨ scheelite (s®parant le minerai du st®rile) avec une capacit®de lôordre de 150 t / heure.

Un rendement de 30 ¨ 50 % est envisageable par cette technique, ce qui permettrait le stockage int®gral des produits fins au fond de la mine, y compris lôenfouissement des st®riles d®j¨ sortis si lôoption dûun retraitement des st®rile ®tait retenue. Cela dûautant plus facilement que lôancienne exploitation conserve des ç vides è correspondant au tas de 700 000 m^3 (env. 2 Mt) de st®riles.

Sondages au fond

La totalit® des sondages r®alis®s par la mine ont malheureusement disparu. Il est donc impossible de r®aliser aujourdôhui une ®tude ®conomique fiable des min®ralisations dans lôemprise des anciens travaux sans r®aliser de nouveaux forages souterrains de contr¹le des forages existants.
Il faut ®galement indiquer que les sondages historiques minorent grandement le potentiel minier car :

- Ils nôont pas ®t®poursuivis dans les faci¯s skarnoµdes jug®s comme trop pauvres
- Les m®taux comme le cuivre et lôor nôont pas ®t®analys®s syst®matiquement.

Lôancienne mine avait largement fait appel aux sondages au fond pour d®finir ses r®serves et guider la position de ses chantiers. Bien que de conception jug®e aujourdôhui archaµque, les sondeuses utilis®es ¨ lô®poque avaient permis la r®alisation de sondages de plusieurs centaines de m¯tres de longueur, aussi bien en position descendante quôen position ascendante. Cette performance sôexplique par la qualit®des roches pr®sentes dans la mine.

Des sondeuses modernes, telles que pr®sent®es ci-dessous, permettent de sonder dans nôimporte quelle position sur des distances de plus de 1000 m ; dôautres mod¯les, plus puissants permettent dôatteindre des distances de 2000 m. Il nôy a donc aucun obstacle technique ¨ la r®alisation des travaux de sondages au fond.



Atlas Copco Diamec MCR U6 : Engin de carottage souterrain ultra-mobile

Ais®ment d®pla- ables dans les galeries r®habilit®es de lôinfrastructure de lôancienne mine, ce type de sondeuse permettra de pr®ciser les volumes de minerais rest®s en place et dô®valuer les objets conducteurs et/ou magn®tiques d®tect®s dans la partie haute du pic de la Fourque et localis®s dans les mod¯les 3D issus de lôinterpr®tation des donn®es du VTEM.

En particulier on testera lôhypoth¯se de lôexistence de min®ralisations riches le long des failles ç Christine è et ç Bois de la Fourque è dont le potentiel minier a ®t® r®cemment mis en ®vidence (quoique non int®gr® aux tonnages potentiels) par lô®tude de synth¯se r®alis®e par Variscan Mines.

Lôensemble des informations obtenues sera int®gr® au mod¯le 3D du gisement, mod¯le qui sera largement utilis® pour planifier les sondages compl®mentaires ¨ r®aliser et les infrastructures de la nouvelle exploitation.

Cette approche du calcul des ressources / r®serves du gisement par travaux exclusivement souterrain sôav¯re particuli¯rement respectueuse de lôenvironnement, aucune sondeuse nô®tant install®e en surface. Les nuisances li®es ¨ la r®alisation des acc¯s et des plateformes, ¨ lôoccupation temporaire des terrains et aux bruits du chantier de surface ®tant totalement ®limin®es.

£tude des carottes

Mesure des param¯tres physiques, min®ralogiques et min®ralurgiques du minerai

Les carottes seront utilis®es pour d®terminer de mani¯re pr®cise les param¯tres physiques du minerai et de son encaissant : magn®tisme, densit®, conductivit®é quôil est actuellement impossible dôobtenir par tout autre moyen.

Elles feront ®galement lôobjet dô®tudes p®trographiques, min®ralogiques et min®ralurgiques d®taill®es afin dôestimer le caract¯re ®conomique de la min®ralisation dans le cadre dôune exploitation mini¯re profonde avec traitement ou pr®traitement au fond.

On recherchera particuli¯rement la pr®sence de tungst¯ne, ®tain, de m®taux critiques (molybd¯ne) et de m®taux pr®cieux (or, argent) susceptibles de valoriser le minerai et des substances connexes.

Affinage des mod¯les dôanomalies

Les param¯tres physiques de la min®ralisation et des faci¯s p®trographiques subordonn®s ayant ®t® ®tablis, ils seront int®gr®s ¨ lôinterpr®tation des donn®es magn®tiques, radiom®triques et ®lectromagn®tiques mesur®es dans la campagne de g®ophysique VTEM.

Ce calibrage nous para´t indispensable pour optimiser la hi®rarchisation des anomalies, toujours tr¯s nombreuses avec lôemploi de techniques h®liport®es ¨ haute d®finition.

Logging, ®chantillonnage

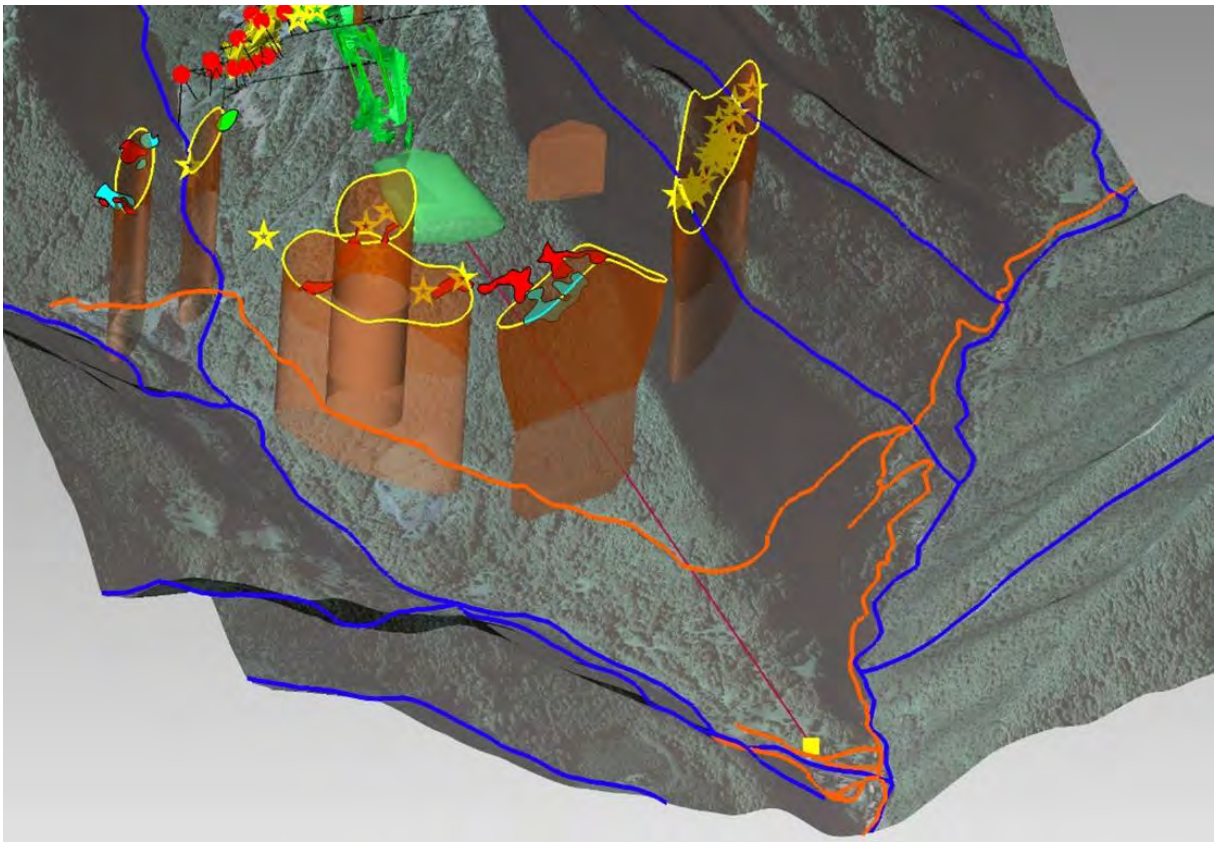
Les carottes seront pr®alablement sci®es avant leur logging d®taill® par examen au macroscope UV. Un scanning num®rique des carottes sera syst®matiquement r®alis® afin de pouvoir ®tablir des corr®lations par analyse dôimage. Par ailleurs, au cours de cette phase de logging, on pr®l¯vera des ®chantillons pour r®alisation de lames minces, sections polies et/ou lames minces polies pour les ®tudes p®trographiques et min®ralogiques d®taill®es de la min®ralisation. Les ®chantillons seront r®f®renc®s dans le sondage et le r®sultat des ®tudes archiv® dans le syst¯me GKR de Variscan Mines.

Les mesures des param¯tres physiques (densit®, magn®tisme, conductivit® ®lectriqueé), non destructives, seront r®alis®es avant les phases suivantes dôanalyse chimique et de tests min®ralurgiques.

Lô®chantillonnage pour analyses multi-®l®mentaires ICP et Au sera r®alis® sur une demi-carotte ; le t®moin de la demi-carotte broy®e et cart®e sera utilis® pour r®aliser les tests min®ralurgiques pour la valorisation du minerai.

1.4.2 £valuation des ressources /r®serves en minerai de la partie basse du gisement par creusement dûne galerie dôexploration

Le mod¯le ci-apr¯s montre la position de lôaval connu de V®ronique (en vert soutenu), environ 200 m sous les derni¯res galeries de lôexploitation de la partie haute du gisement ; connaissance ®tablie ¨ partir dûne derni¯re campagne de forages r®alis®es par le BRGM juste avant la fermeture de la mine.



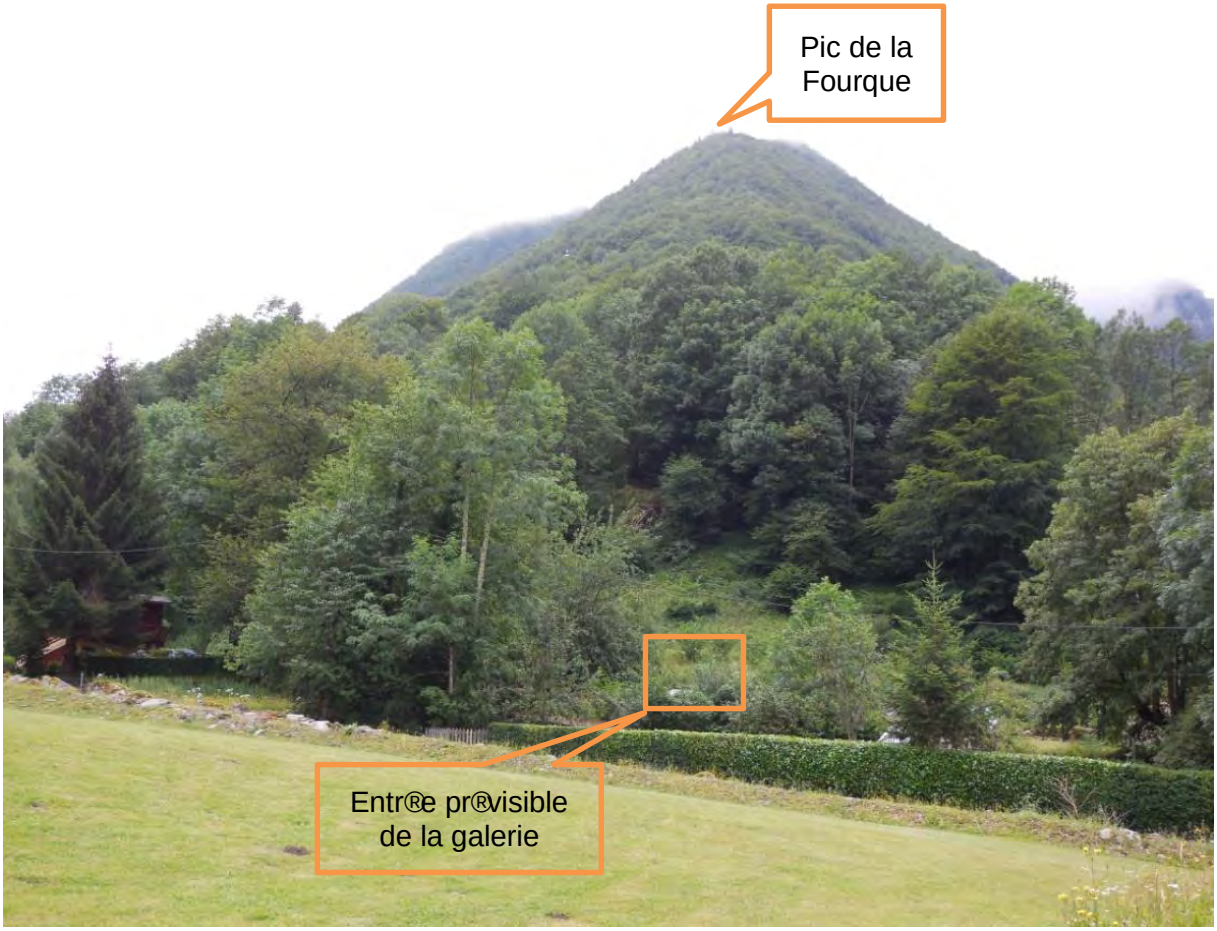
Position de la galerie dôexploration

En vert transparent nous avons figur® un aval profond pour ce corps de minerai, dont lôexistence se d®duit par lôemploi dûun mod¯le structural affin®. Ces deux objets cumuleraient ¨ eux-seuls plus de 10 000 t WO_3 ¨ forte teneur.

Lôexploration de cette partie de V®ronique nous semble beaucoup plus ais®e ¨ partir dûune nouvelle galerie dôenviron 2100 m (trait violet) de long partant du village de Salau (c¹ te 900 m) en direction nord-sud.

Cette galerie, dont lôobjectif final est la certification de lôaval de ç V®ronique è recouperait sur son passage, ou permettrait dôatteindre par des sondages souterrains, de nouveaux corps de minerais indiqu®s par une convergence de crit¯res (anomalies g®ophysiques, indices de surfaces, recoupes dans certains sondages, ®tudes structurales).

La r®alisation de cet ouvrage est estim®e ¨ deux ann®es de travaux pour un co¾t de lôordre de 12 Mú. Les travaux seraient initi®s en m°me temps que les travaux de mise en s®curit® des anciennes galeries. Ils apporteraient ®galement un fort impact sur lôemploi r®gional.



Le Pic de la Fourque, vu depuis la position pr®visible de lêentr®e de la galerie dêexploration.

Cahier des charges sommaire de la galerie

Un cahier des charges sommaire a ®t® ®tabli en collaboration avec la soci®t® SOGIMINE (Ing. Yves Guise). Il a ®t® r®alis® dans le cadre de cette proc®dure de demande de permis exclusif de recherche mini¯re, cette demande devant pr®ciser lôordre du montant des investissements pr®vus. ê ce stade de la proc®dure il sôagit simplement dô®tablir une enveloppe financi¯re pr®visionnelle ¨ un moment o½ tous les param¯tres techniques ne sont pas encore connus. Le cahier des charges fixe des hypoth¯ses et des options ¨ partir des donn®es existantes. Son but est de permettre une ®valuation du co¾t du m¯tre de creusement de galerie sur une base plausible, d®finie a priori. Les premi¯res r®ponses laissent supposer un budget de lôordre de 6000 ú par m¯tre dôavancement.

Description de la fonction de lôouvrage

Lôouvrage projet® est une galerie rectiligne de 2100 m qui traversera les formations min®ralis®es pour atteindre lôaval suppos® du corps ç V®ronique è. Des sondages en ®ventail seront r®alis®s ¨ partir de niches lat®rales pour reconnaitre les corps min®ralis®s potentiels (Golfes, failles du Bois dôAnglade, Faille Christine, ®ventuelles anomalies VTEM,é). Compte tenu de lôimportance de lôouvrage, Variscan Mines souhaite le r®utiliser pour lôexploitation, sans avoir ¨ r®aliser un ®largissement qui ralentirait le d®marrage de la production. Il a donc opt® a priori pour une section de 25 m² mais cette section nôest pas brid®e par des ®l®ments techniques identifi®s. Il est donc possible de pr®coniser un creusement dans une section voisine si elle permet de r®duire les co¾ts par une meilleure adaptation du mat®riel de creusement. Ce point sera explicit® au paragraphe ç section de creusement è.

Description de lô ouvrage, nature des terrains, sout¯nement.

Lô ouvrage aura une pente montante de 2,5 % dans le sens dô avancement afin de permettre lô ®vacuation gravitaire de lô eau dans une cunette. Les venues dô eau issues de lô ancienne mine montrent que les terrains sont peu productifs. Le d®bit ¨ prendre en compte pour lô ensemble de lô ouvrage est de 15 m^3/h. Les terrains, dô apr¯s les ®chantillons disponibles, permettent dô envisager un creusement globalement sans sout¯nement :

- 300 m de calcaire de Carboire
- 300 m de ç schistes bleut®s è, en fait une argilite m®tamorphos®e avec petite schistosit® et des veines de calcite. Elle nô est donc pas sensible ¨ lô eau mais la pr®sence de calcite peut ° tre source de d®collements
- 100 m de calcaire de Carboire en pass®es dans les schistes bleut®s
- 300 m de calcaires sup®rieurs
- 1100 m de granite dur.

Les caract®ristiques m®caniques des terrains ne sont pas connues.
On prendra comme hypoth¯se un creusement sans sout¯nement dans le calcaire de Carboire, les calcaires sup®rieurs et le granite soit 1800m.
Les 300 m de schistes bleut®s seront confort®s par un grillage tenu par 12 boulons ¨ ancrage r®parti ¨ la r®sine par m¯tre dô avancement, longueur 1,20 m, diam¯tre 18 mm.
7 culs de sac lat®raux longueur 10 m section 15 mĮ sont ¨ pr®voir pour les niches pressurisables, le retournement des engins, le mat®riel, les sondages.

Section de creusement et d®p¹ ts des produits

Comme explicit® plus haut, la section th®orique de 25 mĮ peut ° tre remise en cause pour tenir compte de la m®thode de creusement et de lô habitabilit® du profil retenu.
Si lô optimum financier est un creusement m®canis®¨ attaque ponctuelle dans les calcaires et les schistes et un creusement par foration, tir, chargement dans le granite, une section 20 mĮ correspondant au profil int®rieur dô un TH29/58 G de type P620F avec 4,05 m sous couronne et 6,22 m ¨ la sole conviendrait.
Pour le d®p¹ t des produits lô hypoth¯se est celle dô une verse au jour ¨ 10 km de lô orifice de la galerie.

£ quipement de lô ouvrage fini

Seront laiss®s dans la galerie les ®quipements de chantier suivants : lô ®quipement dô a®rage, une colonne dô air, une colonne dô eau, la cunette dô exhaure, les niches pressurisables, une alimentation ®lectrique pour les sondeuses.

Chronogramme pr®visionnel

Lô ouvrage envisage lô excavation dô environ 50 000 m^3 de mat®riaux ce qui imposera une demande dô ouverture de travaux miniers pr®c®d®e dô une ®tude dô impact.

Il est donc hautement pr®visible que les travaux proprement dits ne commenceront quô partir de la deuxi¯me ann®e et se poursuivront la troisi¯me ann®e.

La premi¯re ann®e sera donc consacr®e :

- ¨ la soumission dô un appel dô offre europ®en pour r®aliser les travaux ;
- aux demandes dô autorisation des travaux ;
- ¨ lô ®tude dô impact associ®e ;
- aux d®marches fonci¯res.

Un mod¯le minier fond® sur le d®veloppement durable

La galerie d'exploration envisag®e, initi®e ¨ la c¹ te 900 m, visera la c¹ te 950 m au niveau de l'aval du corps de minerai ç V®ronique è. En permettant l'acc¯s en profondeur aux principaux corps min®ralis®s, le tonnage potentiel situ® au-dessus de cette galerie est estim®¨ 50 000 t WO_3 au minimum.
Cet ouvrage permettra l'exhaure de l'ensemble de la mine par voie naturelle sans n®cessit® de recourir aux op®rations de pompage. Cette caract®ristique, outre son avantage ind®niable sur le co¾t ®nerg®tique et le bilan carbone, offre une s®curit® maximum pour le personnel au fond.
Le d®noyage des chantiers profonds de ç V®ronique è sera assur® par la galerie, ce qui ®vitera l'installation et la mise en route de stations de pompage pour le d®noyage de l'ancienne mine ; il est donc ¨ pr®voir que l'estimation des ressources / r®serves de la partie profonde de l'ancienne exploitation ne pourra pas s'envisager avant la fin de la troisi¯me ann®e.

Elle constituera, d¯s les stades amont de l'exploration, la colonne vert®brale de la future exploitation et offrira toutes les garanties d'application des principes du d®veloppement durable d'une exploitation mini¯re :

- D®monstration, pr®alablement au plan d'exploitation, de r®serves minimales estim®es ¨ 50 000 t WO_3, et donc une dur®e de vie minimum de 20 ann®es (2500 t WO_3 / an de production) ; une telle dur®e permet d'envisager et d'int®grer l'apr¯s-mine dans le mod¯le minier
- Co¾ts de production r®duits et bilan carbone tr¯s positif, car l'extraction du minerai se ferait par gravit® (la pente exacte de la galerie fera l'objet d'une ®tude d'ing®nierie sp®cifique) ; en outre, la dimension pressentie des corps de minerais autoriserait une m®thode d'exploitation ç long trou è peu on®reuse
- Exhaure de la mine dans les phases d'exploration et d'exploitation. La travers®e de formations calcaires par la galerie autoriserait la cr®ation sur son parcours de chambres de neutralisation des eaux acide (¨ supposer qu'il s'en produise), ce qui permettrait de r®aliser un traitement souterrain des eaux d'exhaure avant leur rejet dans la nature
- Exploration par sondages au fond des corps de minerai situ®s ¨ plus de 300 m sous le niveau de cette galerie. En raison du mod¯le m®tallog®nique envisag®, qui laisse supposer une augmentation des ressources en profondeur, ce serait alors plusieurs dizaines de milliers de tonnes de WO_3 qui pourraient s'ajouter aux ressources de plus de 50 kt WO_3 situ®es au-dessus de la galerie.

Ainsi, avec des ressources potentielles comprises entre 50 et 100 kt de WO_3, le nouveau gisement du pic de la Fourque pourrait se situer au tout premier rang mondial des mines de tungst¯ne. C'est cette caract®ristique, accompagn®e du plan de travaux propos® dans cette demande, qui a motiv® les partenaires financiers de Variscan Mines (Juniper Capital et Apollo) pour avancer les fonds n®cessaires ¨ la r®alisation du projet d'exploration, malgr® son co¾t ®lev® et le risque financier qu'il implique.

2 Plan dœexploration des ann®es 2 et 3

Le plan dœexploration pour la deuxi¯me et la troisi¯me ann®e de travaux ne d®pend pas des r®sultats obtenus la premi¯re ann®e. Les travaux initi®s au d®but de la premi¯re ann®e seront poursuivis dans tous les cas de figure, et les variations possibles du plan de travaux concernent essentiellement les poids relatifs des diff®rentes t©ches expos®es ¨ la suite, certaines fortement sensibles aux d®lais administratifs (ouverture de travaux miniers, ®tudes dœimpact, enqu°tes publiques, ...). Dans la mesure du possible on t©chera de finaliser le creusement de la galerie principale ; par mesure de s®curit® et afin de tenir compte des al®as de lœop®ration, une partie du budget de cette op®ration sera report® sur lœann®e 4.

2.1 G®ologie et suivi des travaux

Quelques soient les travaux envisag®s, ils mobiliseront ¨ temps plein le g®ologue en charge du projet, un g®ologue assistant, ainsi que plusieurs ®quipes de techniciens g®ologues en charge de lœ®chantillonnage par rainurages des travaux miniers. Les travaux concerneront principalement :

- La cartographie d®taill®e et lœexpertise des anomalies VTEM
- £ventuellement la r®alisation de tranch®es sur les anomalies VTEM
- Le nettoyage ¨ leau sous pression (karcher) des galeries et le lever g®ologique d®taill® des formations lithologiques ¨ lœ®chelle de 1/250. Cette ®tude g®ologique sœaccompagnera dœun ®chantillonnage d®taill® de toutes les formations rencontr®es pour les ®tudes min®ralogiques et p®trographiques
- Recherche syst®matique dans tous les anciens travaux et la nouvelle galerie de traces de radon ou dœamiante. Ces mesures concernant la s®curit® de la future exploitation sont jug®es fondamentales pour la r®alisation du cadrage ®conomique et lœ®tude de pr®faisabilit®
- La mod®lisation 3D du gisement. Cette mod®lisation int¯grera la totalit® des informations recueillies et sera mise en jour en continu. Elle permettra de d®finir limplantation des sondages aux fonds et de planifier en cons®quence les travaux miniers pr®paratoires ¨ leur r®alisation
- Le logging des sondages, leur ®chantillonnage syst®matique, les ®tudes p®trographiques, min®ralogiques et min®ralurgiques. Les experts concern®s seront contract®s ¨ cet effet.

En surface, sur le reste du PERM, ces travaux consisteront principalement ¨ la cartographie d®taill®e des anomalies VTEM et la r®alisation ®ventuelle de tranch®es dœexploration.

Cette technique sera employ®e dans lœ®ventualit® de la d®couverte de volantes quartzeuses, de manifestations hydrothermales (greisens, stockwerks) ou dœapex granitique silicifi® dont il faudrait pr®ciser les limites.

Les tranch®es sont r®alis®es perpendiculairement aux structures min®ralis®es affleurantes afin de permettre leur localisation pr®cise et leur ®chantillonnage. La profondeur maximale ne doit pas exc®der 1,30 m afin de satisfaire ¨ la l®gislation relative aux travaux publics (articles 66, 67, 68, 70, 71, 72, 74 et 77), l'emploi de blindage n'®tant pas compatible avec l'usage de ces tranch®es dans cette phase de travaux.

Dans les tranch®es, les zones min®ralis®es sont ®chantillonn®es par rainurage continu et les ®chantillons pr®par®s suivant les r¯gles de l'art qui incluent les ®tapes suivantes, dont les deux premiers points pourront °tre r®alis®s sur la base permanente install®e sur le PERM :

- Broyage
- Quartage
- Pulv®risation et analyse.

La r®alisation de ces tranch®es implique l'amen®e d'une pelle hydraulique et l'immobilisation pour plusieurs semaines d'une partie des terrains concern®s. Ces tranch®es seront signal®es afin d'®viter toute chute accidentelle. Elles ne pourront °tre r®alis®es qu'avec l'accord formel du propri®taire du terrain et feront syst®matiquement l'objet d'un contrat d'indemnisation pour la g°ne caus®e.

Par ailleurs, le chantier sera surveill®en permanence et interdit au personnel non autoris®.

Lors de leur r®alisation, la terre v®g®tale sera stock®e s®par®ment de la partie plus profonde. Les tranch®es seront rebouch®es aussit¹t r®alis®s le lev® g®ologique et l'®chantillonnage. La terre v®g®tale sera remise en place, limitant au strict minimum l'impact environnemental de leur ouverture.

2.2 £chantillonnage et min®ralurgie des tailings

L'op®ration, si elle devait °tre entreprise, devrait °tre finalis®e ¨ la fin de l'ann®e 2. En cas de succ¯s, les op®rations seraient poursuivies les ann®es 4 et 5 afin d'int®grer le traitement des tailings au process de l'exploitation mini¯re.

2.3 Exploration de la partie haute de l'ancienne mine

Cette p®riode permettra l'acc¯s en s®curit®de la partie hors d'eau de l'ancienne mine. Outre les travaux pr®paratoires pour sonder le potentiel rest®en place des corps min®ralis®s d®j¨ exploit®s, d'autres travaux pr®paratoires seront entrepris pour acc®der par sondages aux nouveaux corps de minerais qui pourraient °tre d®cel®s par VTEM.
Les principaux travaux consisteront en :

- Mise en s®curit®et ®quipement des infrastructures de la partie haute de la mine
- R®alisation des galeries pour installation des sondeuses au fond
- £chantillonnage par rainurage m®trique des formations min®ralis®es
- Sondages au fond.

2.4 Exploration de la partie basse de l'ancienne mine

L'acc¯s ¨ la partie la plus profonde de l'ancienne exploitation, ennoy®e aujourd'hui, ne pourra °tre envisag®que lorsque la galerie principale, creus®e depuis le fond de la vall®e, permettra le d®noyage des travaux.

Ce d®noyage s'effectuant a priori depuis le fond de la galerie, au niveau de l'extension en profondeur de la Faille Christine, il est probable qu'il ne sera pas op®rationnel avant la fin de l'ann®e 3 ou le d®but de l'ann®e 4.
Les eaux de d®noyage devraient en principe ne pas pr®senter de probl¯mes d'eau acide en raison de la pr®sence des formations carbonat®es encaissantes. Toutefois, les contr¹les seront r®alis®s, et les mesures correctrices prises si elles s'av®raient n®cessaire.

2.5 Creusement de la Galerie ç Salau è et exploration associ®e

Il semble r®aliste d'envisager la possibilit® de d®marrer le creusement de la galerie dans le courant de la deuxi¯me ann®e, les appels d'offre et les d®marches administratives l®gales ayant ®t® initi®s d¯s l'obtention du PERM. Le maximum de travaux est donc pr®vu sur la troisi¯me ann®e, la fin pr®visible de l'ouvrage se situant entre la fin de l'ann®e 3 et le d®but de l'ann®e 4.

Les principaux travaux associ®s sont comparables ¨ ceux r®alis®s dans la partie haute de la mine ; ils consisteront en :

- R®alisation des recoupes pour installation des sondeuses au fond
- £chantillonnage par rainurage m®trique des formations min®ralis®es accessibles depuis la galerie (si pr®sentes)
- Sondages au fond des corps min®ralis®s situ®s au-dessus de la c¹te de la galerie.

2.6 Cadrage ®conomique pr®liminaire

En fin de troisi¯me ann®e, les connaissances accumul®es sur le PERM ç Couflens è seront probablement suffisantes pour r®aliser une premi¯re estimation de son potentiel ®conomique. Cette premi¯re estimation sera sous-trait®e ¨ un organisme ind®pendant de r®putation internationale, comme COFFEY MINING International Ltd, qui devra certifier l'exactitude des r®sultats obtenus, la pertinence des hypoth¯ses de travail ®mises ainsi que celle du plan de travaux pr®vu pour les ann®es 4 et 5.

Au cours de cette phase, en fonction des r®sultats acquis, il sera envisag® d'effectuer une demande de Permis d'Exploitation de Mine (PEX) sur le gisement du pic de la Fourque.

3 Ann®es 4 et 5 : ®tude de pr®faisabilit®

Le plan dœexploration pour la quatri¯me et la cinqui¯me ann®e de travaux ne devrait pas °tre remis en question par les r®sultats obtenus durant les 3 premi¯res ann®es. On peut toutefois envisager une acc®l®ration du programme qui serait motiv®e par une demande de PEX.

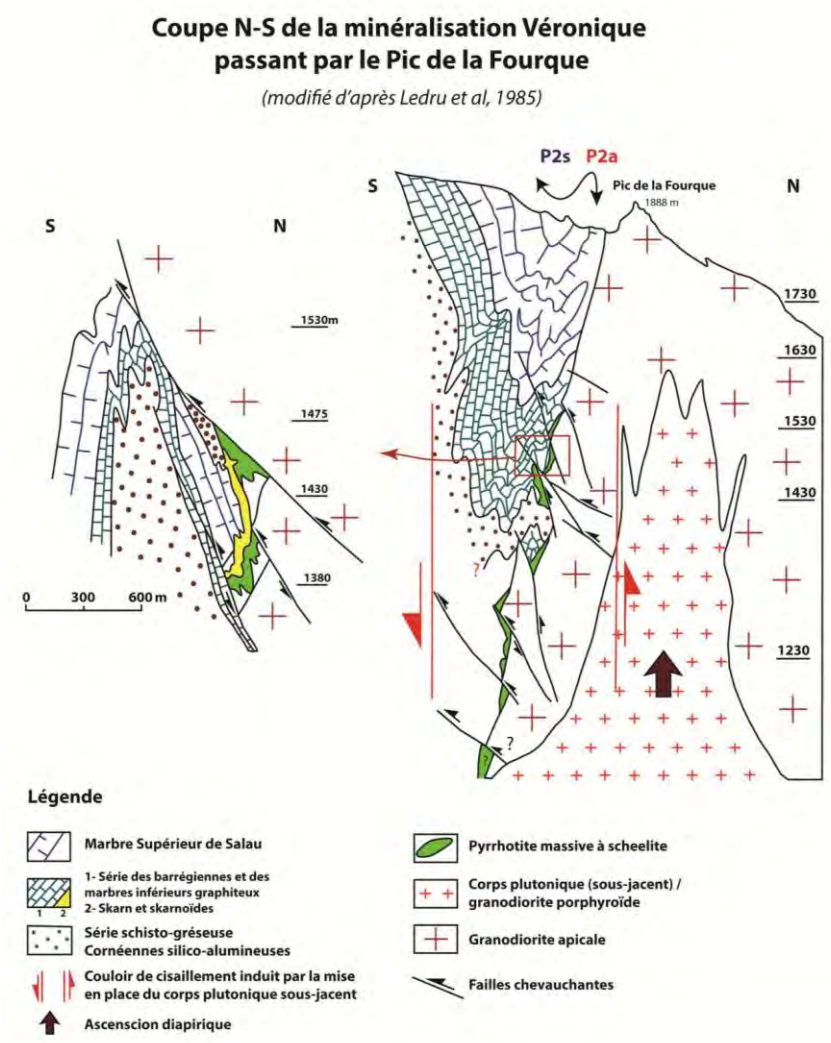
Dans la mesure du possible on t©chera dœint®grer dans la pr®faisabilit® lœincidence du potentiel minier profond, situ® sous le niveau de la galerie principale ; en effet, la taille potentielle (bien argument®e) du gisement est un param¯tre fondamental pour le design du mod¯le minier et la planification des investissements industriels.

Les principaux travaux qui seront r®alis®s durant cette p®riode sont pr®sent®s ¨ la suite.

3.1 G®ologie et suivi des travaux

Fondamentalement les travaux envisag®s sœinscrivent dans la continuit® des travaux pr®c®dents, faisant intervenir un personnel comparable et des t©ches ®quivalentes.

On notera toutefois lœaccent qui sera mis sur la mod®lisation du gisement, la quantit® des informations obtenues ¨ lœissue des trois ann®es pr®c®dentes permettant de pr®ciser les hypoth¯ses relatives ¨ un gisement profond, pouvant se d®velopper bien en dessous de la galerie principale.



En effet, la source des fluides min®ralisateurs est li®e ¨ un granitoµde plus profond que la granodiorite apicale visible au pic de la Fourque (Fonteilles *et al.*, 1988).

Lœexistence dœune min®ralisation importante plus en profondeur est donc possible ¨ lœaval de V®ronique et ¨ lœaval des failles qui diss¯quent le massif granodioritique.

Ces hypoth¯ses, si elles ®taient confirm®es par les ®tudes min®ralogiques et p®trographiques sur les zonalit®s pr®sentes dans le massif de la Fourque, seraient v®rifi®es par des sondages profonds.

Sondages d'exploration géologique

L'objectif de ces sondages n'est pas d'estimer des ressources, mais plutôt de localiser et de tester les meilleures ressources potentielles du PERM ç Couflens è en dehors des secteurs accessibles par les sondages au fond.

Leur justification est étroitement liée à la nécessité de montrer des ressources additionnelles pour la viabilité d'une exploitation sur le long terme. En effet, l'environnement proche du gisement d'Anglade comporte des indices minéralisés connus mais est loin d'être totalement exploré ; des ressources additionnelles pourraient être mises en évidence et offrir de nouvelles perspectives d'exploitation.



On rappellera que le secteur du pic de la Fourque se caractérise par une auréole métamorphique pluri-kilométrique qui suggère fortement la présence d'apex granitiques cachés, potentiellement minéralisés.

Ces sondages seront réalisés dans le plus strict respect des bonnes pratiques ; ils feront l'objet de demandes spécifiques, situées connues leurs positions précises respectives (*cf.* travaux précédents).

Bien que ne présentant qu'un faible impact environnemental potentiel, ils doivent cependant respecter les procédures qui seront détaillées dans les éléments relevant d'une notice d'impact attachée à ce dossier.

Bien entendu, leur implantation suppose l'accord préalable et l'indemnisation du propriétaire du terrain.

3.2 Tests min®ralurgiques, ®valuation de lôopportunit® de d®velopper un aval industriel

Les tests min®ralurgiques, initi®s d¯s la premi¯re ann®e, seront poursuivis et feront lôobjet dôun pilote industriel la cinqui¯me ann®e.
Suivant lôoption retenue, on adaptera le proc®d® de traitement ¨ la valorisation des tailings.

Le proc®d®®tudi® visera ¨ la valorisation de lôensemble des m®taux contenus, au minimum le tungst¯ne, lôor et le cuivre.

Le gisement du pic de la Fourque renferme une quantit® de m®tal suffisante pour envisager une valorisation des concentr®s par le d®veloppement dôune industrie de premi¯re transformation.

Une analyse d®taill®e du traitement utilis® lors de lâancienne exploitation de la mine dôAnglade montre que sch®ma utilis® classiquement pour fabriquer de lôAPT (forme commercialis®e du tungst¯ne) sâav¯rerait aujourdôhui relativement on®reux et pourrait °tre substitu® avantageusement par un nouveau proc®d® dôhydrom®tallurgie ¨ lôimpact environnemental tr¯s r®duit.

- <u>Proc®d® classiquement utilis®</u>

  Le probl¯me inh®rent ¨ la production de concentr®s de scheelite est que g®n®ralement la mine doit traiter les concentr®s avec de l'acide sulfurique puis les filtrer au travers de compos®s de calcium et de phosphore, ce qui en am®liore la qualit®. L'ensemble du processus de production de la scheelite est assez cher : gravit®, flottation des concentr®s et enfin processus de lavage ¨ l'acide sulfurique.

  Une usine de concentration par gravit® et par flottation pour 1500 t d'alimentation / jour est estim®¨ 45 Mú de co¾t en capital, tandis que celui dôune usine de 750 tonnes / jour (1500 mt terme de la mine, capacit® r®duite de moiti® par lôusage dôun tri XRF du minerai) serait de 27 Mú.

  Le plus gros probl¯me avec la production de scheelite de haute qualit® (min 70 % de WO_3) est que ces concentr®s doivent ensuite °tre transform®s en paratungstate d'ammonium dans une usine sp®cialis®e. En 2013, H.C. Starck (trader majeur de W bas® ¨ Goslar, Allemagne) a insist® pour que le contrat d'achat ¨ long terme de concentr® de scheelite corresponde ¨ un rabais de 25 % sur le prix de lôAPT. Si le prix mondial de l'APT est ®tabli ¨ 360 $ US par tonne WO_3, le prix du concentr® propre de scheelite est ainsi ramen®¨ 270 $ US par tonne.
  Cette formule de vente pourrait p®naliser l'®conomie dôun nouveau projet minier. Si lôon souhaitait produire soi-m°me son propre APT, lôusine aurait un co¾t de 80 ¨ 100 Mú, et les co¾ts d'exploitation suppl®mentaires pourrait °tre alors °tre incr®ment®s de 30 $ US par tonne de concentr® produit. Cet incr®ment est ¨ comparer avec le co¾t de production du concentr® issu d'une unit® de broyage et de concentration par gravit® et flottation, pouvant varier entre 16 et 21 $ US par tonne de concentr®.

- <u>Proc®d® envisag®</u>

  Compte tenu de ces co¾ts de production, la fabrication de W justifie lôexamen de solutions technologiques visant ¨ les r®duire. Parall¯lement au projet dôexploration mini¯re, nous nous proposons dôexaminer lôusage de la technologie ¨ base d'acide nitrique pour la dissolution scheelite dans des concentr®s de basse qualit®, puis sa pr®cipitation dans l'acide tungstique. Si un acide tungstique ¨ teneur plus ®lev®e sâav®rait n®cessaire, une ®tape de purification secondaire pourrait °tre effectu®e avec

de l'ammoniac pour donner un acide tungstique de tr¯s haute qualit® (qui ¨ son tour peut °tre transform® facilement en poudre de tungst¯ne). Gr©ce ¨ l'utilisation de l'hydrom®tallurgie, les caract®ristiques physiques des produits qui en r®sultent pourraient °tre personnalis®es pour r®pondre aux besoins de haute technologie sp®cifiques de chaque client.

Variscan Mines et ses partenaires financiers se sont associ®s ¨ un partenaire disposant dûne grande exp®rience dans la technologie du traitement ¨ base d'acide nitrique qui inclus le recyclage de cet acide nitrique (avec des r®sultats de pr¯s de 100%) et de lâammoniac. Les concentr®s ®tant produits sur le site de lôexploitation, ils pourraient °tre transport®s vers le bas de la vall®e dans une usine de transformation. La petite quantit® d'acide nitrique n®cessaire peut °tre facilement g®n®r®e ¨ partir d'ammoniac de qualit® agricole. Le processus de g®n®ration de l'acide nitrique est continu, auto-®tanche, et ne g®n¯re pas d'®missions ; Il s'agit d'un processus vertueux au plan environnemental.

Le sch®ma simplifi® de ce traitement fait intervenir des engrais ammoniaqu®s et du carbonate de calcium. Les sels de cuivre et lôor contenu dans le minerai seraient r®cup®r®s dans les r®sidus insolubles dans lâacide et pourraient °tre valoris®s sans n®cessit® de recourir ¨ des traitements par cyanuration.

Ce syst¯me int®gr® aboutirait ¨ un tr¯s faible encombrement des op®rations au niveau de la mine (tri du minerai avec fabrication de granulats et de concentr®s) et permettrait la production dans la vall®e de produits ¨ forte valeur ajout®e propres ¨ la consommation par l'industrie fran- aise.

3.3 Exploration de la partie haute de lâancienne mine

Cette partie des travaux sera en principe termin®e en fin dâann®e 3. On peut toutefois pr®voir des travaux pr®paratoires en vue de tester de possibles anomalies VTEM. Lôopportunit® de ces recherches sera d®cid®e ¨ la vue des r®sultats de lôexploration ¨ partir de la galerie principale et de lôint®r° t potentiel des anomalies VTEM.

3.4 Exploration de la partie basse de lâancienne mine

Le d®noyage de la partie basse de la mine r®alis®, il sâagira de pr®parer et dô®chantillonner la partie basse de la mine et de reprendre une partie du plan de sondages r®alis® par le BRGM sur lâaval de V®ronique.

Les principaux travaux consisteront en :

- Mise en s®curit® et ®quipement des infrastructures de la partie haute de la mine
- R®alisation des galeries pour installation des sondeuses au fond
- £chantillonnage par rainurage m®trique des formations min®ralis®es
- Sondages au fond.

3.5 Creusement de la galerie ç Salau è et exploration associ®e

Le creusement de la galerie devrait °tre termin® au plus tard au d®but de lâann®e 4. Les travaux sôeffectueront dans la continuit® des pr®c®dents :

- R®alisation des recoupes pour installation des sondeuses au fond
- £chantillonnage par rainurage m®trique des formations min®ralis®es accessibles depuis la galerie (si pr®sentes)
- Sondages au fond des corps min®ralis®s situ®s au-dessus de la c¹ te de la galerie.

On rajoutera une s®rie de sondages pour tester lâaval profond du gisement sous la galerie dâexploration. Lâobjectif de ces sondages ne sera pas dâ®tablir de nouvelles r®serves de minerais (elles devraient °tre suffisantes dans la partie situ®e au-dessus de la galerie pour envisager 20 ann®es dâexploitation), mais de montrer des ressources additionnelles pour planifier sur le long terme la vie de lâexploitation et lâopportunit®de d®velopper un aval industriel sur la fabrication du tungst¯ne m®tal.

3.6 Certification des r®serves

Le passage des ressources min®rales aux r®serves prouv®es ob®it ¨ une s®rie de r¯gles strictes, essentiellement g®ostatistiques, codifi®es internationalement (JORC, NI 43 101, é) Dans tous les cas, cette ®tape sâaccompagnera dâun fort m®trage de sondages additionnels, dont le nombre et la position seront d®termin®s par g®ostatistique ¨ partir du mod¯le de blocs.

Les calculs seront r®alis®s par des organismes ind®pendants de r®putation internationale afin de garantir leur acceptation par les financeurs du futur projet dâexploitation.

3.7 Pr®faisabilit®

Sit¹ t connues avec pr®cision la g®om®trie des r®serves de minerai ainsi que leurs caract®ristiques min®ralurgiques et g®otechniques, un premier design de lâexploitation mini¯re sera entrepris.

Le mod¯le g´tologique dâune part, et le fort redressement et la puissance des structures min®ralis®es dâautre part, laissent envisager le mod¯le dâune exploitation souterraine profonde comme le plus probable.

Cette probabilit®saccro´t encore si lâon consid¯re comme fortes les probabilit®s de rencontrer des ressources ou des r®serves additionnelles importantes dans la partie profonde du gisement dâAnglade ou dans ses extensions.

Variscan Mines contractera les expertises ind®pendantes n®cessaires pour r®aliser toutes les ®tudes associ®es ¨ la faisabilit®bancaire :

- Certification des r®serves
- Design des infrastructures mini¯res
- Plan dâexploitation
- Tests min®ralurgiques avec pilote industriel
- Design des installations de traitement
- Ing®nierie financi¯re
- £tude dâimpact.

Les premiers ®l®ments n®cessaires ¨ lâ®tude dâimpact sont d®j¨ rassembl®s dans le pr®sent dossier. La notice dâimpact et la notice dâincidence *Natura 2000* ont ®t® r®alis®es par le BET MINELIS sp®cialis® dans ce type de travaux, ind®pendant de Variscan Mines et agr®® de comp®tence internationalement reconnue.
Les donn®es n®cessaires aux autorisations de travaux projet®s et qui ne seraient pas d®j¨ dans ces documents seront recueillies selon les m°mes proc®dures et au gr®des besoins.

Dans la phase de faisabilit®mini¯re, une ®tude dâimpact d®taill®e sera r®alis®e une fois que la nature de lâexploitation envisag®e sera connue. Ce travail ne pourra °tre envisag® avant dâavoir une bonne connaissance du gisement et de la nature des traitements ¨ effecteur en fonction du minerai.

Dossier dâapplication dûun Permis Exclusif de Recherche de Mines ç COUFLENS è

ANNEXE 6

Budgets et engagement des dâpenses

Variscan Mines sâengage ¨ dâpenser 25 millions dâeuros pour mener ¨ bien lâexploration du PERM ç COUFLENS è sous râserve de succ¯s dans sa dâmarche.

Cet engagement sera de 18 millions dâeuros au cours des 3 premi¯res annâes. Il sera suivi dûun nouvel engagement minimum de 7 millions dâeuros pour les deux annâes suivantes si les conclusions de la phase prâcâdente sâav¯rent positives.

Budget estim® pour les 3 premi¯res ann®es

Le budget ci-apr¯s correspond ¨ la premi¯re phase de travaux, pr®vue sur 3 ann®es et se concluant par un cadrage ®conomique de la mise en exploitation du gisement. Cette premi¯re phase impose la r®alisation d'ouvrages souterrains importants dont l'engagement sera progressif en fonction des d®lais administratifs d'obtention des autorisations et des r®sultats techniques obtenus. Au total, un budget pr®visionnel est estim®¨ 18.5 Mú pour cette phase.

Par mesure de s®curit®, Variscan Mines consid¯rera qu'un retard de 3 mois est toujours possible dans l'engagement des travaux de la premi¯re ann®e.

Ainsi l'engagement de d®penses minimum envisag® par Variscan Mines pour les trois premi¯res ann®es est de 18 Mú hors taxes.

Travaux envisagés	Année 1	Année 2	Année 3
Base opérationnelle "Couflens"			
Achat	200 000 €		
Aménagements de locaux	50 000 €	20 000 €	20 000 €
Equipements	75 000 €	25 000 €	25 000 €
Fonctionnement	25 000 €	25 000 €	25 000 €
Supervision / maitrise d'ouvrage / maitrise d'œuvre déléguée	100 000 €	100 000 €	100 000 €
Géologie du Projet - Etudes de surface			
Synthèse géologique	50 000 €		
Synthèse environnementale	40 000 €	35 000 €	
Echantillonnage des tailings	100 000 €	200 000 €	
Modélisation 3D / géostatistiques	10 000 €	10 000 €	
Analyses / essais minéralurgiques des tailings	25 000 €	50 000 €	
Cartographie / contrôles / suivi des travaux	80 000 €	60 000 €	40 000 €
Expertises	30 000 €	50 000 €	30 000 €
Géophysique			
VTEM	120 000 €		
Interprétation des données	25 000 €		
Pétrographie / Minéralogie			
Minéralogie / pétrographie des roches de surface	15 000 €	20 000 €	10 000 €
Minéralogie / pétrographie des sondages et rainures dans la mine	25 000 €	30 000 €	40 000 €
Contrôle des anomalies			
Géochimie sol / tarrières / échantillonnage en roches / analyses	30 000 €	30 000 €	
Géophysique sol (VLF, gravimétrie, magnétisme...)	25 000 €	25 000 €	
Indemnisations	10 000 €	10 000 €	
Travaux miniers			
Réhabilitation / mise en sécurité / aménagement des galeries	500 000 €	1 000 000 €	1 000 000 €
Echantillonnage / analyses par rainurage	100 000 €	150 000 €	150 000 €
Préparation / foncier creusement Galerie "Salau"	50 000 €	250 000 €	
Creusement galerie "Salau"		3 000 000 €	5 000 000 €
Aménagements / recoupes pour sondages		300 000 €	500 000 €
Géologie - Etudes	60 000 €	80 000 €	100 000 €
Sondages			
Sondages fonds	300 000 €	750 000 €	750 000 €
Logging / échantillonnage /analyses / modélisation 3D	80 000 €	150 000 €	150 000 €
Gestion en carothèque / lithotèque	60 000 €	60 000 €	60 000 €
Expertises			
Tests minéralurgiques des minerais	30 000 €	50 000 €	50 000 €
Expertise internationale		25 000 €	50 000 €
Frais généraux (10%)	221 500 €	650 500 €	810 000 €
Budget estimé : 18.5 M€	**2 436 500 €**	**7 155 500 €**	**8 910 000 €**

Budget estim® pour les deux ann®es suivantes

Le budget ci-apr¯s correspond ¨ la deuxi¯me phase de travaux dans la continuit® des pr®c®dents, pr®vue sur 2 ann®es, et se concluant par une ®tude de pr®faisabilit® accompagn®e dûne ®tude dûimpact. Cette deuxi¯me phase est subordonn®e au succ¯s du cadrage ®conomique pr®alable.

Travaux envisagés	Année 4	Année 5
Base opérationnelle "Couflens"		
Aménagements de locaux	10 000 €	10 000 €
Equipements	10 000 €	10 000 €
Fonctionnement	25 000 €	25 000 €
Supervision / maitrise d'ouvrage / maitrise d'œuvre déléguée	100 000 €	100 000 €
Géologie du Projet - Etudes de surface - environnement		
Géologie	30 000 €	15 000 €
Etude d'impact	100 000 €	150 000 €
Modélisation 3D / géostatistiques	10 000 €	10 000 €
Pilotage process tailings	25 000 €	60 000 €
Cartographie / contrôles / suivi des travaux	60 000 €	60 000 €
Expertises	30 000 €	30 000 €
Pétrographie / Minéralogie		
Minéralogie / pétrographie des roches de surface	15 000 €	
Minéralogie / pétrographie des sondages et rainures dans la mine	25 000 €	25 000 €
Travaux miniers		
Réhabilitation / mise en sécurité / aménagement des galeries	400 000 €	100 000 €
Echantillonnage / analyses par rainurage	100 000 €	50 000 €
Creusement galerie "Salau"	2 000 000 €	
Aménagements / recoupes pour sondages	300 000 €	100 000 €
Géologie - Etudes	60 000 €	80 000 €
Sondages		
Sondages fonds	750 000 €	300 000 €
Logging / échantillonnage /analyses / modélisation 3D	150 000 €	80 000 €
Gestion en carothèque	60 000 €	60 000 €
Expertises		
Pilote semi-industriel de traitement	100 000 €	300 000 €
Expertise internationale		50 000 €
Rédaction étude de préfaisabilité		350 000 €
Frais généraux (10%)	436 000 €	196 500 €
Budget estimé : 7.0 M€	**4 796 000 €**	**2 161 500 €**

Budget minimum estim® pour lûexploration du PERM ç COUFLENS è

Au total, et sous r®serve de succ¯s dans les ®tapes successives de son exploration, Variscan Mines sûengage ¨ d®penser la somme minimale de 25 Mú hors taxes pour mener ¨ bien lûexploration du PERM ç COUFLENS è.

Dossier dâapplication dûun Permis Exclusif de Recherche de Mines ç COUFLENS è

ANNEXE 7

£L£MENTS RELEVANT DâUNE NOTICE DâIMPACT

£L£MENTS CARTOGRAPHIQUES, SOCIO-£CONOMIQUE, NOTICE DâIMPACT ET NOTICE DâINCIDENCE NATURA 2000

La nature des travaux projet®s par Variscan Mines au cours des 5 prochaines ann®es imposera la r®alisation dûune ®tude dûimpact qui sera associ®e ¨ lûouverture dûune galerie dûexploration mini¯re.

Une ®tude dûimpact devra °tre ®galement effectu®e ¨ partir de la troisi¯me ann®e avec le montage dûun dossier dûune demande de permis dûexploitation.

Variscan Mines a fait r®aliser une notice dûimpact dans le cadre de ce dossier.

Par ailleurs, des notices dûimpacts sp®cifiques seront r®alis®es pour la campagne de g®ophysique h®liport®e (®lectromagn®tisme VTEM ou HELITEM suivant r®sultat de lâappel dûoffre) si de telles campagnes ont lieu, ainsi que pour les ®ventuelles campagnes de sondages en surface. On insistera particuli¯rement sur les aspects environnementaux et socio-®conomiques qui constitueront une composante majeure de la faisabilit® du projet.

- **Annexe 7a : cadre l®gal de la demande du PERM ç Couflens è.**
  £l®ments relevant du Code de lûEnvironnement applicables dans la demande du PERM ç Couflens è.

- **Annexe 7b : ®l®ments cartographiques divers.**
  £l®ments de donn®es cartographiques en relation avec la demande de PERM ç Couflens è.

- **Annexe 7c : donn®es socio-®conomiques.**
  £l®ments de synth¯ses d®mographiques et socio-®conomiques concernant chaque commune (Source INSEE, Janvier 2013)

- **Annexe 7d : notice dûimpact (MINELIS É).**
  Notice dûimpact qui d®taille lûimpact pr®visible des diff®rents travaux envisag®s pendant lûexploration du PERM ç Couflens è et expose les ®tudes compl®mentaires qui seraient ¨ r®aliser.

- **Annexe 7e : notice dûincidence NATURA 2000 (MINELIS É).**
  Notice dûincidence qui d®taille lûimpact pr®visible des diff®rents travaux envisag®s pendant lûexploration du PERM ç Couflens è dans le cadre NATURA 2000.

ANNEXE 7a : cadre l®gal de la demande du PERM ç COUFLENS è

Les articles R122-1 ¨ R122-16, de la partie r®glementaire du code de lÕEnvironnement (Livre 1er, Titre II, Chapitre II, Section 1), codifie les travaux devant faire lôobjet dûne ®tude dôimpact, dûne notice dôimpact ou dôaucun des deux.

Les travaux envisag®s concernent lôexploration dûn PERM, avec n®cessit® dôouverture pr®alable de travaux miniers. Les recherches sont destin®es ¨ mettre en ®vidence lôexistence dûn gisement.

Application de lôarticle R.122-8

I.- Ne sont pas soumis ¨ la proc®dure de l'®tude d'impact, sous r®serve des dispositions de l'article R. 122-9, les am®nagements, ouvrages et travaux dont le co¾t total est inf®rieur ¨ 1 900 000 euros. En cas de r®alisation fractionn®e, le montant ¨ retenir est celui du programme g®n®ral de travaux.
II.- Toutefois, la proc®dure de l'®tude d'impact est applicable quel que soit le co¾t de leur r®alisation, aux am®nagements, ouvrages et travaux d®finis ci-apr¯s :

- 1Á Op®rations d'am®nagements fonciers agricoles et forestiers vis®es au 1Á de l'article L. 121-1 du Code rural et de la p° che maritime, y compris leurs travaux connexes ;
- 2Á Travaux d'installation ou de modernisation des lignes a®riennes de transport et de distribution d'®lectricit® de tension sup®rieure ou ®gale ¨ 63 kV. Constructions et travaux d'installation ou de modernisation concernant les liaisons souterraines de tension ®gale ¨ 225 kV et d'une longueur sup®rieure ¨ 15 km. Constructions et travaux d'installation ou de modernisation concernant les liaisons souterraines de tension sup®rieure ¨ 225 kV. Travaux d'installation ou de modernisation des postes de transformation dont la tension maximale de transformation est sup®rieure ou ®gale ¨ 63 kV ;
- 3Á Autorisations relatives aux ouvrages utilisant l'®nergie hydraulique dont la puissance maximale brute totale est sup®rieure ¨ 500 kW, ¨ l'exception des demandes de changement de titulaire, des changements de destination de l'®nergie ou des avenants ne modifiant pas la consistance ou le mode de fonctionnement des ouvrages ;
- 4Á Ouverture de travaux miniers et de travaux de stockage souterrain soumis ¨ autorisation en vertu du d®cret nÁ 2006-649 du 2 juin 2006.
- 5Á Am®nagements de stockages souterrains de gaz, d'hydrocarbures ou de produits chimiques ;
- 6Á a) Travaux n®cessitant une autorisation en application de la l®gislation relative aux installations class®es pour la protection de l'environnement ;
  b) Travaux n®cessitant une autorisation de cr®ation ou une autorisation de courte dur®e ou une autorisation de mise ¨ l'arr° t d®finitif et de d®mant¯lement ou une autorisation de mise ¨ l'arr° t d®finitif et de passage en phase de surveillance, en application de l'article 29 de la loi nÁ 2006-686 du 13 juin 2006 relative ¨ la transparence et ¨ la s®curit® en mati¯re nucl®aire ;
- 7Á R®servoirs de stockage d'eau " sur tour " d'une capacit® ®gale ou sup®rieure ¨ 1 000 m^3 et autres r®servoirs de stockage d'eau d'une superficie ®gale ou sup®rieure ¨ 10 ha ;
- 8Á Am®nagement de terrains de camping ou de stationnement de caravanes comportant 200 emplacements ou plus ;

- 9ÁConstructions soumises ¨ permis de construire lorsqu'il s'agit de :
  a) La cr®ation d'une superficie hors î uvre brute sup®rieure ¨ 5 000 m² sur le territoire d'une commune non dot®e, ¨ la date du d®p¹ t de la demande, d'un plan local d'urbanisme ou d'un plan d'occupation des sols ou d'un document en tenant lieu ayant fait l'objet d'une enqu° te publique ;
  b) La construction d'immeubles ¨ usage d'habitation ou de bureau d'une hauteur au-dessus du sol sup®rieure ¨ 50 m¯tres ;
  c) La cr®ation d'une superficie hors î uvre nette nouvelle ¨ usage de commerce sup®rieure ¨ 10 000 m² ;
  d) La construction d'®quipements culturels, sportifs ou de loisirs susceptibles d'accueillir plus de 5 000 personnes ;
- 10ÁCr®ation de zones d'am®nagement concert® ;
- 11ÁLotissements permettant la construction de plus de 5 000 m² de surface hors î uvre brute sur le territoire d'une commune non dot®e, ¨ la date du d®p¹ t de la demande, d'un plan local d'urbanisme ou d'un plan d'occupation des sols ou d'un document en tenant lieu ayant fait objet d'une enqu° te publique ;
- 12ÁOp®rations autoris®es par d®cret en application de l'alin®a 3 de l'article L. 130-2 du Code de l'urbanisme ;
- 13Á D®frichements et premiers boisements d'un seul tenant soumis ¨ autorisation et portant sur une superficie d'au moins 25 hectares ;
- 14Á Ouvrages destin®s ¨ l'®puration des eaux des collectivit®s locales permettant de traiter un flux de mati¯res polluantes au moins ®quivalent ¨ celui produit par 10 000 habitants, au sens de l'article R. 1416-3 du Code de la sant® publique ;
- 15ÁTravaux d'installation des ouvrages de production d'®nergie ®olienne dont la hauteur du m©t d®passe 50 m¯tres ;
- 16ÁTravaux d'installation d'ouvrages de production d'®lectricit® ¨ partir de l'®nergie solaire install®s sur le sol dont la puissance cr° te est sup®rieure ¨ deux cent cinquante kilowatts ;
- 17ÁLes laboratoires souterrains destin®s ¨ ®tudier l'aptitude des formations g®ologiques profondes au stockage des d®chets radioactifs ;
- 18ÁTravaux d'installation de remont®es m®caniques dont le co¾t total est sup®rieur ou ®gal ¨ 950 000 euros ;
- 19ÁTerrains de golf dont le co¾t total est ®gal ou sup®rieur ¨ 1 900 000 ú ou qui sont accompagn®s d'op®rations de construction d'une surface hors î uvre nette ®gale ou sup®rieure ¨ 1 000 m² ;
- 20Á Am®nagement de terrains pour la pratique de sports ou loisirs motoris®s d'une emprise totale sup®rieure ¨ 4 hectares ;
- 21ÁTravaux d'un montant sup®rieur ¨ 1 900 000 ú portant sur la cr®ation d'une gare de voyageurs, de marchandises ou de transit ou sur l'extension de son emprise ;
- 22ÁTravaux et ouvrages de d®fense contre la mer d'une emprise totale sup®rieure ¨ 2 000 m² ;
- 23ÁProjets d'affectation de terres incultes ou d'®tendues semi-naturelles ¨ l'exploitation agricole intensive portant sur une superficie d'au moins 50 hectares ;
- 24ÁTravaux, ouvrages et am®nagements r®alis®s en vue de l'exploitation d'eau destin®e ¨ la consommation humaine dans une for° t de protection mentionn®s ¨ l'article R. 412-19 du Code forestier, ¨ l'exclusion des travaux de recherche.

Le projet de Variscan Mines est mentionn® dans le point 4 de l'article R.122-8 II. En outre, le montant de 25 M ú des travaux envisag®s sur la p®riode de 5 ann®es, exc¯de largement le montant de 1 900 000 ú et il convient d'examiner le projet ¨ la lumi¯re des articles R.122-5 et R.122-6

Application de l'article R.122-5

Ne sont pas soumis à la procédure de l'étude d'impact, sous réserve des dispositions de l'article R.122-9, les aménagements, ouvrages et travaux définis au tableau ci-après, dans les limites et sous les conditions qu'il précise.

CATÉGORIES D'AMÉNAGEMENTS, D'OUVRAGES ET DE TRAVAUX	ÉTENDUE DE LA DISPENSE
1 - Ouvrages et travaux sur le domaine public fluvial et maritime.	Travaux de modernisation
2 - Voies publiques et privées.	Travaux de renforcement et travaux de sécurité, lorsque ces derniers sont localisés et d'un montant inférieur à 1 900 000 euros.
3 - Etablissements conchylicoles, aquacoles et, d'une manière générale, tous établissements de pêche concédés sur le domaine public maritime sauf ceux soumis à la réglementation des installations classées pour la protection de l'environnement.	Tous travaux ou aménagements.
4 - Remontées mécaniques	Travaux d'installation d'un montant inférieur à 950 000 euros et travaux de modernisation.
5 - Transport et distribution d'électricité.	Travaux d'installation ou de modernisation des ouvrages de tension inférieure à 63 kV. Constructions et travaux d'installation ou de modernisation concernant les liaisons souterraines de tension inférieure à 225 kV. Constructions et travaux d'installation ou de modernisation concernant les liaisons souterraines de tension égale à 225 kV et d'une longueur inférieure ou égale à 15 km. Travaux d'électrification des voies ferrées.
6 - Réseaux de distribution de gaz.	Travaux d'installation et de modernisation.
7 - Transport de gaz, d'hydrocarbures et de produits chimiques.	Travaux de modernisation des canalisations et ouvrages.
8 - Production d'énergie hydraulique.	Travaux d'installation et de modernisation des ouvrages dont la puissance maximum n'excède pas 500 kW.
9 - Recherches de mines et de carrières. *(D. n° 2006-649, 2 juin 2006, art. 54)*	Mines : travaux soumis à déclaration en vertu du décret n 2006-649 du 2 juin 2006. Carrières : travaux soumis à autorisation en application des articles 109 et du et du décret n 97-181 du 28 février 1997 pris pour son application.
10 - Installations classées pour la protection de l'environnement.	Travaux soumis à déclaration.
11 - Réseaux d'assainissement, d'évacuation des eaux pluviales et de distribution d'eau.	Travaux d'installation et de modernisation.
12 - Réservoirs de stockage d'eau.	Travaux concernant les réservoirs de stockage d'eau sur tour d'une capacité inférieure à 1 000 m et les autres réservoirs de stockage d'eau d'une superficie inférieure à 10 ha.
13 - Gestion, mise en valeur et exploitation des forêts.	Tous travaux et opérations.
14 - Correction des torrents, restauration des terrains en montagne, lutte contre les avalanches, fixation des dunes, lutte contre l'incendie.	Tous équipements et ouvrages.
15 - Défrichements soumis aux dispositions du et premiers boisements soumis à autorisation au titre du code rural.	Défrichements et premiers boisements portant sur une superficie inférieure à 25 hectares.

16 - R®seaux et t®l®communications.	Travaux d'installation et de modernisation int®ressant les r®seaux de c©bles ou de conducteurs.
17 - S®maphores r®gis par la loi du 11 juillet 1933	Tous travaux.
18 - Terrains de camping.	Travaux d'am®nagement de terrains comportant moins de 200 emplacements.
19 - Ouvrages destin®s ¨ l'®puration des eaux des collectivit®s locales.	Ouvrages permettant de traiter un flux de mati¯res polluantes inf®rieur ¨ celui produit par 10 000 habitants au sens de l'article R. 780-3 du
20 - Production d'®nergie ®olienne.	Travaux d'installation et de modernisation des ouvrages dont la hauteur du m©t est inf®rieure ou ®gale ¨ 50 m¯tres.
21- *(Supprim®¨ compter du 1 er octobre 2006 par D. n º 2006-880, 17 juill. 2006, art. 34, I et 38)*	
22 - Travaux et ouvrages de d®fense contre la mer	Travaux d'une emprise totale inf®rieure ¨ 2 000 m¯tres carr®s.
23 - Projets d'affectation de terres incultes ou d'®tendues semi-naturelles ¨ l'exploitation agricole intensive.	Projets portant sur une superficie inf®rieure ¨ 50 hectares.

Application de lâarticle R.122-6

Ne sont pas soumis ¨ la proc®dure de l'®tude d'impact, sous r®serve des dispositions de l'article R.122-9, les am®nagements, ouvrages et travaux d®finis au tableau ci-apr¯s, dans les limites et sous les conditions qu'il pr®cise.

Cat®gories d'am®nagements, d'ouvrages et de travaux	£tendue de la dispense
1ÁConstructions soumises ¨ permis de construire dans les communes ou parties de communes dot®es, ¨ la date du d®p¹t de la demande, d'un plan local d'urbanisme ou d'un plan d'occupation des sols ou d'un document en tenant lieu ayant fait l'objet d'une enqu°te publique.	Toutes constructions ¨ l'exception de celles vis®es au 7Áet aux b, c et d du 9Ádu II de l'article R*. 122-8.
2ÁConstructions soumises ¨ permis de construire dans les communes ou parties de communes non dot®es, ¨ la date du d®p¹t de la demande, d'un plan local d'urbanisme ou d'un plan d'occupation des sols ou d'un document en tenant lieu ayant fait l'objet d'une enqu°te publique.	Toutes constructions, ¨ l'exception de celles vis®es au 7Áet au 9Ádu II de l'article R*. 122-8.
3ÁConstructions ou travaux vis®s aux articles R*. 421-8, R*. 421-9 et R*. 421-17 du code de l'urbanisme.	Tous constructions et travaux.
4ÁLotissements situ®s dans des communes ou parties de communes dot®es, ¨ la date du d®p¹t de la demande, d'un plan local d'urbanisme ou d'un plan d'occupation des sols ou d'un document en tenant lieu ayant fait l'objet d'une enqu°te publique.	Tous lotissements.
5ÁLotissements situ®s dans des communes ou parties de communes non dot®es, ¨ la date du d®p¹t de la demande, d'un plan local d'urbanisme ou d'un plan d'occupation des sols ou d'un document en tenant lieu ayant fait l'objet d'une enqu°te publique.	Lotissements permettant la construction d'une superficie hors î uvre nette inf®rieure ¨ 5 000 m¯tres carr®s.
6ÁAffouillements et exhaussements du sol.	Toutes op®rations dans les communes couvertes par un plan local d'urbanisme.
7ÁCoupes et abattages d'arbres soumis ¨ la d®claration pr®vue ¨ l'article L. 130-1 du code de l'urbanisme.	Toutes coupes et abattages.
8ÁOp®rations de d®molition pr®vues aux articles R*. 421-26. ¨ R. 421-28 du code de l'urbanisme.	Toutes op®rations.
9ÁAm®nagement de terrains pour le stationnement de caravanes.	Terrains comportant un nombre d'emplacements inf®rieur ¨ 200.
10ÁGarages collectifs de caravanes vis®s ¨ l'article R*. 421-19 du code de l'urbanisme.	Toutes op®rations.
11ÁParcs d'attractions et aires de jeux ou de sports vis®s ¨ l'article R*. 421-19 du code de l'urbanisme.	Tous installations et travaux, ¨ l'exception :- des terrains de golf vis®s au II de l'article R*. 122-8 ;- des bases de plein air et de loisirs d'un montant de 1 900 000 euros et plus ;- des terrains am®nag®s pour la pratique de sports ou loisirs motoris®s vis®s au II de l'article R*. 122-8.
12ÁAires de stationnement et d®p¹ts de v®hicules vis®s ¨ l'article R*. 421-19 du code de l'urbanisme.	Tous installations et travaux dans les communes couvertes par un plan local d'urbanisme.

Le projet de Variscan Mines est list®dans la liste des dispenses de lâarticle R.122-5 ; il doit donc °tre examin®¨ la lumi¯re de lâarticle R.122-9, tel que le pr®cis®: ç Ne sont pas soumis ¨ la

proc®dure de l'®tude d'impact, sous r®serve des dispositions de l'article R. 122-9, les am®nagements, ouvrages et travaux d®finis au tableau ci-apr¯s, dans les limites et sous les conditions qu'il pr®cise è.

Application de lâarticle R.122-9

Pour les travaux et projets d'am®nagements d®finis au pr®sent article, la dispense, pr®vue aux articles R. 122-5 ¨ R. 122-8, de la proc®dure d'®tude d'impact est subordonn®e ¨ l'®laboration d'une notice indiquant les incidences ®ventuelles de ceux-ci sur l'environnement et les conditions dans lesquelles l'op®ration projet®e satisfait aux pr®occupations d'environnement :

- 1Á Travaux ou am®nagements d'un co¾t total inf®rieur ¨ 1 900 000 ú r®alis®s sur le domaine public fluvial ou maritime sous le r®gime de la concession pr®vu aux articles L. 3211-10 et L.3211-15 du Code g®n®ral de la propri®t®des personnes publiques, ainsi que les travaux de cr®ation ou d'extension d'un port de plaisance

- 2ÁTravaux d'installations de remont®es m®caniques et travaux d'am®nagement de pistes pour la pratique de sports d'hiver, lorsque leur co¾t total est inf®rieur ¨ 950 000 ú

- 3ÁTravaux d'installation des ouvrages a®riens de transport et de distribution d'®lectricit® de tension inf®rieure ¨ 63 kV. Constructions et travaux d'installation ou de modernisation concernant les liaisons souterraines de tension sup®rieure ou ®gale ¨ 63 kV et inf®rieure ¨ 225 kV. Constructions et travaux d'installation ou de modernisation concernant les liaisons souterraines de tension ®gale ¨ 225 kV et d'une longueur inf®rieure ou ®gale ¨ 15 km

- 4Á Autorisations relatives aux ouvrages utilisant l'®nergie hydraulique dont la puissance maximale brute totale est inf®rieure ou ®gale ¨ 500 kW, ¨ l'exception des demandes de changement de titulaire, des changements de destination de l'®nergie ou des avenants ne modifiant pas la consistance ou le mode de fonctionnement des ouvrages

- 5ÁOuverture de travaux miniers et de travaux de stockage souterrain soumis ¨ d®claration en vertu du d®cret nÁ2006-649 du 2 juin 2006 et travaux de recherches de carri¯res soumis ¨ autorisation dans les zones d®finies aux articles 109 et 109-1 du Code minier et en application du d®cret nÁ97-181 du 28 f®vrier 1997

- 6ÁTravaux de d®frichement et de premiers boisements soumis ¨ autorisation et portant sur une superficie inf®rieure ¨ 25 hectares

- 7Á Ouvrages et ®quipements relatifs ¨ la correction des torrents, ¨ la restauration des terrains en montagne, ¨ la lutte contre les avalanches, ¨ la fixation des dunes et ¨ la d®fense contre l'incendie

- 8Á Ouverture de terrains am®nag®s pour le camping ou le stationnement de caravanes comportant moins de 200 emplacements ;

- 9Á Ouvrages destin®s ¨ l'®puration des eaux des collectivit®s locales, d'une capacit® de traitement inf®rieure ¨ celle des ouvrages vis®s au 14Á du II de l'article R. 122-8

- 10Á Travaux concernant les r®servoirs de stockage d'eau " sur tour " d'une capacit® inf®rieure ¨ 1 000 m^3 et les autres r®servoirs de stockage d'eau d'une superficie ®gale ou sup®rieure ¨ 2 ha et inf®rieure ¨ 10 ha

- 11Á Travaux d'hydraulique agricole dont le co¾t total est compris entre 950 000 et 1 900 000 euros

- 12ÁTravaux et ouvrages de d®fense contre la mer d'une emprise totale inf®rieure ¨ 2 000 m^2

- 13ÁTravaux d'installation des ouvrages de production d'®nergie ®olienne dont la hauteur du m©t est inf®rieure ou ®gale ¨ 50 m¯tres.

Le projet envisag® par Variscan Mines entre dans la liste ci-dessus, lâarticle R.122-5 sâapplique donc. Une notice dâimpact concernant lâexploration du PERM ç Couflens è a ®t® d®cid®e et confi®e ¨ un organisme ind®pendant agr®® et une ®tude dâimpact sera r®alis®e lors des pr®paratifs pour r®aliser la galerie dâacc¯s au gisement.

Dossier dâapplication dûun Permis Exclusif de Recherche de Mines ç COUFLENS è

ANNEXE 7b : ®l®ments cartographiques divers

Ces documents accompagnent la demande du PERM ç COUFLENS è. Ils contribuent ¨ la r®alisation des notices dûimpacts et dûincidence Natura 2000 ci-apr¯s.

Ces travaux concerneront en particulier les sondages dâexploration g®ologique de surface qui pourraient °tre d®cid®s ¨ la suite de la campagne de g®ophysique h®liport®e, pour lesquels les sites dûimplantation ne peuvent bien ®videmment pas °tre pr®cis®s ¨ ce stade de la demande dûun Permis Exclusif de Recherche de Mines.

Les ®l®ments pr®sent®s dans ce dossier concernent essentiellement les caract®ristiques g®n®rales du PERM ç COUFLENS è et se rapportent principalement aux travaux dâexploration globale du titre (g®ologie, g®ochimie et g®ophysique) pour lesquels Variscan Mines dispose des informations n®cessaires d¯s ¨ pr®sent.

Lâ®tude dûimpact relative au creusement dûune galerie dâexploration ¨ Salau sera entreprise d¯s lâobtention du PERM. Cette ®tude nâest pas incluse dans la pr®sente demande en raison de son co¾t ®lev® (ing®nierie, appel dâoffre europ®en, design de lâouvrage, budg®tisation,é) et surtout des d®lais de plusieurs mois inh®rents ¨ son instruction.
Sa budg®tisation et sa r®alisation sont pr®vues dans le plan de travaux de lâann®e 1, la r®alisation proprement dite de lâouvrage n°®tant pas envisageable avant lâann®e 2.

Cadre g®ographique

Situation des travaux

Le PERM ñ COUFLENS ò se localise sur la commune du m° me nom, ¨ 30 km au sud de Saint-Girons, et couvre une surface de 42 kmǀ.
Une carte au 1/50 000e est fournie en annexe 8d (planches hors texte)

Coordonn®es des sommets du PERM " COUFLENS " :

	RGF 93		WGS 84		Lambert 93	
Sommet	X_93_Dec	Y_93_Dec	X_WGS84	Y_WGS84	X_93	Y_93
A	1,133775	42,750988	1,133775	42,75099	547050	6185300
B	1,171817	42,783123	1,171817	42,78312	550250	6188800
C	1,191953	42,783464	1,191953	42,78346	551900	6188800
D	1,223137	42,761951	1,223137	42,76195	554400	6186350
E	1,225330	42,730059	1,225330	42,73006	554500	6182800
F	1,170971	42,712956	1,170971	42,71296	550000	6181000
G	1,136962	42,727659	1,136962	42,72766	547250	6182700

Liste des communes concern®es par le PERM " COUFLENS " :

- Ari¯ge (09) : 1 commune
  - Couflens

VARISCAN MINES

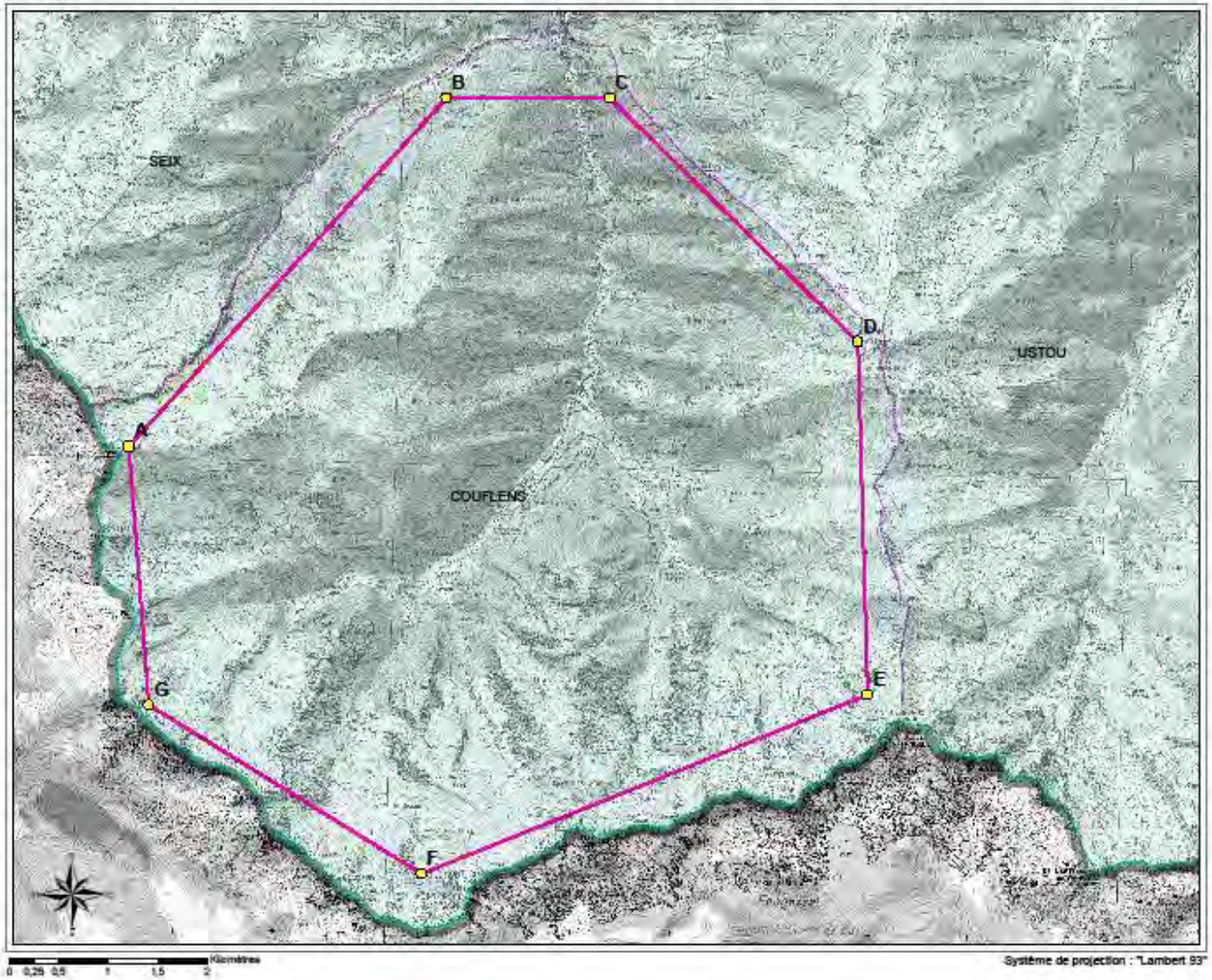
Annexe 8a

Carte des limites administratives du PERM "Couflens"

Echelle 1:50 000

1:50 000

Carte des limites administratives du PERM de Couflens



Système de projection : "Lambert 93"

Légende

- Emprise du PERM de Couflens
- Sommets du PERM

Limites administratives

Nature

- Limite d'arrondissement
- Limite de commune
- Limite de canton
- Limite de département
- Limite de région
- Frontière internationale

Coordonnées des Sommets

	Lambert 93	
	X_93	Y_93
A	547050	6185300
B	550250	6188800
C	551900	6188800
D	554400	6186350
E	554500	6182600
F	550000	6181000
G	547250	6182700

	WGS84	
	X_84	Y_84
A	1,193775	42,75099
B	1,171817	42,78312
C	1,191953	42,78346
D	1,223137	42,76195
E	1,22533	42,73006
F	1,170971	42,71296
G	1,136962	42,72766

Milieu physique et paysages

La zone du PERM ç COUFLENS è est situ®e dans une zone de montagne qui se caract®rise par un pic entour® de talweg encaiss®s.

La base de donn®es europ®enne d'occupation des sols Corine Land Cover situe le projet de PERM " Couflens " dans un environnement montagnard vari®s depuis le sommet du pic de La Fourque totalement rocheux jusqu'au fond de la vall®e.

Carte d'occupation des sols : Corine Land Cover

Carte concernant le PERM ç COUFLENS è ; cette carte ¨ 1/50 000e est fournie en annexe 8e (planches hors texte)

L®gende

Corine Land Cover : Occupation des sols

- 111 : Tissu urbain continu
- 112 : Tissu urbain discontinu
- 121 : Zones industrielles et commerciales
- 122 : R®seaux routier et ferroviaire et espaces associ®s
- 123 : Zones portuaires
- 124 : A®roports
- 131 : Extraction de mat®riaux
- 132 : D®charges
- 133 : Chantiers
- 141 : Espaces verts urbains
- 142 : Equipements sportifs et de loisirs
- 211: Terres arables hors p®rim¯tres d'irrigation
- 212 : P®rim¯tres irrigu®s en permanence
- 213 : Rizi¯res
- 221 : Vignobles
- 222 : Vergers et petits fruits
- 223 : Oliveraies
- 231: Prairies
- 241 : Cultures annuelles associ®es aux cultures permanentes
- 242 : Syst¯mes culturaux et parcellaires complexes
- 243 : Surfaces essentiellement agricoles, interrompues par des espaces naturels importants
- 244 : Territoires agro-forestiers
- 311 : For°ts de feuillus
- 312 : For°ts de conif¯res
- 313 : For°ts m®lang®es
- 321 : Pelouses et p©turages naturels
- 322 : Landes et broussailles
- 323 : V®g®tation scl®rophylle
- 324 : For°t et v®g®tation arbustive en mutation
- 331 : Plages, dunes et sable
- 332 : Roches nues
- 333 : V®g®tation clairsem®e
- 334 : Zones incendi®es
- 335 : Glaciers et neiges ®ternelles
- 411 : Marais int®rieurs
- 412 : Tourbi¯res
- 421 : Marais maritimes
- 422 : Marais salants
- 423 : Zones intertidales
- 511 : Cours et voies d'eau
- 512 : Plans d'eau
- 521 : Lagunes littorales
- 522 : Estuaires
- 523 : Mers et oc®ans

VARISCAN MINES

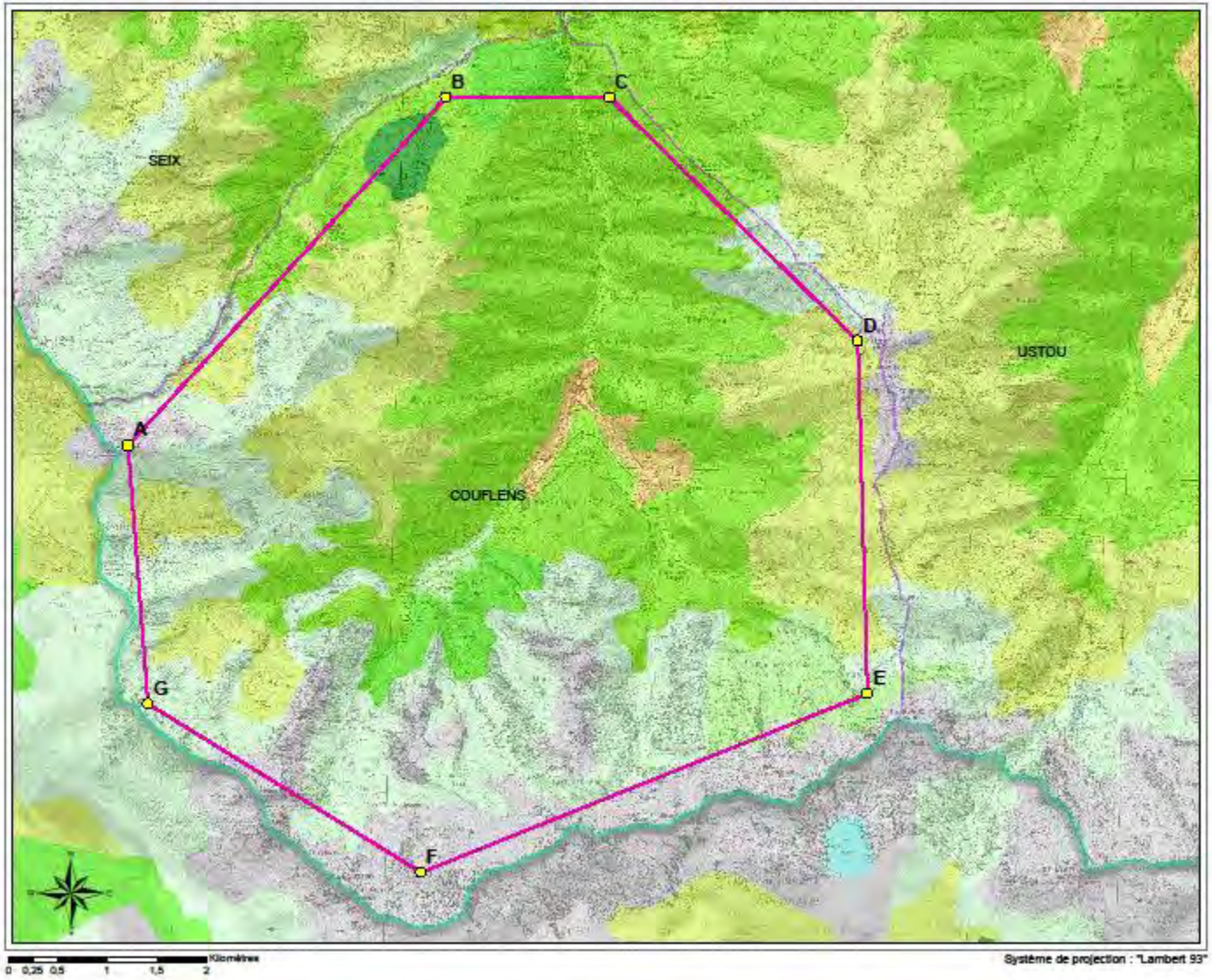
1:50 000

Carte des limites administratives du PERM de Couflens

Annexe 8e

Carte d'occupation des sols du PERM "Couflens"

Echelle 1:50 000



Système de projection : "Lambert 93"

Légende

- Emprise du PERM de Couflens
- Sommets du PERM

Limites administratives

Nature

- Limite d'arrondissement
- Limite de commune
- Limite de canton
- Limite de département
- Limite de région
- Frontière internationale

Coordonnées des Sommets

	Lambert 93	
	X_93	Y_93
A	547050	6185300
B	550250	6188800
C	551900	6188800
D	554400	6186350
E	554500	6182800
F	550000	6181000
G	547250	6182700

	WGS84	
	X_84	Y_84
A	1,193775	42,75099
B	1,171817	42,78312
C	1,191953	42,78346
D	1,223137	42,76195
E	1,22533	42,73006
F	1,170971	42,71296
G	1,196962	42,72766

Contraintes environnementales

Dans le cadre de son activit®, Variscan Mines s'engage ¨ respecter toutes les proc®dures impos®es par la l®gislation relative aux diverses zones de contraintes r®glementaires telles qu'expos®es dans la notice d'impact et la notice d'incidence Natura 2000 associ®es au pr®sent document et r®alis®es par le BET Minelis.

Carte des contraintes environnementales

Une carte ¨ 1/50 000 est fournie en annexe 8f (planches hors texte).

L®gende :

- Sommets du PERM Dompierre
- PERM Dompierre
- Sites d'int®r°t g®ologiques
- Zone natura 2000 "SIC" (sites d'importance communautaire)
- Znieff de type 1 (Zone naturelle d'int®r°t ®cologique, faunistique et floristique
- Znieff de type 2

VARISCAN MINES

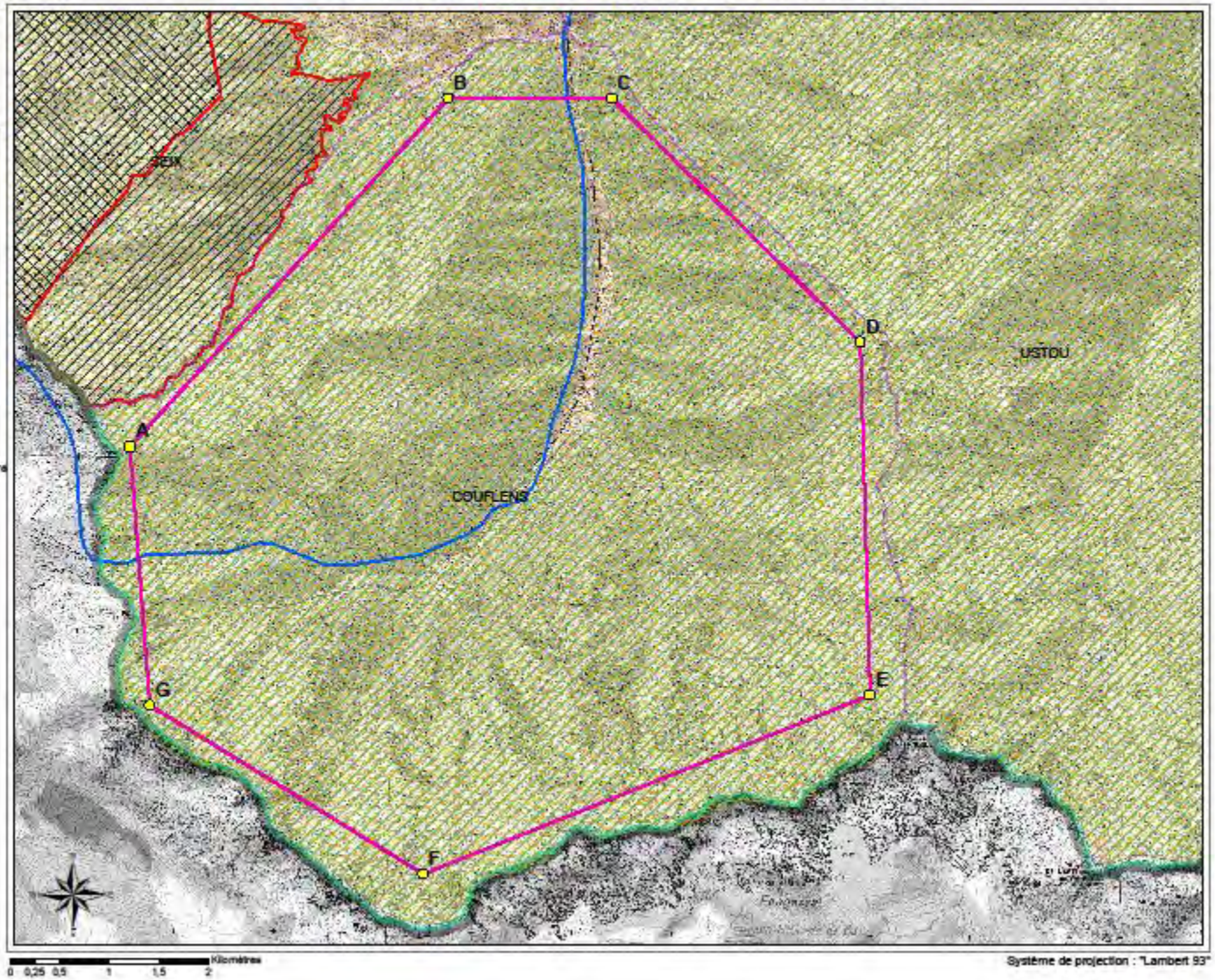
Annexe 8f

Carte des contraintes environnementales du PERM "Couflens"

Echelle 1:50 000

1:50 000

Carte des contraintes environnementales du PERM de Couflens



Légende

- Emprise du PERM de Couflens
- Sommets du PERM

Types d'espaces protégés

- Zico
- Zone de protection spéciale
- Sites d'importance communautaire
- Znieff 1
- Znieff 2
- Parcs naturels Régionaux

0 0,25 0,5 1 1,5 2 Kilomètres

Système de projection : "Lambert 93"

Carte des rivi¯res et des plans dêeau du PERM ç COUFLENS è

Une carte ¨ 1/50 000 est fournie en annexe 8g (planches hors texte).

ê notre connaissance, les cours dêeau pr®sents sur le PERM ç Couflens è ne font lôobjet dêaucune disposition particuli¯re, autres que les prescriptions du SDAGE et des ®ventuels SAGE de la r®gion (cf. notice dôimpact).

VARISCAN MINES

Annexe 8a

Carte des limites administratives du PERM "Couflens"

Echelle 1:50 000

Légende

Emprise du PERM de Couflens

Sommets du PERM

Limites administratives

Nature

- Limite d'arrondissement
- Limite de commune
- Limite de canton
- Limite de département
- Limite de région
- Frontière internationale

Hydrographie

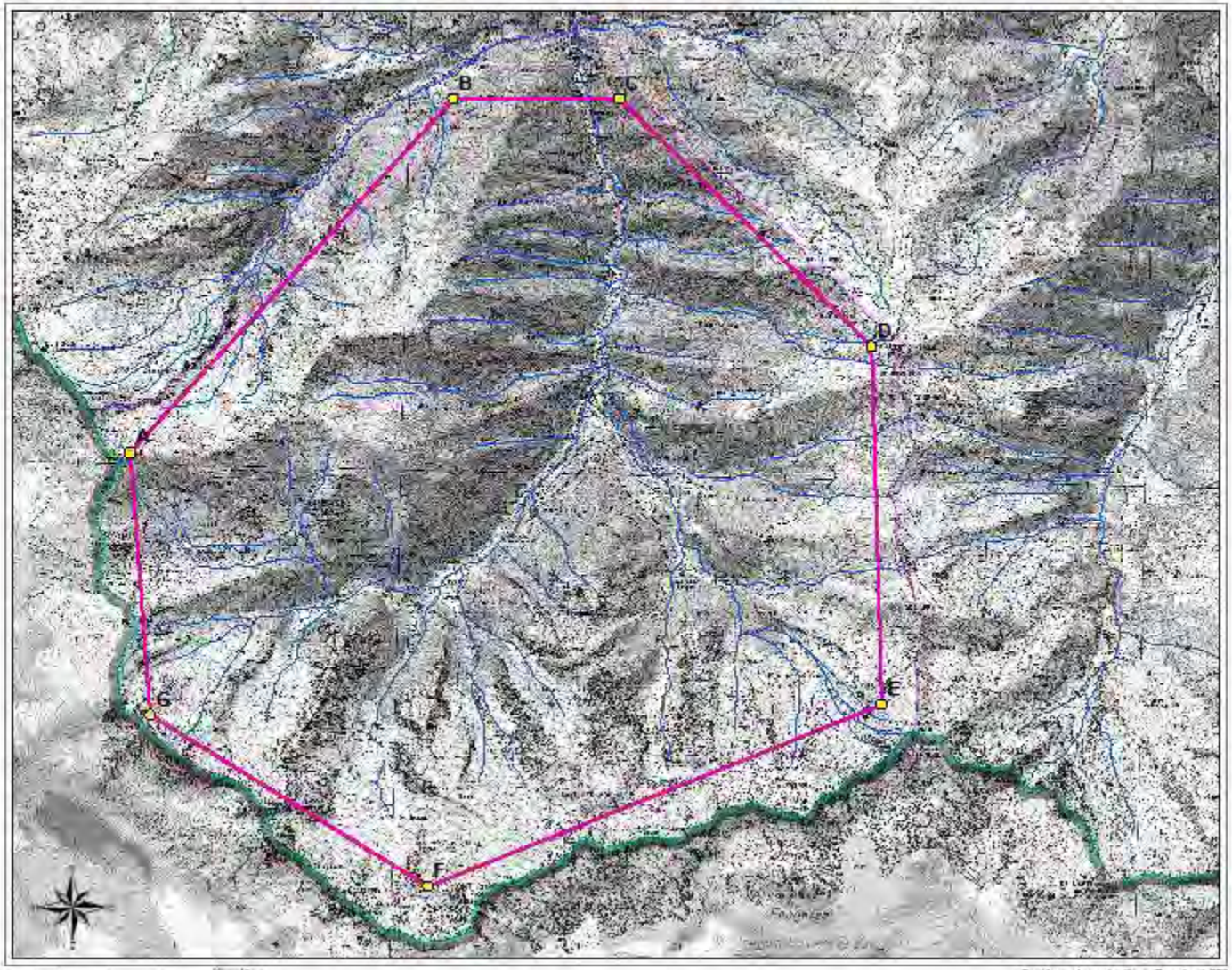
- Plans d'eau
- Rivières

Coordonnées des Sommets

	Lambert 93	
	X_93	Y_93
A	547050	6185300
B	550350	6188600
C	553900	6188600
D	554400	6186450
E	554500	6182600
F	550000	6181900
G	547350	6182700

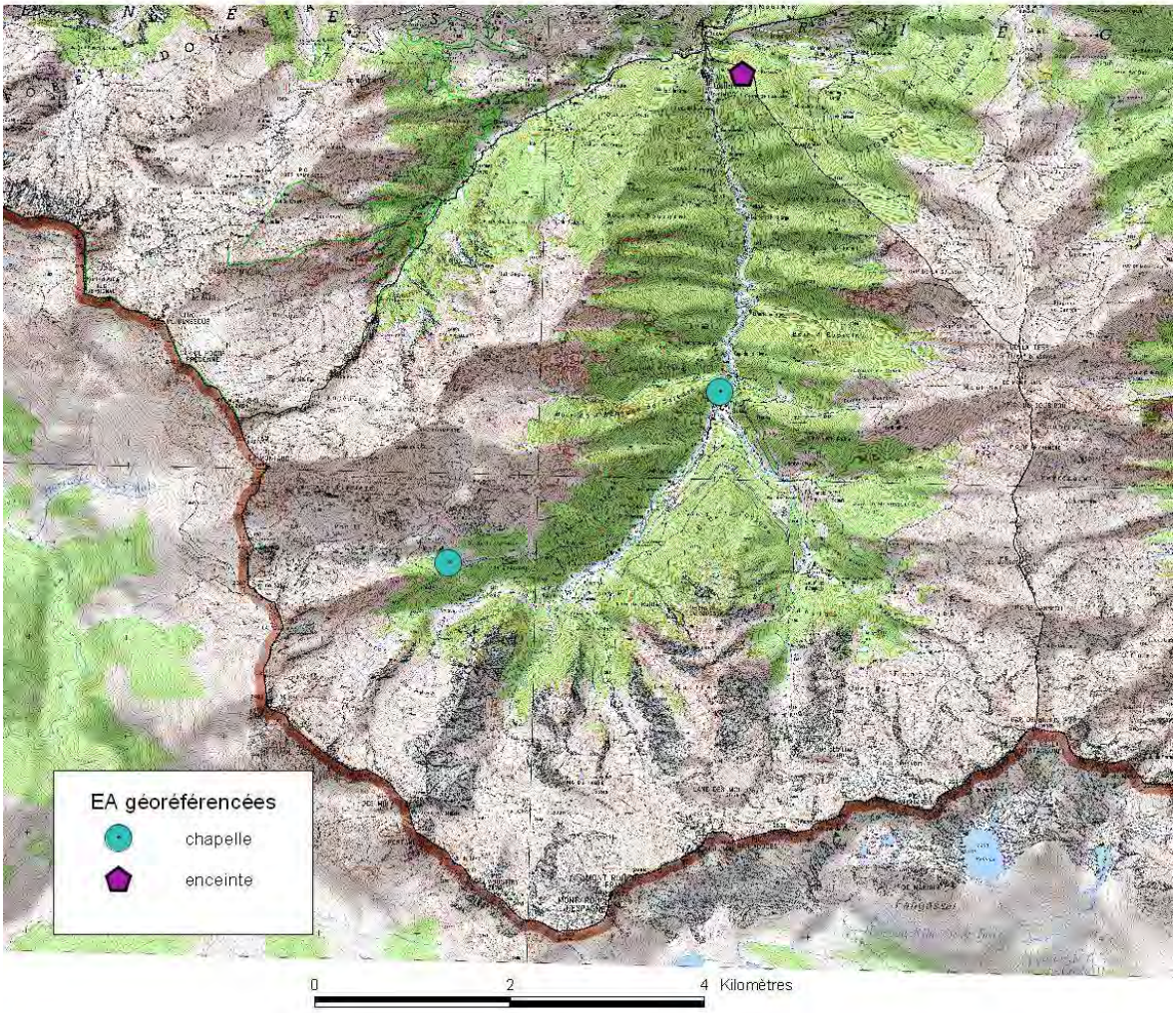
	WGS84	
	X_84	Y_84
A	1,151775	42,75099
B	1,171617	42,78412
C	1,191055	42,78446
D	1,193137	42,76135
E	1,195283	42,73008
F	1,170971	42,71296
G	1,138462	42,77766

1:50 000 Carte des limites administratives du PERM de Couflens



Système de projection : "Lambert 93"

COUFLENS



Sites identifi®s sur la carte arch®ologique (donn®es SRA - octobre 2014)

Carte des sites arch®ologiques du PERM ç COUFLENS è

Une carte ¨ 1/25 000 est fournie en annexe 8h (planches hors texte).

Apres interrogation du Service r®gional dôarch®ologie (SRA) de la DRAC de Midi-Pyr®n®es, dans le p®rim¯tre d®fini par le polygone, se trouvent deux sites r®pertori®s :

- Lôun, tr¯s connu, est la chapelle de Salau, qui est par ailleurs prot®g®e au titre des Monuments Historiques

- Lôautre est une chapelle de p¯lerinage dôorigine m®di®vale en bordure du chemin conduisant au Port de Salau, mentionn®e par les textes (ç La Gleisette è) mais localis®e pr®cis®ment voici deux ans ¨ lôoccasion dôune campagne de sondages arch®ologiques.

Pour m®moire, un troisi¯me site constitu® dôune enceinte de datation encore ind®termin®e (enceinte du Jorle) doit °tre signal®: il se trouve ¨ proximit® quoiquôen dehors des limites du polygone.

NÁsite	Nom du site	Leu IGN	vestiges	chronologie	X 93	Y 93
09 100 001	**Enceinte du Jorle**	Le Jorle	enceinte	Ind®termin®	551835.93	6189239.30
09 100 002	**Chapelle de Salau**	Salau	chapelle	Moyen Age	551605.20	6185978.19
09 100 004	**La Gleisette**	Bois de la Cr®made	chapelle	Moyen Age	548817.20	6184225.97

On citera aussi pour m®moire un autre monument historique situ® au de la de la limite nord de la commune de Couflens, bien au-del¨ des lites du PERM et qui est signal® sur la carte ¨ 1/25 000 pour m®moire.

Compl®ments techniques divers

£tudes g®ologiques

Les g®ologues en charge des ®tudes veilleront ¨ obtenir toutes les autorisations requises avant toute intrusion dans les propri®t®s priv®es. Ils y passeront pour examiner les pierres volantes (ou pr®lev®es au marteau sur affleurement) des champs travers®s afin d'en v®rifier la nature apr¯s analyse visuelle ou en laboratoire (binoculaire, lame mince ou section polie, analyses chimiques)
D¯s le d®but des travaux, Variscan Mines fera l'acquisition ou louera un b©timent isol®pour y installer ses bureaux et un local destin® ¨ l'®tude des ®chantillons. Cette installation ne g®n¯rera aucune nuisance.

Travaux de g®ochimie

Les ®tudes g®ochimiques qui seront entreprises concerneront les contr¹les au sol des anomalies g®ophysiques ; elles ne cr®eront aucune nuisance particuli¯re sur l'environnement. De m°me que pour les ®tudes g®ologiques, les g®ologues en charge des ®tudes veilleront ¨ obtenir toutes les autorisations requises avant toute intrusion dans les propri®t®s priv®es.

Deux types de pr®l¯vements sont pr®vus : les pr®l¯vements de sols superficiels et ®ventuellement les pr®l¯vements de sol profond (> 1 m, voire 2 ¨ 5 m) par tari¯re ¨ main. Ces pr®l¯vements seront effectu®s dans le respect de l'environnement et des cultures.

<u>Pour les sols superficiels (cas sans formations superficielles autre qu'alt®rites)</u>

- En zone de prairie ou en sous-bois, l'®chantillon sera pr®lev® ¨ la base des racines. Une motte de 20 cm x 20 cm sera retir®e ¨ la pelle, le pr®l¯vement d'environ 250 g de terre effectu®au fond du trou, et la motte herbeuse sera ensuite remise en place

- En zone de labour, les ®chantillons seront directement pr®lev®s ¨ la surface des mottes ou en fond de sillon (suivant la profondeur du labour).

<u>Pour les sols profonds (tari¯res)</u>

Le pr®l¯vement g®ochimique s'effectuera ¨ la base des sols, dans la saprolite. Il sera utilis® une tari¯re ¨ main h®lico¨dale, la faible profondeur ¨ atteindre ne n®cessitant pas la mise en î uvre de moyens m®caniques.

Travaux de g®ophysique au sol

Un contr¹le au sol par magn®tom®trie et/ou gravim®trie des principales anomalies d®finies par les techniques a®roport®es et h®liport®es peut °tre envisag®. Ces mesures, effectu®es ¨ partir d'appareils portables de petite dimension et qui s'apparentent aux travaux de g®ologie, ne pr®sentent aucun impact environnemental. Les g®ophysiciens impliqu®s veilleront ¨ obtenir toutes les autorisations requises avant toute intrusion dans les propri®t®s priv®es.

Tranch®es d'exploration

Les travaux ®ventuellement envisag®s peuvent s'apparenter ¨ de petits travaux publics et consistent en des tranch®es r®alis®es perpendiculairement aux structures min®ralis®es affleurantes afin de permettre leur localisation pr®cise et leur ®chantillonnage. La profondeur maximale ne doit pas exc®der 1,30 m afin de satisfaire ¨ la l®gislation relative aux travaux publics (articles 66, 67, 68, 70, 71, 72, 74 et 77). Les longueurs de tranch®es seront courtes (de l'ordre de 10 - 50 m env. par tron- on, localement plus), m° me si elles sont multiples, et adapt®es aux contraintes du terrain. Leur but est de voir les terrains que l'on ne voit pas au sol directement, d'observer les roches en place (sous le sol et les formations superficielles) puis de compl®ter ou d'orienter les travaux de sondages. Elles ne seront r®alis®es que dans les zones o½ les min®ralisations recherch®es sont tr¯s proches de la surface ou affleurent sous la terre v®g®tale et les formations superficielles, et dont les ®l®ments susceptibles d'°tre ainsi visibles int®ressent la compr®hension du gisement. Leur profondeur n'excèdera pas 1,3 m et sera plut¹ t de l'ordre de 1 m de profondeur. Il est ¨ ce stade, il est impossible de pr®dire leur quantit® puisque ce sont les travaux pr®liminaires de reconnaissance qui vont en d®terminer la localisation et la densit®. Il semble r®aliste de proposer que leur longueur cumul®e sera tr¯s inf®rieure ¨ 20 000 ml (soit moins de 20 000 m³ ï 7000 ¨ 10 000 t env.).
La terre v®g®tale sera s®par®e du reste des terrains mobilis®s, limitant au strict minimum l'impact environnemental de leur ouverture. Les tranch®es seront renferm®es au fur et ¨ mesure, d¯s les lev®s d'observations r®alis®s. Il n'y aura pas de transport des terrains excav®s.

La r®alisation de ces tranch®es implique l'amen®e d'une pelle hydraulique et l'immobilisation pour plusieurs jours d'une partie des terrains concern®s (le temps de leur ®tude). Ces tranch®es seront signal®es afin d'®viter toute chute accidentelle et ne seront r®alis®es qu'avec l'accord formel du propri®taire du terrain (et avec concertation avec son usager). Elles feront syst®matiquement l'objet d'un contrat d'indemnisation pour la g° ne caus®e.

Par ailleurs, le chantier sera surveill® en permanence et interdit au personnel non autoris®.

Sondages et travaux associ®s

Les travaux envisag®s sont, par leur nature, momentan®s et peuvent se d®composer en deux stades : si n®cessaire, des travaux de g®nie civil, d'une dur®e de l'ordre 2 ¨ 3 semaines pr®c®dant les travaux de forage proprement dits et des travaux de forage qui sont d'une dur®e limit®e.

Diverses techniques de sondages seront utilis®es :

- Les sondages par circulation inverse (RC) qui offrent l'avantage d'un co¾t plus r®duit (80 ¨ 100 ú le m¯tre for®) et permettent un contr¹ le des d®viations. Ces sondages seront utilis®s prioritairement pour traverser les terrains encaissants correspondant aux cibles profondes
- Les sondages carott®s HQ (diam¯tre 68 mm), plus co¾teux (200 ¨ 300 ú le m¯tre for®), mais offrant une bien meilleure connaissance des min®ralisations recoup®es.

Variscan Mines utilisera autant que possible une combinaison des deux techniques : plusieurs sondages carott®s seront r®alis®s ¨ partir du fond d'un m° me sondage destructif. Cette approche par sondages multiples volontairement d®vi®s permet une r®duction significative des co¾ts et de l'impact environnemental (r®duction du m®trage total for® pour une connaissance ®quivalente).

La position, la profondeur et le nombre de ces sondages d®pendront bien ®videmment des r®sultats des campagnes de g®ophysique qui seront r®alis®es en pr®alable.

Lôimpact de cette activit® est signal® dans la notice ci-apr¯s. Tous les sites seront ensuite ferm®s et r®habilit®s selon les normes et recommandation d®finies par les r¯glements et lôadministration. Pour ces phases, chaque sondage sera ciment® en totalit® apr¯s foration et r®cup®ration des donn®es (cuttings, carottes, ®ventuelles diagraphies) et observation diverses. La t° te de puits sera localis®e. La cimentation des sondages ®vitera tout probl¯me de percolation des eaux en profondeur par lôorifice du forage. Il ne sera pas proc®d®¨ des forages ¨ travers les alluvions du lit mineur des rivi¯res.

En cas de sondage de nappe phr®atique, suivant les cibles vis®es, il faudrait envisager soit un tubage ¨ lôavancement pour rendre la partie sup®rieure du forage ®tanche si des niveaux aquif¯res de ce type sont travers®s avant la cible, soit la cimentation du forage suffira ensuite dans tous les autres cas apr¯s forage. La boue de forage est une bentonite, terme industriel pour d®signer des smectites qui sont une des familles dôargiles (dite aussi ç argiles gonflantes è ou argiles de type 14-17 ¡). Ces argiles sont inertes. Elles servent ¨ assurer ¨ la fois la lubrification de lôoutil de forage et une densit® au fluide de forage pour remonter les ®clats de roches (cuttings) que lôon peut alors observer et ®tudier en surface. Ce fluide est mis dans un circuit ferm® lors du forage avec un bac de r®tention. Lorsque la campagne de forage sôarr° te, cette boue peut ° tre mise en d®charge de type inertes du BTP (classe 3) sauf cas particulier de souillure (sans raison a priori sauf cas accidentel). Le volume de boue d®pend de la longueur du forage (environ 0,00785 m^3/ml soit 7 ¨ 8 m^3 pour 1000 m). La sondeuse utilis®e, que lôon soit en destructif (cuttings) ou en carott®, peut ° tre sur une remorque l®g¯re, un outil chenill® ou un camion adapt® de classe 12 ¨ 20 t environ. Il peut ° tre accompagn® dôun petit camion-citerne (ou dôune remorque ç tonne ¨ eau è), dôune camionnette de service et dôun ç parc ¨ tubes rallonges è pour permettre le forage. La ç zone vie è des foreurs (baraque de chantier, toilettes chimiques, camionnette dôaccompagnement) nôaccompagne pas la sondeuse en tous points mais peut ° tre stabilis®e sur une zone ¨ distance raisonnable du chantier mobile.

La dur®e du chantier, par sondage, est de lôordre de la semaine en moyenne (pose et d®pose incluses). Ce temps de sondage, hors incidents, sera un peu plus long pour aller ¨ 1000 m, ou au contraire plus court si le sondage stoppe ¨ 50 m. Le carottage demande parfois un peu plus de temps du fait de la manutention des carottes.

D®pendant de facteurs multiples, tels que les intemp®ries et la vitesse dôavancement des travaux, la pr®paration du site ne devrait pas durer plus dôune journ®e pour les travaux relatifs ¨ un site de sondage dans les cas o½ils sont utiles. Cette p®riode pr®c¯de la phase de forage et il sôagit essentiellement dôinstaller les infrastructures n®cessaires sa r®alisation. Autant que possible, des entreprises locales seront sollicit®es pour ces travaux, ainsi que pour la maintenance de lô®quipement et son stockage.

Programme des travaux :

- Construction des voies dôacc¯s. Leur prise en compte sera associ®e ¨ la d®claration de travaux correspondante et donc soumise en pr®fecture

- Pr®paration des plateformes. Pour les m° mes raisons que pr®c®demment, et dans la mesure o½cô est n®cessaire, la r®alisation dôune plateforme pour installer le mat®riel de sondage et le bassin de r®ception des eaux de forage, leur examen sera fait dans le cadre de la demande de travaux correspondante.

Avant lôabandon du (des) site(s) , il sera (seront) remis dans son ®tat initial.

Pr®cautions de s®curit® sur le site de forage externe

- *Lôacc¯s*
  La conception du site est faite de mani¯re ¨ restreindre lôacc¯s au personnel autoris®, lôacc¯s du public en ®tant formellement interdit. Le site sera cl¹tur® et surveill® par un agent 24 heures sur 24

- *Isolement du chantier du milieu environnant*
  Lôemplacement du site de forage sera d®termin® avec lôassurance que celui-ci ne puisse °tre inond® suite ¨ des mauvaises conditions m®t®orologiques pouvant causer le d®bordement dôun cours dôeau. Le site de forage sera con- u de telle mani¯re ¨ ce que lôexc®dent dôeau remontant ¨ la surface ne soit pas pris au pi¯ge par les puits de forage. Ces pr®cautions visent ¨ prot®ger lôenvironnement imm®diat de toute contamination qui serait cr®®e par lôinondation du site

- Traitement et rejet des d®chets de forage : suivant les techniques de forage utilis®es, le traitement et la surveillance des effluents liquides et solides seront effectu®s en utilisant les techniques impos®es (ou recommand®es) par les autorit®s administratives comp®tentes.
  Durant les op®rations de forage, lôinstallation comportera un circuit de boue ferm® ®vitant tout contact avec lôenvironnement ext®rieur. Des filtres ¨ poussi¯res et un arrosage seront install®s sur les machines de forages.
  En fin dôop®ration, les mati¯res rocheuses (cuttings non pr®serv® issus du trou) et ciment seront utilis®es pour combler le trou.
  Au cas fort peu probable o½des mati¯res polluantes seraient g®n®r®es, la soci®t® ferait appel ¨ des entreprises locales de traitement de d®chets

- Fin de forage : tout forage abandonn® sera scell®, et le site entier r®habilit®, suivant les dispositions r®glementaires. Tous les d®chets provenant du site seront enlev®s, d®truits ou trait®s suivant les normes r®glementaires.

- Dispositions r¯glementaires applicables aux sondages : pr®alablement ¨ son ex®cution, tout sondage qui serait r®alis® dans le cadre du p®rim¯tre du PERM ç COUFLENSè fera obligatoirement lôobjet de la d®claration dôouverture de travaux miniers prescrits par le D®cret 2006-649 du 2 juin 2006.

ANNEXE 7c : donn®es socio-®conomiques

Les donn®es socio-®conomiques de la commune de Couflens font apparaitre la liste ci-apr¯s dâactivit®s..

Synth¯se des donn®es socio-®conomiques par commune (Source INSEE janvier 2013)

Commune de Couflens (09100)

Zonage	Code	Nom	Chiffres clés
Commune	09100	Couflens	
Zonage en aires urbaines 2010	000	**Communes isolées hors influence des pôles**	
Bassin de vie 2012	09261	**Saint-Girons**	
Département	09	**Ariège**	
Établissement public de coopération intercommunale	240900357	**Canton d'Oust**	
Région	73	**Midi-Pyrénées**	
Unité urbaine 2010		Sans objet	
Zone d'emploi 2010	7302	**Saint-Girons**	

Couflens (09100 - Commune)
Zone de comparaison : Ariège (09 - Département)
Chiffres clés

Résumé statistique

Mise à jour le 31 janvier 2013

Géographie au 01/01/2011

Population	Territoire	Zone de comparaison
Population en 2009	83	151 117
Densité de la population (nombre d'habitants au km²) en 2009	1,5	30,9
Superficie (en km²)	56,3	4 889,9
Variation de la population : taux annuel moyen entre 1999 et 2009, en %	2,8	1,0
dont variation due au solde naturel : taux annuel moyen entre 1999 et 2009, en %	*0,4*	*-0,3*
dont variation due au solde apparent des entrées sorties : taux annuel moyen entre 1999 et 2009, en %	*2,4*	*1,2*
Nombre de ménages en 2009	51	67 858

Sources : Insee, RP2009 et RP1999 exploitations principales.

Naissances domiciliées en 2011	0	1 404
Décès domiciliés en 2011	1	1 672

Source : Insee, état civil

Logement	Territoire	Zone de comparaison
Nombre total de logements en 2009	282	101 698
Part des résidences principales en 2009, en %	18,2	66,7
des résidences secondaires (y compris les logements occasionnels) en 2009, en %	80,1	25,1
des logements vacants en 2009, en %	1,8	8,2
Part des ménages propriétaires de leur résidence principale en 2009, en %	76,0	66,5

Source : Insee, RP2009 exploitation principale.

Revenus	Territoire	Zone de comparaison
Revenu net déclaré moyen par foyer fiscal en 2009, en euros (1)	12 326	18 352
Foyers fiscaux imposables en % de l'ensemble des foyers fiscaux en 2009 (1)	33,3	44,6
Médiane du revenu fiscal des ménages par unité de consommation en 2010, en euros (2)	0	16 584

Sources : *(1) DGFiP, Impôt sur le revenu des personnes physiques.*
(2) Insee - DGFiP, Revenus fiscaux localisés des ménages.

Emploi - Chômage	Territoire	Zone de comparaison
Emploi total (salarié et non salarié) au lieu de travail en 2009	16	55 081
dont part de l'emploi salarié au lieu de travail en 2009, en %	*37,4*	*81,7*
Variation de l'emploi total au lieu de travail : taux annuel moyen entre 1999 et 2009, en %	2,3	1,5
Taux d'activité des 15 à 64 ans en 2009	66,7	70,3
Taux de chômage des 15 à 64 ans en 2009	2,8	12,6

Sources : Insee, RP2009 et RP1999 exploitations principales.

Nombre de demandeurs d'emploi de catégorie ABC au 31 décembre 2011 (1)	7	11 360
dont demandeurs d'emploi de catégorie A au 31 décembre 2011	*c*	*7 816*

c : information(s) soumise(s) au secret statistique

Source : *(1) Pôle emploi, Dares, Statistiques du marché du travail.*

RP : Recensement de la population

© Insee

Couflens (09100 - Commune)

Chiffres clés

Évolution et structure de la population

Mise à jour le 28 juin 2012

Géographie au 01/01/2011

POP T1M - Population

	1968	1975	1982	1990	1999	2009
Population	113	371	262	70	63	83
Densité moyenne (hab/km2)	2,0	6,6	4,7	1,2	1,1	1,5

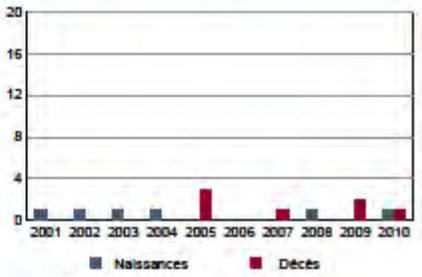
Sources : Insee, RP1968 à 1999 dénombrements - RP1999 et RP2009 exploitations principales.

POP T2M - Indicateurs démographiques

	1968 à 1975	1975 à 1982	1982 à 1990	1990 à 1999	1999 à 2009
Variation annuelle moyenne de la population en %	+18,6	-4,8	-15,2	-1,2	+2,8
- due au solde naturel en %	+1,9	+1,0	+0,9	-1,7	+0,4
- due au solde apparent des entrées sorties en %	+16,7	-5,8	-16,1	+0,5	+2,4
Taux de natalité en ‰	27,4	15,5	18,2	1,7	9,8
Taux de mortalité en ‰	8,6	5,8	9,5	18,3	5,6

Sources : Insee, RP1968 à 1999 dénombrements - RP1999 et RP2009 exploitations principales - État civil.

POP G1 - Naissances et décès



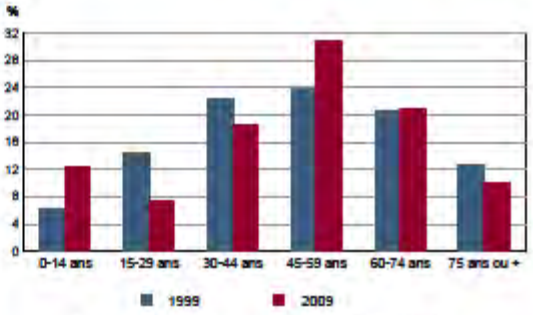
Source : Insee, État civil

POP T3 - Population par sexe et âge en 2009

	Hommes	%	Femmes	%
Ensemble	**50**	**100,0**	**33**	**100,0**
0 à 14 ans	7	14,3	3	9,4
15 à 29 ans	4	8,2	2	6,3
30 à 44 ans	5	10,2	10	31,3
45 à 59 ans	15	30,6	10	31,3
60 à 74 ans	15	30,6	2	6,3
75 à 89 ans	3	6,1	5	15,6
90 ans ou plus	0	0,0	0	0,0
0 à 19 ans	9	18,4	4	12,5
20 à 64 ans	31	61,2	22	68,6
65 ans ou plus	10	20,4	7	21,9

Source : Insee, RP2009 exploitation principale.

POP G2 - Population par grande tranche d'âge



Sources : Insee, RP1999 et RP2009 exploitations principales.

POP T4M - Lieu de résidence 5 ans auparavant

Personne de 6 ans ou plus habitant 6 ans auparavant :	2009	%
Le même logement	Données non disponibles suite à changement de questionnaire	
Un autre logement de la même commune		
Une autre commune du même département		
Un autre département de la même région		
Une autre région de France métropolitaine		
Un DOM		
Hors de France métropolitaine ou d'un DOM		

Source : Insee, RP2009 exploitation principale.

POP G3 - Part en 2009 des personnes qui résidaient dans un autre logement 5 ans auparavant selon l'âge

Données non disponibles suite à changement de questionnaire

RP : Recensement de la population

© Insee

Population et urbanisation

Toute intrusion sur une propri®t® ne sera effectu®e qu'apr¯s avoir obtenu l'autorisation pr®alable du ou des propri®taires concern®s, qui seront indemnis®s pour les ®ventuelles nuisances caus®es (immobilisation des terrains, remises en ®tat, etcé) ainsi que les utilisateurs du sol (affermages).

La population sera ®galement inform®e des campagnes de g®ophysique a®roport®e et h®liport®es, dans la mesure o½elles sont autoris®es, qui peuvent susciter des interrogations, voire des craintes, par le caract¯re ç spectaculaire è de certains capteurs comme celui de l'HELITEM (cf. annexe 5).

Vie ®conomique ï phase exploration

Le projet d'exploration am¯nera un investissement direct sur la connaissance du sol et du sous-sol (notamment g®ochimie de certains sols et si mesures g®ophysiques, identification possible de structures capacitives pour aquif¯re fissural local). Les donn®es recueillies par Variscan Mines seront remises aux administrations concern®es et seront utilisables (usage public) dans divers domaines comme la gestion et le contr¹le des eaux souterraines et de surface, l'am®nagement du territoire et l'agriculture.
Par ailleurs, Variscan Mines s'engage ¨ utiliser des entreprises locales pour les travaux publics et la maintenance. Ce projet de recherches pourrait aboutir ¨ une activit®¨ long terme, sous la forme d'exploitation d'une mine souterraine profonde de m®taux qui conduirait ¨ la cr®ation de plusieurs centaines d'emplois ¨ longue dur®e.

Agriculture

Aucun impact n®gatif sur l'activit® agricole de la r®gion n'est envisag®, ¨ part l'intrusion physique dans certains champs, avec accord pr®alable des propri®taires et usagers concern®s. Ces impacts feront l'objet d'une autorisation de passage et une compensation, en cas et ¨ hauteur du pr®judice subi, aupr¯s des propri®taires concern®s.

P° che

Aucun impact n®gatif n'est envisag®sur la p° che, les travaux d'exploration se situant y compris en cas de remont®e des eaux souterraines ¨ la surface du fait d'une ®ventuelle sortie d'eau fissurale locale lors d'un forage ¨ la travers®e d'une fissure ¨ faible profondeur de la surface du sol. Dans un tel cas, le forage sera tub® et ®tanch®if® avant d'¯tre poursuivi.

Industrie

Si une partie des mat®riaux n®cessaires ¨ l'op®ration sont disponibles r®gionalement, leur choix sera pr®f®r®a tout autre fournisseur dans la mesure des r¯gles de juste concurrence.

Transports

Ce projet de recherche mini¯re n'aura aucun impact sur l'industrie des transports.

Installations pr®sentant un p®rim¯tre de protection

En dehors d'un b©timent achet® ou lou® pour installer les bureaux de l'op®ration et un lieu de stockage adapt® pour les ®chantillons et carottes, aucune construction permanente n'est pr®vue pour le projet de recherche lors de cette phase d'exploration, les b©timents et installations ®ventuelles (forage) seront plut¹t de type modulaire et transportable. Les sites de forages et de traitement seront con- us de mani¯re ¨ minimiser l'impact sur l'environnement.

Les sites de forages ne seront accessibles quaux personnes autoris®es, et tout acc¯s du public en sera formellement interdit, comme pour tout chantier de type ç BTP è.

Installations militaires

Ce projet naa aucun impact sur les installations militaires de la r®gion.

Tourisme

Ce projet naaura aucun impact sur les installations touristiques de la r®gion.

£tat du sol

On soulignera que le site BASIAS sera consult® lors des sondages pour ®viter tout sondage dœexploration sur un site sensible non reconnu.

La notice dœimpact et la notice dœincidence Natura 2000 ci-apr¯s correspondent ¨ lœensemble des travaux dœexploration projet®s. Ces deux documents fournissent lœ®tat des donn®es publi®es par les services de lœEtat en mati¯re dœenvironnement (*s.l.*). Ils ne pr®sument pas des suites ult®rieures au PERM, quelles quœelles soient.

ANNEXE 7d : notice dômpact du PERM ç Couflens è - MINELIS É

ANNEXE 7e : notice dôncidence NATURA 2000 du PERM ç Couflens è - MINELIS É

16, rue Léonard de Vinci
45 074 ORLEANS CEDEX 2

Permis Exclusif de Recherche de Couflens

MINELIS	Variscan Mines - Couflens - Notice d'impact	VAR-COU-a-1404	27/11/2014

Permis Exclusif de Recherche de Mines de Couflens

Notice d'impact

Date	Version	Corrections	Auteur	Relecture
21/08/2014	2	Seconde version publiée	D.DESRAY	M.LOMBARD / L.MEVEL
17/07/2014	1	Première version publiée	D.DESRAY	M.LOMBARD / L.MEVEL

PREAMBULE

Le présent rapport est rédigé à l'usage exclusif du client et est conforme à la proposition commerciale de MINELIS. Il est établi au vu des informations fournies à MINELIS et des connaissances techniques, réglementaires et scientifiques connues au jour de la commande. Les données issues de l'administration française ont été récupérées par MINELIS en avril 2014. La responsabilité de MINELIS ne peut être engagée si le client lui a transmis des informations erronées ou incomplètes.

Toute utilisation partielle ou inappropriée des données contenues dans ce rapport, ou toute interprétation dépassant les conclusions émises, ne saurait engager la responsabilité de MINELIS.

N.B. : L'étude d'incidence Natura 2000 mentionnée dans le ce dossier fait l'objet d'un rapport distinct sous la référence « VAR-COU-b-1404 ».

LISTE DES ACRONYMES

AEAG	Agence de l'Eau Adour-Garonne
AEP	Alimentation en Eau Potable
APPB	Arrêté Préfectoral de Protection de Biotope
ARS	Agence Régionale de Santé
BASIAS	Base de données des Anciens Sites Industriels et Activités de Services
BRGM	Bureau de Recherches Géologiques et Minières
BSS	Banque de données du Sous-Sol
BTP	Bâtiment et Travaux Publics
CATNAT	Catastrophe Naturelle (Arrêté de reconnaissance de)
CNRS	Centre National de la Recherche Scientifique
DDRM	Dossier Départemental des Risques Majeurs
DTA	Directive Territoriale d'Aménagement
DTADD	Directive Territoriale d'Aménagement et de Développement Durables
ENS	Espaces Naturels Sensibles
HT / THT	Haute Tension / Très Haute Tension
ICPE	Installation Classée pour la Protection de l'Environnement
IGN	Institut Géographique National
IGPC	Inventaire Général du Patrimoine Culturel
INRAP	Institut National de Recherches Archéologiques Préventives
INSEE	Institut National de la Statistique et des Etudes Economiques
MH	Monument Historique
MNHN	Muséum National d'Histoire Naturelle
MNT	Modèle Numérique de Terrain
OGS	Opération Grand Site
ONZH	Observatoire National des Zones Humides
PERM	Permis Exclusif de Recherche de Mines
PLU	Plan Local d'Urbanisme
PNR	Parc Naturel Régional
PPR	Plan de Prévention des Risques
RNN / RNV	Réserve Naturelle Nationale / Volontaire
RPG	Registre Parcellaire Graphique
SAGE	Schéma d'Aménagement et de Gestion des Eaux
SAU	Superficie Agricole Utilisée
SCoT	Schéma de Cohérence Territoriale
SDAGE	Schéma Directeur d'Aménagement et de Gestion des Eaux
SI / SC	Site Inscrit / Site Classé
SIC	Site d'Importance Communautaire
UNESCO	Organisation des Nations Unies pour l'Education, la Science et la Culture
VLF	Very Low Frequency
VNF	Voies Navigables de France
ZICO	Zone Importante pour la Conservation des Oiseaux
ZNIEFF	Zone Naturelle d'Intérêt Ecologique, Faunistique et Floristique
ZPPAUP	Zone de Protection du Patrimoine Architectural, Urbain et Paysager
ZPS	Zone de Protection Spéciale
ZSC	Zone Spéciale de Conservation

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Introduction

La Société VARISCAN MINES sollicite l'octroi d'un permis exclusif de recherche de mines en application des dispositions des décrets n°2006-648 et n°2006-649 modifiés du 2 juin 2006 relatifs aux Titres Miniers et aux Titres de Stockage Souterrain. Le décret n°2011-2019 du 29 décembre 2011 apporte une nouvelle règlementation des études d'impact applicable au 1er juin 2012 et en définit le contenu.

La présente notice d'impact a pour objectif de proposer :

- une description du projet ;
- une analyse de l'état initial de la zone et des milieux susceptibles d'être affectés par le projet ;
- une analyse des effets négatifs et positifs, directs et indirects, temporaires et permanents, à court, moyen et long terme, du projet sur l'environnement ;
- une analyse des effets cumulés du projet avec d'autres projets connus ;
- une esquisse des principales solutions de substitution examinées par le pétitionnaire ou le maître d'ouvrage et les raisons pour lesquelles le projet a été retenu ;
- une appréciation de la compatibilité du projet avec l'affectation des sols définie par le document d'urbanisme ;
- une énumération des effets négatifs du projet sur l'environnement ou la santé humaine, des réductions d'effets n'ayant pu être évités et des compensations apportées le cas échéant ;
- une présentation des méthodes utilisées pour établir l'état initial et évaluer les effets du projet sur l'environnement ;
- une description des difficultés éventuelles pour réaliser cette étude ;
- la liste des noms et qualités précises des auteurs de l'étude d'impact et des études qui ont contribué à sa réalisation ;
- mention de l'étude de maîtrise des risques pour les installations nucléaires de base ou de l'étude des dangers pour les installations classées pour la protection de l'environnement ;
- une appréciation des impacts de l'ensemble du programme dans le temps.

1 R®sum®non technique

La société VARISCAN MINES, SASU au capital de 1 800 000€, sise 16 rue Léonard de Vinci, 45074 Orléans Cedex 2, représentée par son président Monsieur Jack Testard et son directeur général Monsieur Michel Bonnemaison, sollicite l'octroi d'un permis exclusif de recherche de mines d'une superficie de 42 km^2 portant intégralement sur la commune de Couflens (département de l'Ariège). Les éléments et substances faisant l'objet de la demande sont les suivants : tungstène, étain, or, argent, cuivre, plomb, zinc, germanium, indium, ainsi que leurs substances connexes. Le permis de recherche est sollicité pour une durée de cinq années renouvelables et pourrait prendre le nom de « Permis de Couflens ».

- **Description des travaux**

Les travaux envisagés pendant ces cinq années se déclinent en l'installation d'une base opérationnelle de type bureau et magasin de stockage d'échantillons (lithothèque), des études géologiques préliminaires, des travaux de géochimie, de géophysique, d'éventuelles tranchées d'exploration, et enfin des sondages.

L'installation d'une base opérationnelle se limite à l'achat et l'aménagement d'un bâtiment adapté aux besoins.

Les études géologiques consistent principalement en un travail de bureau (recherches bibliographiques et constitution d'une base de données informatique de représentation spatiale), qui peut être complété par une visite sur le terrain pour prélèvement de roches (avec un marteau de géologue) et mesure avec un appareil portatif à fluorescence X.

Les travaux de géochimie consistent en des prélèvements d'échantillons de sol par tarière à main. VARISCAN MINES veillera à obtenir les autorisations d'accès nécessaires auprès des propriétaires. De plus, ces prélèvements seront effectués dans le respect de l'environnement et des cultures.

En ce qui concerne les travaux de géophysique, une campagne aéroportée de magnétométrie, de scintillométrie et de gravimétrie potentielle sera réalisée. La campagne aéroportée a pour but de mesurer les variations du champ magnétique terrestre et la radioactivité naturelle en U, Th et K^{40} à l'aide de capteurs fixés sur un petit avion de tourisme volant à au moins 40 m du sol pour éviter tout risque de collision avec les arbres. Pour la campagne d'électromagnétisme héliportée, la technique HELITEM développée par le groupe FUGRO sera utilisée.

La réalisation de tranchées n'est a priori pas prévue dans la mesure où les modèles de genèse du gisement sont incompatibles avec la formation d'un chapeau de fer. Toutefois, si des tranchées devaient être creusées, celles-ci seront courtes (de l'ordre de 10 à 50 m environ par tronçon, localement plus), même si elles sont multiples et adaptées aux contraintes du terrain. Leur but est de voir les terrains que l'on ne voit pas au sol directement, d'observer les roches en place (sous le sol et les formations superficielles)

puis de compléter ou d'orienter les travaux de sondages. Elles ne seront réalisées que dans les zones où les minéralisations recherchées sont très proches de la surface ou affleurent sous la terre végétale et les formations superficielles.
La profondeur des tranchées n'excédera pas 1,3 m et sera plutôt de l'ordre de 1 m de profondeur. Il est à ce stade impossible de prédire leur quantité puisque ce sont les travaux préliminaires de reconnaissance qui vont en déterminer la localisation et la densité. Elles seront limitées à certaines zones du site dont les éléments intéressant la compréhension du gisement seront proches de la surface. Il semble réaliste de proposer que leur longueur cumulée sera très inférieure à 20 000 ml (soit moins de 20 000 m^3 – 7000 à 10 000 t environ). La terre végétale sera séparée du reste des terrains mobilisés et les tranchées seront refermées au fur et à mesure, dès les levés d'observations réalisés. Il n'y aura pas de transport des terrains excavés.

Enfin, des sondages sont prévus pour avoir une connaissance précise du sous-sol. Les travaux de sondages se décomposent en trois stades : des travaux d'accès et d'aménagement de la plateforme de forage, les forages en eux-mêmes et la remise en état du terrain et repli du matériel.
La profondeur des sondages sera adaptée à la nature des terrains traversés. L'objectif est de traverser la structure minéralisée à une profondeur compatible avec une exploitation. Il est donc difficile de préciser avant travaux un maximum réel qui peut s'échelonner de 15 – 20 m à plus de 1 000 m de profondeur. La profondeur moyenne des sondages sera de 250 à 500 m. Toutefois, il est sûr que les sondages ne descendront pas au-delà de 1 500 m de profondeur.
La durée de ces travaux peut être de quelques jours à 2 ou 3 semaines en cas de sondages multiples à partir d'une même plateforme. A titre indicatif, ce type d'installation peut tenir sur un carré de 10 x 10 m.

- **Situation géographique**

Le périmètre du PERM COUFLENS se situe au nord de la frontière espagnole, centré sur la commune montagnarde de Couflens, sur les terrains métasédimentaires siluro-dévoniens (Paléozoïque) de la zone axiale pyrénéenne.

Les nappes souterraines dans ce contexte de socle en montagne ne sont en réalité que des résurgences de fractures (aquifères fissuraux) de faible importance. L'essentiel de la ressource en eau provient de la fonte des neiges, directement depuis le réseau hydrographique.

Ce dernier s'organise principalement autour du Salat qui prend sa source à la frontière espagnole, en amont du hameau de Salau (pic de Bassibié, Mont Rouch), et traverse l'ensemble du PERM du sud vers le nord avant de se jeter dans la Garonne en rive droite à Roquefort-sur-Garonne après environ 75 km de course.

Le référentiel européen d'occupation des sols « Corine Land Cover » indique un environnement essentiellement dominé par la forêt et des espaces ouverts de prairies et pelouses de montagne. Les activités agricoles sont donc très largement tournées vers l'élevage. Les espaces forestiers sont caractéristiques des massifs de montagne, incluant

une grande proportion de résineux, mais pas exclusivement (Forêt domaniale de Seix, Forêt de la Fonta, Forêt de Rouzé, et tous les nombreux bois associés).

Le périmètre du PERM COUFLENS est inclus dans des zones naturelles d'intérêt écologique, faunistique et floristique (ZNIEFF) de types 1 et 2, ainsi que dans le Parc Naturel Régional des Pyrénées Ariégeoises. Une zone Natura 2000 jouxte la bordure ouest du PERM. Ces différentes zones particulièrement sensibles seront prises en compte et même, dans la mesure du possible, évitées par les travaux de géochimie et par les forages.

- **Effets sur l'environnement**

Le projet peut avoir différents types d'effets sur l'environnement : des effets directs ou indirects, temporaires ou permanents, diffus, ponctuels ou cumulatifs avec d'autres projets.

Il n'existe aucun effet permanent (en dehors de la fracturation de quelques cailloux pour le prélèvement d'échantillons lors des études géologiques et la foration des couches géologiques lors d'un forage). Les autres effets liés aux travaux de recherche sont temporaires et consistent en la production de déchets de bureau pour l'installation d'une base opérationnelle, une perturbation mineure de la faune et de la flore lors du prélèvement d'échantillons pendant les études géologiques et géochimiques.

Les perturbations pour la faune et la flore peuvent cependant être plus importantes en cas de réalisation de tranchées et lors de l'aménagement de la plateforme de forage. Il faut néanmoins préciser que les superficies concernées demeurent limitées (tranchées de faible largeur et longueur, surface d'un chantier de forage de l'ordre de quelques centaines de m^2). De plus, les travaux de tranchées et de forages éviteront les bois et les zones protégées autant que possible.

Les atteintes au paysage et la consommation d'espace lors des travaux (éventuelles tranchées, aménagement de plateformes de sondages) seront temporaires et de courte durée. Parmi les autres effets temporaires figurent le bruit et les vibrations, la pollution de l'air (poussières, odeurs), et l'effet indirect de la participation à l'effet de serre dû à l'utilisation d'un petit avion et d'un hélicoptère lors des travaux de géophysique aéroportés, ainsi que l'utilisation des engins de chantier qui peuvent être aussi à l'origine d'émissions de poussières dans le cas des tranchées d'exploration, des travaux d'aménagement des plateformes des sondages. En résumé, les techniques utilisées restent peu invasives, de durée limitée dans le temps et sans impact permanent.

Quant à l'impact des forages sur les nappes souterraines, la géologie de la zone d'étude est peu propice à la présence d'aquifères de taille importante. En effet, les nappes phréatiques en zones de socle sont très souvent liées au réseau hydrographique de surface et donc d'extension et de volume très limités. Ces aquifères sont dits fissuraux car l'eau circule dans les anfractuosités de la roche fracturée et altérée (essentiellement à faible profondeur). Les périmètres de protection des captages d'alimentation en eau potable (AEP) seront proscrits, ainsi que les alluvions du lit mineur des principales

rivières. Par ailleurs, la cimentation étanche des forages après récupération des données évitera toute percolation des eaux en profondeur par l'orifice du sondage. Si un forage devait potentiellement traverser une nappe, il sera envisagé de réaliser un tubage à l'avancement pour rendre étanche la partie du forage traversant l'aquifère. L'impact potentiel du projet sur les eaux souterraines peut donc être considéré comme très faible voire nul.

Une solution de substitution envisagée serait d'entreprendre des travaux de géologie de terrain détaillés à la place des travaux de géophysique initialement prévus. Cette solution n'a toutefois pas été retenue en raison de la superficie importante du périmètre d'étude (42 km^2) et de la perte d'informations capitales pour ce type de projet. En effet, les travaux de géophysique permettent de préciser et de valider l'extension verticale de ce qui est observé en surface par les techniques classiques de la géologie de terrain. Ces deux types d'investigations sont donc nécessaires et complémentaires. D'autre part, il n'y a pas de solution de substitution connue destinée à remplacer les forages et approfondir la connaissance géologique en profondeur.

Afin d'obtenir ce permis et d'effectuer les travaux de recherche, il est nécessaire de réaliser une notice d'impact qui expose donc de façon détaillée les tenants et aboutissants du projet. Elle servira de base pour la future étude d'impact qui sera établie préalablement au démarrage de tout éventuel projet minier.

2 Description du projet

2.1 Situation des travaux

Le PERM COUFLENS est situé dans le département de l'Ariège (09), au sud-ouest de la ville de Foix, centré sur la commune de Couflens, en bordure de la frontière espagnole (cf. **Figure 1**). Il couvre une surface de 42 km^2, à l'intérieur d'un bloc délimité par les lignes joignant les sommets A, B, C, D, E, F et G ci-dessous (cf. **Tableau 1** et **Figure 2**).

Sommet	Coordonnées en Projection Lambert 93		Cote
	X (m)	Y (m)	Z (m NGF)
A	547050	6185300	2440
B	550250	6188800	920
C	551900	6188800	970
D	554400	6186350	2050
E	554500	6182800	2320
F	550000	6181000	2580
G	547250	6182700	2380

Tableau 1 : Coordonnées des points délimitant le périmètre du PERM COUFLENS

Le polygone d'application du PERM s'inscrit à l'intérieur du périmètre de la commune de Couflens.



Figure 1 : Localisation du PERM COUFLENS dans son contexte départemental (source : Géoportail)

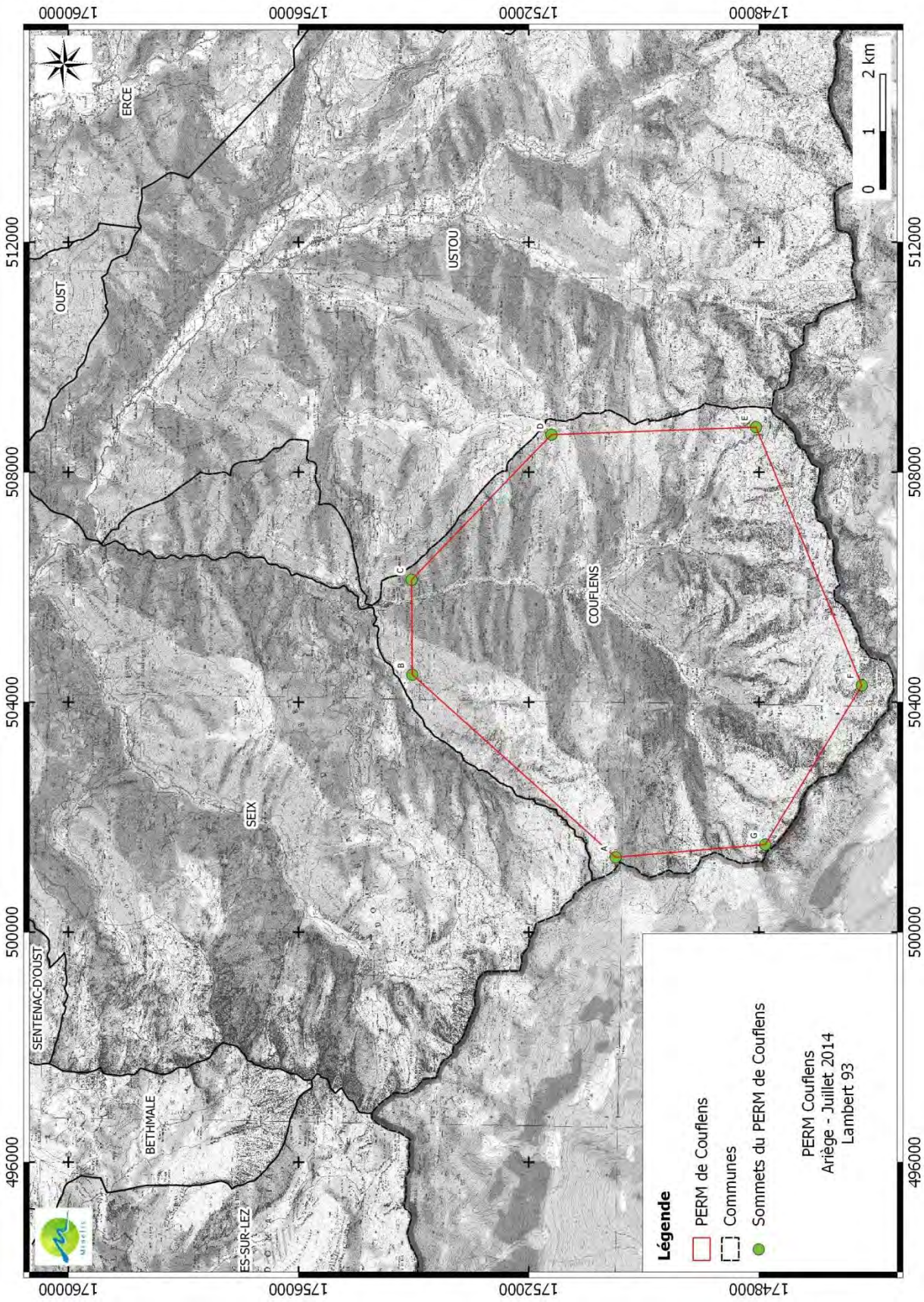


Figure 2 : Carte de localisation du PERM COUFLENS

2.2 Installation dûne base op®rationnelle

VARISCAN MINES achètera un bâtiment adapté et un terrain suffisant pour aménager des locaux techniques et mener à bien l'ensemble du projet sur les cinq années imparties. L'impact environnemental de l'installation d'une base opérationnelle se limitera à celui de l'aménagement d'un bâtiment pour installation de bureaux et d'un magasin de stockage pour l'organisation d'une lithothèque (banque de stockage des échantillons de roche, carottes de sondage, etc.).

2.3 Etudes g®ologiques

La partie préliminaire consiste à réaliser une synthèse des données antérieures par recherches bibliographiques et création d'une base de données informatique de représentation spatiale.

Le travail en bureau peut être complété par une vérification sur le terrain (simple visite sur le terrain, prélèvements d'échantillons, analyses Niton). Les géologues en charge des études veilleront à obtenir toutes les autorisations requises avant toute intervention dans les propriétés privées.

2.4 Travaux de g®ochimie

Les études géochimiques qui seront entreprises concerneront les contrôles au sol des anomalies géophysiques. De même que pour les études géologiques, les géologues en charge des études veilleront à obtenir toutes les autorisations requises avant toute intervention dans les propriétés privées.

Deux types de prélèvements sont prévus : les prélèvements de sols superficiels et éventuellement les prélèvements de sols profonds (2 à 5 m) par tarière à main. Ces prélèvements seront effectués dans le respect de l'environnement et des cultures.

<u>Pour les sols superficiels</u>

- En zone de prairie ou en sous-bois, l'échantillon sera prélevé à la base des racines. Une motte de 20 cm x 20 cm sera retirée à la pelle, puis environ 250 g de terre seront prélevés au fond du trou, et la motte herbeuse sera ensuite remise en place.
- En zone de labours, les échantillons seront directement prélevés à la surface des mottes ou en fond de sillon (suivant la profondeur des labours).

<u>Pour les sols profonds (2 à 5 m au maximum)</u>
Le prélèvement géochimique s'effectuera à la base des sols, dans la saprolite. Une tarière hélicoïdale à main sera utilisée, la faible profondeur à atteindre ne nécessitant pas la mise en œuvre de moyens mécaniques.

2.5 Travaux de g®ophysique

Ces travaux consisteront en :

- Une **campagne aéroportée de magnétométrie, de scintillométrie et de gravimétrie potentielle**. Cette technique consiste à réaliser des lignes de vol à partir d'un petit avion (éventuellement un hélicoptère) équipé de capteurs mesurant les variations du champ magnétique terrestre et la radioactivité naturelle U, Th et K^{40}. Les lignes de vol seront espacées de 100 m et le capteur embarqué évoluera à plus de 40 m du sol pour éviter tout risque de collision avec les arbres et lignes électriques. Pour couvrir la superficie de 42 km^2, le petit avion de tourisme effectuera des lignes de vol selon un maillage précis de manière. Cette technique ne provoque aucune nuisance, si ce n'est le bruit causé par le petit avion de tourisme. Toutefois, une campagne d'information sera menée dans les communes concernées par le PERM COUFLENS et dans les médias pour ne pas que la population soit surprise de voir un avion faire de nombreux passages à faible altitude.

- Une **campagne d'électromagnétisme héliporté HELITEM**[1]. Cette technique consiste à réaliser des lignes de vol à partir d'un hélicoptère AS 350 B de l'Aérospatiale équipé d'une boucle d'émission de champ électromagnétique et d'un capteur pour en mesurer les variations liées à la nature des roches survolées. De même que précédemment, cette technique ne provoque aucune nuisance si ce n'est la brève nuisance sonore liée au survol de l'hélicoptère. Une campagne d'information sera également menée dans les communes concernées par le PERM COUFLENS et dans les medias car le caractère spectaculaire de la boucle d'émission est susceptible de soulever de nombreuses interrogations.

- Un **contrôle au sol par magnétométrie et gravimétrie** des principales anomalies définies par les techniques aéroportées et héliportées. Ces mesures, effectuées à partir d'appareils portables de petite dimension (magnétomètre au Césium de type G-858 de Geometrics et petite station gravimétrique sur une grille de mesure de 200 x 50 m) et qui s'apparentent aux travaux de géologie, ne présentent aucun impact environnemental. Les géophysiciens impliqués veilleront à obtenir toutes les autorisations requises avant toute intervention dans les propriétés privées.

[1] http://www.fugroairborne.com/services/geophysicalservices/bysurvey/electromagnetics/helicopter-electromagnetic/helitem

2.6 Tranchées d'exploration

Les travaux éventuellement envisagés peuvent s'apparenter à de petits travaux publics et consistent à creuser des tranchées perpendiculairement aux structures minéralisées affleurantes afin de permettre leur localisation précise et leur échantillonnage. La profondeur maximale ne doit pas excéder 1,30 m afin de satisfaire à la législation relative aux travaux publics (articles 66, 67, 68, 70, 71, 72, 74 et 77 du décret du 8 janvier 1965 modifié intitulé « travaux de terrassement à ciel ouvert »).

Lors de leur réalisation, la terre végétale sera stockée séparément de la partie plus profonde. Les tranchées seront rebouchées aussitôt réalisés le levé géologique et l'échantillonnage. La terre végétale sera remise en place, limitant au strict minimum l'impact environnemental de leur ouverture.

La réalisation de ces tranchées implique l'amenée d'une pelle hydraulique et l'immobilisation pour plusieurs jours d'une partie des terrains concernés (le temps de leur étude). Ces tranchées seront signalées et balisées afin d'éviter toute chute accidentelle et ne seront réalisées qu'avec l'accord formel du propriétaire du terrain. Elles feront systématiquement l'objet d'un contrat d'indemnisation pour la gêne causée.

Par ailleurs, le chantier sera surveillé en permanence et interdit au personnel non autorisé.

2.7 Sondages

Les travaux envisagés peuvent se décomposer en trois stades : des travaux d'accès, d'aménagement et de déploiement du matériel (1 jour), les travaux de forage proprement dits d'une durée de quelques jours à deux ou trois semaines (à la vitesse approximative de 100 m par jour) et la remise en état du terrain et le repli du matériel (1 jour). Ces durées sont données à titre indicatif pour un sondage type. Le temps de sondage, hors incidents, est dépendant de la profondeur finale à atteindre. Il sera donc un peu plus long pour forer à 1 000 m, ou au contraire plus court si le sondage est arrêté à 50 m. Le carottage demande parfois un peu plus de temps du fait de la manutention des carottes. Cependant, dans le cas de sondages multiples à partir d'une même plate-forme, la durée de sondage peut s'étendre à 2 ou 3 semaines. La profondeur des sondages sera adaptée à la nature des terrains. Ils pourront être de 15 à 20 m ou de plus de 1 000 m de profondeur. A titre indicatif, la profondeur moyenne des sondages est estimée être entre 250 et 500 m. Elle ne dépassera pas les 1 500 m de profondeur.

	Jour 1	Jour 2	Jour 3	Jour 4	Jour 5	Jour 6
Préparation et mise en place						
Réalisation des sondages						
Remise en état et replis						

Tableau 2 : Planning théorique d'un sondage-type (cas d'un sondage unique)

Diverses techniques de sondages seront utilisées :

- Les sondages destructifs par circulation inverse (RC) qui offrent l'avantage d'un coût plus réduit (80 à 100 € le mètre foré) et permettent un contrôle des déviations. Ces sondages seront utilisés prioritairement pour traverser les terrains encaissants correspondant aux cibles profondes. Pour donner une idée du matériel, sa taille est approximativement de 6 m de long sur 2,5 m de large et 3 m de haut avec un poids inférieur à 8 tonnes.



Figure 3 : Foreuse à circulation inverse



Figure 4 : Foreuse pour carottage

- Les sondages carottés HQ (diamètre 68 mm), plus coûteux (200 à 300 € le mètre foré), mais offrant une bien meilleure connaissance des minéralisations recoupées. La foreuse utilisée sera de petite taille.

Pour réaliser des sondages profonds, VARISCAN MINES utilisera la méthode destructive pour la première partie du trou et la méthode par carottage pour la fin du trou. De plus, plusieurs sondages carottés seront réalisés à partir du fond d'un même sondage destructif. Cette approche par sondages multiples volontairement déviés permet une réduction significative des coûts et de l'impact environnemental (réduction du métrage total foré pour une connaissance équivalente). Pour assurer une lubrification de l'outil de forage et une densité au fluide de forage pour remonter les éclats de roche qui seront étudiés en surface, une boue de forage de type bentonite (appelée aussi argile « gonflante » ou argiles de type 14-17 Å) sera utilisée. Ce fluide est mis dans un circuit fermé lors du forage avec un bac de rétention. Lorsque la campagne de forage s'arrête, cette boue peut être mise en décharge de type inertes du BTP (classe 3) sauf cas particulier de souillure (sans raison *a priori* sauf cas accidentel). Le volume de boue dépend de la longueur du forage (environ 0,00785 m^3/ml soit 7 à 8 m^3 pour 1 000 m).

Le forage sera initié en diamètre de 140 à 150 mm ce qui permettra d'instrumenter plus facilement les trous en avant-puits.

La position, la profondeur et le nombre de ces sondages dépendront bien évidemment des résultats des campagnes de géophysique qui seront réalisées en préalable.

La sondeuse utilisée pour sondages destructifs (cutting) ou carottés est montée suivant ses caractéristiques sur remorque légère, outil chenillé ou camion adapté de classe 12 à 20 tonnes environ. Elle peut être accompagnée d'un petit camion-citerne (ou d'une remorque « tonne à eau »), d'une camionnette de service et d'un « parc à tubes à rallonges» pour permettre le forage. La « zone vie » des foreurs (baraque de chantier, toilettes chimiques, camionnette d'accompagnement) n'accompagne pas la sondeuse en tous points mais peut être stabilisée sur un zone à distance raisonnable du chantier mobile.
Des barrières de type HERAS ou équivalent pourront être utilisées.
Une installation type d'une plateforme de forage est indiquée sur la **Figure 5**.

Les impacts liés aux forages seront analysés dans la partie 4 du présent rapport.

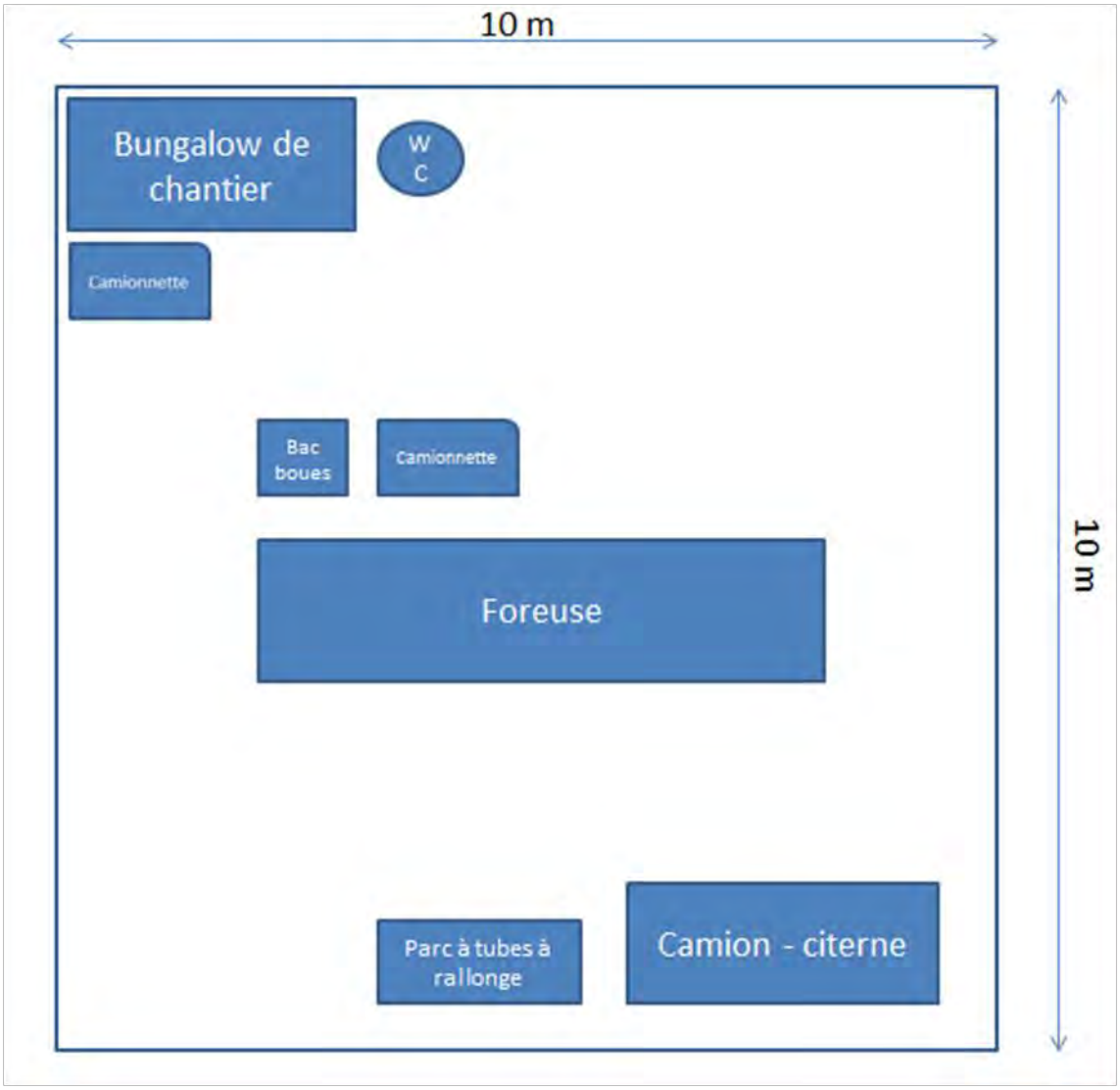


Figure 5 : Installation type d'une plateforme de forage

3 Etat initial

3.1 Contexte g®ographique g®n®ral

Le village de Couflens est situé à 30 km au sud de Saint-Girons, ville principale du Couserans, dans la partie occidentale du département de l'Ariège.

L'aire du PERM COUFLENS est positionnée autour de la vallée du haut Salat et du village de Salau.

La partie sud du PERM est adossée à la chaine axiale montagneuse des Pyrénées sur la frontière de l'Espagne représentée en cet endroit par les pic de Montaud, Pic de Bassibié, Mont Rouch et Cap de Ruhos dont les altitudes approchent ou dépassent les 2500 mètres. Les versants sont raides puisque les fonds de vallées, vers 1200 mètres, sont rarement à plus de 3 ou 4 kilomètres de la ligne de crête.

La partie nord du PERM descend jusqu'à l'entrée du village de Couflens autour de 700 mètres d'altitude.

Au sein du périmètre du PERM, le réseau hydrographique s'organise principalement autour du Salat qui prend naissance en aval de neuf sources situées à 6 kilomètres au sud du village de Salau, sur le flanc nord du Mont Rouch. L'orientation générale de son cours va du sud-est vers le nord-ouest.

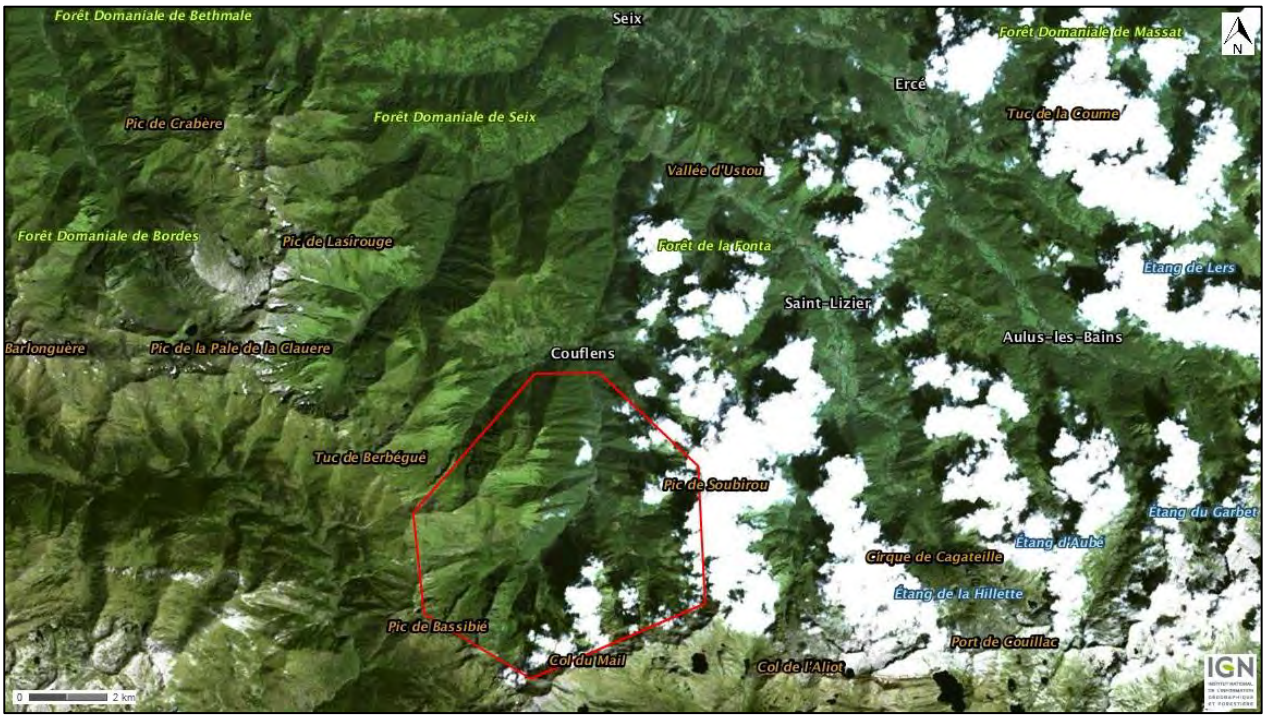


Figure 6 : Situation géographique du PERM COUFLENS (source : Géoportail)

Le référentiel européen d'occupation des sols « Corine Land Cover » indique un environnement montagnard de grands espaces ouverts sans ou avec peu de végétation, constitué au sud et à l'est par des roches nues, des falaises et des éboulis des pics de Soubirou, Cap de Ruhos, Mont Rouch et pic de Montaud. A une moindre altitude, on retrouve une végétation éparse, des pelouses et pâturages naturels, des herbages de faible productivité.

Une surface importante du PERM est couverte par une forêt de feuillus, principalement dans la haute vallée du Salat et de ses affluents. Au niveau du village de Salau, quelques petites surfaces agricoles entourent le lit du Salat (cf. **Figure 7**).

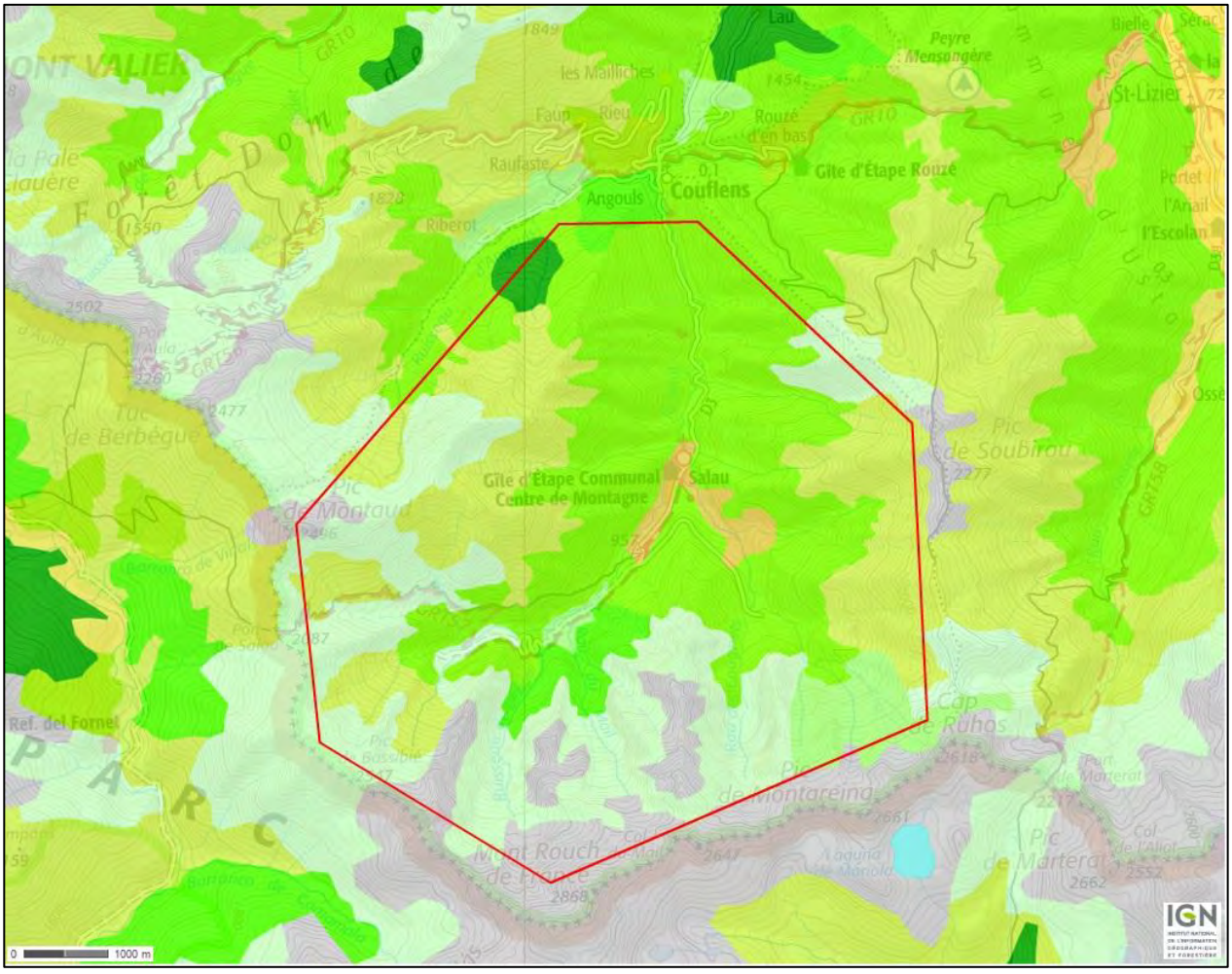


Figure 7 : Carte d'occupation des sols du PERM selon la nomenclature Corine Land Cover. Légende page suivante (Source : Géoportail)

1 Territoires artificialisés

1.1 Zones urbanisées

1.1.1 Tissu urbain continu
Espaces structurés par des bâtiments. Les bâtiments, la voirie et les surfaces artificiellement recouvertes couvrent la quasi-totalité du sol. La végétation non linéaire et le sol nu sont exceptionnels.

1.1.2 Tissu urbain discontinu
Espaces structurés par des bâtiments. Les bâtiments, la voirie et les surfaces artificiellement recouvertes coexistent avec des surfaces végétalisées et du sol nu, qui occupent de manière discontinue des surfaces non négligeables.

1.2 Zones industrielles ou commerciales et réseaux de communication

1.2.1 Zones industrielles ou commerciales
Zones recouvertes artificiellement (zones cimentées, goudronnées, asphaltées ou stabilisées : terre battue, par exemple), sans végétation occupant la majeure partie du sol. Ces zones comprennent aussi des bâtiments et / ou de la végétation.

1.2.2 Réseaux routier et ferroviaire et espaces associés
Autoroutes, voies ferrées, y compris les surfaces annexes (gares, quais, remblais). Largeur minimale prise en compte : 100 m.

1.2.3 Zones portuaires
Infrastructures des zones portuaires, y compris les quais, les chantiers navals et les ports de plaisance.

1.2.4 Aéroports
Infrastructures des aéroports : pistes, bâtiments et surfaces associées.

1.3 Mines, décharges et chantiers

1.3.1 Extraction de matériaux
Extraction de matériaux à ciel ouvert (sablières, carrières) ou d'autres matériaux (mines à ciel ouvert). Y compris gravières sous eau, à l'exception toutefois des extractions dans le lit des rivières.

1.3.2 Décharges
Décharges et dépôts des mines, des industries ou des collectivités publiques.

1.3.3 Chantiers
Espaces en construction, excavations et sols remaniés.

1.4 Espaces verts artificialisés, non agricoles

1.4.1 Espaces verts urbains
Espaces végétalisés inclus dans le tissu urbain. Y compris parcs urbains et cimetières avec végétation.

1.4.2 Equipements sportifs et de loisirs
Infrastructures des terrains de camping, des terrains de sport, des parcs de loisirs, des golfs, des hippodromes... y compris les parcs aménagés non inclus dans le tissu urbain.

3 Forêts et milieux semi-naturels

3.1 Forêts

3.1.1 Forêts de feuillus
Formations végétales principalement constituées par des arbres, mais aussi par des buissons et arbustes, où dominent les espèces forestières feuillues.

3.1.2 Forêts de conifères
Formations végétales principalement constituées par des arbres, mais aussi par des buissons et arbustes, où dominent les espèces forestières de conifères.

3.1.3 Forêts mélangées
Formations végétales principalement constituées par des arbres, mais aussi par des buissons et arbustes, où ni les feuillus ni les conifères ne dominent.

3.2 Milieux à végétation arbustive et/ou herbacée

3.2.1 Pelouses et pâturages naturels
Herbages de faible productivité. Souvent situés dans des zones accidentées. Peuvent comporter des surfaces rocheuses, des ronces et des broussailles.

3.2.2 Landes et broussailles
Formations végétales basses et fermées, composées principalement de buissons, d'arbustes et de plantes herbacées (bruyères, ronces, genêts, ajoncs, cytises, etc.)

3.2.3 Végétation sclérophylle
Végétation arbustive persistante, aux feuilles relativement petites, coriaces et épaisses. Y compris maquis et garrigues. Maquis: associations végétales denses composées de nombreux arbrisseaux qui couvrent les terrains siliceux acides en milieu méditerranéen. Garrigues : associations buissonnantes discontinues des plateaux calcaires méditerranéens. Elles sont souvent composées de chênes kermès, d'arbousiers, de lavande, de thym et de cistes blancs. Quelques arbres isolés peuvent être présents.

3.2.4 Forêts et végétation arbustive en mutation
Végétation arbustive ou herbacée avec arbres épars. Formations pouvant résulter de la dégradation de la forêt ou d'une re-colonisation / régénération par la forêt.

3.3 Espaces ouverts, sans ou avec peu de végétation

3.3.1 Plages, dunes et sables
Les plages, les dunes et les étendues de sable ou de galets du milieu littoral et continental, y compris les lits mineurs des rivières à régime torrentiel.

3.3.2 Roches nues
Éboulis, falaises, rochers, affleurements.

3.3.3. Végétation clairsemée
Comprend les steppes, toundras et "bad lands" (zones sèches avec peu de végétation et présence de roches nues). Végétation éparse de haute altitude.

3.3.4. Zones incendiées
Zones affectées par des incendies récents. Les matériaux carbonisés étant encore présents.

3.3.5. Glaciers et neiges éternelles
Surfaces couvertes par des glaciers ou des neiges éternelles.

2 Territoires agricoles

2.1 Terres arables

2.1.1 Terres arables hors périmètres d'irrigation
Céréales, légumineuses de plein champ, cultures fourragères, plantes sarclées et jachères. Y compris les cultures florales, forestières (pépinières) et légumières (maraîchage) de plein champ, sous serre et sous plastique, ainsi que les plantes médicinales, aromatiques et condimentaires. Non compris les prairies.

2.1.2 Périmètres irrigués en permanence
Cultures irriguées en permanence ou périodiquement, grâce à une infrastructure permanente (canal d'irrigation). Une grande partie de ces cultures ne pourrait pas être cultivée sans l'apport artificiel d'eau. Non compris les surfaces irriguées occasionnellement.

2.1.3 Rizières
Surfaces aménagées pour la culture du riz. Terrains plats avec canaux d'irrigation. Surfaces régulièrement recouvertes d'eau.

2.2 Cultures permanentes

2.2.1 Vignobles
Surfaces plantées de vignes.

2.2.2 Vergers et petits fruits
Parcelles plantées d'arbres fruitiers ou d'arbustes fruitiers : cultures pures ou mélange d'espèces fruitières, arbres fruitiers en association avec des surfaces toujours en herbe. Y compris les châtaigneraies et les noiseraies.

2.2.3 Oliveraies
Surfaces plantées d'oliviers, y compris oliviers et vignes sur la même parcelle.

2.3 Prairies

2.3.1 Prairies
Surfaces enherbées denses de composition floristique composées principalement de graminacées, non incluses dans un assolement. Principalement pâturées, mais dont le fourrage peut être récolté mécaniquement. Y compris des zones avec haies (bocages).

2.4 Zones agricoles hétérogènes

2.4.1 Cultures annuelles associées aux cultures permanentes
Cultures temporaires (terres arables ou prairies) en association avec des cultures permanentes sur les mêmes parcelles.

2.4.2 Systèmes culturaux et parcellaires complexes
Juxtaposition de petites parcelles de cultures annuelles diversifiées, de prairies et / ou de cultures permanentes complexes.

2.4.3 Surfaces essentiellement agricoles, interrompues par des espaces naturels importants
Surfaces essentiellement agricoles, interrompues par de la végétation naturelle.

2.4.4 Territoires agroforestiers
Cultures annuelles ou pâturages sous couvert arboré composé d'espèces forestières.

4 Zones Humides

4.1 Zones humides intérieures

4.1.1. Marais intérieurs
Terres basses généralement inondées en hiver et plus ou moins saturées d'eau en toutes saisons.

4.1.2. Tourbières
Terrains spongieux humides dont le sol est constitué principalement de mousses et de matières végétales décomposées. Tourbières exploitées ou non.

4.2 Zones humides maritimes

4.2.1. Marais maritimes
Terres basses avec végétation, situées au-dessus du niveau de marée haute, susceptibles cependant d'être inondées par les eaux de mer. Souvent en voie de colmatage, colonisées petit à petit par des plantes halophiles (vivant en milieu salé).

4.2.2. Marais salants
Salines actives ou en voie d'abandon. Parties des marais maritimes mises en exploitation pour la production de sel par évaporation. Les marais salants se distinguent nettement du reste des marais par leurs parcellaires d'exploitation et leur système de digues.

4.2.3. Zones intertidales
Étendues de vase, de sable ou de rochers généralement sans végétation, comprises entre le niveau des hautes et des basses eaux.

5 Surfaces en eau

5.1 Eaux continentales

5.1.1. Cours et voies d'eau
Cours d'eau naturels ou artificiels qui servent de chenal d'écoulement des eaux. Y compris les canaux. Largeur minimale de prise en compte : 100 m.

5.1.2. Plans d'eau
Étendues d'eau, naturelles ou artificielles, de plus de 25 hectares.

5.2 Eaux maritimes

5.2.1. Lagunes littorales
Étendues d'eau salée ou saumâtre sans végétation, séparées de la mer par des avancées de terre ou autres topographies similaires. Ces surfaces en eau peuvent être mises en communication avec la mer à certains endroits ponctuels, soit de façon permanente, soit de façon périodique à certains moments de l'année.

5.2.2. Estuaires
Parties terminales à l'embouchure des fleuves, subissant l'influence des eaux marines.

5.2.3. Mers et océans
Zones au-delà de la limite des plus basses marées.

La **Figure 8** présente les différents types de forêts présents sur l'emprise du PERM.

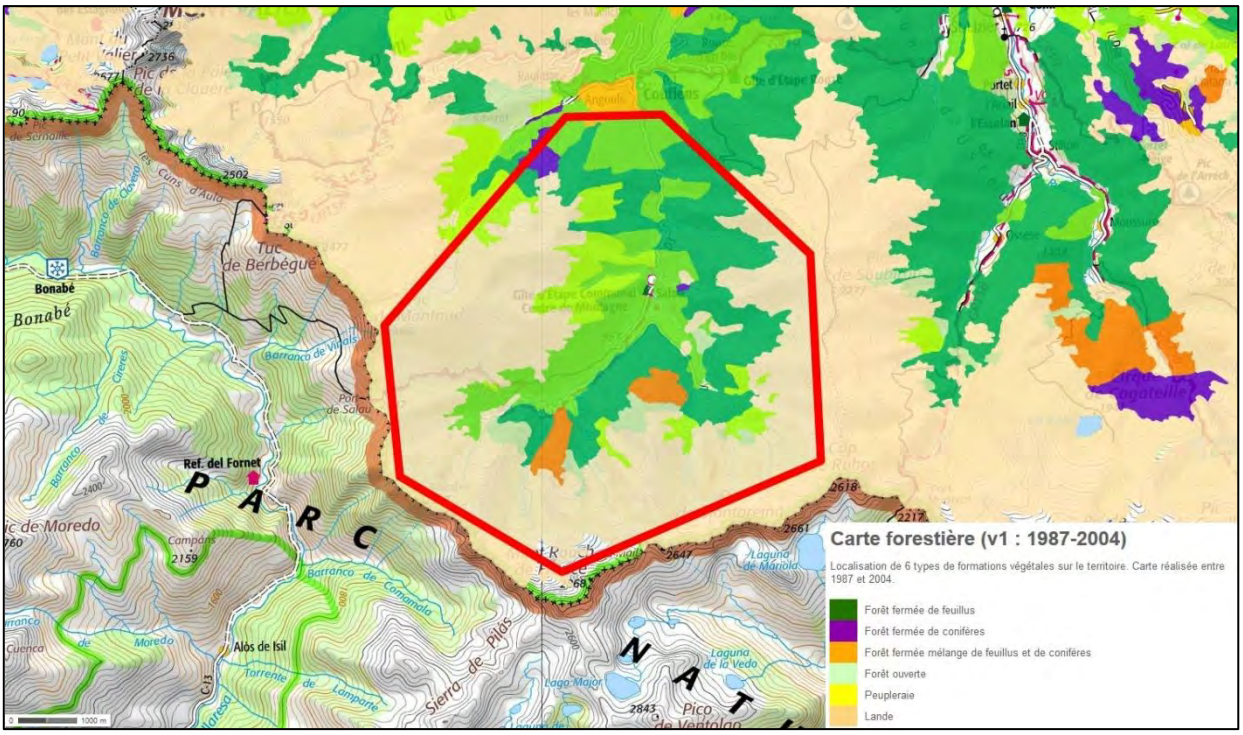


Figure 8 : Carte forestière sur l'emprise du PERM, en rouge (source : Géoportail)

L'état initial de cette notice d'impact présente le territoire couvert par le PERM COUFLENS selon trois grandes parties. Le milieu physique sera décrit dans un premier temps (§ 3.2) car il sert de support aux milieux naturels et à la biodiversité (§ 3.3), ainsi qu'aux activités humaines (§ 3.4).

3.2 Milieu physique

3.2.1 Contexte climatique

Généralités

Le climat de la commune de Couflens située au pied des pics se succédant le long de la frontière franco-espagnole est un climat océanique a été doux en fond de vallée jusqu'à un climat océanique froid en altitude sur les montagnes.
La vallée est relativement épargnée par les perturbations d'ouest-sud-ouest qui se déchargent auparavant sur la haute chaîne frontalière. Cependant elle est intensément exposée aux perturbations de nord-nord-ouest qui viennent buter contre le relief créant un effet de « bouchon » et des cumuls annuels pluviométriques importants. L'enneigement hivernal, bien aidé par le flux humide et frais de nord, est durable au-dessus de 1200 mètres.
La haute montagne au-dessus de 2000 mètres entre le Pic de Montaud et le Cap de Ruhos est exposée de façon prépondérante aux perturbations d'ouest à sud-ouest. Les cumuls pluviométriques, essentiellement sous forme de neige, sont assez importants sur les reliefs. Le manteau neigeux vers 2000 mètres s'établit généralement en novembre et se disloque en avril. Des glaciers résiduels occupent les abords des plus hauts sommets (Pic d'Aneto). Le Mont Valier à proximité présente des petits séracs.
La limite haute de la forêt varie de 2000 à 2500 mètres (pin à crochets, bouleaux).
La station météorologique de référence la plus proche est celle de Saint-Girons. Le diagramme ombrothermique réalisé à partir des données recueillies à la station de Saint-Girons sur la période 1956-2008, montre un régime de précipitations assez homogène tout au long de l'année, avec un cumul mensuel moyen autour de 80 mm (cf. **Figure 9**).

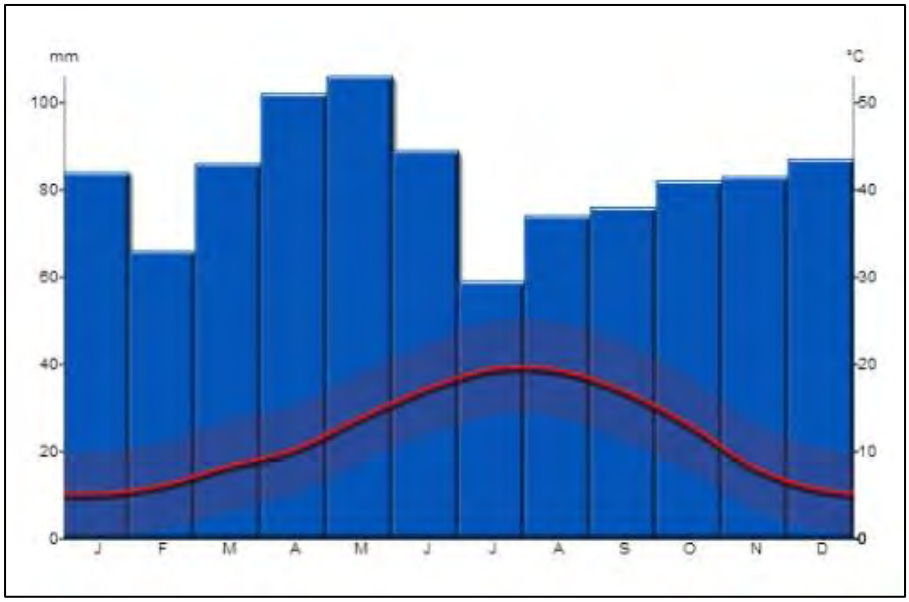


Figure 9 : Diagramme ombrothermique synthétique des normales de température et de précipitation à la station météorologique de Saint-Girons (1956-2008)

Températures

Les températures moyennes sur la station de Saint-Girons sont relativement douces et les écarts moyens assez faibles d'une saison à l'autre : les moyennes mensuelles enregistrées sur la période 1956-2008 oscillent entre 5,2°C pour le mois le plus froid (janvier) et 19,5°C pour le mois le plus chaud (juillet), soit une température moyenne annuelle de 12°C pour une amplitude thermique moyenne de 14,3°C. Cependant les records de températures, avec un record de froid à -18,7°C en janvier et un record de chaleur à 38,6°C en août, reflètent mieux le caractère contrasté de cette région située au centre-est de la chaîne pyrénéenne où l'influence océanique prépondérante est contrée par une influence méditerranéenne et continentale parfois marquée.

Précipitations

Les précipitations sont assez régulières et abondantes tout au long de l'année (moyenne annuelle de 992 mm entre 1956 et 2008). Les hauteurs mesurées varient peu entre le mois le plus sec (juillet : 58,9 mm d'eau en moyenne mensuelle) et le mois le plus arrosé (décembre : 106,2 mm d'eau en moyenne mensuelle). Cependant, le relief revêt une importance de premier plan sur les précipitations qui peuvent varier de manière importante d'une vallée à l'autre suivant son orientation et sa position par rapport aux sommets environnants.

Ensoleillement

L'ensoleillement avoisine 1 960 heures par an en moyenne sur la période 1971-2010 avec un maximum de 2250 heures pour l'année 1996 et un minimum de 1650 heures pour l'année 1992.

Vents

Les vents dominants, de secteur ouest nord-ouest à nord nord-ouest représentent 47% du total (cf. **Figure 10**). Les vents les plus forts (supérieurs à 25 km/h) soufflent en hiver entre janvier et mars. La période d'été de juin à septembre est propice à des vents faibles de secteur plutôt nord.
En cas de flux de sud-ouest à ouest, on peut noter régulièrement des effets de foehn, vent fort sec et chaud soufflant en aval du relief quand un vent dominant humide rencontre une chaine montagneuse. Pour exemple, le 29 février 1960 un important effet de foehn a entrainé une température exceptionnelle de 31,2°C, un record absolu en France métropolitaine en hiver.

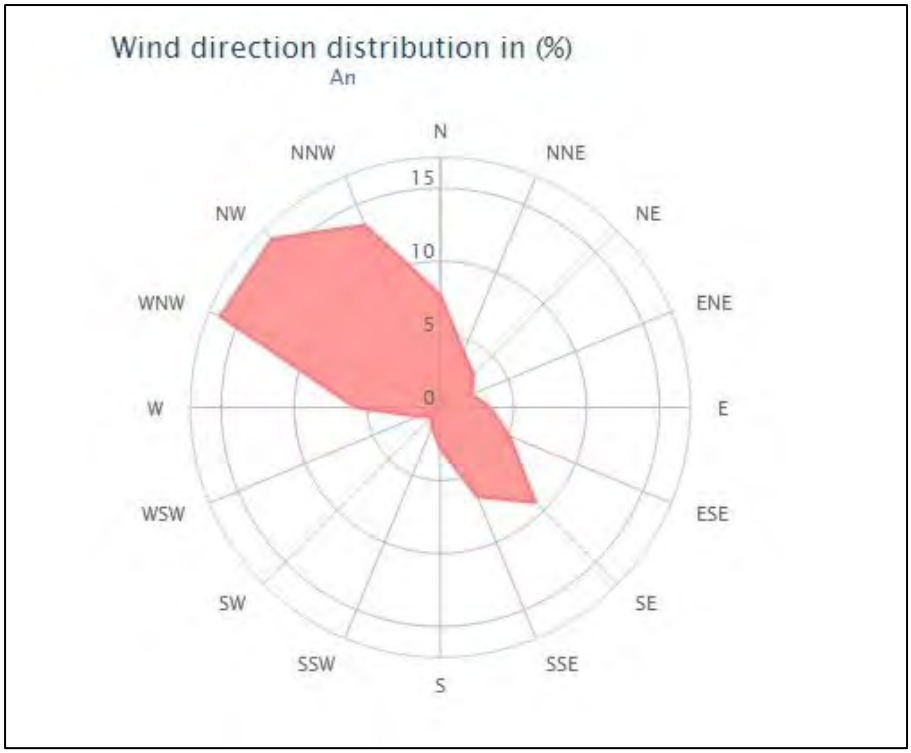


Figure 10 : Rose des vents de la station de Saint-Girons pour la période 2002 - 2014

Évènements locaux particuliers

En marge de ces données climatiques, on dénombre à la station de Saint-Girons et pour la période 1961-1990[2] :

- Neige : 15,1 jours par an en moyenne (contre 14 j. en moyenne nationale).
- Orage : 29,4 jours par an en moyenne (contre 11 j. pour la France métropolitaine).
- Brouillard : 20,1 jours par an en moyenne (contre 40 j. en moyenne nationale).
- Gel : 54,6 jours par an en moyenne.
- Pluie : 125 jours par an en moyenne.

Le niveau kéraunique en Ariège (nombre de fois où le tonnerre a été entendu dans l'année) suivant la norme NF C 17.100 est inférieur à 25. Suivant l'Observatoire français des tornades et orages violents[3], les orages se rencontrent en toutes saisons sur la région. Leur fréquence est faible durant les mois d'hiver, à un niveau inférieur à la moyenne nationale. En saison chaude, les orages sont fréquents : la probabilité quotidienne culmine à plus de 40% durant les mois de mai, juin, juillet et août, qui sont les mois les plus orageux de l'année en Midi-Pyrénées. La région s'illustre par une exposition marquée au risque de supercellules durant la période estivale ; ces dernières génèrent périodiquement des chutes de grêle sévères.

[2] http://www.infoclimat.fr/climatologie-07627-saint-girons-antichan.html
[3] http://www.keraunos.org/region/midi-pyrenees.html

3.2.2 Contexte topographique et hydrologique

La demande de permis est intégralement comprise dans les limites de la commune de Couflens, faisant elle-même partie du canton de montagne du Couserans. C'est un territoire contrasté dans ses paysages, les vallées du Haut-Couserans trouvant leur unité dans la complémentarité des espaces de montagne : bassin rappelant le piémont, versants reconquis par la forêt, estives vouées au pastoralisme à l'entrée de la haute montagne. Chaque vallée, malgré ses caractères propres, présente sous ces différentes facettes la montagne Pyrénéenne.

Epousant le cours du Salat, qui nait à Salau, Couflens est dominé par un relief montagneux imposant, rude et sauvage. La haute vallée du Salat est taillée dans des schistes et cette vallée gorge n'a aujourd'hui pratiquement conservé d'activité pastorale que sur ses versants à l'étage des estives. Cette voie fut pourtant pendant des siècles l'une des principales routes d'Espagne des Pyrénées centrales, à partir de Salau, dernier village de la vallée.

Le massif du Mont-Rouch qui domine de ses 2858 m, et en font le deuxième sommet du massif du Couserans, semble opposer toute pénétration vers la Catalogne voisine. Le Port de Salau, col le plus bas des Pyrénées centrales (2038 m) autorise sans difficulté le franchissement de la chaîne.

Au sein du périmètre du PERM, le réseau hydrographique s'organise principalement autour du Salat dénommé ainsi à partir du village de Salau. En amont de Salau, une dizaine de sources et ruisseaux tels que le ruisseau des Cougnets, le ruisseau du Mail et le ruisseau de Léziou prennent naissance au pied du Pic de Montaud, du Pic de Bassibié, du Mont Rouch, du Pic de Montareing et du Cap de Ruhos. Le Salat prend une direction nord-sud et traverse Couflens au nord du périmètre du PERM.

D'une longueur totale de 74,5 km, le Salat traverse la vallée d'Angouls, puis franchit le massif de l'Arize, où il parcourt les gorges de Ribaouto. Il passe à Saint-Girons et Saint-Lizier, et se jette dans la Garonne à Roquefort-sur-Garonne.

Les pentes très fortes et la quasi-inexistence d'espaces plats entrainent l'absence de points d'eau tels que mares ou étangs sur le périmètre du PERM.

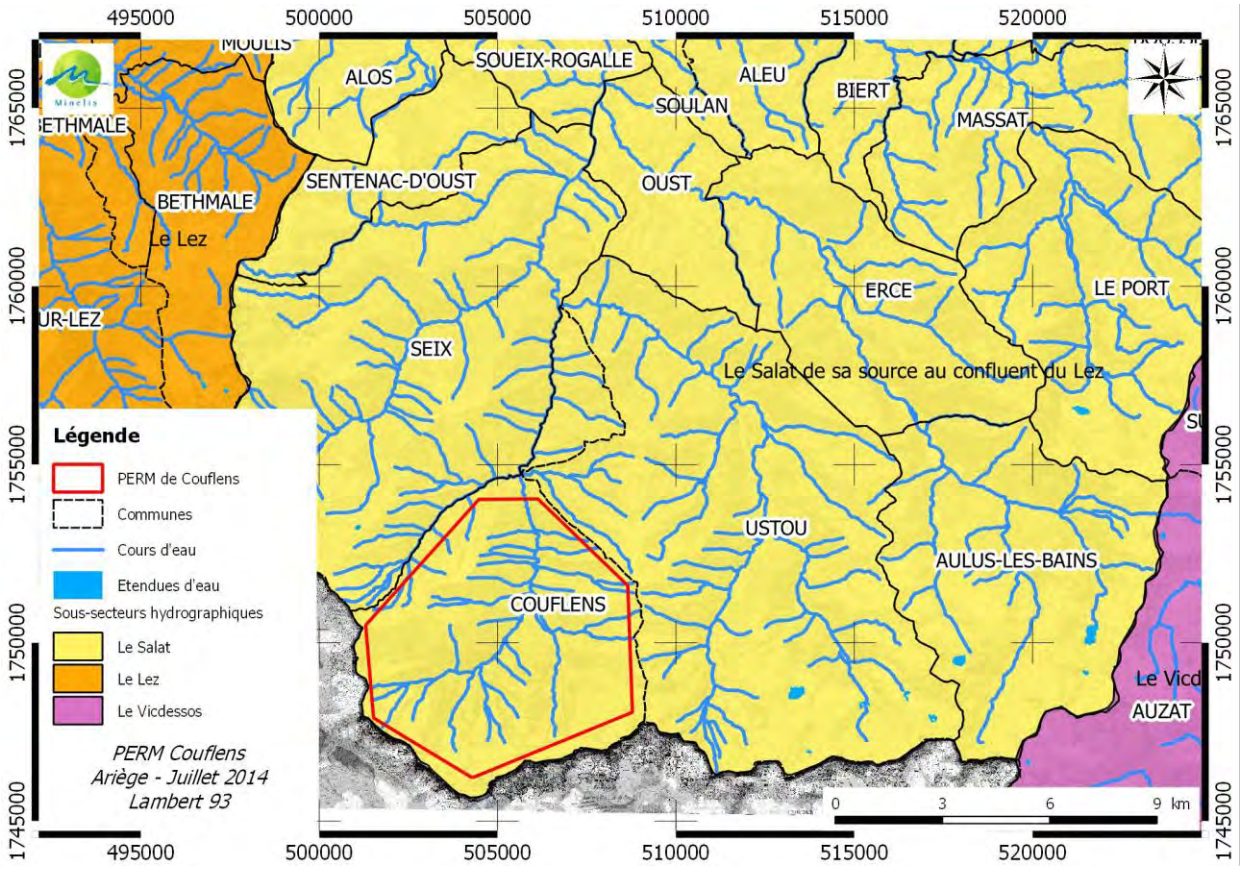


Figure 11 : Carte du réseau hydrographique et des masses d'eau superficielles

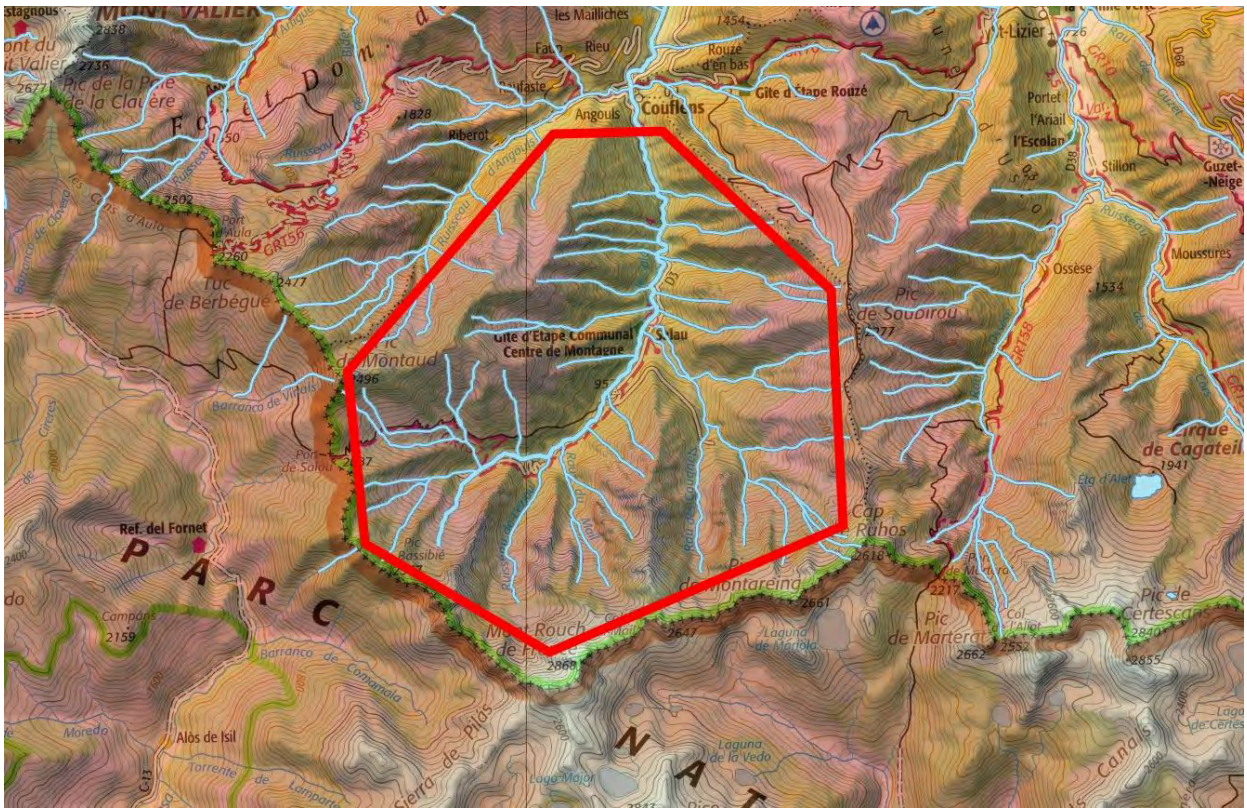


Figure 12 : Réseau hydrographique et relief de la vallée du haut Salat (source : Géoportail)

3.2.3 Contexte g®ologique et hydrog®ologique

Les Pyrénées se sont formées il y a environ 40 millions d'années par la collision de la plaque ibérique avec la plaque eurasienne. Bien que la chaine soit jeune au sens géologique, elle est composée majoritairement de roches anciennement formées (roches métamorphiques, volcaniques et plutoniques du socle hercynien et roches sédimentaires du Permien).

La région de Couflens s'inscrit dans la zone axiale du massif pyrénéen. La majorité des roches que l'on y rencontre est métamorphique et plutonique.
Du sud vers le nord du PERM COUFLENS on rencontre les hauts sommets de la frontière franco-espagnole composé de matériel ancien (gneiss) et de vestiges de socle Précambrien (granite porphyroïde cadomien). Tout a été repris par le métamorphisme pendant la phase tectonique hercynienne.

La phase hercynienne est caractérisée par la mise en place de plutons granitiques dont la représentation au niveau du PERM est le petit massif de la Fourque (1 km^2) formé par un granite calco-alcalin et une granodiorite et qui renferme sur son flanc sud l'ancienne mine de Salau ou mine d'Anglade exploitée pour le tungstène. Cette intrusion hercynienne a recoupé à l'emporte-pièce et métamorphisé à son contact un faisceau paléozoïque (Ordovicien) carbonaté et schisteux.

Faisant suite au nord, apparaissent des formations schisto-gréseuses ordoviciennes, puis une mince bande de schistes noirs du Silurien et enfin, se développant sur 2 à 3 km jusqu'à Couflens, la série du Dévonien inférieur et moyen composée à la base par une alternance irrégulière de calcaires, calcschistes, schistes et grès, suivi par des calcaires et des schistes.

La **Figure 13** présente la carte géologique schématique des environs de Salau, et la **Figure 14** présente un extrait de la carte géologique au 1/50 000e au niveau du PERM COUFLENS.

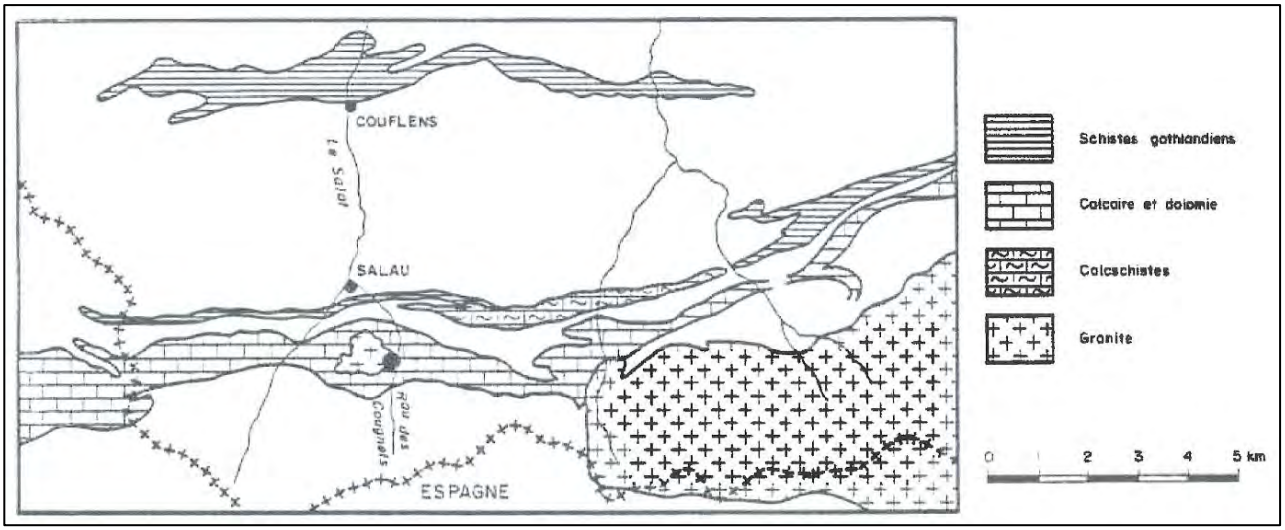


Figure 13 : Carte géologique schématique aux environs de Salau (source : BRGM)

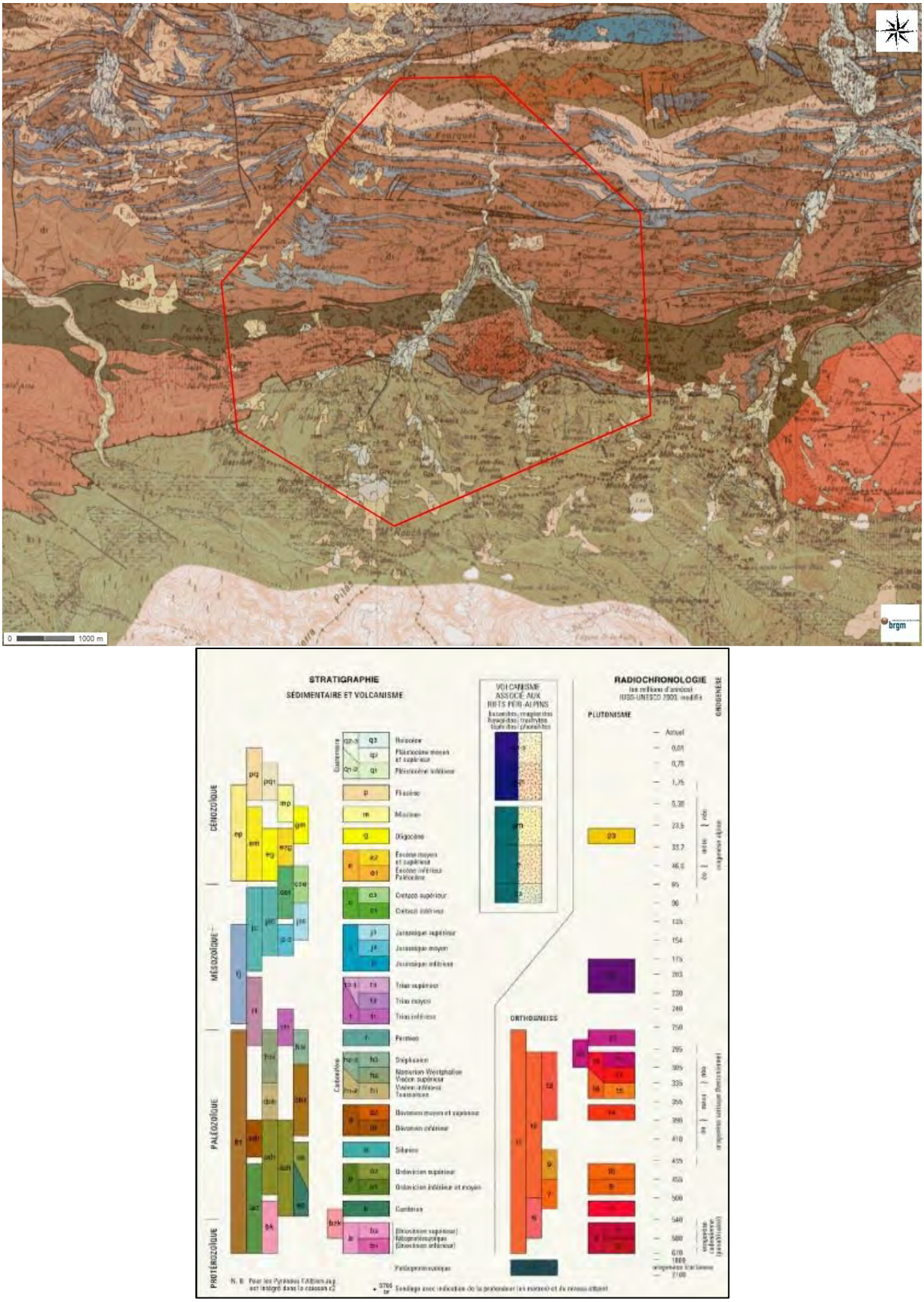


Figure 14 : Extrait de la carte géologique 1/50 000 suivie de sa légende (source : Infoterre). En rouge : tracé du projet de PERM.

Du point de vue structural, les séries sédimentaires ont une direction générale est-ouest et montrent des plis très serrés de type isoclinal. Les plis sont souvent accompagnés de grands accidents longitudinaux jalonnés par les schistes siluriens.

Le substratum de la haute vallée du Salat et de la vallée du Cougnets est masqué par des matériaux morainiques constitués de galets et de blocs de taille variée, noyés dans une matrice essentiellement sableuse. L'épaisseur du dépôt glaciaire excède souvent les 5 mètres.

Au niveau hydrogéologie, le caractère permanent des écoulements des ruisseaux en amont du Salat, du ruisseau du Cougnets est lié au ruissellement de surface, à l'écoulement différé dans les premiers mètres du sol et à l'écoulement des eaux souterraines plus profondes.

En ce qui concerne les eaux souterraines profondes, deux types d'aquifères sont à distinguer :

- Les aquifères des calcaires karstifiés :

  Sur le secteur de Couflens, seuls les calcaires karstifiés du Caradoc forment un réservoir important situé au sud et en amont de l'ancienne mine de Salau.

- Les circulations d'eau dans les schistes et dans les moraines :
  L'existence de zones fracturées décomprimées à fissures ouvertes permet, lorsque les conditions topographiques sont favorables, la formation de nappes d'eau souterraines de faible épaisseur et de faible capacité. Les moraines qui recouvrent le substratum ont une bonne perméabilité et constituent un excellent aquifère si les conditions topographiques le permettent. Mais les fortes pentes du secteur entraînent un drainage rapide de ces terrains et seule la base des moraines présente un état de saturation permanent au contact des schistes moins perméables. Au niveau de ce contact, la circulation des eaux suit le sens de la pente.

La masse d'eau souterraine concernée sur le périmètre du PERM est fortement liée au réseau hydrographique (circulation fissurale à faible profondeur) et couvre une partie du bassin versant du Salat (cf. **Annexe 1**). Il s'agit de la partie amont de la Masse d'Eau libre dit « du Salat de sa source au confluent du Lez » (FRFR174), circulant essentiellement dans les schistes et grès paléozoïques et couvrant une surface de 1 540 km^2. Les principales caractéristiques de cette masse d'eau sont consultables sur la fiche de l'**Annexe 1**.

3.2.4 Qualit®des eaux

La qualité des eaux de surface et des eaux souterraines dans le périmètre du PERM COUFLENS, ainsi que les objectifs à atteindre dans le cadre de la Directive Cadre sur l'Eau, sont renseignés par l'Agence de l'Eau Adour-Garonne[4] pour l'année 2010 sur la base de données 2006-2007 (cf. **Annexe 2**).

[4] http://adour-garonne.eaufrance.fr/massedeau/FRFR174

Le PERM COUFLENS est situé dans le périmètre du SDAGE[5] Adour-Garonne. Un SAGE[6] est en cours d'élaboration (SAGE Nesle-Ourse). Il n'existe pas de contrat de rivière[7] sur ce bassin.

3.2.4.1 Eaux de surface

La masse d'eau superficielle principale concernée sur le périmètre du PERM est « le Salat de sa source au confluent du Lez » (Masse d'Eau FRFR174). Son état écologique évalué en 2010 sur la base de données 2006-2007 est jugé bon (état biologique très bon et état physico-chimique bon). L'état chimique est « non classé ».

Au niveau de la station de référence située sur le Salat en amont de Saint-Girons (n°05180290), les données suivantes acquises dans le cadre de la méthodologie de la DCE caractérisent d'une part la qualité biologique de l'eau et d'autre part son état physico-chimique.

Etat biologique

IBD Indice Biologique Diatomées	IBGN Indice Biologique Global Normalisé	IBMR Indice Biologique Macrophytique en Rivières	IPR Indice Poissons Rivière
Très bon	Non classé	-	Non classé

Etat physico-chimique

Oxygène	Température	Nutriments	Acidification
Bon	Très bon	Très bon	Bon

Les objectifs pour la masse d'eau « Le salat de sa source au confluent du Lez » sont ceux définis dans le SDAGE 2010-2015, à savoir un état global bon avec un état écologique bon et un état chimique bon, ce qui est déjà le cas pour l'état écologique pour la période 2006-2007.

3.2.4.2 Eaux souterraines

La masse d'eau souterraine principale concernée par le périmètre du PERM est celle des « Alluvions de la Garonne amont, de la Neste et du Salat » (Masse d'Eau FRFG086). Son état chimique validé en 2008 dans le cadre de la méthodologie de la DCE est jugé bon. Un objectif de maintien à un bon état chimique a été fixé à l'horizon 2015 et devrait être atteint (cf. **Annexe 3**). Les données suivantes caractérisent la qualité chimique de la masse d'eau.

Etat chimique de la masse d'eau	Paramètre Nitrates	Paramètre Pesticides	Etat quantitatif de la masse d'eau	Tendance à la hausse
Bon état	Bon état	Bon état	Bon état	Non

[5] SDAGE : Schéma Directeur d'Aménagement et de Gestion des Eaux.
[6] SAGE : Schéma d'Aménagement et de Gestion des Eaux, fixant la politique à mettre en œuvre sur un sous-bassin donné.
[7] Contrat de rivière : l'objectif est de mobiliser élus locaux, riverains, usagers et l'ensemble des acteurs de l'eau, sur un bassin versant cohérent, représentés au sein d'un Comité de Rivière, autour d'un projet visant à protéger, restaurer et valoriser la ressource en eau.

3.2.5 Usages de l'eau

3.2.5.1 Ouvrages recensés dans la Banque de données du Sous-Sol

La carte de la **Figure 15** illustre la répartition des points d'eau recensés dans la Banque de données du Sous-Sol du BRGM (BSS).

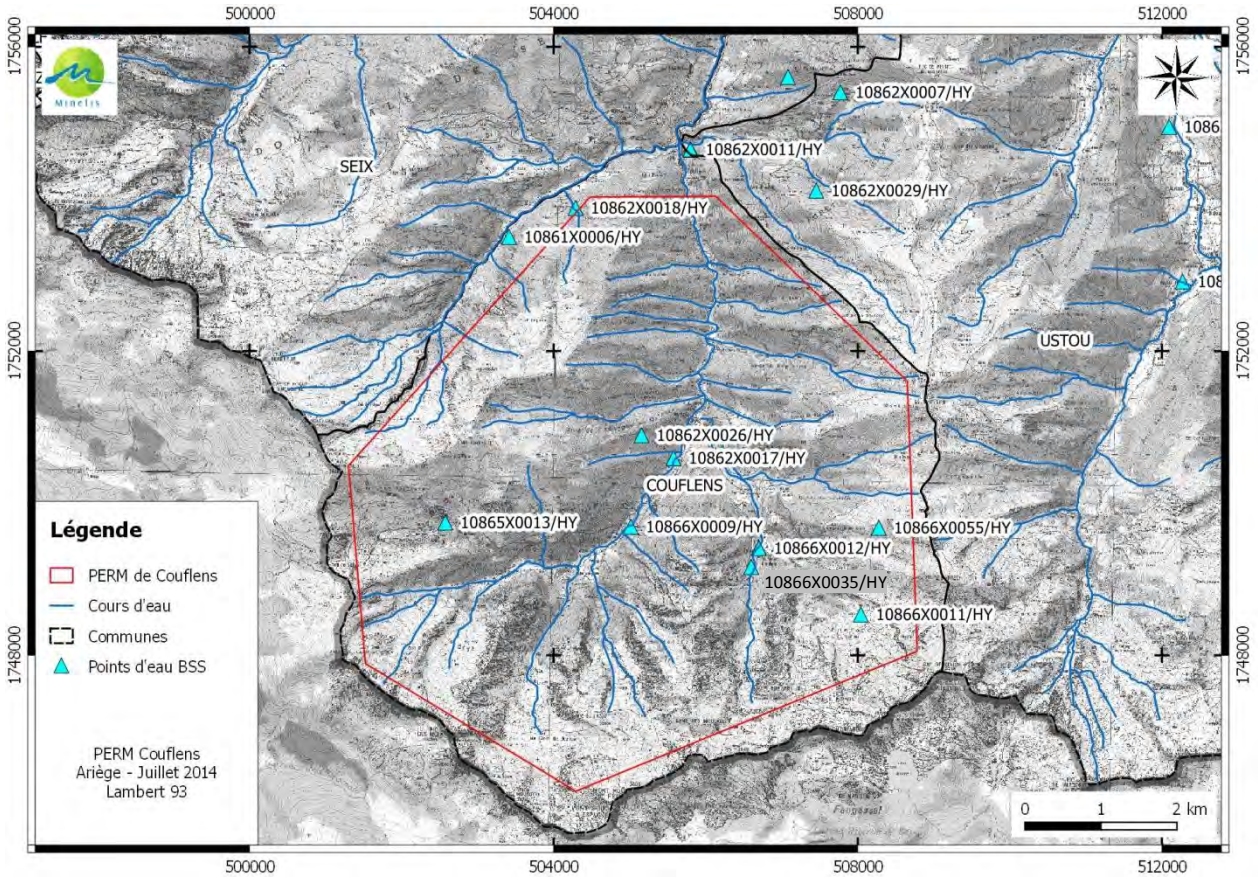


Figure 15 : Localisation des points d'eau référencés dans la BSS

Au total, 8 points d'eau répertoriés dans la BSS sont situés au sein du PERM COUFLENS. Le **Tableau 3** ci-dessous présente les caractéristiques principales de ces points d'eau et les usages respectifs.

Le site de l'ADES (Accès aux Données sur les Eaux Souterraines) confirme qu'aucun piézomètre, ni qualitomètre n'est implanté sur le secteur de Couflens.
De même, il n'existe pas de forage pour l'alimentation en eau potable. Tous les prélèvements sont réalisés à partir de sources ou de captages en rivière.

Identifiant BSS	Commune	Lieu-dit	Nature	Profondeur (m)	Date de forage	Altitude au sol (m)	Etat de l'ouvrage	Exploitant	Utilisation
10866X0035/HY	COUFLENS	SOURCE DE SALAU ANCIENNES MINES D'ANGLADES	SOURCE	-	-	1320	ACCES, MESURE, PRELEV, NON EXPLOITE	-	EAU-COLLECTIVITE
10862X0017/HY	COUFLENS	SOURCE DE ILLA DE DESSUS	SOURCE	-	-	890	ACCES, AMENAGE, MESURE, PRELEV, NON EXPLOITE	-	EAU-COLLECTIVITE
10866X0055/HY	COUFLENS	SOURCE DES MAROUELS OU MAURETS	SOURCE	-	-	1904	-	-	EAU-COLLECTIVITE
10865X0013/HY	COUFLENS	SOURCE DE POUILH CABANE PASTORALE DE POUILH	SOURCE	-	-	1663	-	-	-
10866X0009/HY	COUFLENS	SOURCE LES NEUFFONTAINES	SOURCE	-	-	960	NON EXPLOITE	-	-
10866X0012/HY	COUFLENS	SOURCE D'ANGLADE	SOURCE	-	-	1180	-	-	-
10862X0026/HY	COUFLENS	SOURCE DE LA BUSSE INFERIEUR	SOURCE	-	13/02/1984	1260	NON EXPLOITE	-	EAU-COLLECTIVITE
10866X0011/HY	COUFLENS	SOURCE DE FONTARET	SOURCE	-	-	1720	-	-	-

Tableau 3 : Liste et caractéristiques principales des points d'eau répertoriés dans la BSS

3.2.5.2 Captages d'alimentation en eau potable (AEP)

Il existe potentiellement trois types de périmètres de protection autour des ouvrages AEP :

- Un périmètre de protection immédiate (entre 400 m² et 1 ha).
  La surface est limitée, clôturée et acquise par la collectivité pour protéger les ouvrages de captage. Toute activité en dehors de celle liée à l'exploitation du point d'eau y est interdite.
- Un périmètre de protection rapprochée (entre 20 et 50 ha) : périmètre en zone sensible et complémentaire.
  Ces périmètres sont définis au titre de l'article L.20 du Code de la Santé Publique et du décret n°89-3 du 3 janvier 1989. Certaines activités ou installations susceptibles de porter atteinte à la qualité des eaux peuvent être interdites ou réglementées, c'est le cas notamment de la création de puits et de forages. Se référer à l'arrêté préfectoral de chaque prise d'eau pour connaître les contraintes spécifiques au périmètre de protection rapproché du point de captage.
- Un périmètre de protection éloignée.
  Facultatif, il couvre en général la zone d'alimentation du point d'eau. Il renforce la protection contre les pollutions par la mise en place d'actions complémentaires de protection.

La liste des captages d'alimentation en eau potable pour la commune de Couflens et les deux communes environnantes de Seix et Ustou est disponible auprès de l'ARS Midi-Pyrénées, Délégation Territoriale de l'Ariège et présentée dans le **Tableau 4** :

Commune	Localisation du captage	Arrêté préfectoral d'autorisation du captage
SEIX	SOURCE CABANE AREAU	21/12/2011
	SOURCE DE L'HOMME FORT	15/11/2011
	SOURCE REFUGE D'ARREOU	28/01/2009
	LADOUX	18/04/2008
COUFLENS	CAMP FREYCH (ANGOULS)	03/03/1967
	ESCORNEVACA	03/03/1967
USTOU	SOURCE DE LABOUCHE	18/12/1984

Tableau 4 : Captages sur les communes de Seix, Couflens et Ustou

Les deux captages de Couflens sont inclus dans le périmètre du PERM.

La localisation des ouvrages de captages AEP est visible sur la **Figure 16**.

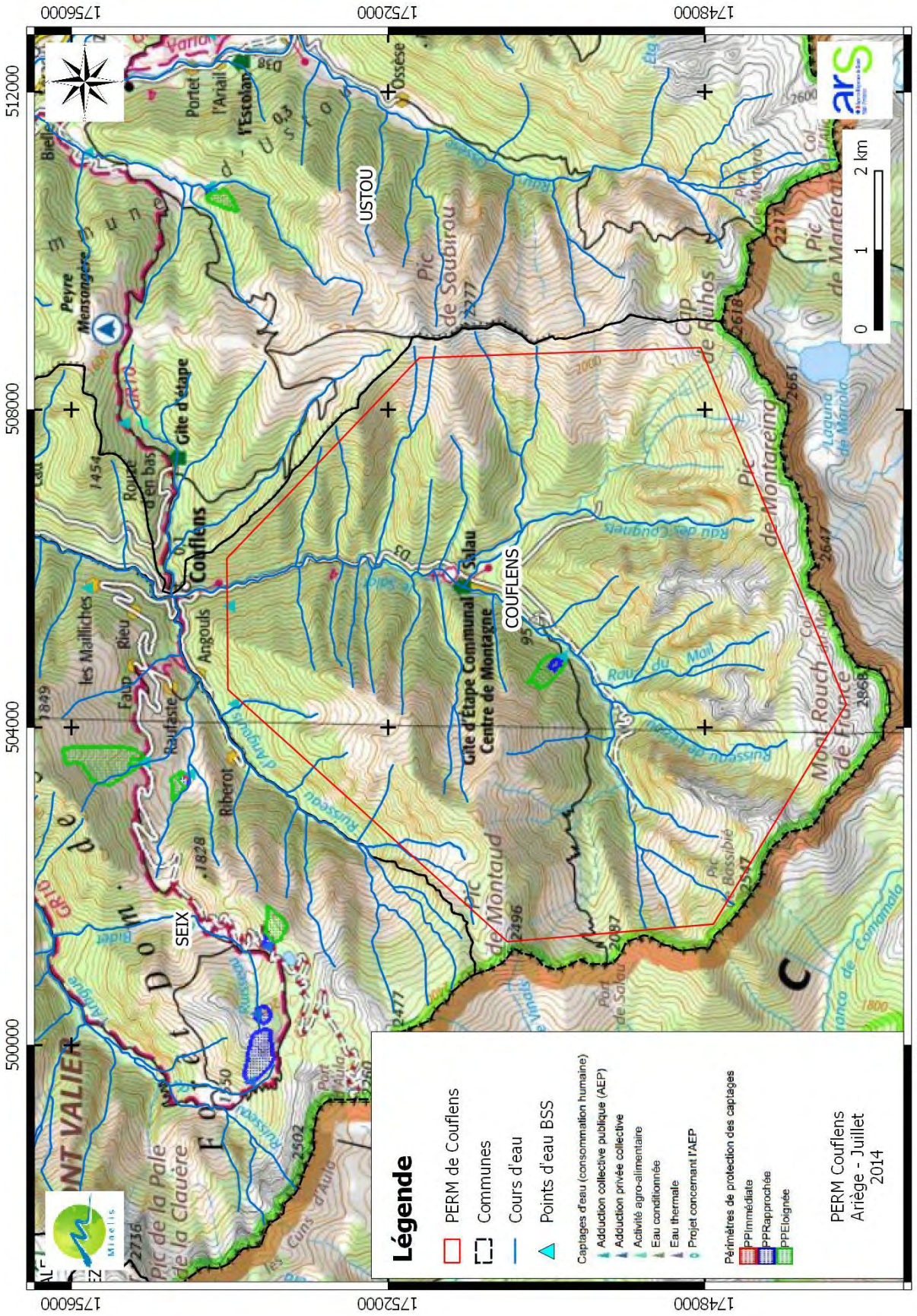


Figure 16 : Localisation des captages AEP et des p®rim tres de protection associ®s

3.2.6 Sch®mas et documents dôorientation li®s ¨ la ressource en eau

En France, la gestion de la ressource en eau est fixée par les Schémas Directeurs d'Aménagement et de Gestion des Eaux (SDAGE). Ces documents de planification sont élaborés de manière collective, pour un périmètre hydrographique cohérent (grands bassins hydrographiques) et résultent de la transposition de la Directive Cadre sur l'Eau de 1992. Le SDAGE fixe des objectifs généraux d'utilisation, de mise en valeur, de protection quantitative et qualitative de la ressource en eau. Il s'impose aux décisions de l'Etat, des collectivités et des établissements publics dans le domaine de l'eau notamment pour la délivrance des autorisations administratives. De même, les documents et schémas de planification en matière d'urbanisme doivent être compatibles avec les orientations fondamentales et les objectifs du SDAGE.

Le projet de PERM doit satisfaire aux dispositions du SDAGE du bassin Adour-Garonne, établi pour la période 2010-2015[8].

3.2.7 Al®as et risques naturels et technologiques

Cette section dresse l'inventaire des risques naturels et technologiques majeurs identifiés sur les communes concernées par le périmètre du PERM. Cet inventaire s'appuie principalement sur deux types de source : le Dossier Départemental des Risques Majeurs (Préfecture) et le portail national de la prévention des risques majeurs www.prim.net.
Des cartes détaillées sur les différents aléas concernant les alentours du secteur d'étude sont présentées en **Annexe 4**.

Risque d'inondation

Couflens et les deux communes environnantes au projet de PERM, Ustou et Seix sont concernées par un risque d'inondation dû au débordement du ruisseau d'Estours, du Salat et de la rivière Alet.
Le réseau hydrographique largement digité du Salat dans la partie supérieure de son cours (qui culmine à 2870 mètres d'altitude au niveau du Mont Rouch) lui confère un caractère montagnard déterminant dans la genèse des crues. Largement ouvert vers le nord, il reçoit les eaux de divers gros affluents (le Garbet, l'Arac, l'Esbints, l'Estours, l'Alet). Il connait un régime pluvio-nival à haut bassin de montagne dans un contexte climatique tempéré océanique, avec une très nette influence de la fusion nivale aux mois d'avril, mai et juin.
Les crues du Salat les plus redoutables sont les crues océaniques pyrénéennes de fin d'hiver ou de printemps. Les plus fortes crues connues sont celles de juin 1875 et mai 1977 issues d'un évènement pluvieux exceptionnel appuyé par une fusion nivale abondante.

La carte de la **Figure 17** illustre la distribution des zones de sensibilité au risque inondation sur le secteur des trois communes de Couflens, Seix et Ustou.

[8] http://www.eau-adour-garonne.fr/fr/quelle-politique-de-l-eau-en-adour-garonne/un-cadre-le-sdage/documents-du-sdage-et-du-pdm.html

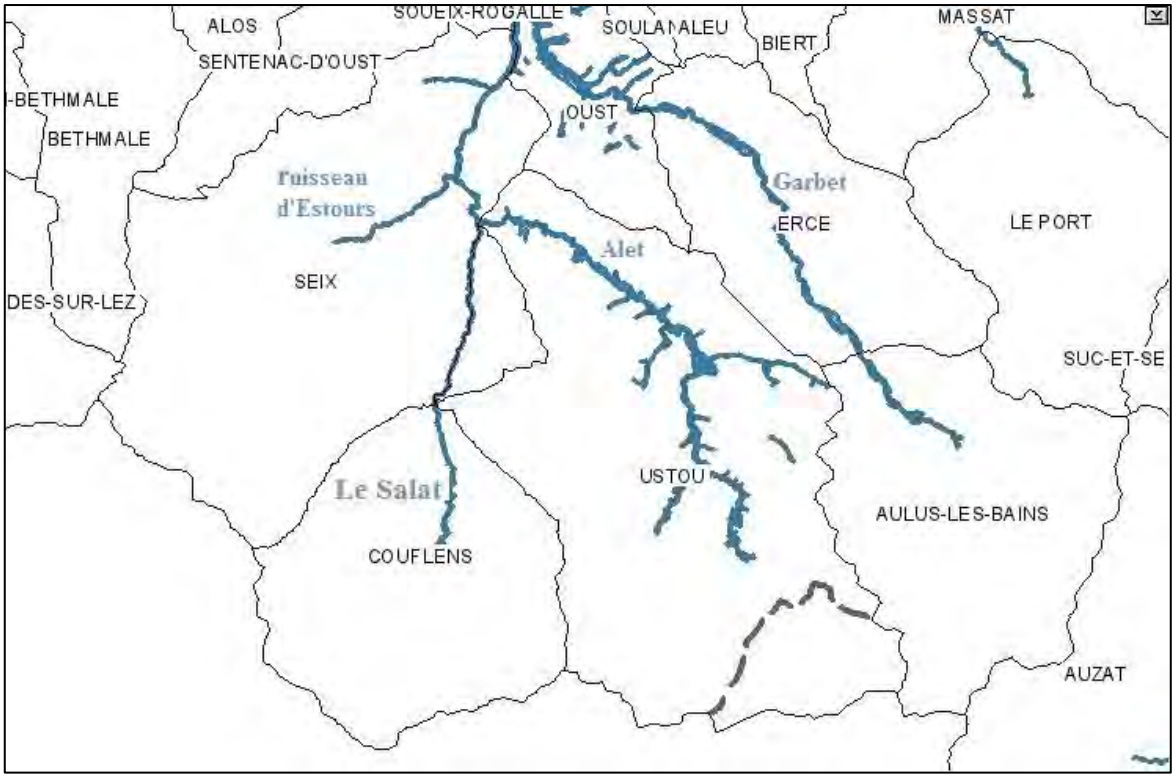


Figure 17 : Carte de l'aléa inondation sur le secteur d'étude (source : Prim.net-Cartorisque)

Risque de mouvements de terrain

Il existe, en dehors du risque sismique qui est traité de manière distincte, plusieurs types de mouvements de terrain dont les causes sont variées :

- ✓ L'exploitation du sous-sol a laissé derrière elle un certain nombre de carrières abandonnées dont les cavités constituent aujourd'hui un risque potentiel d'effondrement ou d'affaissement du sol plus ou moins important,
- ✓ Des cavités naturelles liées aux propriétés du sous-sol et à la circulation des fluides peuvent apparaître avec le temps et constituer également un risque potentiel d'effondrement ou d'affaissement du sol plus ou moins important,
- ✓ La présence de certaines argiles aux propriétés spécifiques contribue à faire travailler le sol par absorption d'eau et gonflement en période humide puis par déshydratation et contraction (ou retrait) en période sèche,
- ✓ Enfin, on peut regrouper l'ensemble des phénomènes gravitaires aériens liés aux instabilités de pente (éboulements, glissements de terrain, etc.).

D'après le Dossier Départemental des Risques Majeurs (DDRM) de l'Ariège et le portail des risques prim.net, un risque mouvement de terrain est identifié sur la commune d'Ustou dans la vallée où coule la rivière Alet. En pied de versant, les terrains sont déstabilisés par l'érosion de berges du cours d'eau (arrachements, érosion régressive) qui par régression déstabilisent les parties amonts. Il s'agit de glissements de type paquets glissés dans des secteurs saturés par l'accumulation d'eau de ruissellement de versant. L'activité des glissements de terrains reste par ailleurs fortement conditionnée par l'effet de pente et de la couverture végétale.

La carte de la **Figure 18** illustre la distribution des zones de sensibilité au risque de mouvements de terrain sur le secteur des communes de Couflens, Seix et Ustou.

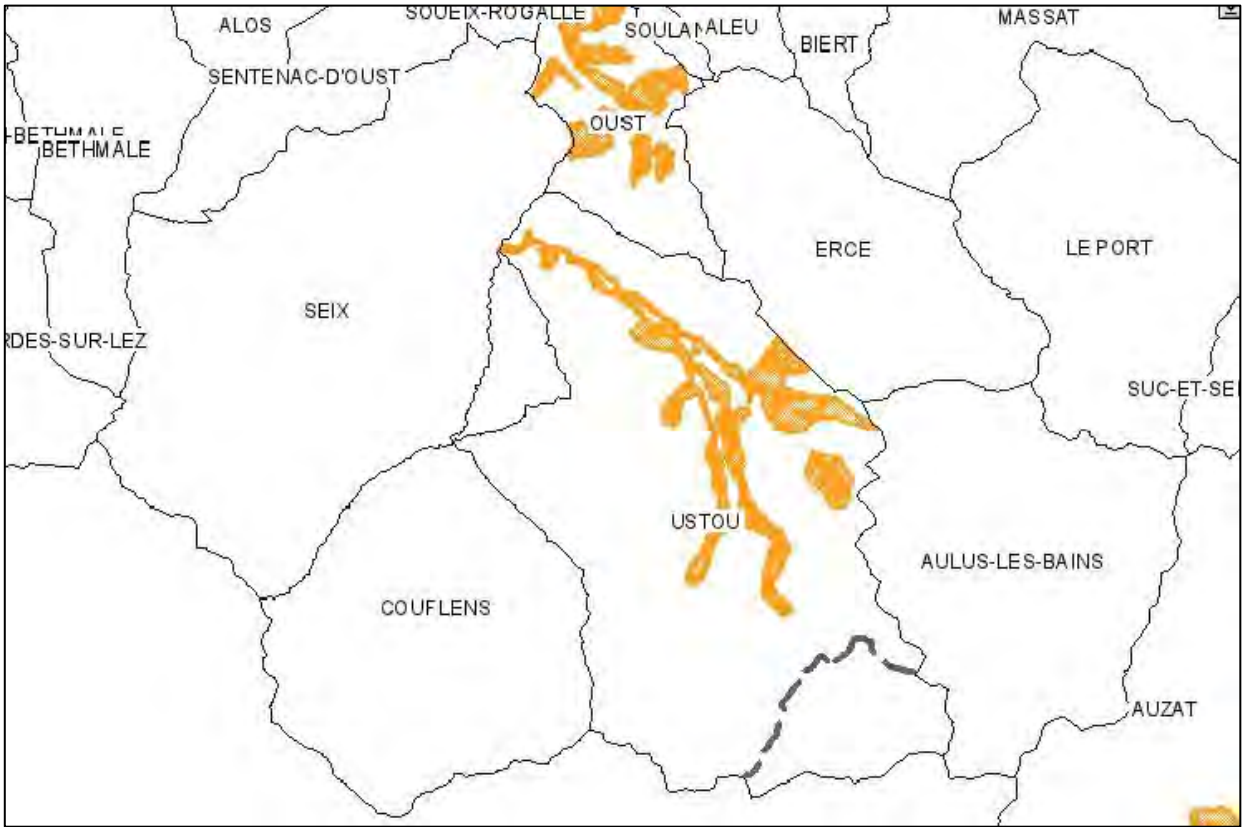


Figure 18 : Risque de mouvements de terrain autour du projet de PERM COUFLENS (source : prim.net)

D'autre part un risque d'affaissement de terrain est identifié sur la commune de Couflens, au niveau de l'ancienne mine de tungstène d'Anglade.

La **Figure 19** illustre la répartition des cavités souterraines non minières recensées sur le périmètre d'étude. Il faut cependant rappeler que le secteur de Couflens fut le siège d'activités minières. La localisation des zones sujettes à la présence de cavités souterraines minières abandonnées (ne figurant pas sur la **Figure 19**) devra être prise en compte lors de certains travaux (tranchés et forages notamment)

Enfin, la commune de Couflens concernée par le PERM n'est soumise à aucun Plan de Prévention des Risques (PPR) « mouvement de terrain » ou équivalent.

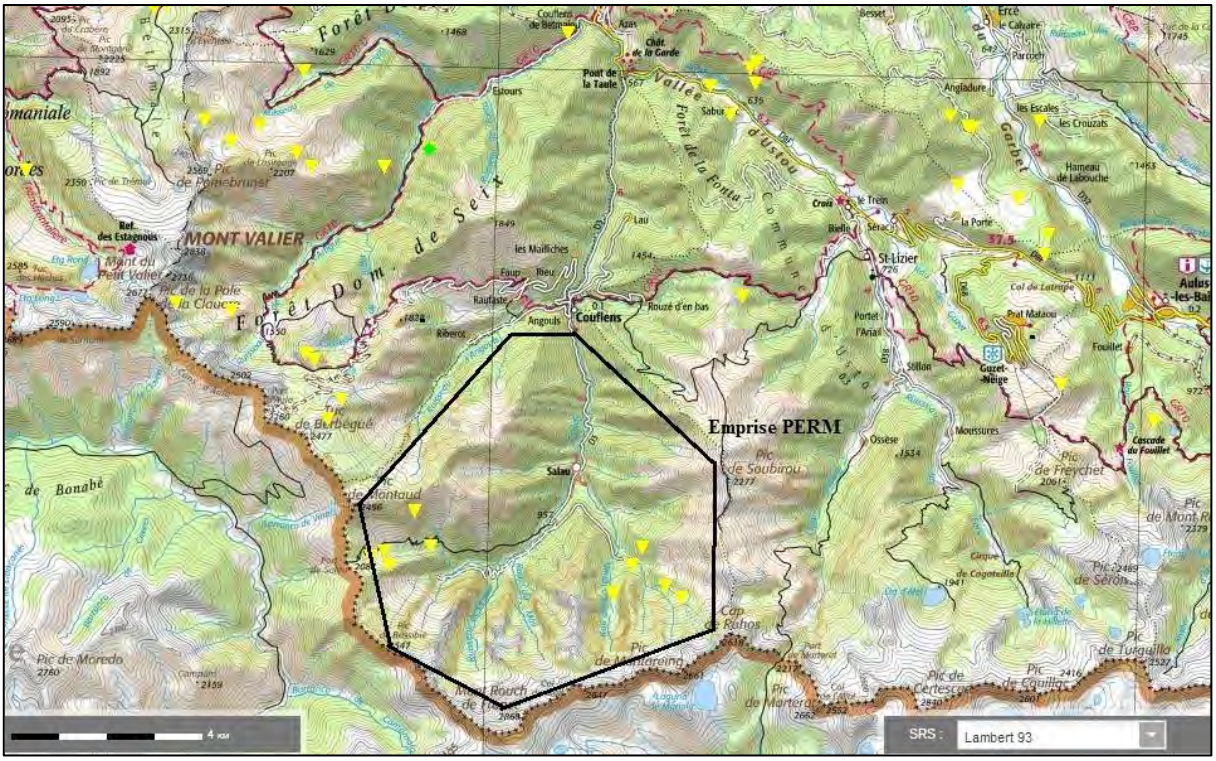


Figure 19 : Localisation des cavités souterraines non minières (source : Infoterre)

Risque sismique

Des mesures préventives et notamment des règles de construction d'aménagement et d'exploitation parasismiques accompagnent le nouveau zonage sismique du territoire. Ces dispositions sont fixées par l'arrêté du 22 octobre 2010 modifié pour les bâtiments de la classe dite « à risque normal », l'arrêté du 24 janvier 2011 pour les installations classées des sites Seveso « seuil haut » et « seuil bas », applicable aux installations existantes et aux installations nouvelles autorisées après le 1er janvier 2013, et l'arrêté du 26 octobre 2011 applicable aux ponts.

La commune de Couflens est localisée en zone 4, correspondant à un niveau de sismicité moyenne et à une accélération maximale de référence sur sols rocheux de 1,6 m/s², soit la valeur la plus élevée en France métropolitaine. **Ceci signifie que la probabilité d'occurrence d'un événement sismique destructeur existe mais demeure faible à l'échelle d'un chantier de forage temporaire.**

Risque de feu de forêt

La commune de Seix, située au nord-ouest de Couflens, est concernée par l'aléa risque feu de forêt. Un PPR multirisques est prescrit sur le territoire de cette commune. Celui-ci ne concerne toutefois pas le périmètre du PERM.

Risque météorologique

Il existe *a priori* un risque météorologique sur l'ensemble du secteur d'étude dans la mesure où le caractère imprévisible des phénomènes météorologiques (tempête, grêle, foudre, etc.) ne permet pas d'identifier de zones à risque avec suffisamment de précision.

Risques technologiques

Les risques technologiques correspondent au transport de matières dangereuses, à une rupture de barrage ou à un accident industriel.

Le Dossier Départemental des Risques Majeurs d'Ariège mentionne :

- Qu'il n'existe aucune entreprise ou gazoduc présentant un risque technologique majeur sur le territoire des trois communes de Seix, Couflens et Ustou.
- Qu'il n'existe pas de barrage construit sur le territoire de ces trois communes.
- Que le réseau routier du territoire des trois communes n'est pas concerné par le transport des matières dangereuses.

Arrêtés de reconnaissance de catastrophe naturelle (CATNAT)

Le **Tableau 5** recense l'ensemble des Arrêtés de reconnaissance de catastrophe naturelle (CATNAT) pris sur les communes concernées et environnant le PERM depuis 1982.

Communes	Tempête	Inondations et coulées de boue	Inondations, coulées de boue et effets exceptionnels dus aux précipitations
Couflens	1	0	1
Seix	1	0	1
Ustou	1	3	1

Tableau 5 : Liste des arrêtés de reconnaissance de catastrophe naturelle (CATNAT)

Il est notable que la commune d'Ustou est particulièrement sujette aux inondations accompagnées de coulées de boue.

3.2.8 Qualité de l'air

Le plan régional pour la qualité de l'air (PRQA) de la région Midi-Pyrénées révisé 2008-2013 vise à proposer, sur la base d'un diagnostic partagé, des mesures et des recommandations en vue d'améliorer la qualité de l'air et son suivi dans les années à venir. Il constitue également une référence régionale importante sur les multiples sources et les quantités d'émissions polluantes en Midi-Pyrénées.

L'état de la qualité de l'air en Midi-Pyrénées est estimé à partir des mesures continues sur différentes stations, de polluants atmosphériques indicateurs de familles de composés.

Pour compléter les connaissances sur la qualité de l'air dans les vallées pyrénéennes, l'ORAMIP a installé une station de qualité de l'air en novembre 2011 à Ax-les-Thermes à 50 km à l'ouest du PERM.

Sans entrer dans le détail des polluants, on peut souligner que la qualité de l'air ambiant dans le secteur du PERM est proche de celle mesurée à Ax-les-Thermes qui, pour l'année 2012, montre un niveau d'ozone inférieur à ceux habituellement rencontrés en

environnement rural en Midi-Pyrénées. La formation d'ozone, qui nécessite un ensoleillement et des températures conséquentes semble limitée dans la vallée. Cette observation est d'autant plus vraie sur le secteur de Couflens aux vallées très encaissées. Les concentrations en dioxyde d'azote, émis principalement par le trafic routier, demeurent très faibles. Les niveaux de particules en suspension, normalement élevés en hiver, restent très inférieurs à ceux rencontrés dans les villes comme Tarbes ou Lourdes. Le Benzo[a]pyrène, polluant issu majoritairement du chauffage à bois, reste en-dessous du seuil réglementaire.

3.3 Milieu naturel

3.3.1 Contexte biog®ographique

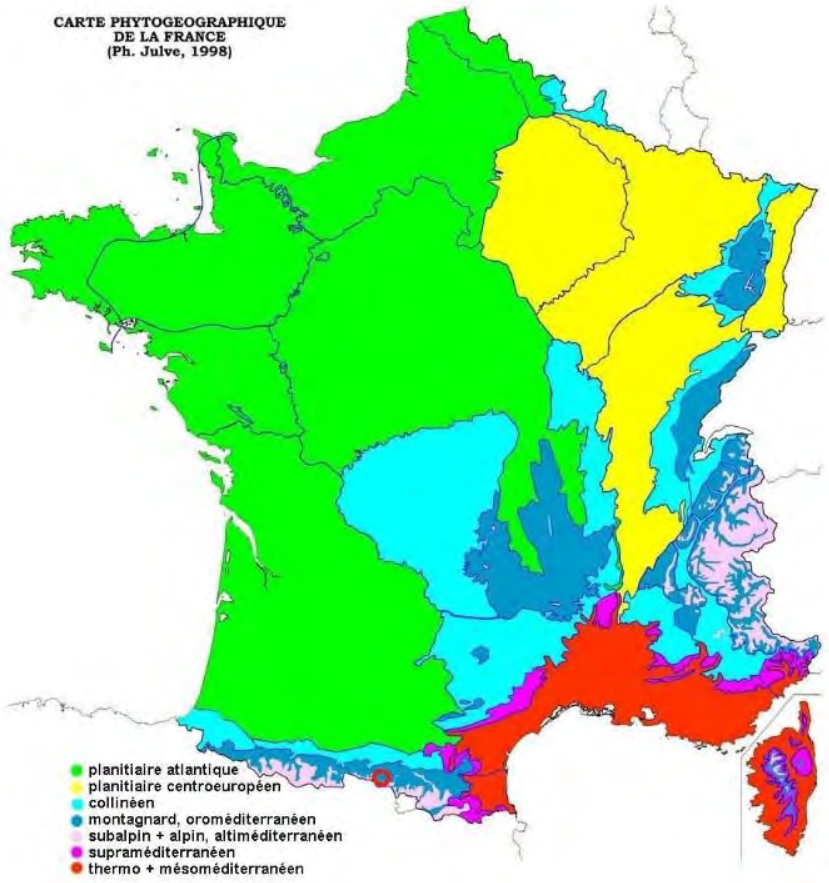


Figure 20 : Carte des territoires phytogéographiques de France

Comme la carte de la **Figure 20** l'illustre, le PERM (cercle rouge) se situe dans une région phytogéographique montagnarde, oroméditerranéenne à subalpine, altiméditerranéenne.

Les principales essences d'arbre dans les Pyrénées sont le pin à crochets en altitude, le hêtre commun et le sapin blanc en moyenne montagne; puis le chênehttp://fr.wikipedia.org/wiki/Ch%C3%AAne et le châtaignier sur les basses pentes. L'agriculture est limitée dans les vallées aux céréales et aux arbres fruitiers.

L'orientation d'ouest en est de la chaîne a eu pour conséquence qu'un grand nombre d'espèces qui étaient présentes au nord des Pyrénées durant l'ère tertiaire ont disparu en raison du froid pendant la dernière grande glaciation (maximum glaciaire vers -20 000 ans) : elles ont en effet buté en migrant vers des zones de basses latitudes plus clémentes contre la chaîne de montagnes, qu'elles n'ont pas pu franchir. Toutefois, quelques espèces ont pu subsister dans des vallées protégées des Pyrénées, devenant endémiques.

La montagne ariégeoise particulièrement préservée, abrite un patrimoine naturel exceptionnel. De nombreuses espèces rares y vivent : le gypaète barbu, le vautour percnoptère, le grand tétras, le desman ou encore le lys des Pyrénées. Seulement 1 % du territoire couvert par ce parc est « artificialisé », tandis que 85 % figure à l'inventaire des zones naturelles d'intérêt écologique, faunistique et floristique.

Le paragraphe qui suit vise à dresser l'inventaire des outils et des périmètres de protection et de conservation existants sur tout ou partie du territoire d'étude. Les cartes des **Figure 21** et **Figure 22** illustrent la répartition des espaces naturels inventoriés ou protégés.

3.3.2 Espaces naturels prot®g®s, r®glement®s ou ¨ gestion contractuelle

Parc National

« Institué par Décret du Conseil d'État, les Parcs nationaux ont vocation à protéger tout ou partie du territoire d'une ou de plusieurs communes dont la conservation de la faune, de la flore, du sol, du sous-sol, de l'atmosphère, des eaux et, en général, du milieu naturel présente un intérêt spécial. Ils ont pour objectifs la préservation des milieux et des espaces naturels, de leur aspect, composition et évolution, ainsi que le développement économique, social et culturel de la zone géographique comprenant le parc national. Les contraintes réglementaires y sont particulièrement fortes »

Sur le territoire d'étude, aucun Parc National n'est défini.

Réserve Naturelle Nationale (loi du 10 juillet 1976)

« Une RNN est un territoire classé lorsque la conservation de la faune, de la flore, du sol, des eaux, de gisements de minéraux et de fouilles et, en général, du milieu naturel présente une importance particulière ou qu'il convient de les soustraire à toute intervention artificielle susceptible de les dégrader. Le classement en RNN doit procéder de la volonté d'assurer la conservation d'éléments du milieu naturel d'intérêt national, ou de celle d'assurer la mise en œuvre d'une réglementation communautaire ou d'une obligation résultant d'une convention internationale. La réserve naturelle fait l'objet d'une réglementation spécifique portant soit sur la globalité du milieu naturel, soit plus spécialement sur une ou plusieurs de ses composantes (faune, flore, sol, eaux, gisements de minéraux ou de fossiles) »

Sur le territoire étudié, aucune Réserve Naturelle Nationale n'est recensée.

Réserve Naturelle Volontaire (loi du 10 juillet 1976) devenue Réserve Naturelle Régionale (loi du 27 février 2002 – décret du 18 mai 2005)

« Une RNV est un outil de protection réglementaire de zones dont le milieu naturel ou les espèces présentes sont d'une importance exceptionnelle. Elle peut ensuite devenir Réserve Naturelle Régionale par désignation de la Région ou de l'État. C'est un instrument très fort de protection car toute modification ou destruction du milieu naturel au sein de la réserve nécessite une autorisation ministérielle après avis du Comité National de Protection de la Nature »

Sur le territoire étudié, aucune Réserve Naturelle Régionale ou Volontaire n'est recensée.

Réserve Nationale de Chasse et de Faune Sauvage

« Ce sont des espaces protégés terrestres ou marins dont la gestion est principalement assurée par l'Office National de la Chasse et de la Faune Sauvage. Celui-ci veille au maintien d'activités cynégétiques durables et à la définition d'un réseau suffisant d'espaces non chassés susceptibles d'accueillir notamment l'avifaune migratrice. La pratique de la chasse y est interdite, ainsi que toute autre activité susceptible de déranger la faune sauvage »

Aucune Réserve de ce type n'est recensée sur l'emprise des communes et du PERM.

Forêt de Protection et Réserve Biologique (art. L.411-1 et R.411-1 et suivants du code forestier ; Conventions du 3 février 1981 et du 14 mai 1986)

« Le classement en forêt de protection est un outil juridique contraignant réservé aux massifs présentant de forts enjeux en matière environnementale et sociale. Il crée une servitude d'urbanisme et soumet la forêt à un régime forestier spécial qui entraîne une restriction de la jouissance du droit de propriété : tout défrichement est interdit ainsi que toute implantation d'infrastructure. Il permet également de contrôler la circulation du public et des véhicules motorisés »

« Une Réserve Biologique est une réserve naturelle ayant pour objectif la protection des habitats et/ou des espèces vulnérables en milieux forestiers et périphériques. Il existe trois niveaux de protections différents : la réserve biologique intégrale (RBDI / RBFI) où toute opération sylvicole hors entretien est interdite, la réserve biologique dirigée (RBDD / RBFD) où une exploitation forestière douce peut être envisagée, et les « zones-tampons » où une gestion spécifiques est mise en œuvre pour protéger la réserve »

Le massif forestier des communes de Couflens et Ustou, forêt privée, est classé depuis le 08/05/1925 en forêt de protection « montagne » pour une surface de 994,48 hectares[9].
Une partie de cette forêt est recensée sur l'emprise du projet de PERM.

Arrêté Préfectoral de Protection de Biotope (circulaire n° 90-95 du 27 juillet 1990)

« Un APPB est une protection réglementaire de conservation des habitats d'espèces protégées. Cette protection est également très forte et tout aménagement ou travaux est proscrit dans ces zones »

Un Arrêté Préfectoral de Protection de Biotope est recensé sur la Garonne, l'Ariège, l'Hers vif et le Salat (FR3800264)[10] (cf. Annexe 5). Cependant il ne s'applique qu'à partir de la hauteur de la Bastide-du-Salat, en aval de Saint-Girons, par conséquent largement en dehors et en aval du périmètre du PERM COUFLENS.

Site inscrit et Site classé (loi de 1930 sur les sites et paysages)

« Cette protection vise à la conservation des caractères historique, artistique, scientifique, légendaire ou pittoresque les lieux exceptionnels d'intérêt national. Tous les travaux et aménagements sont soumis à autorisation du Ministre ou Préfet après

[9] http://agriculture.gouv.fr/IMG/pdf/tableaubrochure_140807.pdf
[10] http://inpn.mnhn.fr/espace/protege/FR3800264

avis de l'Architecte des Bâtiments de France dans le cas des sites classés et à avis de l'A.B.F. pour les sites inscrits »

Deux sites classés sont recensés à proximité du PERM COUFLENS.

Les deux sites classés se trouvent sur la commune d'Ustou. Il s'agit de l'ensemble formé par le cirque de Cagateille et ses vallées suspendues classé pour son pittoresque par décret du 15 septembre 1993 et de l'ormeau séculaire situé dans la commune d'Ustou classé tous critères (artistique, pittoresque, scientifique, historique et légendaire) par arrêté du 5 septembre 1922.

Toutefois, ces sites ne sont pas concernés par le périmètre du PERM.

Réserve de Biosphère (Programme sur l'Homme et la Biosphère de l'UNESCO, 1974 – Conférence de Séville, mars 1995)

« Les Réserves de Biosphère sont des aires portant sur des écosystèmes terrestres et côtiers/marins qui s'efforcent de constituer des sites modèles d'études et de démonstration des approches de la conservation et du développement durable. Il s'agit d'un label accordé par l'UNESCO dans le cadre de son Programme sur l'Homme et la Biosphère (1974) destiné à associer les populations locales aux objectifs de protection et de conservation des milieux naturels, des paysages et de la biodiversité, tout en accompagnant le développement des territoires. Il existe aujourd'hui dans le monde 529 sites répartis dans 105 pays, dont 10 sont sur le territoire français. Constituée de 3 zones distinctes (aire centrale, zone tampon et zone de transition), les réserves de biosphère n'ont aucune portée réglementaire. Il convient toutefois de s'assurer que les projets de développement soient en adéquation avec les objectifs visés par ce label de l'UNESCO »

Aucune protection de ce type n'existe sur le territoire d'étude.

Parc Naturel Régional

« Les parcs naturels régionaux (PNR) concourent à la politique de protection de l'environnement, d'aménagement du territoire, de développement économique et social, d'éducation et de formation du public et constituent un cadre privilégié des actions menées par les collectivités publiques en faveur de la préservation des paysages et du patrimoine naturel et culturel »

La commune de Couflens concernée par le PERM, ainsi que les deux communes avoisinantes d'Ustou et de Seix sont adhérentes à la charte du PNR des Pyrénées ariégeoises (cf. Annexe 6).

Ceci implique que le projet minier et les travaux envisagés devront être rendus compatibles avec les objectifs visés par la charte du PNR.

Espaces Naturels Sensibles

« Les lois de décentralisation de 1982 et 1983 ont donné compétence aux Départements pour élaborer et mettre en œuvre une politique de protection, de gestion et d'ouverture au public des espaces naturels sensibles. Le Conseil général acquiert des terrains, les

met en valeur, prioritairement en vue de leur ouverture au public, et en assure le suivi dans le cadre de conventions signées avec les collectivités directement concernées ou les associations naturalistes agréées »

Un seul site dans le département de l'Ariège est géré par le Conservatoire d'Espaces Naturels de Midi-Pyrénées et le périmètre du PERM COUFLENS n'est pas concerné par des Espaces Naturels Sensibles.

Trame verte et bleue (Schéma Régional de Cohérence Ecologique)
« La fragmentation des milieux implique une fragilisation des populations animales et végétales. Afin d'assurer la protection, la préservation et la gestion des milieux naturels, des paysages et de la biodiversité tout en prenant en compte les activités humaines, les lois Grenelle I et II ont institué des zones de continuité écologique appelées trames vertes et trames bleues. La composante verte correspond aux milieux et corridors favorisant les circulations et la préservation de la biodiversité, tandis que la composante bleue correspond davantage aux milieux humides et aquatiques. La définition de ces trames est au cœur du Schéma Régional de Cohérence Ecologique qui fixe les en cohérence avec les orientations nationales et s'impose à tout document de planification, d'aménagement ou d'urbanisme »

Le comité régional Trame verte et bleue de Midi-Pyrénées a été institué le 31 janvier 2012.
De ce fait, le schéma régional de cohérence écologique de Midi-Pyrénées est en cours d'élaboration. Aucune carte n'est officiellement approuvée, même si de nombreuses cartes sont consultables dans le projet de SRCE de janvier 2012. Les mesures nécessaires seront toutefois prises le moment venu afin de rendre le projet compatible avec les continuités écologiques du territoire.
Les cartes en cours d'élaboration de la Trame verte et bleue[11] sont présentées en **Annexe 7**.

Conservatoire des espaces naturels et du littoral
« Mener une politique foncière, en partenariat avec les collectivités territoriales, de sauvegarde et de maintien des sites naturels et de l'équilibre écologique, par l'acquisition de sites fragiles et menacés, en vue de leur protection définitive »

Le périmètre du PERM n'est pas concerné par ce type d'espaces.

3.3.3 Sites du r®seau Natura 2000

Zone de Protection Spéciale (directive CEE 79/409 du 2 avril 1979 « oiseaux »)
« Cette protection issue de la traduction en droit français de la Directive communautaire dite « Oiseaux » vise à la préservation, la conservation, la création et l'entretien d'habitats d'oiseaux sauvages menacés par la mise en œuvre de mesures de type réglementaire ou contractuel. Basés sur l'inventaire ZICO défini plus loin, les ZPS ont été complétée en 1992 par la directive Habitat présentée ci-après »

Une ZPS est identifiée dans l'environnement immédiat du projet de PERM COUFLENS.

[11] http://www.midi-pyrenees.developpement-durable.gouv.fr/la-trame-verte-et-bleue-tvb-en-r3194.html

Le **Tableau 6** synthétise les données relatives à ce site.

Type	Identifiant	Nom	Superficie (ha)	Distance au plus proche du PERM	Communes concernées
ZPS	FR7312003	MASSIF DU MONT VALIER	10619	En limite ouest	Seix

Tableau 6 : Zone de Protection Spéciale recensée

Zone Spéciale de Conservation ou Site d'Importance Communautaire (directive CEE 92/43 du 21 mai 1992 « habitats-faune-flore » modifiée par la directive CEE 97/62 du 27 octobre 1997)

«Cette protection issue de la traduction en droit français de la Directive communautaire dite « Habitats-faune-flore » vise à la préservation d'un patrimoine naturel exceptionnel sur un site identifié (biodiversité et qualité des habitats). Il s'agit d'un site d'importance communautaire désigné par les États membres par un acte réglementaire, administratif et/ou contractuel où sont appliqués les mesures de conservation nécessaires au maintien ou au rétablissement, dans un état de conservation favorable, des habitats naturels et/ou des populations des espèces pour lesquels le site est désigné. Tous travaux sur un site Natura 2000 ou à ses abords doit faire l'objet d'un dossier d'incidences Natura 2000, et doivent recevoir une autorisation de la Commission Européenne »

Deux SIC (ou ZSC) sont identifiés sur les communes de Couflens et Seix.

Le **Tableau 7** synthétise les données relatives à ces sites.

Type	Identifiant	Nom	Superficie (ha)	Distance au plus proche du PERM	Communes concernées
SIC	FR7300822	VALLEE DU RIBEROT ET MASSIF DU MONT VALLIER	38,51	En limite ouest	Seix
SIC	FR7301822	GARONNE, ARIEGE, HERS, SALAT, PIQUE ET NESTE	9602	PERM incorporé	Couflens, Seix

Tableau 7 : Liste des Sites d'Importance Communautaire recensés

L'incidence du projet sur ces sites est étudiée de manière spécifique dans le document d'incidence sur les sites du réseau Natura 2000.

Les fiches descriptives des sites Natura 2000 sont présentées en **Annexe 8**.

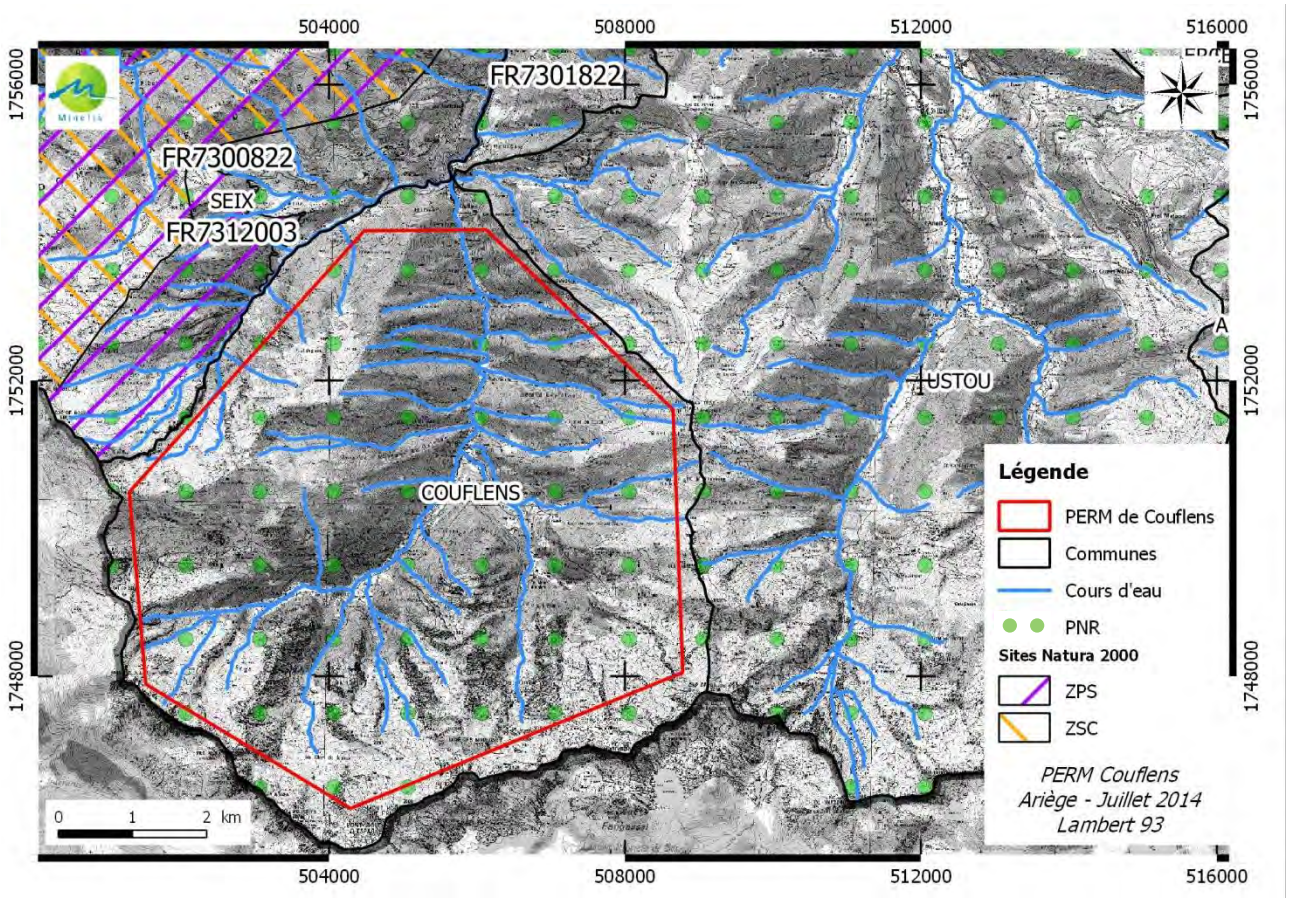


Figure 21 : Carte des espaces naturels protégés et réglementés sur le territoire d'étude

3.3.4 Inventaires scientifiques et zones dônt®r° t environnemental

Zone humide d'importance internationale (Convention Ramsar – 2 février 1971, Iran)

« Les zones humides entendues au sens de la Convention de Ramsar, sont des étendues de marais, de fagnes, de tourbières ou d'eaux naturelles ou artificielles, permanentes ou temporaires, où l'eau est stagnante ou courante, douce, saumâtre ou salée, y compris des étendues d'eau marine dont la profondeur à marée basse n'excède pas six mètres. Leur choix doit être fondé sur leur importance internationale au point de vue écologique, botanique, zoologique, limnologique ou hydrologique. Les critères d'intérêt culturel des zones humides participent également au classement des sites »

Sur le territoire d'étude, aucune zone humide dite « Ramsar » n'est définie.

Zone humide d'importance majeure

« Les zones humides d'importance majeure sont suivies par l'observatoire national des zones humides (ONZH). Ces zones humides sont représentatives des différents types d'écosystèmes présents sur le territoire métropolitain, tant au point de vue de la diversité écologique des milieux que des contextes socio-économiques »

Sur le territoire d'étude, aucune zone humide d'importance majeure n'est définie.

Zone Importante pour la Conservation des Oiseaux

« Sans avoir de valeur réglementaire, une ZICO est une zone de surveillance et de suivi de l'avifaune, et indique donc un territoire riche en ce sens. Les ZICO ont pour vocation d'inventorier de vastes secteurs comprenant des milieux importants pour la vie de certains oiseaux, susceptibles d'être intégrées dans le réseau des ZPS pour les zones les plus intéressantes. Il est donc recommandé de porter une attention particulière à ces zones lors de l'élaboration de projets d'aménagement ou de gestion. »

Sur le territoire d'étude, aucune ZICO n'est définie.

Zone Naturelle d'Intérêt Écologique, Faunistique et Floristique (circulaire n° 91-71 du 14 mai 1991)

« Sans avoir de valeur réglementaire, une ZNIEFF est une zone identifiée avec des secteurs présentant de fortes capacités biologiques et un bon état de conservation. On distingue les ZNIEFF de type 2 : grands ensembles naturels riches et peu modifiés, qui offrent des potentialités biologiques importantes par leur contenu patrimonial ; et les ZNIEFF de type 1 : secteur de superficie en général limitée correspondant à plusieurs unités écologiques homogènes abritant au moins une espèce ou un habitat caractéristique remarquable ou rare, justifiant une valeur patrimoniale élevée. Bien que n'ayant pas de portée juridique en matière de protection, cet inventaire est un élément majeur de la politique de la protection de la nature et doit être consulté dans le cadre de projets d'aménagement du territoire. « Un maître d'ouvrage qui aurait été informé d'une ZNIEFF, mais n'en tiendrait pas compte, risque une issue défavorable de sa demande administrative ou de faire l'objet d'un recours pour « erreur manifeste d'appréciation de l'état de l'environnement » (circulaire du Ministère de l'Environnement, 14 mai 1991) »

Vingt-six ZNIEFF 1 et quatre ZNIEFF 2 sont recensées sur l'emprise du PERM COUFLENS et sur le territoire des communes de Seix et Ustou.

Le **Tableau 8** et le **Tableau 9** répertorient l'ensemble des ZNIEFF les plus proches ou à l'intérieur du secteur d'étude. Les sites ZNIEFF dont le nom est suivi d'une étoile (*) sont ceux dont les fiches descriptives sont indisponibles dans la base de données de l'INPN du fait d'une mise à jour de l'inventaire des ZNIEFF continentales avec la modernisation de la région Midi-Pyrénées[12] depuis le 28 juin 2014. Elles ne figurent donc pas en annexes de ce document.

Les milieux concernés sont de nature variée : massifs forestiers, zones humides, falaises continentales et rochers exposés, ou encore landes, fonds de vallées et ruisseaux. Ces différents biotopes favorisent le développement d'une flore et d'une faune riches et variées. De plus amples informations sur la richesse floristique et faunistique sont disponibles sur les fiches descriptives de ces différents sites (cf. **Annexe 9**).

Un intérêt tout particulier sera apporté à la protection des milieux et des espèces lorsque des travaux seront entrepris à proximité de ces zones (poussières, vibrations et émissions sonores notamment). Lors de la phase de travaux, VARISCAN MINES étudiera plus précisément les fiches ZNIEFF afin d'en connaître la richesse spécifique.

[12] http://inpn.mnhn.fr/actualites/lire/3261/le-sud-ouest-et-la-reunion-a-l-honneur-dans-l-inventaire-znieff-continentales

Type	Identifiant	Nom	Superficie (ha)	Distance au plus proche du PERM	Communes concernées
ZNIEFF I	730011898	FORET DE ROUZE BOIS D'ESPIULOU	1125,49	A l'intérieur PERM	COUFLENS
ZNIEFF I	730011899	BOIS DU MAIL DE LA FOURQUE ET D'ANGLADE	647,07	A l'intérieur PERM	COUFLENS
ZNIEFF I	730011900	MONTAGNES DE SALAU, MONT ROUCH	1298,95	A l'intérieur PERM	COUFLENS
ZNIEFF I	730011908	VALLEE DU FOUILLET ET RAVINS DE FONTARECH	831,46	7 km à l'est	USTOU
ZNIEFF I	730011909	ENSEMBLE LACUSTRE DE TURGUILLA*	337,02	8 km à l'est	USTOU
ZNIEFF I	730011910	MASSIF DU PIC DE CERTESCAN	16070,54	4 km à l'est	USTOU
ZNIEFF I	730011911	VALLON DU RUISSEAU DES CORS ET CIRQUE DE CAGATEILLE*	732,92	6 km à l'est	USTOU
ZNIEFF I	730012033	LANDE DU TUCAU	4,05	750 m au nord	COUFLENS
ZNIEFF I	730012034	BOIS DE FOUGAS ET BOIS DE L'ARRECH	530,75	6 km à l'est	USTOU
ZNIEFF I	730012035	BOIS DES ACEDIS, VALLEE D'OSSESE	1610,67	2 km à l'est	USTOU
ZNIEFF I	730012036	CRETE DU PIC DE SOUBIROU ET PIC DE MARTERAT, FOND DU CIRQUE D'OSSESE	1872,84	Bordure est	USTOU
ZNIEFF I	730012037	FORET DE LA FONTA*	1789,65	Bordure nord	USTOU / COUFLENS
ZNIEFF I	730012042	BOIS DE MIRABAT, D'OUST ET DU POCOU DE GEU	1670,39	6 km au nord-est	SEIX / USTOU
ZNIEFF I	730012050	MASSIF DU MONT VALIER*	18785,2	5 km à l'ouest	COUFLENS/ SEIX / USTOU
ZNIEFF I	730012051	MONTAGNE D'AULA	641,84	2 km à l'ouest	SEIX
ZNIEFF I	730012052	MONTAGNE DE QUER NER ET VALLON DE LAMEZIA*	738,19	7 km à l'ouest	SEIX
ZNIEFF I	730012053	PIC DE FONTA*	366,31	1 km au nord	SEIX
ZNIEFF I	730012059	FORETS D'OUST, TUC DE L'ADOSSE ET DE MIRABAT	3126,72	8 km au nord	SEIX / USTOU
ZNIEFF I	730012060	BOIS DE POURSUGUES	436,18	4 km au nord	SEIX
ZNIEFF I	730012061	FORET DE FONTA*	464,89	4 km au nord-ouest	SEIX
ZNIEFF I	730012062	BOIS DES HOUILLERES*	570,85	2 km au nord	SEIX
ZNIEFF I	730012063	BOIS D'ARCOUZAN, DE JAPTOI ET DE BIBET, VALLEE DE L'ARTIGUE	583,67	2 km au nord-ouest	SEIX

ZNIEFF I	730012064	PIC DE MONTAGNOL ET VALLEE D'ANGOULS*	1655,8	Partie ouest PERM à l'intérieur	COUFLENS / SEIX
ZNIEFF I	730012065	BOIS DE FOURQUET, DE GALEDRE ET DE SAINT JOUAN	861,97	A l'intérieur PERM	COUFLENS
ZNIEFF I	730012078	BOIS DE L'AUBE, LA MEDE, BOIS D'ARROS	750,09	9 km au nord-ouest	SEIX
ZNIEFF I	730012079	FORET DE LAMECH, BOIS D'ESCALERES	1217,18	6 km au nord-ouest	SEIX

Tableau 8 : Liste des Z.N.I.E.F.F. type 1 recensées sur l'emprise du PERM COUFLENS et sur le territoire des communes de Seix et Ustou

Type	Identifiant	Nom	Superficie (ha)	Distance au plus proche du PERM	Communes concernées
ZNIEFF 2	730012048	MASSIF DU PIC DE CERTESCANS	30349,92	Partie est PERM à l'intérieur	USTOU / COUFLENS
ZNIEFF 2	730012058	MONTAGNES D'ERCE, OUST ET MASSAT*	12639,55	8 km au nord	SEIX / USTOU
ZNIEFF 2	730012072	MASSIF DU MONT VALIER	18550,89	Partie ouest PERM à l'intérieur	COUFLENS / SEIX
ZNIEFF 2	730012085	MASSIF DU BOUIREX ET MONTAGNE DE SOURROQUE*	32356,76	10 km au nord	SEIX

Tableau 9 : Liste des Z.N.I.E.F.F. type 2 recensées sur l'emprise du PERM COUFLENS et sur le territoire des communes de Seix et Ustou

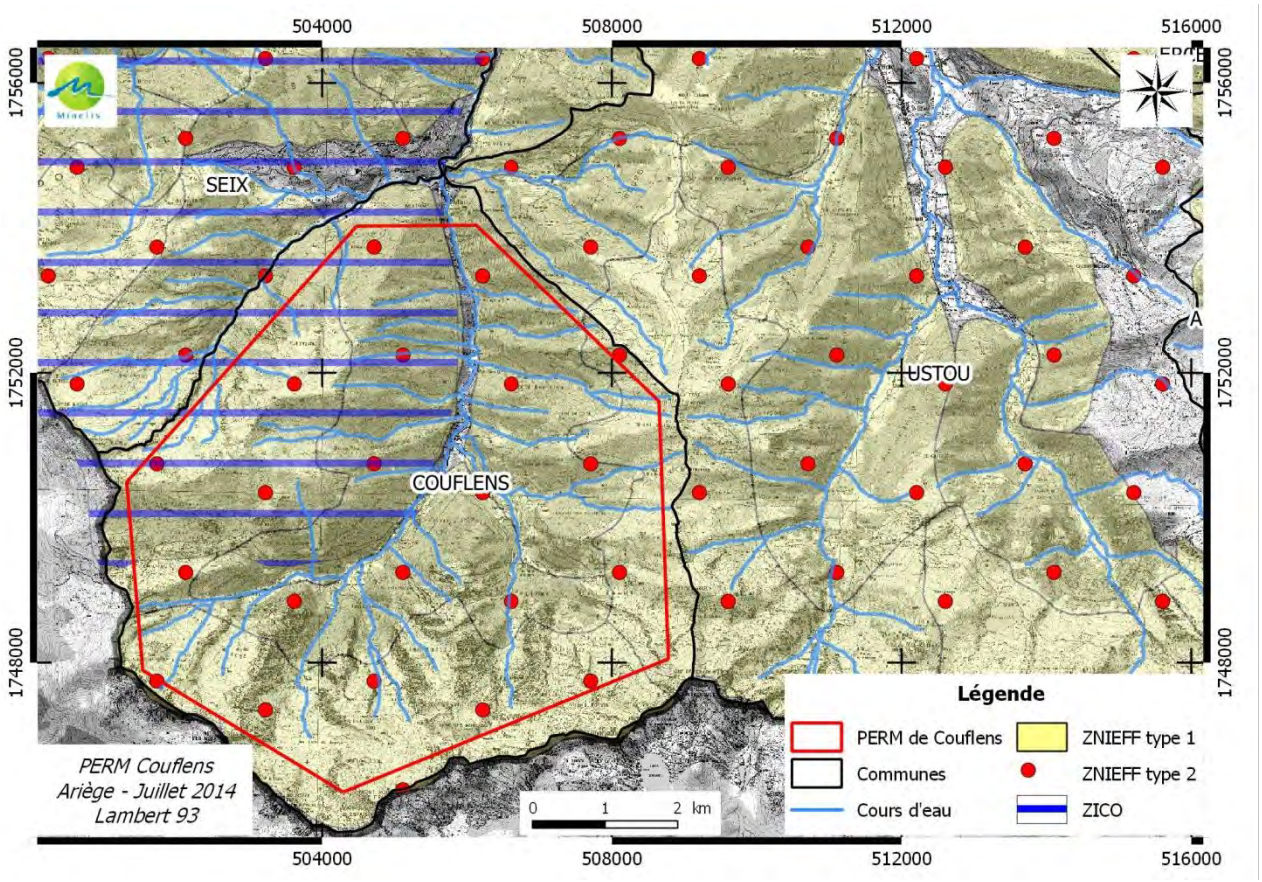


Figure 22 : Carte des zones d'inventaire dans le secteur d'étude

3.3.5 Flore prot®g®e connue sur le PERM

La consultation du site de l'Inventaire National du Patrimoine Naturel (INPN) permet de recenser les espèces végétales protégées ou réglementées à l'échelle communale. La liste des espèces végétales protégées présentée ci-après résulte de la synthèse de ces recensements communaux. Elle ne préjuge cependant pas de la possibilité de trouver d'autres espèces non encore répertoriées dans la base de données.

Arrêté interministériel du 30 décembre 2004 relatif à la liste des espèces végétales protégées en région Midi-Pyrénées complétant la liste nationale :

Article 1	*Cerastium pyrenaicum*	Céraiste des Pyrénées
	Jacobaea leucophylla	Herbe du Mézenc
	Saxifraga pubescens	Saxifrage pubescente
	Thalictrum macrocarpum	Pigamon à grands fruits, Pigamon à gros fruits
	Viola diversifolia	Pensée de Lapeyrouse
	Erodium glandulosum	Érodium à poils glanduleux, Bec-de-grue glanduleux
	Globularia gracilis	Globulaire grêle
	Seseli montanum	Séséli nain

Arrêté interministériel du 20 janvier 1982 relatif à la liste des espèces végétales protégées sur l'ensemble du territoire, modifié par les arrêtés du 15 septembre 1982 (JORF du 14 décembre 1982, p. 11147), du 31 août 1995 (JORF du 17 octobre 1995, pp. 15099-15101), du 14 décembre 2006 (JORF du 24 février 2007, p. 62) et du 23 mai 2013 (JORF du 7 juin 2013, texte 24) :

Article 1	*Nothobartsia spicata*	Bartsie en épi
	Polystichum braunii	Polystic de Braun
	Isoetes lacustris	Isoète des lacs
	Polystichum braunii	Polystic de Braun

3.3.6 Faune prot®g®e connue sur le PERM

La consultation du site de l'Inventaire National du Patrimoine Naturel (INPN) permet de recenser les espèces animales protégées ou réglementées à l'échelle communale. La liste des espèces animales protégées présentée ci-après résulte de la synthèse de ces recensements communaux. Elle ne préjuge cependant pas de la possibilité de trouver d'autres espèces non encore répertoriés dans la base de données.

Directive 92/43/CEE du Conseil du 21 mai 1992 concernant la conservation des habitats naturels ainsi que de la faune et de la flore sauvages (modifiée par la Directive 97/62/CEE du Conseil du 27 octobre 1997, le Règlement (CE) n° 1882/2003 du Parlement et du Conseil du 29 septembre 2003 et la Directive 2006/105/CE du 20 novembre 2006) :

Annexe II	*Cottus gobio*	Chabot, Chabot commun
	Galemys pyrenaicus	Desman des Pyrénées
	Salmo salar	Saumon atlantique
	Lucanus cervus	Lucane Cerf-volant
	Ursus arctos	Ours brun, Ours
Annexe IV	*Coronella austriaca*	Coronelle lisse
	Felis silvestris	Chat sauvage
	Galemys pyrenaicus	Desman des Pyrénées
	Podarcis muralis	Lézard des murailles
	Ursus arctos	Ours brun, Ours

Annexe V	*Martes martes*	Martre des pins, Martre
	Rupicapra rupicapra	Chamois
	Salmo salar	Saumon atlantique
	Genetta genetta	Genette commune, Genette
	Mustela putorius	Putois d'Europe, Furet
	Rana temporaria	Grenouille rousse

Règlement (CE) N° 338/97 (modifié par le Règlement (UE) N° 101/2012 du 6 février 2012) du Conseil du 9 décembre 1996 relatif à la protection des espèces de faune et de flore sauvages par le contrôle de leur commerce :

Annexe A	*Felis silvestris*	Chat sauvage
	Ursus arctos	Ours brun, Ours
Annexe II	*Coronella austriaca*	Coronelle lisse
	Felis silvestris	Chat sauvage
	Galemys pyrenaicus	Desman des Pyrénées
	Podarcis muralis	Lézard des murailles
	Ursus arctos	Ours brun, Ours
Annexe III	*Capreolus capreolus*	Chevreuil européen, Chevreuil
	Eliomys quercinus	Lérot
	Genetta genetta	Genette commune, Genette
	Glis glis	Loir gris, Loir
	Lucanus cervus	Lucane Cerf-volant
	Martes foina	Fouine
	Martes martes	Martre des pins, Martre
	Meles meles	Blaireau européen
	Mustela erminea	Hermine
	Mustela nivalis	Belette d'Europe
	Mustela putorius	Putois d'Europe, Furet
	Rana temporaria	Grenouille rousse
	Rupicapra rupicapra	Chamois
	Sorex coronatus	Musaraigne couronnée
	Anguis fragilis	Orvet fragile
	Coronella austriaca	Coronelle lisse
	Marmota marmota	Marmotte des Alpes, Marmotte
	Natrix natrix	Couleuvre à collier
	Salamandra salamandra	Salamandre tachetée
	Salmo salar	Saumon atlantique
	Zootoca vivipara	Lézard vivipare

Convention pour la protection du milieu marin de l'Atlantique du nord-est (Convention OSPAR) :

Annexe V	*Salmo salar*	Saumon atlantique

Arrêté ministériel du 26 juin 1987 fixant la liste des espèces de gibier dont la chasse est autorisée :

Premier	*Capreolus capreolus*	Chevreuil européen, Chevreuil
	Marmota marmota	Marmotte des Alpes, Marmotte
	Martes martes	Martre des pins, Martre
	Mustela erminea	Hermine
	Rupicapra rupicapra	Chamois
	Sus scrofa	Sanglier
	Vulpes vulpes	Renard roux
	Martes foina	Fouine
	Meles meles	Blaireau européen

	Mustela nivalis	Belette d'Europe
	Mustela putorius	Putois d'Europe, Furet
	Oryctolagus cuniculus	Lapin de garenne

Arrêté interministériel du 8 décembre 1988 fixant la liste des espèces de poissons protégées sur l'ensemble du territoire national :

Article 1	*Salmo salar*	Saumon atlantique
	Salmo trutta fario	Truite de rivière

Arrêté interministériel du 19 novembre 2007 fixant les listes des amphibiens et des reptiles protégés sur l'ensemble du territoire et les modalités de leur protection (JORF 18 décembre 2007, p. 20363) :

Article 2	*Podarcis muralis*	Lézard des murailles
	Coronella austriaca	Coronelle lisse
	Natrix natrix	Couleuvre à collier
	Alytes obstetricans	Alyte accoucheur, crapaud accoucheur
Article 3	*Anguis fragilis*	Orvet fragile
	Salamandra salamandra	Salamandre tachetée
	Zootoca vivipara	Lézard vivipare
Article 4	*Vipera aspis*	Vipère aspic
Article 5	*Rana temporaria*	Grenouille rousse

Arrêté interministériel du 9 juillet 1999 fixant la liste des espèces de vertébrés protégées menacées d'extinction en France et dont l'aire de répartition excède le territoire d'un département, modifié par l'arrêté du 27 mai 2009 (JORF du 29 mai 2009, p. 8889) :

Article 1	*Ursus arctos*	Ours brun, Ours

Arrêté interministériel du 23 avril 2007 fixant la liste des mammifères terrestres protégés sur l'ensemble du territoire et les modalités de leur protection (modif. arrêté du 15 septembre 2012) :

Article 2	*Felis silvestris*	Chat sauvage
	Galemys pyrenaicus	Desman des Pyrénées
	Genetta genetta	Genette commune, Genette
	Ursus arctos	Ours brun, Ours
	Erinaceus europaeus	Hérisson d'Europe
	Sciurus vulgaris	Écureuil roux

3.4 Milieu humain

3.4.1 Pr®sentation de la commune et d®mographie

La commune de Couflens concernée par le projet est située dans le département de l'Ariège, l'arrondissement de Saint-Girons et le canton d'Oust.
La commune de Couflens accueille la mairie dont dépendent les hameaux d'Angouls, Espalots, Lau, les Capsades, la Souleille et le village de Salau.

Jusqu'à la fin du XIX^{e} siècle, la population de Couflens dépassait le millier d'habitants vivant (souvent fort mal) de l'agro pastoralisme. Sous l'effet conjugué de la première guerre mondiale et des crues dévastatrices régulières du Salat en 1875, 1897, 1910 et 1937 à l'origine de dommages importants sur les constructions et ouvrages, la population n'était plus que de 183 habitants en 1946. L'exploitation du tungstène par la Société Minière d'Anglade au Pic de la Fourque non loin du village de Salau dans les années 1970-80 permit à la commune de retrouver un nouvel essor et une population plus importante avec un pic de 371 habitants en 1975. Malheureusement, la fermeture de la mine et la crue exceptionnelle de 1982 eurent raison de ce regain démographique, et en 2011 la population de Couflens n'était plus que de 81 habitants. Ce chiffre demeure stable depuis une quinzaine d'années.

La superficie de la commune étant de 56,3 km^2, la densité de sa population en 2011 n'est que de 1,5 habitant au km^2, ce qui est très faible en rapport à la moyenne nationale (108 hab./km^2) traduisant le caractère rural, montagnard et une situation en « cul-de-sac » près de la frontière franco-espagnole.

De manière générale, la population a tendance à vieillir comme le montre le graphe de la **Figure 23**.

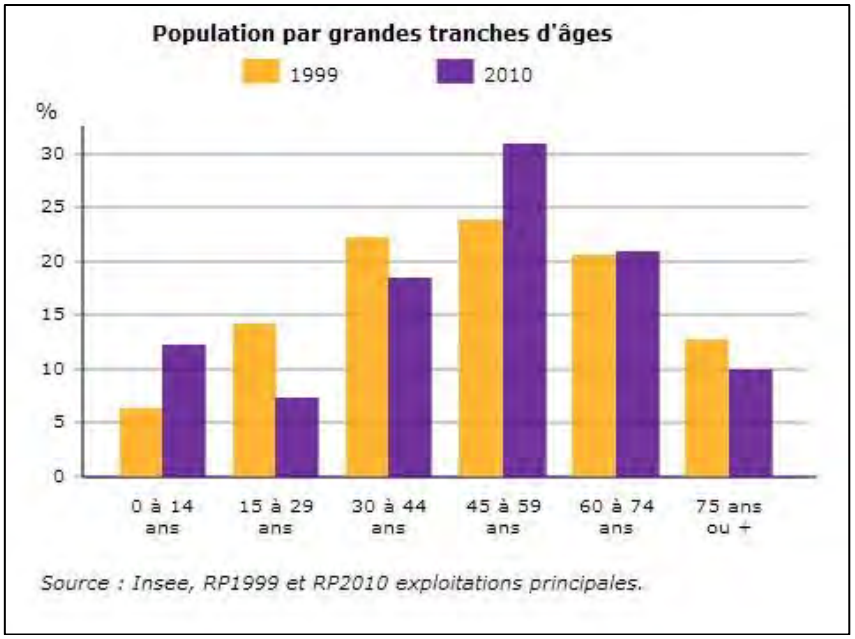


Figure 23 : Evolution de la population de Couflens entre 1999 et 2010

Le **Tableau 10** résume les grands traits démographiques du territoire d'étude[13].

Commune	Population	Superficie (km²)	Densité (hab./km²)
Couflens	81	56,3	1,4
Seix	773	86,8	8,9
Ustou	332	98,3	3,4
TOTAL/MOYENNE	***1 186***	***241,4***	***4,56***

Tableau 10 : Caractéristiques démographiques du territoire d'étude (données INSEE, 2011)

Aucune directive territoriale d'aménagement (DTA) ou directive territoriale d'aménagement et de développement durables (DTADD) ne concernent le projet du PERM COUFLENS.

3.4.2 Activit®s ®conomiques et emploi

Quinze établissements sont actuellement installés sur le territoire communal. Le **Tableau** 11 liste la répartition par activité et le nombre de salariés par établissement.

Secteurs	Total	%	0 salarié	1 à 9 salariés	10 à 19 salariés	20 à 49 salariés	50 salariés ou plus
Administration publique, enseignement, santé, action sociale	1	6,7	0	1	0	0	0
Agriculture, sylviculture et pêche	6	40,0	6	0	0	0	0
Industrie	2	13,3	2	0	0	0	0
Construction	3	20,0	2	1	0	0	0
Commerce, transports, services divers	3	20,0	3	0	0	0	0
Ensemble	**15**	**100**	**13**	**2**	**0**	**0**	**0**

Tableau 11 : Caractéristiques des établissements de la commune de Couflens

La majorité des 15 entreprises sont artisanales, seules deux d'entre elles emploient une personne salariée.

En 2010, une seule personne entre 15 et 64 ans (au sens du recensement) est au chômage pour une population active de 36 personnes.

Il est prévu, autant que possible, de solliciter les entreprises locales pour les travaux d'aménagement relatifs aux sites de sondages.

[13] Source INSEE : http://www.insee.fr/fr/bases-de-donnees/

3.4.3 Agriculture

On peut noter l'installation récente d'exploitants agricoles sur la commune portant leur nombre à 6. L'**Annexe 10** présente le recensement agricole établi en 2010[14] dans les communes de Couflens, Seix et Ustou. Ce recensement fait état de 2 exploitations agricoles qui ont leur siège sur la commune. La **Figure 24** présente la répartition des îlots de culture du secteur d'étude en 2012.
La surface agricole utilisée (SAU) est d'une cinquantaine d'hectares pour ces deux exploitations.
L'unité gros bétail alimentation totale (UGBTA) (unité employée pour comparer ou agréger des effectifs animaux d'espèces ou de catégories différentes) est de 17, ce qui atteste de la taille modeste des exploitations.

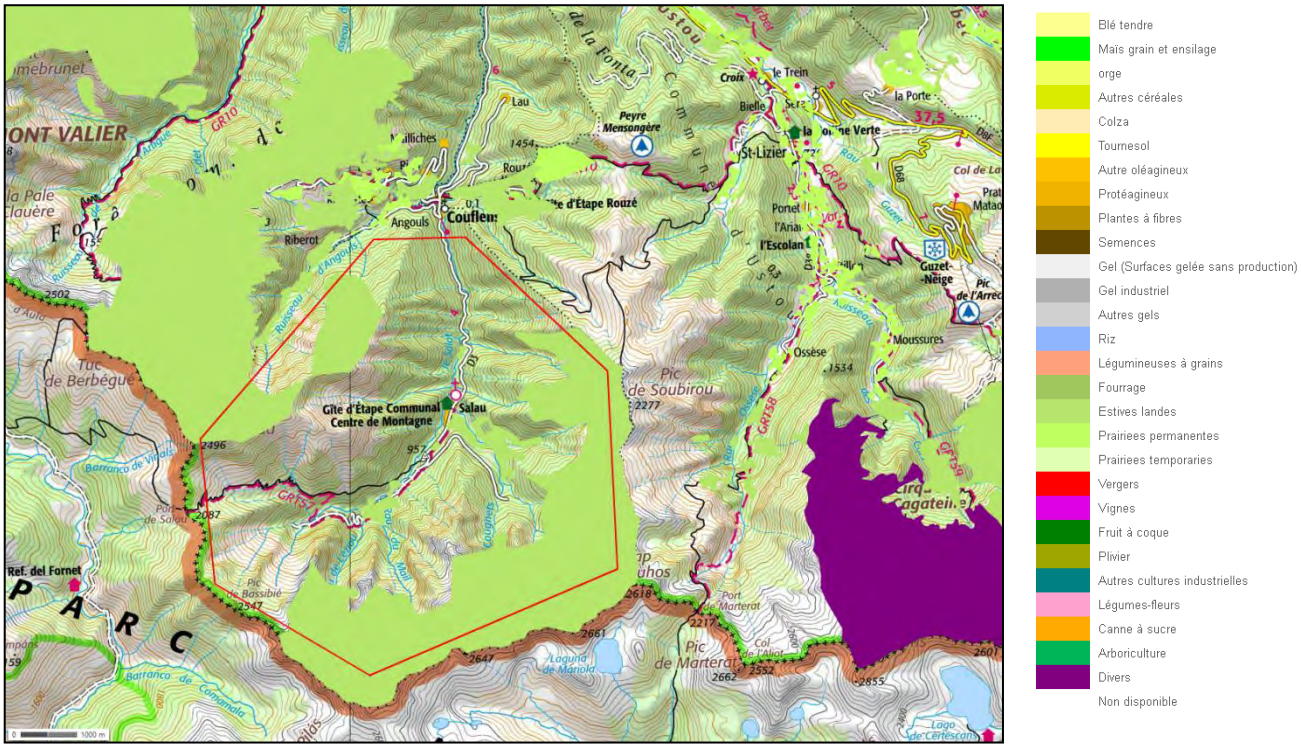


Figure 24 : Typologie des parcelles agricoles sur l'emprise du PERM (source : RPG – Agreste, 2012)

3.4.4 Infrastructures et transport

Réseau routier et autoroutier

Au premier janvier 2011, le département de l'Ariège disposait d'un réseau routier d'une longueur totale de 5 812 km, réparti comme suit :

- ✓ 16 km d'autoroutes,
- ✓ 90 km de routes nationales (voies expresses),
- ✓ 2 639 km de routes départementales,
- ✓ 3 067 km de voies communales.

[14] http://agreste.agriculture.gouv.fr/recensement-agricole-2010/resultats-donnees-chiffrees/

La commune de Couflens est desservie depuis Saint-Girons par la RD618 et la D3 jusqu'à Couflens en passant par Seix.
Le réseau viaire est constitué du maillage des voies communales, des chemins d'exploitation ou ruraux, et de sentiers de randonnée pédestre ou équestre.

Réseau ferroviaire

Aucun réseau ferroviaire ne se trouve à proximité du projet de PERM. Les lignes Toulouse-Foix et Toulouse-Saint-Gaudens encadrent le secteur à environ une quarantaine de kilomètres à l'est et à l'ouest.

Voies aériennes

L'aéroport le plus proche est celui de Toulouse à environ 95 km au nord de Couflens. L'aérodrome de Saint-Girons est le plus proche, à environ 25 km au nord de Couflens.

Voies fluviales

Aucune voie fluviale navigable n'est recensée sur le périmètre du PERM où à proximité.

Réseau de transport d'électricité, de gaz et de matières dangereuses

Les lignes THT à 400 kV et HT à 225 kV sont éloignées du projet de PERM, empruntant les couloirs Toulouse-Foix et Toulouse-Saint-Gaudens.

3.4.5 Installations class®es

La base des ICPE accessible sur le site « Inspection des Installations classées » ne fait état d'aucune ICPE sur le territoire communal de Couflens. A proximité, une seule ICPE est recensée sur la commune de Seix. Il s'agit de la société MARBLE STONE PYRENEES dont l'activité principale exercée est l'extraction de pierres ornementales et de construction.

3.4.6 Sites et sols (potentiellement) pollu®s

Les résultats de l'inventaire historique régional (I.H.R.) sont saisis dans la Base de données des Anciens Sites Industriels et Activités de Service (B.A.S.I.A.S.) dont la finalité est de conserver la mémoire de ces sites pour fournir des informations utiles à la planification urbanistique et à la protection de l'environnement. Il est à noter que l'inscription d'un site dans la BASIAS ne préjuge pas qu'il est le siège d'une pollution.
Il existe au total 3 sites répertoriés sur le territoire concerné par le projet de PERM. Parmi ces sites, un seul est en activité aujourd'hui, il s'agit de la station de collecte et traitement des eaux usées de la commune. Les deux autres sites fermés sont l'usine de fabrication de pâte à papier, papier et carton dont l'activité s'est arrêtée au début du XX^{e} siècle et la Société Minière d'Anglade spécialisée dans l'extraction de minerai de tungstène dont l'activité s'est arrêtée en 1986.

La **Figure 25** illustre la répartition des sites et sols pollués sur le territoire d'étude.
La liste des sites et sols pollués est présentée en **Annexe 11**.

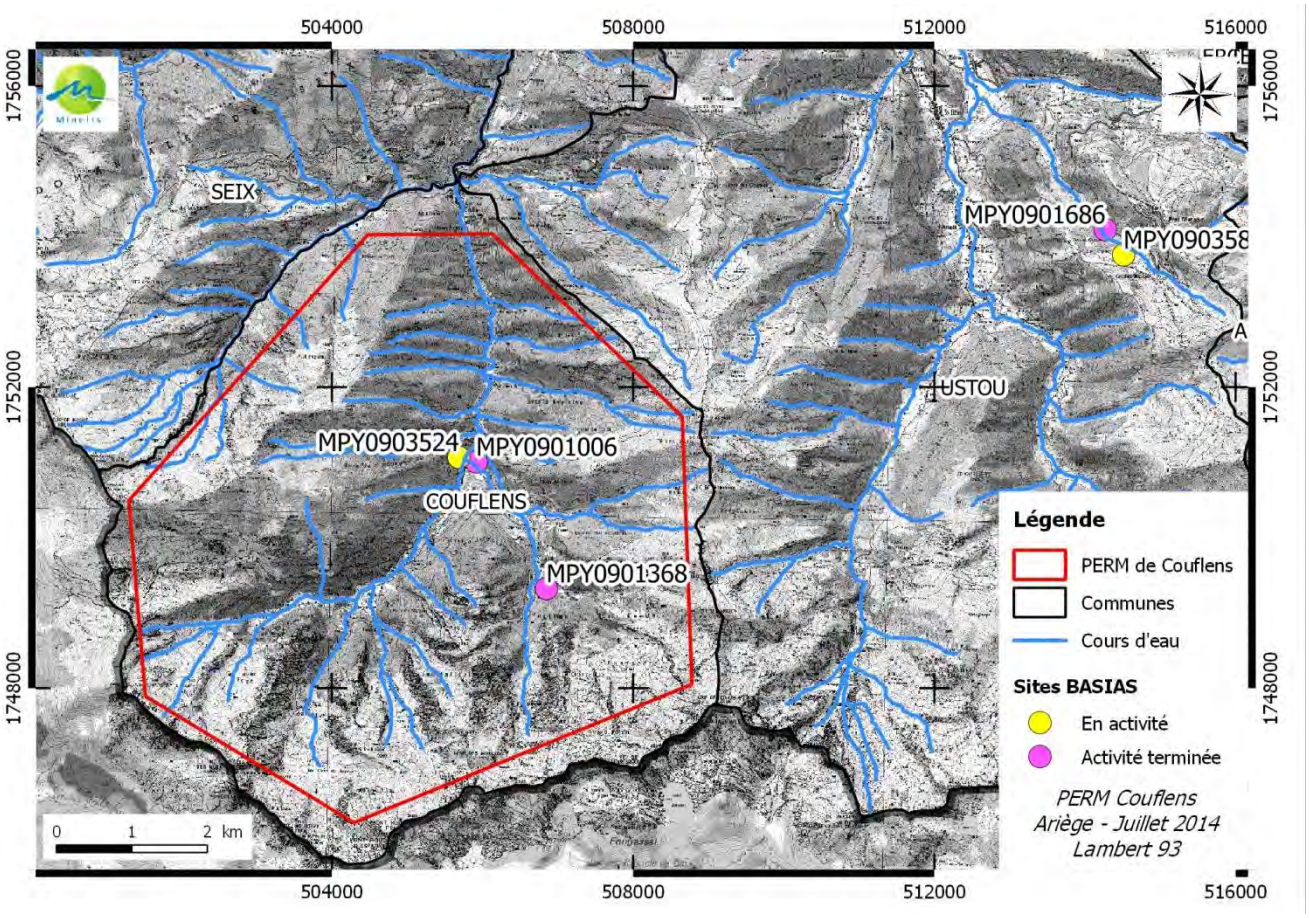


Figure 25 : Carte de localisation des anciens sites industriels répertoriés dans la B.A.S.I.A.S.

3.4.7 Exploitation du sous-sol

La concession du Pic de la Fourque également appelée « Mine d'Anglade » ou « Mine de Salau » a été exploitée pour son minerai de tungstène sur le territoire de la commune de Couflens par la Société Minière d'Anglade entre 1971 et 1986. La **Figure 26** propose une coupe schématique de l'ancien gisement de Salau.
Le permis de recherches d'Anglade a été accordé au BRGM le 26/08/1965.
Le permis d'exploitation a été accordé à la Société Minière d'Anglade (SMA) le 19/08/1968 et renouvelé en 1974 et 1978.

Une concession a été accordée à la SMA le 30/12/1985 reprenant les limites du PEX, soit une superficie de 4,2 km^2.

Le gisement est situé sur le flanc sud du massif granitique et granodioritique de la Fourque (hercynien) dans des séries sédimentaires de direction générale Est-Ouest fortement plissées et faillées.

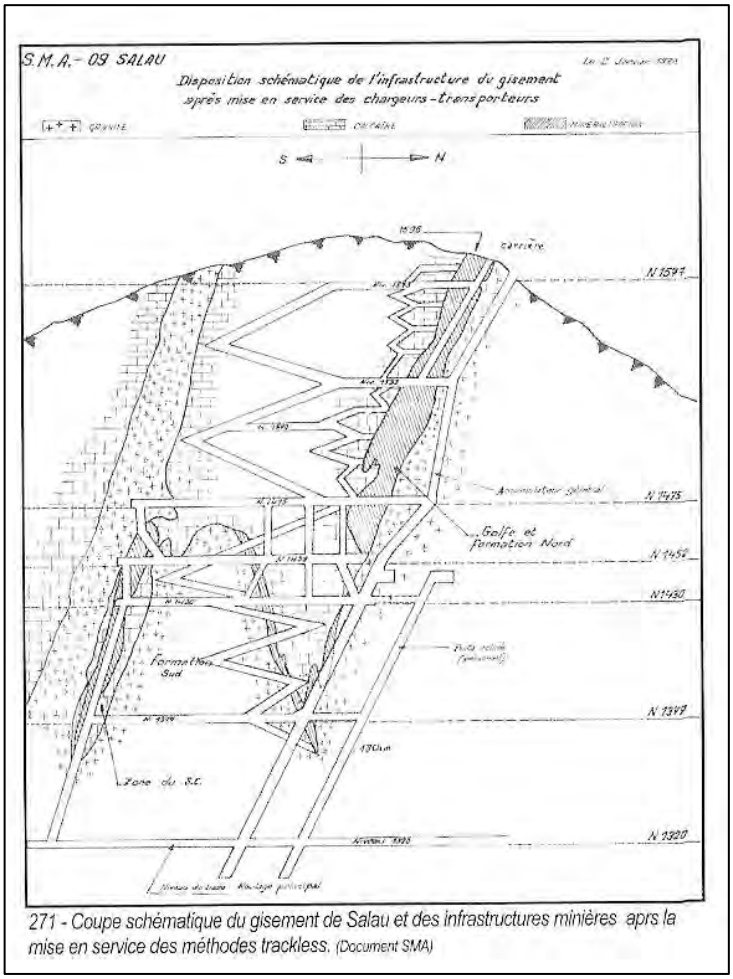
Les minéralisations affleurantes ou découvertes par sondages, de dimension de 50 à 100 mètres, de puissance variable entre 0,2 et 13 mètres se répartissent le long du ravin de la Fourque jusqu'au col, entre 1320 et 1890 mètres d'altitude.

Les minéralisations sont composées de scheelite encaissée soit dans des cipolins rubanés gris et blancs à des teneurs moyennes élevées (2 à 13 %), soit dans des cornéennes calciques correspondants au calcaire de Salau à des teneurs plus faibles (1%).
Les travaux d'exploitation ont consisté en l'ouverture d'une petite carrière de 1000 m^2 de surface au « bois d'Anglade » et de 10 niveaux de galeries soit 20 000 mètres tracés entre le niveau de base 1230 et le niveau de tête 1640 (cf. **Figure 26**).

Le traitement des minerais était assuré sur place par une usine souterraine composée d'un atelier de concassage, un atelier de broyage, une section gravimétrie, flottation et filtration d'une capacité de traitement de 300 t/jour.

La production totale a été de 11 469 t de WO_3.

L'impact sur l'environnement se traduit par l'existence de sept haldes composées de déblais d'extraction, cailloutis clairs ou rouilles rejetés dans la pente en quantité importante et de deux terrils de résidus de laverie repérables dans le paysage par leur couleur rouille, un volume important et les deux digues de fermeture aval des terrils. Une végétalisation partielle a été réalisée en 1987 et des travaux de mise en sécurité dans les années suivantes. Le premier donné acte a été accordé en 1998. La renonciation de la concession minière a eu lieu en janvier 2001.



271 - Coupe schématique du gisement de Salau et des infrastructures minières aprs la mise en service des méthodes trackless. (Document SMA)

Figure 26 : Coupe schématique du gisement de Salau (document SMA)

3.4.8 Patrimoine culturel

Généralités

Le patrimoine historique et culturel ariégeois est riche. Ceci est vrai pour les édifices et monuments (châteaux, églises, cathédrales, abbayes, grottes préhistoriques) mais également pour la qualité de son environnement et de ses paysages (proximité de la chaîne pyrénéenne). Cette richesse se traduit par de nombreux monuments, éléments et sites inscrits ou classés répartis sur l'ensemble du territoire, ainsi que sur une multitude d'éléments versés à l'Inventaire Général du Patrimoine Culturel (IGPC).
Ce paragraphe recense ce patrimoine à l'échelle du territoire d'étude (communes concernées par le projet), et plus particulièrement sur l'emprise du projet du PERM COUFLENS.

Sites classés et sites inscrits

Dans un souci de préservation et de valorisation du patrimoine culturel et paysager, la Loi du 2 mai 1930 sur les sites et les paysages introduit la définition de périmètre de protection de sites remarquables pour leur caractère architectural, paysager et pittoresque. Les sites relevant de cette Loi peuvent être inscrits ou classées et sont dès lors soumis à une réglementation spécifique : tous les travaux et aménagements sont soumis à autorisation du Ministre ou Préfet après avis de l'Architecte des Bâtiments de France dans le cas des sites classés et à avis de l'A.B.F. pour les sites inscrits.
Le **Tableau 12** présente la liste des sites inscrits et classés sur les environs du PERM.

Dénomination	*Commune*	*Type*	*Date de protection*
L'ensemble formé par le cirque de Cagateille et ses vallées suspendues sur le territoire de la commune d'Ustou	Ustou	Site classé	15/09/1993
L'ormeau séculaire situé dans la commune d'Ustou	Ustou	Site classé	05/09/1922

Tableau 12 : Liste des sites inscrits et classés sur la commune de Couflens concernée par le projet et les deux communes environnantes d'Ustou et Seix

Au total sur l'ensemble des communes concernées par le projet, 2 sites classés sont recensés sur la commune d'Ustou. Cependant, aucun d'entre eux n'est situé sur l'emprise du PERM.

Le site dit de « l'ensemble formé par le cirque de Cagateille et ses vallées suspendues sur le territoire de la commune d'Ustou » s'étend sur une superficie de près de 1927 km^2 et fut classé par décret du 15 septembre 1993. Cet espace naturel correspond à un ensemble paysager remarquable constitué par le deuxième cirque classé des Pyrénées après le cirque de Gavarnie. Ancien cirque d'origine glaciaire, il est traversé par un torrent et la forêt couvre ses pentes.

Le site dit de « L'ormeau séculaire situé dans la commune d'Ustou » a été classé par arrêté le 05 septembre 1922.

Les Opérations Grands Sites

Une OGS est une démarche accompagnée par les services de l'Etat en réponse à un problème de dégradation d'un site majeur sur le plan national et à ce titre classé. Elles complètent de manière souple et avec des moyens financiers les dispositions de la Loi de 1930 sur les sites, mais n'ont aucune valeur juridique en tant que telles. Les sites OGS sont donc des aires à vocation touristique à l'échelle du territoire national, pour leur intérêt patrimonial fort en termes de qualité des espaces et des paysages

Aucun périmètre lié à une OGS n'est recensé sur le territoire d'étude ou à proximité.

Géosites

Il s'agit de sites ayant vocation à valoriser ou/et à préserver le patrimoine géologique local. Cette dénomination recouvre des statuts très variés depuis les réserves naturelles géologiques jusqu'aux simples sites géologique inventorié. Ce type d'élément patrimonial est toutefois souvent assorti de conventions et d'usages à respecter sur un périmètre généralement réduit, et intègre une dimension touristique plus ou moins marquée.

Le géosite du cirque de Cagateille et la vallée glaciaire de l'Alet est classé parmi les 8 géosites d'importance nationale inventoriés en Ariège. Ce classement représente les indices minéralogiques et les gîtes miniers et reflète la géologie ainsi que l'histoire des industries minières en Ariège[15].

Zones de Protection du Patrimoine Architectural, Urbain et Paysager (ZPPAUP)

La définition de ces zones procède d'une évolution de la Loi sur les sites et paysages de 1930 et sur les monuments historiques de 1913, visant conjointement à assouplir la réglementation dans des zones de moindre contrainte et à étendre les périmètres de protection sur de plus larges surfaces lorsque cela s'avère nécessaire.

Il n'existe aucune ZPPAUP sur le territoire d'étude, ni à proximité.

Monuments historiques classés et inscrits

Chaque édifice protégé au titre des Monuments historiques (Loi du 31 décembre 1913, codifiée et modifiée par le titre II du livre VI du code du patrimoine et par le décret n°2007-487 du 30 mars 2007) bénéficie d'un périmètre de protection de 500 m^2. Toute modification des lieux à l'intérieur de ces périmètres doit être soumise à l'avis de l'Architecte des Bâtiments de France.

Les édifices et monuments historiques classés et inscrits présents sur et dans les environs de la commune concernée par le projet de PERM sont recensés avec leurs caractéristiques essentielles dans le **Tableau 13**.

[15] http://www.midi-pyrenees.developpement-durable.gouv.fr/IMG/pdf/Annexe_4_-_Zones_protegees_cle1ea694-1.pdf

Parmi ceux-ci, 1 monument historique (église Notre-Dame de Salau) est recensé dans l'emprise du PERM.

Dénomination	*Commune*	*Epoque*	*Type*	*Date de protection*
Église Notre-Dame de Salau	COUFLENS	12e siècle	MH classé	1911
Château de la Garde	SEIX	Moyen-âge	MH inscrit	1996
Château de Mirabat	SEIX	Moyen-âge	MH inscrit	1995
Église Saint-Étienne	SEIX	18e siècle	MH inscrit	1965
Maison-forte	SEIX	Milieu 16e siècle	MH inscrit	1994
Croix d'Ustou	USTOU	18e siècle	MH inscrit	1965

Tableau 13 : Liste des monuments historiques sur les communes concernées par le projet de PERM et environnantes (Source : Ministère de la Culture – base de données Mérimée 2014)

Eglise Notre-Dame de Salau : Eglise composée d'une abside, avec travée de chœur précédée d'une nef aux dimensions réduites qui se prolonge dans le bas, au-delà d'une vaste arcature. Cette arrière nef paraît avoir été autrefois reliée au sud à des bâtiments monastiques disparus (Hospitaliers de Saint-Jean de Jérusalem). Le clocher est situé sur l'arcature qui sépare ces deux nefs. Il comporte quatre arcades disposées en deux étages, avec doubles archivoltes reposant sur des colonnettes aux chapiteaux sculptés

Château de Mirabat : Exceptionnelle rareté du dispositif défensif, associé à celui du château de La Garde. Construction très ancienne : le château est en ruines dès le 14e siècle.

Château de la Garde : Qualité du dispositif défensif (vaste enceinte rectangulaire au milieu de laquelle s'élève un donjon) associé à celui du château de Mirabat. Châteaux bâtis en moellons, déjà en ruines au 16e siècle. La forteresse consiste en une vaste enceinte rectangulaire au centre de laquelle s'élève un donjon. La muraille est percée d'une brèche irrégulière au-dessus de laquelle se suspend un mâchicoulis. La façade est-sud-est est flanquée de deux tours d'angle, une ronde, et une en forme de fer à cheval.

Église Saint-Étienne : Cette église fait partie d'un ensemble d'églises d'influence coloniale espagnole, construites dans les vallées du Saint-Gironnais au 18e siècle. Cette façade a été rajoutée à cette époque sur une ancienne église fortifiée, après agrandissement. La façade est constituée d'un mur uni, encadré de deux contreforts d'angle. Elle se termine à la partie supérieure par un fronton curviligne de forme baroque, encadré de clochetons. La porte de l'église et son encadrement également baroque, constitue le motif architectural au centre de la façade. Les différents motifs sont en pierre apparente.

Maison-forte : Le voisinage de l'église, fortifiée en 1551, autorise à penser que la maison forte a été réalisée au milieu du 16e siècle sur des bases plus anciennes et avec des matériaux extraits d'une forteresse démantelée. Elle se présente comme un logis quadrangulaire flanqué de deux tours. L'entrée principale se fait à la base de la tour d'escalier par une porte surmontée d'un blason. Les fenêtres à arc en doucines affrontées

datent probablement du 17e siècle. La maison forte repose sur un glacis étagé en trois terrasses avec deux tours massives aux angles ouest et nord.

Croix d'Ustou : Croix de calvaire en fer forgé. Montants en fer forgé supportant les différents instruments de la Passion, et surmontés d'un coq.

Forêt de Protection

Le statut juridique de la forêt de protection a été instauré par la Loi du 28 avril 1922 dans le but initial de protéger les sols contre l'érosion, les avalanches et l'envahissement des eaux. Désormais, la valorisation et la protection vis-à-vis de la pression foncière pour certains massifs en contexte périurbain, ainsi que la prise en compte d'un potentiel écologique élevé constituent d'autres objectifs de protection des forêts. Ce statut interdit non seulement tout défrichement conduisant à la disparition de la forêt mais aussi toute modification des boisements contraire à l'objectif du classement. La fréquentation du public peut y être également interdite ou réglementée alors que le stationnement de véhicules motorisés et le camping y sont interdits en dehors des voies et des aires spécialement aménagées (articles L. et R.411-1 et suivants du code forestier). Les avantages de ce statut permettent l'accueil d'un public extrêmement important tout en offrant à la forêt une protection optimale. Il existe quatre types de forêts de protection :

- ✓ la forêt de montagne (fonction de lutte contre l'érosion),
- ✓ la forêt littorale (rôle dans la fixation des dunes et la protection contre l'érosion),
- ✓ la forêt alluviale (grande valeur écologique),
- ✓ la forêt périurbaine (fonction sociale d'accueil du public).

Le massif forestier des communes de Couflens et Ustou, forêt privée, est classé depuis le 08/05/1925 en forêt de protection type « montagne » pour une surface de 994,48 hectares. Une partie de cette forêt est recensée sur l'emprise du projet de PERM.

Dans le cadre du projet européen Interreg IV "Forêts de protection", le zonage des forêts de protection fait l'objet d'un développement sous un Système d'information géographique (SIG) pour automatiser l'essentiel du processus de cartographie, mais n'est pas encore finalisé et accessible au public[16].

Patrimoine archéologique

La Loi du 27 septembre 1941 portant réglementation des fouilles archéologiques et la Loi n°80-532 du 15 juillet 1980 relative à la protection des collections publiques contre les actes de malveillance, précisent qu'il est indispensable que les sites reconnus à ce jour soient préservés en l'état. En outre, le maître d'ouvrage et les propriétaires concernés doivent veiller au respect de la législation protégeant le patrimoine archéologique. En particulier, toute découverte fortuite lors des travaux sera déclarée sans délai auprès du service régional de l'archéologie et du Maire de la commune concernée, et toutes mesures de conservation provisoire adoptées en attendant la visite des spécialistes compétents mandatés par celui-ci (article 14 de la Loi validée du 27 septembre 1941). Toute

[16] http://www.irstea.fr/forets-fonction-de-protection

destruction intentionnelle est sanctionnée par les dispositions de la Loi du 15 juillet 1980 (article 322-1 et 2 du code pénal).
Les articles 10 à 12 du décret d'application n°2004-490 relatif aux procédures administratives et financières en matière d'archéologie préventive précisent, en cas de doute sur la portée des travaux vis-à-vis du potentiel archéologique, que les aménageurs doivent produire à destination du Préfet de Région et avant le dépôt de la demande d'autorisation un dossier comprenant un plan parcellaire, un descriptif du projet avec son emplacement sur le terrain, et au besoin une notice technique. Le Préfet de Région dispose alors d'un délai de 2 mois pour transmettre ses prescriptions au demandeur (i.e. les aménageurs). L'absence de réponse au terme de ce délai est considérée comme un renoncement de prescriptions sur le périmètre considéré. La validité de cette autorisation est de 5 ans.

La base de données AdlFI (Archéologie de la France – Informations) du CNRS-Ministère de la Culture et celle de l'INRAP (Institut National de Recherches Archéologiques Préventives) ne mentionnent aucune découverte archéologique récente, ni aucune fouille programmée ou préventive sur le territoire d'étude.

L'absence d'opérations de fouille ou de sites archéologiques recensés dans le secteur d'étude ne préjuge toutefois pas de la possibilité de trouver des vestiges. Ainsi, des précautions devront être prises lors des travaux d'aménagement impliquant un affouillement (tranchées, nivellement, etc.) afin de limiter les dégradations éventuelles causées aux vestiges archéologiques potentiels.
La **Figure 27** présente une carte synthétique des différents éléments du patrimoine culturel présents sur le PERM et ses alentours.

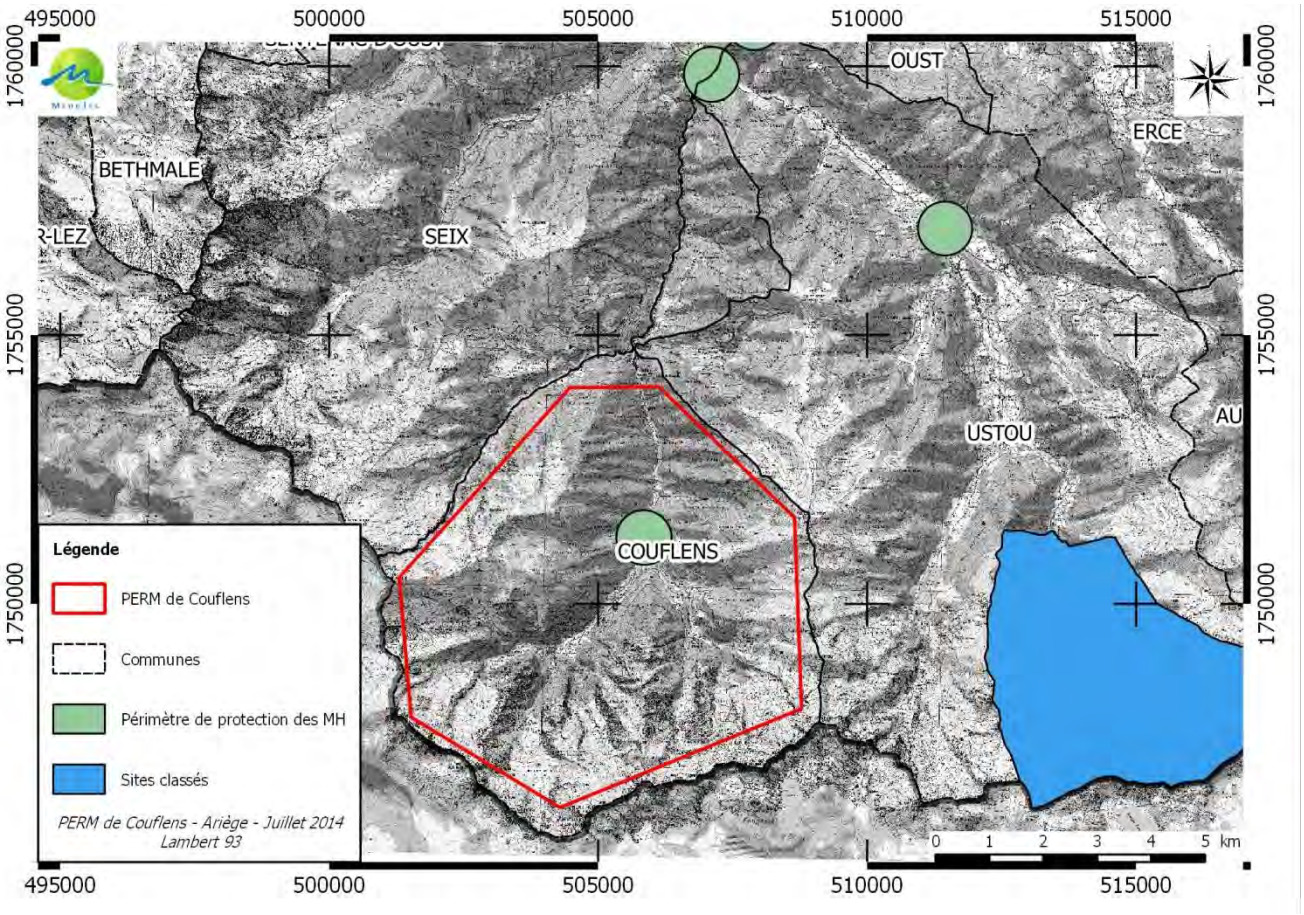


Figure 27 : Carte de synthèse des éléments du patrimoine culturel, historique, architectural ou paysager protégés sur le territoire d'étude

4 Analyse des effets

Il existe différents types d'effets du projet sur l'environnement : des effets directs de types structurels et fonctionnels et des effets indirects en chaîne ou induits.
Les effets directs traduisent les conséquences immédiates du projet dans l'espace et dans le temps. Parmi les effets directs :

- les effets structurels sont dus à la construction même du projet ;
- les effets fonctionnels sont liés à l'exploitation et à l'entretien de l'équipement.

Les effets indirects résultent quant à eux d'une relation de cause à effet ayant à l'origine un effet direct : ce peut être des effets en chaîne se propageant à travers plusieurs compartiments de l'environnement ou des effets induits par le projet notamment au plan socio-économique et du cadre de vie.

Il est aussi possible de distinguer, selon la durée et la réversibilité des impacts, des effets temporaires et des effets permanents. Les effets d'un projet peuvent également être d'intensité variée. Ils peuvent être cumulatifs.

Ces différents effets seront étudiés dans chaque phase du projet du PERM COUFLENS.

4.1 Installation d'une base opérationnelle

Le bâtiment utilisé pour installer la base opérationnelle sera si possible déjà existant. Il n'y aura a priori qu'un aménagement limité des locaux (étagère, petit mobilier, sécurité incendie…) analogue à l'aménagement d'un local professionnel quelconque.

			effets temporaires	effets permanents	effets cumulatifs
effets directs	effets structurels	consommation d'espace	néant	néant	néant
		suppression de terrains à vocation agricole	néant	néant	néant
		isolation des parcelles du siège de l'exploitation agricole	néant	néant	néant
		disparition d'espèces animales	néant	néant	néant
		perturbation de la faune	Présence de la base	néant	néant
		disparition d'espèces végétales	néant	néant	néant
		perturbation de la flore	néant	néant	néant
		disparition d'éléments du patrimoine culturel	néant	néant	néant
		modification du régime hydraulique	néant	néant	néant
		atteinte au paysage	Présence de la base	néant	néant
		coupure de continuité écologique par morcellement	néant	néant	néant
		restructuration des voiries et réseaux divers	néant	néant	néant
	effets fonctionnels	pollution de l'eau	néant	néant	néant
		pollution de l'air	néant	néant	néant
		pollution des sols	néant	néant	néant
		production de déchets	Déchets de bureau	néant	néant
		risques technologiques	néant	néant	néant
		odeurs	néant	néant	néant
		émissions de poussières	néant	néant	néant
		bruit	néant	néant	néant
effets indirects	en chaîne	disparition d'espèce par destruction du milieu	néant	néant	néant
		modification des rendements culturaux en raison de la modification de l'hulidité des sols	néant	néant	néant
	induits	incidences sur le marché de l'immobilier	néant	néant	néant
		modification de la valeur agronomique des terres par suppression des réseaux de drainage agricole	néant	néant	néant
		fréquentation touristique	néant	néant	néant
		participation à l'effet de serre par émissions gazeuses dans l'atmosphère	néant	néant	néant

Tableau 14 : Effets sur l'environnement de l'installation d'une base opérationnelle

4.2 Etudes g®ologiques

Le prélèvement d'échantillons en surface perturbera peu le milieu. Il s'agit de prélèvements d'échantillons de roches affleurantes réalisés à l'aide d'un marteau de géologue.

Pour connaître la présence ou non de métaux dans le sol, un spectromètre de fluorescence X portable de type Niton sera utilisé. Cet appareil a l'avantage de procéder à des analyses non destructives. Il émet cependant un rayonnement (rayons X) lors de la mesure mais sur une emprise de quelques centimètres autour de la cellule émettrice. L'appareil sera systématiquement utilisé en collant l'échantillon face à la cellule d'analyse afin d'en mesurer les teneurs en éléments métalliques lourds. L'émission de rayonnement est ponctuelle (quelques secondes par mesure) et n'entrainera aucune perturbation du milieu naturel.



Figure 28 : Appareil Niton XL3t 980 GOLD

			effets temporaires	effets permanents	effets cumulatifs
effets directs	effets structurels	consommation d'espace	néant	néant	néant
		suppression de terrains à vocation agricole	néant	néant	néant
		isolation des parcelles du siège de l'exploitation agricole	néant	néant	néant
		disparition d'espèces animales	néant	néant	néant
		perturbation de la faune	impact marteau sur cailloux	néant	néant
		disparition d'espèces végétales	néant	néant	néant
		perturbation de la flore	néant	néant	néant
		disparition d'éléments du patrimoine culturel	néant	néant	néant
		modification du régime hydraulique	néant	néant	néant
		atteinte au paysage	fracture de quelques cailloux	fracture de quelques cailloux	néant
		coupure de continuité écologique par morcellement	néant	néant	néant
		restructuration des voiries et réseaux divers	néant	néant	néant
	effets fonctionnels	pollution de l'eau	néant	néant	néant
		pollution de l'air	néant	néant	néant
		pollution des sols	néant	néant	néant
		production de déchets	néant	néant	néant
		risques technologiques	néant	néant	néant
		odeurs	néant	néant	néant
		émissions de poussières	néant	néant	néant
		bruit	coups de marteau	néant	néant
effets indirects	en chaîne	disparition d'espèce par destruction du milieu	néant	néant	néant
		modification des rendements culturaux en raison de la modification de l'hulidité des sols	néant	néant	néant
	induits	incidences sur le marché de l'immobilier	néant	néant	néant
		modification de la valeur agronomique des terres par suppression des réseaux de drainage agricole	néant	néant	néant
		fréquentation touristique	néant	néant	néant
		participation à l'effet de serre par émissions gazeuses dans l'atmosphère	néant	néant	néant

Tableau 15 : Effets sur l'environnement des études géologiques

4.3 Travaux de g®ochimie

Les prélèvements de mottes de terre seront effectués dans le respect de l'environnement et des cultures. En effet, les mottes de terre seront remises à leur place en veillant à ne pas nuire à la faune et la flore. Les perturbations engendrées sur les sols seront donc temporaires.

			effets temporaires	effets permanents	effets cumulatifs
effets directs	effets structurels	consommation d'espace	néant	néant	néant
		suppression de terrains à vocation agricole	néant	néant	néant
		isolation des parcelles du siège de l'exploitation agricole	néant	néant	néant
		disparition d'espèces animales	néant	néant	néant
		perturbation de la faune	faible: prélèvement motte de terre	néant	néant
		disparition d'espèces végétales	néant	néant	néant
		perturbation de la flore	faible: prélèvement motte de terre	néant	néant
		disparition d'éléments du patrimoine culturel	néant	néant	néant
		modification du régime hydraulique	néant	néant	néant
		atteinte au paysage	néant	néant	néant
		coupure de continuité écologique par morcellement	néant	néant	néant
		restructuration des voiries et réseaux divers	néant	néant	néant
	effets fonctionnels	pollution de l'eau	néant	néant	néant
		pollution de l'air	néant	néant	néant
		pollution des sols	néant	néant	néant
		production de déchets	néant	néant	néant
		risques technologiques	néant	néant	néant
		odeurs	néant	néant	néant
		émissions de poussières	néant	néant	néant
		bruit	néant	néant	néant
effets indirects	en chaîne	disparition d'espèces par destruction du milieu	néant	néant	néant
		modification des rendements culturaux en raison de la modification de l'hulidité des sols	néant	néant	néant
	induits	incidences sur le marché de l'immobilier	néant	néant	néant
		modification de la valeur agronomique des terres par suppression des réseaux de drainage agricole	néant	néant	néant
		fréquentation touristique	néant	néant	néant
		participation à l'effet de serre par émissions gazeuses dans l'atmosphère	néant	néant	néant

Tableau 16 : Effets sur l'environnement des travaux de géochimie

4.4 Travaux de g®ophysique

Les travaux de géophysique envisagés sont essentiellement aéroportés accompagnés d'un contrôle au sol. Les effets négatifs se limiteront au bruit occasionné par le passage du petit avion et de l'hélicoptère et à de la combustion du carburant nécessaire aux survols. Le bruit occasionné sera temporaire. Le contrôle au sol des anomalies définies par les techniques aéroportées sera effectué par un appareil portable de petite dimension ne présentant aucun impact environnemental.

			effets temporaires	effets permanents	effets cumulatifs
effets directs	effets structurels	consommation d'espace	néant	néant	néant
		suppression de terrains à vocation agricole	néant	néant	néant
		isolation des parcelles du siège de l'exploitation agricole	néant	néant	néant
		disparition d'espèces animales	néant	néant	néant
		perturbation de la faune	Bruit avion et hélicoptère	néant	néant
		disparition d'espèces végétales	néant	néant	néant
		perturbation de la flore	néant	néant	néant
		disparition d'éléments du patrimoine culturel	néant	néant	néant
		modification du régime hydraulique	néant	néant	néant
		atteinte au paysage	néant	néant	néant
		coupure de continuité écologique par morcellement	néant	néant	néant
		restructuration des voiries et réseaux divers	néant	néant	néant
	effets fonctionnels	pollution de l'eau	néant	néant	néant
		pollution de l'air	combustion carburant	néant	néant
		pollution des sols	néant	néant	néant
		production de déchets	néant	néant	néant
		risques technologiques	néant	néant	néant
		odeurs	Gaz d'échappement	néant	néant
		émissions de poussières	néant	néant	néant
		bruit	bruit avion et hélicoptère	néant	néant
effets indirects	en chaîne	disparition d'espèce par destruction du milieu	néant	néant	néant
		modification des rendements culturaux en raison de la modification de l'hulidité des sols	néant	néant	néant
	induits	incidences sur le marché de l'immobilier	néant	néant	néant
		modification de la valeur agronomique des terres par suppression des réseaux de drainage agricole	néant	néant	néant
		fréquentation touristique	néant	néant	néant
		participation à l'effet de serre par émissions gazeuses dans l'atmosphère	combustion carburant	néant	néant

Tableau 17 : Effets sur l'environnement des travaux de géophysique

4.5 Tranchées d'exploration

Cette technique sera *a priori* peu ou pas employée dans le programme d'exploration envisagé. Elle est toutefois mentionnée ici dans un souci d'exhaustivité. Ces travaux ne seront envisageables que dans des secteurs non forestiers et d'accès aisés.

La réalisation de tranchée d'exploration d'une profondeur maximale de 1,30 m implique l'amenée d'une pelle hydraulique et l'immobilisation pour plusieurs jours d'une partie des terrains concernés (le temps de leur étude). La longueur moyenne des tranchées est estimée entre 10 et 50 m environ par tronçon en fonction des formations géologiques rencontrées. Le volume total excavé ne dépassera pas les 20 000 m^3. Ces tranchées seront signalées afin d'éviter toute chute accidentelle et ne seront réalisées qu'avec l'accord formel du propriétaire du terrain. Elles feront systématiquement l'objet d'un contrat d'indemnisation pour la gêne occasionnée.

Par ailleurs, le chantier sera surveillé en permanence et interdit au personnel non autorisé.
Ces tranchées auront un impact sonore réduit à l'utilisation de la pelle hydraulique et temporaire (temps estimé à une journée environ par tranchée).

Lors de leur réalisation, la terre végétale sera stockée séparément de la partie plus profonde. Les tranchées seront rebouchées aussitôt réalisés le levé géologique et l'échantillonnage. La terre végétale sera remise en place, limitant au strict minimum l'impact environnemental de leur ouverture.

Les chemins d'accès éventuels éviteront les habitats sensibles. Les zones cultivées seront choisies en priorité, avec accord et indemnisation des exploitants afin de perturber au minimum le milieu. De plus, les zones sensibles identifiées dans l'état initial précédent seront, dans la mesure du possible, soigneusement évitées. Le site sera remis dans son état initial à la fin des travaux. L'impact sur l'environnement à moyen et long terme peut être estimé comme négligeable.

			effets temporaires	effets permanents	effets cumulatifs
effets directs	effets structurels	consommation d'espace	le temps d'immobilisation	néant	néant
		suppression de terrains à vocation agricole	le temps de l'étude des tranchées	néant	néant
		isolation des parcelles du siège de l'exploitation agricole	néant	néant	néant
		disparition d'espèces animales	néant	néant	néant
		perturbation de la faune	réalisation de tranchées	néant	néant
		disparition d'espèces végétales	néant	néant	néant
		perturbation de la flore	réalisation de tranchées	néant	néant
		disparition d'éléments du patrimoine culturel	néant	néant	néant
		modification du régime hydraulique	néant	néant	néant
		atteinte au paysage	réalisation de tranchées	néant	néant
		coupure de continuité écologique par morcellement	néant	néant	néant
		restructuration des voiries et réseaux divers	néant	néant	néant
	effets fonctionnels	pollution de l'eau	néant	néant	néant
		pollution de l'air	néant	néant	néant
		pollution des sols	néant	néant	néant
		production de déchets	néant	néant	néant
		risques technologiques	néant	néant	néant
		odeurs	combustion carburant	néant	néant
		émissions de poussières	réalisation de tranchées	néant	néant
		bruit	engins de chantier	néant	néant
effets indirects	en chaîne	disparition d'espèce par destruction du milieu	néant	néant	néant
		modification des rendements culturaux en raison de la modification de l'hulidité des sols	néant	néant	néant
	induits	incidences sur le marché de l'immobilier	néant	néant	néant
		modification de la valeur agronomique des terres par suppression des réseaux de drainage agricole	néant	néant	néant
		fréquentation touristique	néant	néant	néant
		participation à l'effet de serre par émissions gazeuses dans l'atmosphère	combustion carburant	néant	néant

Tableau 18 : Effets sur l'environnement de la réalisation de tranchées

4.6 Travaux d'aménagement d'une plateforme de forage

Dépendant de facteurs multiples, tels que les intempéries et la vitesse d'avancement des travaux, cette étape ne devrait pas durer plus d'une journée pour les travaux relatifs à un site de sondage. Cette période précède la phase de forage et il s'agit essentiellement d'installer les infrastructures nécessaires à sa réalisation. Autant que possible, des entreprises locales seront sollicitées pour ces travaux, ainsi que pour la maintenance de l'équipement et son stockage, afin de réduire l'impact sur l'environnement.

Programme des travaux :

- Construction des voies d'accès.
- Préparation de la plateforme (terrassement au besoin, protection des sols, système de récupération des eaux pluviales de la plateforme, etc.).
- Amenée et déploiement de l'appareil de forage et des équipements associés.

Quelle que soit la phase de travaux, l'environnement montagnard du secteur du PERM COUFLENS rend les travaux difficiles, du fait de la raideur des pentes et de l'isolement du secteur rendant son accessibilité compliquée. Ceci implique que les accès aux sites de sondages peuvent être compliqués et nécessiter des travaux importants ou particuliers. La réalisation d'une plateforme destinée à l'installation du matériel de sondage, du bassin de réception des eaux de forage et des équipements connexes peut être une tâche difficile et onéreuse.

Cette phase de travaux d'aménagement n'aura que très peu d'effets immédiats sur l'environnement, et un effet à long-terme négligeable. De plus, les zones sensibles seront, dans la mesure du possible, soigneusement évitées et les sondages réalisés autant que faire se peut sur des zones agricoles (avec accord bien entendu de l'exploitant).Le site sera remis dans son état initial à la fin des travaux.

			effets temporaires	effets permanents	effets cumulatifs
effets directs	effets structurels	consommation d'espace	plateforme foreuse	néant	néant
		suppression de terrains à vocation agricole	néant	néant	néant
		isolation des parcelles du siège de l'exploitation agricole	néant	néant	néant
		disparition d'espèces animales	néant	néant	néant
		perturbation de la faune	sur les zones concernées	néant	néant
		disparition d'espèces végétales	néant	néant	néant
		perturbation de la flore	sur les zones concernées	néant	néant
		disparition d'éléments du patrimoine culturel	néant	néant	néant
		modification du régime hydraulique	néant	néant	néant
		atteinte au paysage	présence engins de chantier	néant	néant
		coupure de continuité écologique par morcellement	néant	néant	néant
		restructuration des voiries et réseaux divers	utilisation chemins agricoles	néant	néant
	effets fonctionnels	pollution de l'eau	néant	néant	néant
		pollution de l'air	combustion carburants	néant	néant
		pollution des sols	néant	néant	néant
		production de déchets	néant	néant	néant
		risques technologiques	néant	néant	néant
		odeurs	combustion carburants	néant	néant
		émissions de poussières	possible si sol sec	néant	néant
		bruit	engins de chantier	néant	néant
effets indirects	en chaîne	disparition d'espèce par destruction du milieu	néant	néant	néant
		modification des rendements culturaux en raison de la modification de l'hulidité des sols	néant	néant	néant
	induits	incidences sur le marché de l'immobilier	néant	néant	néant
		modification de la valeur agronomique des terres par suppression des réseaux de drainage agricole	néant	néant	néant
		fréquentation touristique	néant	néant	néant
		participation à l'effet de serre par émissions gazeuses dans l'atmosphère	combustion carburants	néant	néant

Tableau 19 : Effets sur l'environnement des travaux d'aménagement

4.7 Travaux de forage

Pour chaque site de forage, cette phase sera limitée à une période de quelques jours à deux ou trois semaines en fonction des facteurs suivants :

- Choix de la technique (RC ou carotté)
- Profondeur envisagée du forage, profondeur pouvant être revue en cours de sondage en fonction des informations géologiques recueillies ou des problèmes techniques rencontrés (à titre indicatif : entre 15 et 1 500 m ; profondeur moyenne estimée entre 250 et 500 m)
- Nombre de sondages réalisés sur le même site ou à partir du même avant trou réalisé en RC (sondages mixtes)
- Eléments extérieurs non prévus.



Figure 29 : Foreuse

Impact sur le site :

- *Odeurs :* l'échappement des moteurs diesel servant au fonctionnement des appareillages aura des conséquences olfactives.
- *Bruits* : les machines de forage et les générateurs modernes sont désormais conçus et isolés afin de minimiser les émissions sonores. Toutefois, le fonctionnement de moteurs diesel, le changement de tiges de forages, et autres bruits métalliques, ainsi que l'accès au site par les véhicules de service, auront un impact sonore.

  Ces émissions sonores seront conformes à la réglementation, en accord avec les administrations concernées.
- *Eaux :* la zone du PERM COUFLENS se trouve principalement sur des terrains métasédimentaires paléozoïques ou des moraines. L'existence de zones fracturées décomprimées à fissures ouvertes permet la formation de nappes d'eau souterraines de faible épaisseur et de faible capacité. La perméabilité limitée des terrains réduit fortement la probabilité de communication entre différentes nappes fissurales. En outre, les nappes de surface (moraines) si elles sont traversées par un forage, seront protégées par un tubage à l'avancement afin d'éviter toute communication avec ces nappes. Dans tous les cas, les sondages seront cimentés en totalité après foration et récupération des données (cuttings, carottes et éventuelles diagraphies), ce qui évitera toute percolation des eaux en profondeur par l'orifice du sondage.
- *Traitement et rejet des déchets de forage : s*uivant les techniques de forage utilisées, le traitement et la surveillance des effluents liquides et solides seront effectués en utilisant les techniques imposées (ou recommandées) par les autorités administratives compétentes.

Durant les opérations de forage, l'installation comportera un circuit de boue fermé évitant tout contact avec l'environnement extérieur. Des filtres à poussières et un arrosage seront installés sur la machine de forage.
Au cas où des déchets industriels banaux (DIB) de type emballages, consommables, etc. seraient générés, la société ferait appel à des entreprises de traitement des déchets, locales dans la mesure du possible.

Dispositions prises à la fin des travaux de forage :

- *Déchets :* tout déchet provenant du site sera enlevé, traité ou détruit suivant les dispositions règlementaires.
- *Non infiltration d'eau et sécurité :* tout forage une fois terminé sera cimenté de manière à le rendre étanche et à prévenir toute communication entre les eaux de surface et les couches plus profondes, notamment les aquifères.

4.8 Dispositions r¯glementaires applicables aux sondages

Préalablement à son exécution, tout sondage qui serait réalisé dans le cadre du PERM COUFLENS fera **obligatoirement l'objet de la déclaration d'ouverture de travaux miniers** définie par le décret n°2006-649 du 2 juin 2006 à l'article 4. De plus, conformément à l'annexe de l'article R.122-2 et à l'article R.122-9 du décret n°2011-2019 du 29 décembre 2011, **tout travaux de forage d'exploration minière de plus de 100 m de profondeur est soumis à étude d'impact et à enquête publique**.

			effets temporaires	effets permanents	effets cumulatifs
effets directs	effets structurels	consommation d'espace	plateforme de forage	néant	néant
		suppression de terrains à vocation agricole	immobilisation plateforme	néant	néant
		isolation des parcelles du siège de l'exploitation agricole	néant	néant	néant
		disparition d'espèces animales	néant	néant	néant
		perturbation de la faune	présence d'une plateforme	néant	néant
		disparition d'espèces végétales	néant	néant	néant
		perturbation de la flore	installation de la plateforme	néant	néant
		disparition d'éléments du patrimoine culturel	néant	néant	néant
		modification du régime hydraulique	tubage en cas de présence d'eau	néant	néant
		atteinte au paysage	plateforme de forage	néant	néant
		coupure de continuité écologique par morcellement	néant	néant	néant
		restructuration des voiries et réseaux divers	néant	néant	néant
	effets fonctionnels	pollution de l'eau	eau de forage traitée hors site	néant	néant
		pollution de l'air	combustion carburant	néant	néant
		pollution des sols	néant	néant	néant
		production de déchets	emportés et traités hors site	néant	néant
		risques technologiques	néant	néant	néant
		odeurs	combustion carburant	néant	néant
		émissions de poussières	possible lors du forage	néant	néant
		bruit	foreuse	néant	néant
effets indirects	en chaîne	disparition d'espèce par destruction du milieu	néant	néant	néant
		modification des rendements culturaux en raison de la modification de l'hulidité des sols	néant	néant	néant
	induits	incidences sur le marché de l'immobilier	néant	néant	néant
		modification de la valeur agronomique des terres par suppression des réseaux de drainage agricole	néant	néant	néant
		fréquentation touristique	néant	néant	néant
		participation à l'effet de serre par émissions gazeuses dans l'atmosphère	combustion carburant	néant	néant

Tableau 20 : Effets sur l'environnement des travaux de forage

5 Analyse des effets cumul®s

Compte tenu du contenu du projet PERM COUFLENS, il n'est pas jugé pertinent de réaliser une analyse des effets cumulés avec d'autres projets connus.

6 Solutions de substitutions envisag®es

Les travaux de géophysique auraient pu être substitués intégralement par de la géologie de terrain. Cependant, cette solution ne peut être retenue en raison de la pertinence et de la complémentarité nécessaire qu'offrent les données géophysiques.
Par ailleurs, il n'existe pas de solution de substitution connue pour remplacer des sondages destinés à approfondir la connaissance géologique à 500 m de profondeur ou plus.

7 Compatibilit®avec les documents dûurbanisme

Les travaux mentionnés précédemment seront ponctuels et temporaires. La plupart des opérations envisagées ne nécessitent pas d'étudier les documents d'urbanisme de chaque commune concernée. Toutefois, dans le cas des forages, il sera obligatoire de s'assurer auprès des services municipaux compétents que le règlement de la zone concernée soit compatible avec les travaux de forage et d'affouillement.

8 Mesures de r®duction et de compensation des effets

De manière générale, les engins et matériels seront conformes aux normes en vigueur.
Le travail de nuit et jours fériés sera interdit, sauf situation exceptionnelle et sous réserve d'une autorisation préfectorale.

8.1 Information des populations

Avant tout démarrage des travaux, VARISCAN MINES entreprendra une campagne d'information publique afin d'exposer et d'expliquer à la population la nature des travaux envisagés, leurs objectifs et les retombées prévisibles d'une éventuelle découverte minière.

Toute entrée sur une propriété ne se fera qu'après avoir obtenu les autorisations préalables du ou des propriétaires concernés. Les propriétaires et exploitants seront indemnisés pour les éventuelles nuisances causées (immobilisation des terrains, remises en état, perte de récoltes, etc.).

La population sera également plus particulièrement informée des campagnes de géophysique aéroportées qui, bien que ne présentant aucune conséquence environnementale notable, peuvent susciter des interrogations, voire des craintes, par le caractère « spectaculaire » de certains capteurs.

8.2 Pr®cautions pour r®duire/supprimer les nuisances li®es aux tranch®es dêexploration

Les tranchées seront signalées afin d'éviter toute chute accidentelle et ne seront réalisées qu'avec l'accord formel du propriétaire du terrain.
Elles feront systématiquement l'objet d'un contrat d'indemnisation pour la gêne occasionnée.
Les tranchées seront rebouchées aussitôt réalisés le levé géologique et l'échantillonnage. La terre végétale sera remise en place, limitant au strict minimum l'impact environnemental de leur ouverture.

8.3 Pr®cautions pour r®duire/supprimer les nuisances li®es aux travaux de pr®paration aux forages

Le terrain sera remis dans son état initial au départ de la plateforme. Des mesures seront prises pour utiliser de préférence des voies existantes et veiller à ne pas affaisser le terrain avec les engins.

8.4 Pr®cautions pour r®duire/supprimer les nuisances li®es au forage

- *Accès*
  La conception du site est faite de manière à restreindre l'accès au personnel autorisé. L'accès au public est formellement interdit. Le site sera clôturé et surveillé par un agent 24 heures sur 24.
- *Isolement du chantier vis-à-vis du milieu environnant*
  L'emplacement du site de forage sera déterminé avec l'assurance que celui-ci ne puisse être inondé suite à des mauvaises conditions météorologiques (débordement d'un cours d'eau, remontée de nappes ou ruissellement et coulées de boue). Le site de forage sera conçu de manière à ce que l'excédent d'eau remontant à la surface ne soit pas pris au piège par les puits de forage. Les eaux pluviales seront drainées vers un puisard conforme à la réglementation, dimensionné à cet effet.
  Ces précautions visent à protéger l'environnement immédiat de toute contamination qui serait créée par l'inondation du site.
  Selon les cas, un effort sera fait pour végétaliser et intégrer le site de forage dans son environnement paysager de manière à limiter les pollutions sonores et visuelles.

8.5 Dispositions prises ¨ la fin des travaux de forage

Tout forage, une fois achevé, sera rebouché par un bouchon de béton jusqu'à 30 à 50 cm de la surface, puis recouvert de terre végétale. Le site entier sera réhabilité selon les dispositions réglementaires afin de le rendre à sa vocation initiale. Tous les déchets provenant du site seront enlevés, détruits ou traités suivant les normes réglementaires.

9 Méthodologie de réalisation de l'état initial et de l'analyse des effets environnementaux liés au projet

9.1 Méthodologie de réalisation de l'état initial

La réalisation de l'état initial repose sur de multiples sources bibliographiques et données accessibles en ligne ou demandées auprès des administrations compétentes. Son contenu est suggéré dans la sous-section 3 de l'article 1 du décret n°2011-2019 du 29 décembre 2011[17]. La méthodologie pour réaliser l'état initial est la suivante :

1) Détermination de l'emprise du PERM avec localisation sur SIG (QGis) grâce aux coordonnées de la zone d'étude ;
2) Topographie et hydrologie : Géoportail ;
3) Contexte géologique : carte géologique sur Infoterre ou fournie par le client ;
4) Contexte hydrogéologique : Accès aux Données sur les Eaux Souterraines ADES ;
5) Qualité des eaux de surface : Agence de l'Eau Adour-Garonne ;
6) Qualité des eaux souterraines et identification des nappes : ADES ;
7) Milieu physique et paysage : observation carte satellite sur Google maps et détermination de l'occupation du territoire sur la base de données Corine Land Cover ;
8) Nombre d'habitants sur les communes concernées par le périmètre du PERM : INSEE ;
9) Pour l'étude des contraintes environnementales : consultation de la base de données sur le site de la DREAL Midi-Pyrénées et l'inventaire national du patrimoine naturel pour Natura 2000 (Directive Habitats et Directive Oiseaux), les sites classés et inscrits, le patrimoine mondial de l'UNESCO, les ZICO, ZNIEFF de types 1 et 2, le SAGE, les zones définies par les arrêtés de protection du biotope, la localisation des zones humides, les projets de trames bleues et vertes et par défaut, les fichiers de référence délivrés par le MNHN.

9.2 Méthodologie de l'analyse des effets environnementaux liés au projet

Les effets directs de types structurels et fonctionnels, indirects en chaîne ou induits, diffus ou ponctuels, temporaires ou permanents ont été recensés vis-à-vis des opérations et travaux envisagés dans le cadre de la recherche d'un potentiel minier à l'échelle du PERM.

Afin d'évaluer ces différents effets, il a été fait usage du guide nommé *« l'étude d'impact sur l'environnement »* publié en 2001 par Patrick Michel pour le compte du Ministère de l'aménagement du territoire et de l'environnement.

Ces différents effets ont été examinés sous l'angle des différentes phases du projet.

[17] Source Légifrance : http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000025054134&dateTexte=&categorieLien=id

10 Description des difficult®s li®es ¨ l'®tude

La principale difficulté de cette notice d'impact concerne la surface couverte du PERM COUFLENS qui s'étend sur 42 km^2 dans une zone montagneuse à fortes pentes. Il est difficile d'être précis sur les impacts de tel ou tel type de travaux, en particulier des forages, sur des milieux aussi variés, d'autant plus qu'il n'est pas possible de déterminer à l'avance le positionnement des opérations. Cela constitue une limite de l'exercice à ce stade du projet.

La collecte des données est aussi une difficulté rencontrée lors de l'élaboration de cette notice d'impact. En effet, les données de nature très différentes ne sont pas toujours précises, homogènes, harmonisées et directement utilisables sur un SIG. Les délais de demande d'information auprès de divers organismes peuvent être importants et ont parfois demandé des relances répétées sans garantie de succès d'obtention de données de qualité souhaitée. La présente étude utilise les données recueillies et que l'administration a bien voulu transmettre. Nous considérons qu'il s'agit des seules informations « officielles » disponibles à ce jour dans le cadre de cette demande de PERM.

D'autre part, la cartographie des nappes d'eau souterraines n'est pas directement accessible. L'Agence de l'Eau Adour-Garonne ne fournit qu'une cartographie indicative sous forme de masses d'eaux souterraines qui ne constitue pas une cartographie permettant de localiser avec précision les nappes. La Banque de données du Sous-Sol (BRGM) fournie des informations complémentaires, mais ponctuelles sur le sous-sol et notamment sur la présence de nappes d'eau.

11 Auteurs de l'®tude

Le bureau d'étude MINELIS basé 33 rue Chanzy à Asnières-sur-Seine (N°SIRET : 435 308 184 00025), a été mandaté pour mener cette notice d'impact pour le PERM COUFLENS.

Cette notice d'impact a été rédigée par Didier DESRAY, Ingénieur Environnement.

12 El®ments de l'®tude de risques/danger

Le projet PERM COUFLENS ne consiste ni en une installation nucléaire ni en une installation classée pour la protection de l'environnement. Il n'est donc pas concerné par cette partie.

13 Appr®ciation des impacts de l'ensemble du programme

Les effets induits par le projet sont, pour la plupart, des effets temporaires limités dans le temps ayant un impact faible sur l'environnement.

Les principaux effets concernent la consommation d'espace et l'immobilisation d'un périmètre restreint de terrain, de préférence à vocation agricole ou forestière, avec l'accord du propriétaire et/ou de l'exploitant, la perturbation ponctuelle de la faune et de la flore sur

les temps d'intervention (prélèvement de mottes de terre pour les travaux de géochimie, travaux d'aménagement de plateforme de forage, forage et éventuelle ouverture de tranchées d'exploration).

La pollution de l'air, les odeurs, émissions de poussières, bruit et participation à l'effet de serre par émissions gazeuses dans l'atmosphère proviennent de l'usage des véhicules et engins de chantier, d'un petit avion, d'un hélicoptère et de la foreuse.

L'atteinte au paysage par les travaux est limitée à la durée de ceux-ci, à l'exception des quelques cailloux cassés et/ou prélevés pour les travaux de géologie. A la fin de l'étude de recherche minière, toute trace de cette activité aura disparu, le terrain sera rendu dans son état d'origine et compatible avec sa vocation initiale.

			effets temporaires	effets permanents	effets cumulatifs
effets directs	effets structurels	consommation d'espace	faible	néant	néant
		suppression de terrains à vocation agricole	faible	néant	néant
		isolation des parcelles du siège de l'exploitation agricole	néant	néant	néant
		disparition d'espèces animales	néant	néant	néant
		perturbation de la faune	faible	néant	néant
		disparition d'espèces végétales	néant	néant	néant
		perturbation de la flore	faible	néant	néant
		disparition d'éléments du patrimoine culturel	néant	néant	néant
		modification du régime hydraulique	néant	néant	néant
		atteinte au paysage	faible	néant	néant
		coupure de continuité écologique par morcellement	néant	néant	néant
		restructuration des voiries et réseaux divers	néant	néant	néant
	effets fonctionnels	pollution de l'eau	néant	néant	néant
		pollution de l'air	faible	néant	néant
		pollution des sols	néant	néant	néant
		production de déchets	néant	néant	néant
		risques technologiques	néant	néant	néant
		odeurs	faible	néant	néant
		émissions de poussières	faible	néant	néant
		bruit	faible	néant	néant
effets indirects	en chaîne	disparition d'espèce par destruction du milieu	néant	néant	néant
		modification des rendements culturaux en raison de la modification de l'hulidité des sols	néant	néant	néant
	induits	incidences sur le marché de l'immobilier	néant	néant	néant
		modification de la valeur agronomique des terres par suppression des réseaux de drainage agricole	néant	néant	néant
		fréquentation touristique	néant	néant	néant
		participation à l'effet de serre par émissions gazeuses dans l'atmosphère	faible	néant	néant

Tableau 21 : Tableau bilan des effets potentiels du PERM COUFLENS sur l'environnement

REFERENCES BIBLIOGRAPHIQUES

Guide méthodologique de l'étude d'impact - L'étude d'impact sur l'environnement, Patrick Michel. 2001. Ministère de l'Aménagement du territoire et de l'environnement.
http://www.unece.org/fileadmin/DAM/env/eia/documents/EIAguides/france_EIA_complete.pdf

Texte de Loi : sous-section 3 de l'article 1 du décret n°2011-2019 du 29 décembre 2011
http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000025054134&dateTexte=&categorieLien=id

Données socio-économiques et démographiques
http://www.insee.fr/fr/
http://agreste.agriculture.gouv.fr/
http://www.inao.gouv.fr/
http://www.geoclip.fr/fr/
http://www.geoportail.fr/

Données sur les sites et sols pollués, ICPE et le sous-sol
http://basias.brgm.fr/
http://infoterre.brgm.fr/
http://materiaux.brgm.fr/

Données sur les masses d'eau
http://www.ades.eaufrance.fr/
http://www.eau-adour-garonne.fr/informations_et_donnees
http://www.eau-adour-garonne.fr/fr/quelle-politique-de-l-eau-en-adour-garonne/un-cadre-le-sdage/documents-du-sdage-et-du-pdm.html
http://www.eaufrance.fr/

Données sur le patrimoine naturel et la biodiversité
http://inpn.mnhn.fr/accueil/index
http://www.natura2000.fr/
http://www.iucn.org/fr/

Données sur le patrimoine culturel, historique et archéologique
http://www.culture.gouv.fr/culture/inventai/patrimoine/
http://atlas.patrimoines.culture.fr/atlas/trunk/
http://www.inrap.fr/archeologie-preventive/p-7-Accueil.htm
http://www.adlfi.fr/SiteAdfi/index

Données sur le climat
http://www.meteofrance.com/climat/france

Données sur les risques naturels et technologiques
http://www.prim.net/

Cartographie en Midi-Pyrénées / Ariège
http://www.ariege.gouv.fr/Publications/Cartographie-SIG/Les-cartes-du-departement
http://www.midi-pyrenees.developpement-durable.gouv.fr/donnees-sig-r2201.html
http://carto.mipygeo.fr/1/public.map

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Annexe 1 : Masse d'eau libre FRFR174

SDAGE-PDM 2010-2015

Les éléments ci-dessous présentent les informations relatives au 1er cycle de la Directive Cadre sur l'Eau qui s'appuie sur un état des lieux, réalisé en 2004.
Les objectifs ont été fixés dans le SDAGE 2010-2015 approuvé par le comité de bassin en Décembre 2009.
Accéder à des données plus récentes en consultant **l'état des lieux préparatoire au SDAGE 2016-2021**

Le Salat de sa source au confluent du Lez

Code :	FRFR174
Cours d'eau :	Le Salat
MEFM :	Non
Type :	Naturelle
Longueur :	38 Km
Commission territoriale :	Garonne
U.H.R. :	Salat Arize
Département(s) :	ARIEGE

Bassin versant élémentaire
B.V. élémentaires des affluents
Masses d'eau rivières





Cliquez sur la carte pour naviguer vers une masse d'eau voisine
Basculer vers l'interface cartographique

Objectif d'état de la masse d'eau (SDAGE 2010-2015)

Objectif état global :	Bon état 2015
Objectif état écologique :	Bon état 2015
Objectif état chimique :	Bon état 2015

Etat de la masse d'eau (Evaluation SDAGE 2010 sur la base de données 2006-2007)

		Indice de confiance			Indice de confiance
Etat écologique (Mesuré) :	Bon	■■□	**Etat chimique :**	Non classé	□□□

Télécharger l'Arrêté du 25 janvier 2010 relatif aux méthodes et critères d'évaluation de l'état écologique, de l'état chimique et du potentiel écologique des eaux de surface

Stations de mesure pour qualifier l'état

- Le Salat en amont de St-Girons (05180290) - Données élaborées

- Pressions de la masse d'eau (Etat des lieux 2004)

SDAGE 2010-2015

	Pression	Evolution
Agricole :	Faible	→
Domestique :	Moyenne	→
Industrielle :	Faible	→
Ressource :	Faible	→
Morphologie :	Moyenne	→
Agricole Nitrates :	Faible	→
Agricole Pesticides :	Faible	→
Autres micropolluants :	Faible	→

- Programme de mesures...

SDAGE

...de l'Unité Hydrographique de Référence "Salat Arize" (fiche au format PDF)

Toutes les mesures de l'unité hydrographique de référence (UHR) ne s'appliquent pas systématiquement à cette masse d'eau

- Données...

SDAG

Définitions et téléchargement de l'intégralité des données DCE du SDAGE 2010-2015

SDAGE-PDM 2016-2021

ETAT DES LIEUX 2013

Les éléments ci-dessous présentent les informations relatives au 2ème cycle de la Directive Cadre sur l'Eau qui s'appuie sur un état des lieux, validé le 2 décembre en 2013 par le comité de bassin et dont les objectifs seront fixés dans le SDAGE 2016-2021 en cours d'élaboration.
Consulter la fiche relative au **1er cycle de la DCE**

- **Le Salat de sa source au confluent du Lez**

Code :	FRFR174
Cours d'eau :	Le Salat
Type :	Naturelle
Longueur :	38 Km
Commission territoriale :	Garonne
U.H.R. :	Salat Arize
Département(s) :	ARIEGE



Bassin versant élémentaire
B.V. élémentaires des affluents
Masses d'eau rivières



Cliquez sur la carte pour naviguer vers une masse d'eau voisine

Objectif d'état de la masse d'eau

201

Les objectifs seront fixés dans le SDAGE 2016-2021 en cours d'élaboration.

Etat de la masse d'eau (Etat des lieux validé en 2013)

La DCE définit le "bon état" d'une masse d'eau de surface lorsque l'état écologique et l'état chimique de celle-ci sont au moins bons. L'évaluation des états est soumise à la validation des Secrétariats Techniques Locaux (STL) qui s'appuient sur les mesures effectuées au droit de stations ou sur des modèles d'extrapolation en l'absence de mesures. Cette étape d'expertise à l'échelle masse d'eau permet de traiter les cas particuliers.

2016-2021

		Indice de confiance			Indice de confiance
Etat écologique (Modélisé) :	Bon		**Etat chimique :**	Mauvais	

Télécharger l'Arrêté du 25 janvier 2010 relatif aux méthodes et critères d'évaluation de l'état écologique, de l'état chimique et du potentiel écologique des eaux de surface

Pressions de la masse d'eau (Etat des lieux validé en 2013)

2016-2021

	Pression
Pression ponctuelle :	
Pression des rejets de stations d'épurations domestiques :	Non significative
Pression liée aux débordements des déversoirs d'orage :	Non significative
Pression des rejets de stations d'épurations industrielles (macro polluants) :	Non significative
Pression des rejets de stations d'épurations industrielles (MI et METOX) :	Non significative
Indice de danger « substances toxiques » global pour les industries :	Non significative
Pression liée aux sites industriels abandonnés :	Non significative
Pression diffuse :	
Pression de l'azote diffus d'origine agricole :	Non significative
Pression par les pesticides :	Non significative
Prélèvements d'eau :	
Pression de prélèvement AEP :	Non significative
Pression de prélèvement industriels :	Non significative
Pression de prélèvement irrigation :	Pas de pression
Altérations hydromorphologiques et régulations des écoulements :	
Altération de la continuité :	Modérée
Altération de l'hydrologie :	Minime
Altération de la morphologie :	Minime

Programme de mesures

201

Le P.D.M. sera fixé dans le SDAGE 2016-2021 en cours d'élaboration.

Données...

2016-

- Les données du SDAGE 2016-2021

SIE Adour Garonne

Données élaborées à la station :

Le Salat en amont de St-Girons (05180290)

Code RNDE :	05180290
Commune :	SAINT-GIRONS
Localisation précise :	Prise d'eau du Canal de l'usine Palédes
Typologie :	Moyen cours d'eau dans Pyrénées
Exceptions typologiques :	Cours d'eau naturellement riche en matières organiques Cours d'eau naturellement froid
Masse d'eau :	Située sur la masse d'eau (mais non représentative de l'état écologique) : Le Salat de sa source au confluent du Lez (FRFR174)
Réseau(x) :	Réseau Complémentaire Agence, Contrat Rivière Cérou





Evaluation de l'état (1971 à 2013). Pour l'année de référence 2013

Lorsqu'une station est jugée pertinente pour l'évaluation de l'état écologique d'une masse d'eau, cette évaluation repose sur le suivi de plusieurs compartiments : la physico-chimie, la biologie et les polluants spécifiques. Si une masse d'eau est dite « fortement modifiée » (MEFM), seule une partie de la biologie mesurée (diatomées) sur les stations est conservée. De même, l'évaluation de l'état chimique repose sur le suivi de 41 substances chimiques. Les concentrations et les maxima mesurés de chacune d'entre elles doivent respecter des Normes de Qualité Environnementales définies dans l'Arrêté du 25 janvier 2010.

Toutefois, l'évaluation finale de l'état écologique et chimique à l'échelle de la masse d'eau est réalisée « à dire d'expert » et soumise à validation des Secrétariats Techniques Locaux (STL). Cette expertise permet de traiter les cas particuliers (nombre insuffisant d'analyses, limites de quantification plus élevées que les seuils environnementaux, bruit de fond géochimique ...)

ECOLOGIE

Non classé

Physico-chimie (2012-2013)

Bon

Les valeurs retenues pour qualifier la physico-chimie sur deux années correspondent au percentile 90. Cet indicateur correspond à la valeur qui est supérieure à 90 % des valeurs annuelles relevées.

		Valeurs retenues *	Evolutions Voir toutes les courbes
Oxygène	Très bon		
Carbone Organique (COD)	Très bon	1,4 mg/l	Voir l'évolution
Demande Biochimique en oxygène en 5 jours (D.B.O.5) (DBO5)	Très bon	1,3 mg O2/l	Voir l'évolution
Oxygène dissous (O2 Dissous)	Très bon	10 mg O2/l	Voir l'évolution
Taux de saturation en oxygène (Taux saturation O2)	Très bon	99 %	Voir l'évolution
Nutriments	Très bon		
Ammonium (NH4+)	Très bon	0,04 mg/l	Voir l'évolution
Nitrites (NO2-)	Très bon	0,01 mg/l	Voir l'évolution
Nitrates (NO3-)	Très bon	2,5 mg/l	Voir l'évolution
Phosphore total (Ptot)	Très bon	0,03 mg/l	Voir l'évolution
Orthophosphates (PO4(3-))	Très bon	0,02 mg/l	Voir l'évolution
Acidification	Bon		
Potentiel min en Hydrogène (pH) (pH min)	Très bon	7,9 U pH	Voir l'évolution
Potentiel max en Hydrogène (pH) (pH max)	Bon	8,4 U pH	Voir l'évolution
Température de l'Eau (T°C)	Très bon	16,8 °C	Voir l'évolution

Elément qualité retenu pour calculer l'état : Très bon | Bon | Moyen | Médiocre | Mauvais | Non classé
Elément qualité non retenu pour calculer l'état : Très bon | Bon | Moyen | Médiocre | Mauvais | Non classé
Soulignés, les éléments de qualité assouplis (cf. arrêté du 25 janv. 2010)

CHIMIE (2011-2013)

Non classé — Indice de confiance Inconnu

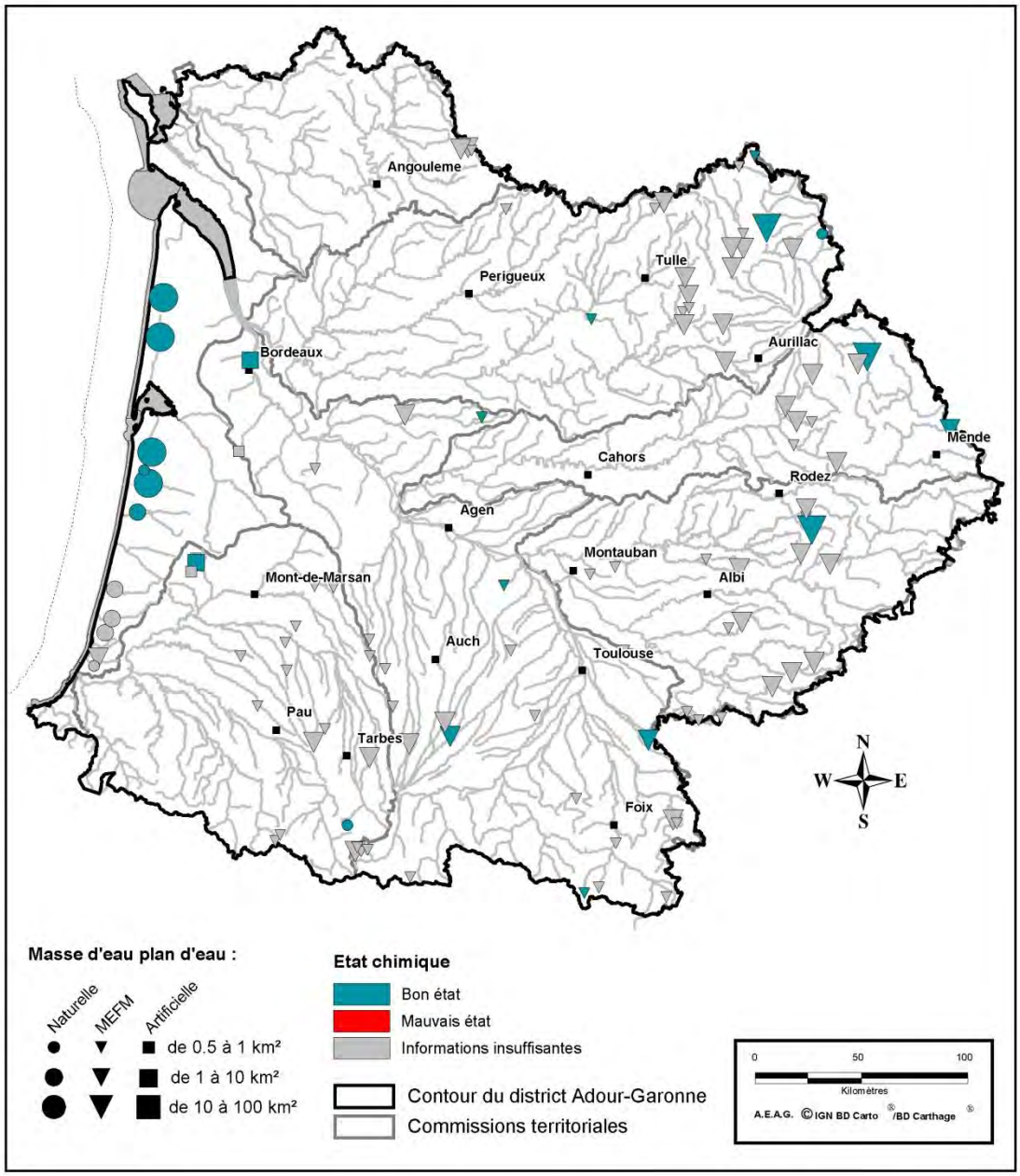
L'année retenue pour qualifier l'état chimique est la plus récente pour laquelle on dispose d'au moins 4 opérations de contrôle, dans la période de trois ans.

Absence de mesures

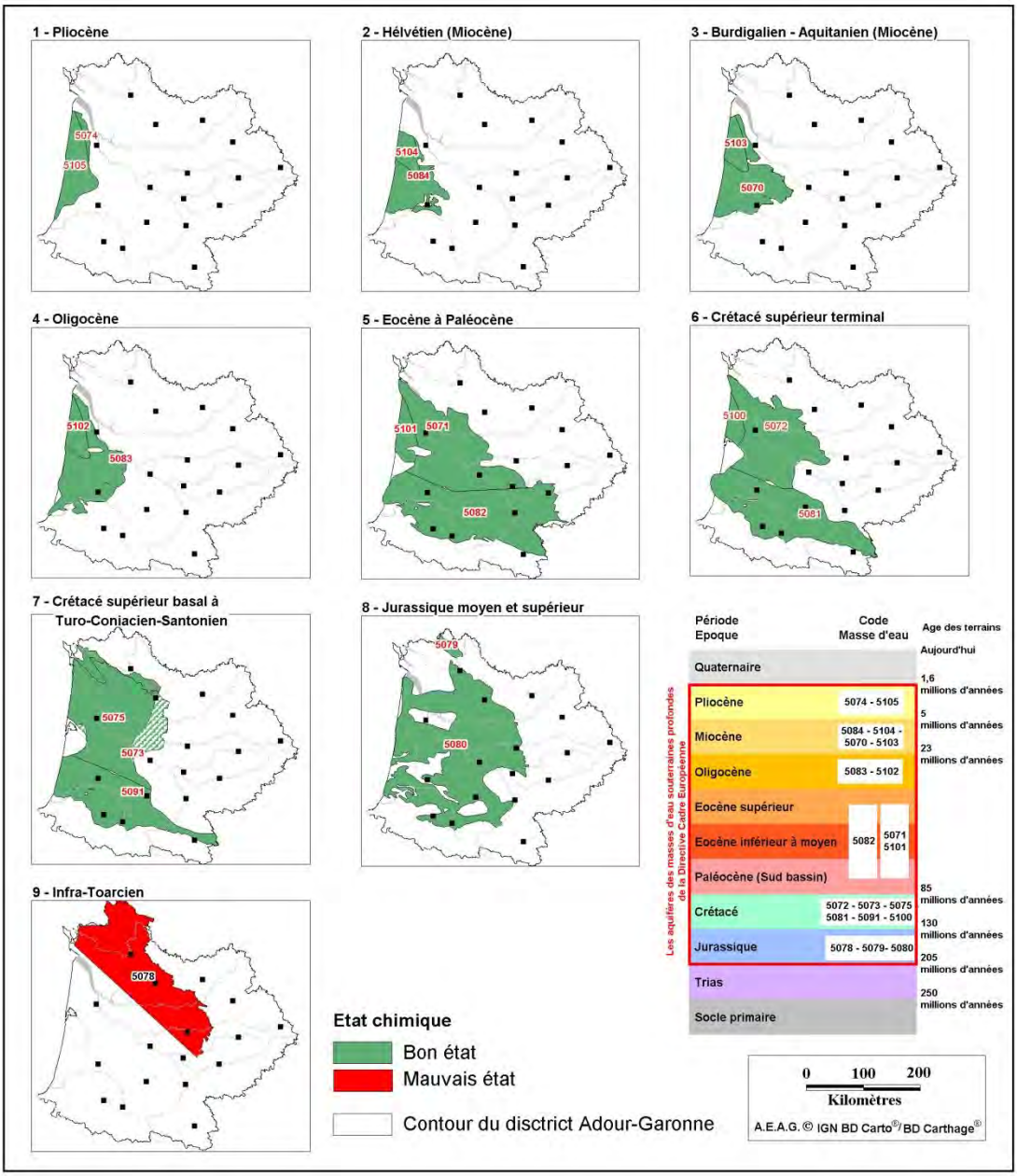
Légende : Bon | Mauvais

Annexe 2 : Qualité des eaux de surface et souterraines

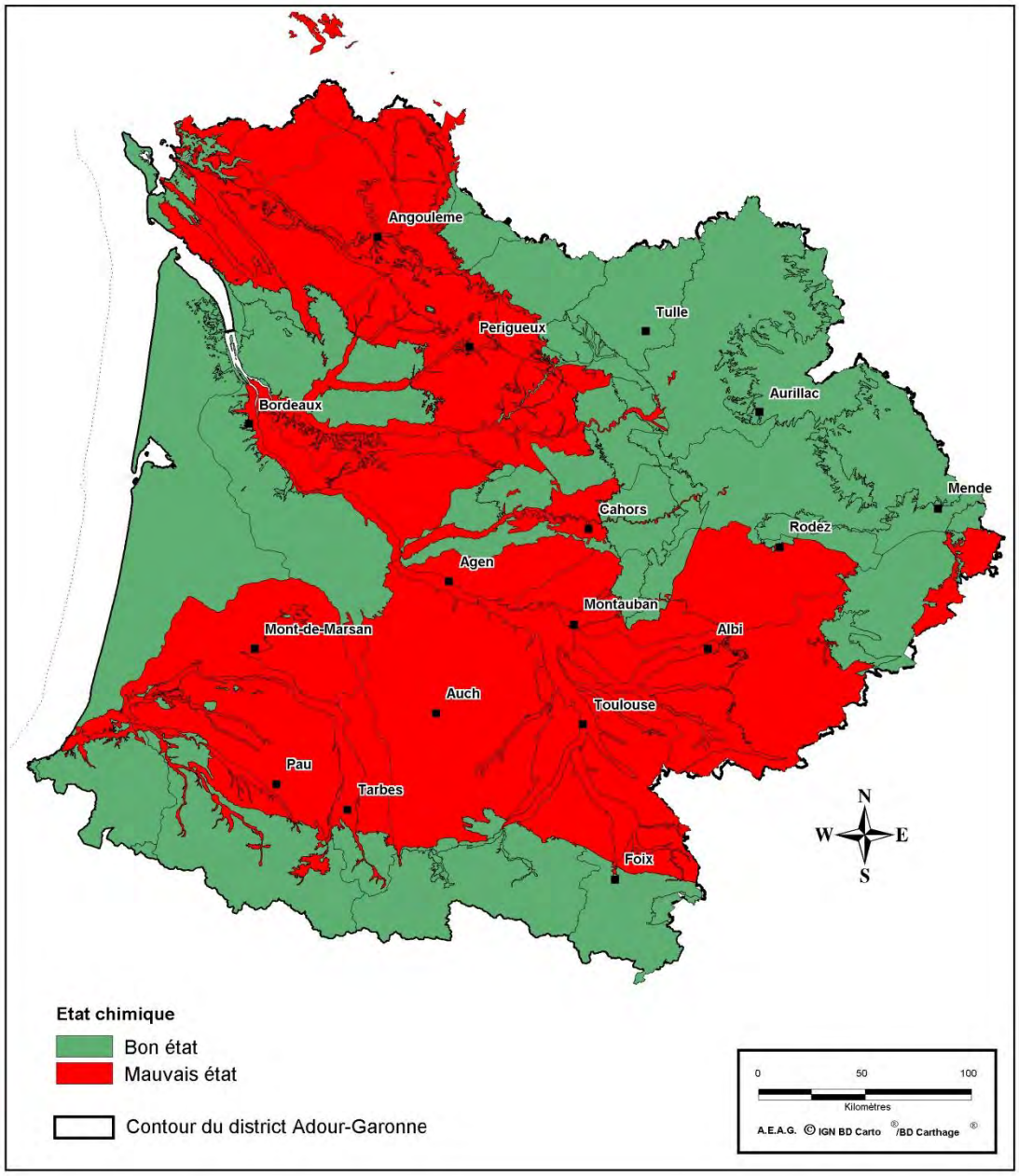
Etat chimique
Masses d'eau plans d'eau



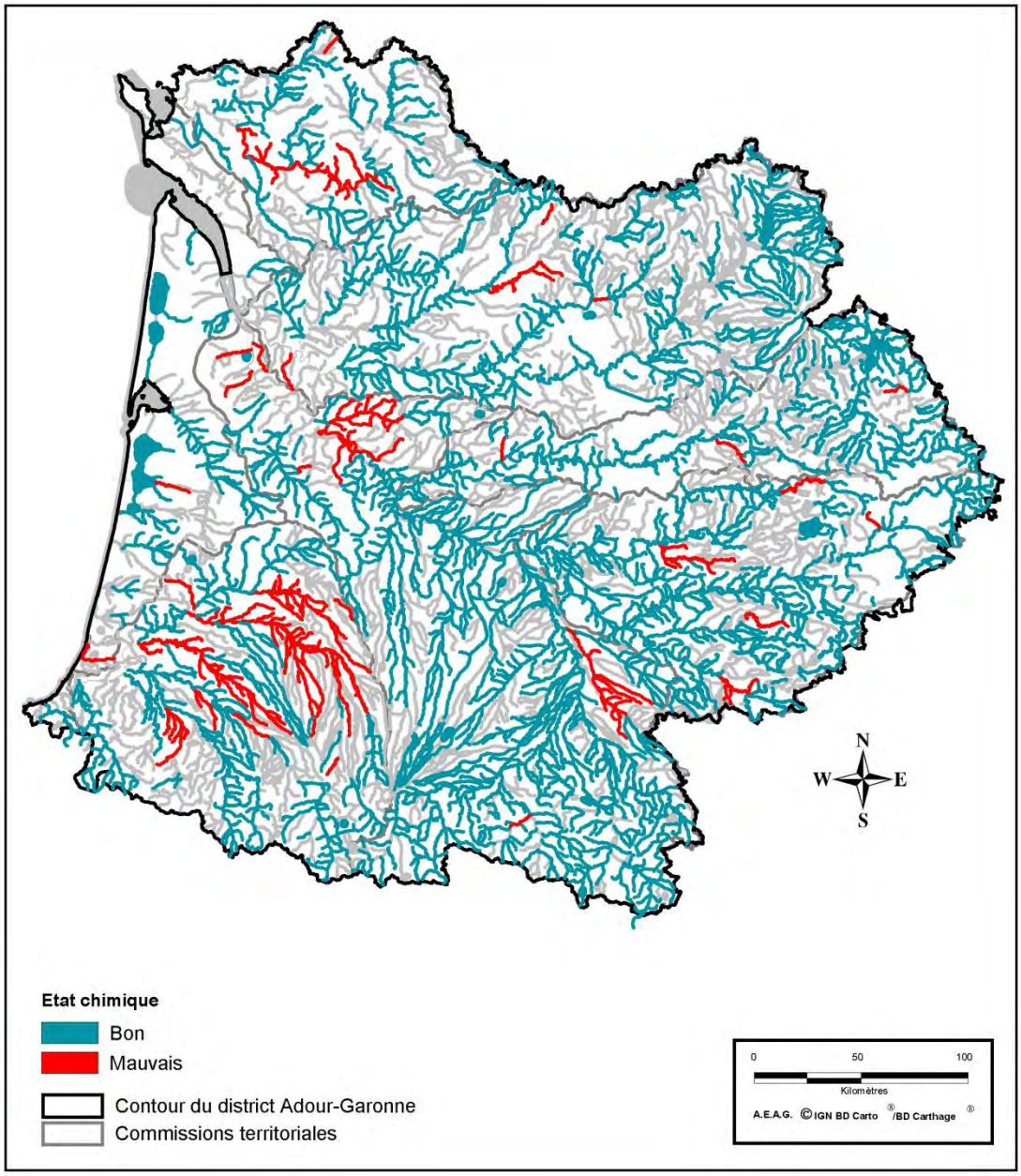
Etat chimique
Masses d'eau souterraines profondes



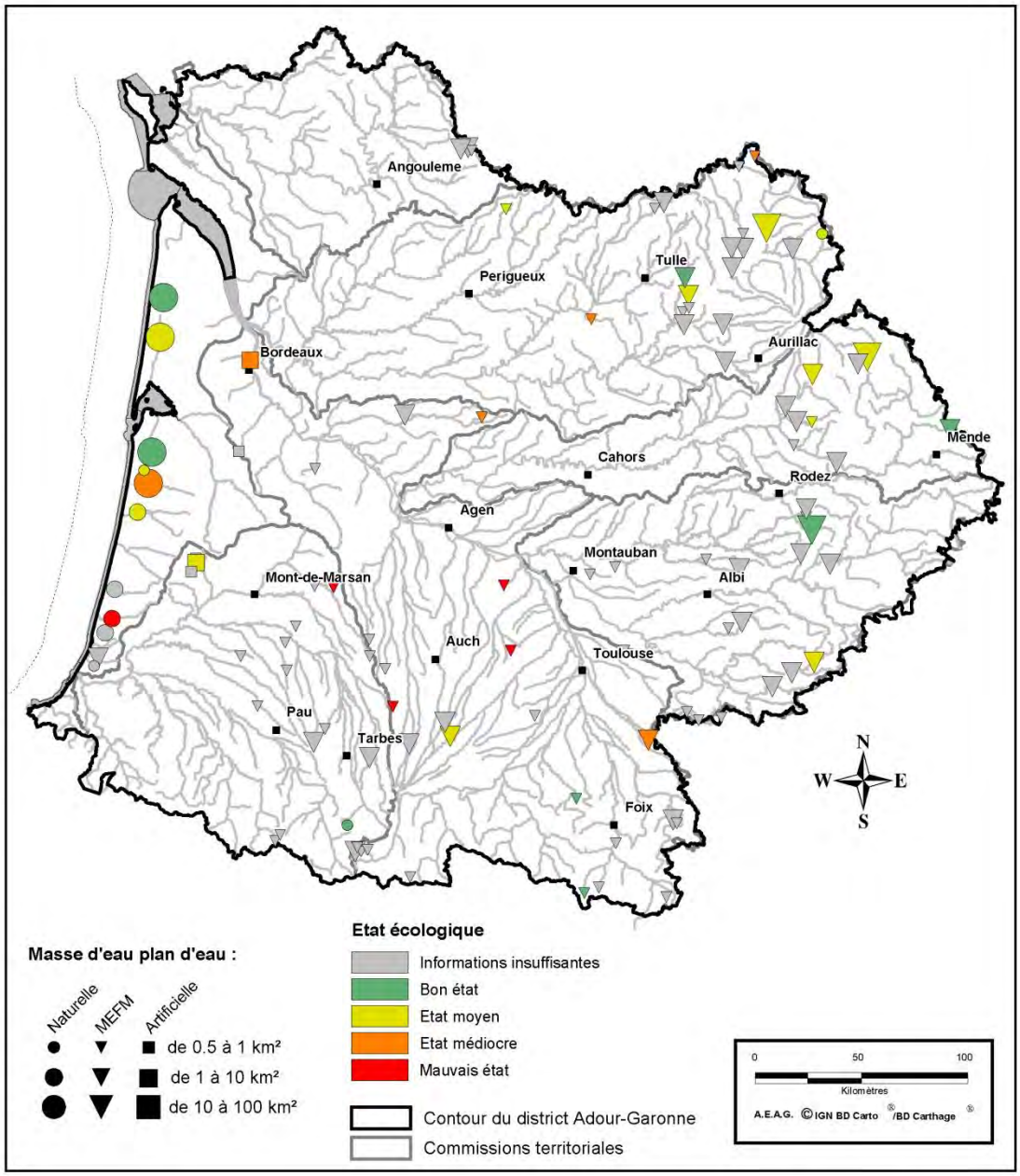
Etat chimique
Masses d'eau souterraines libres



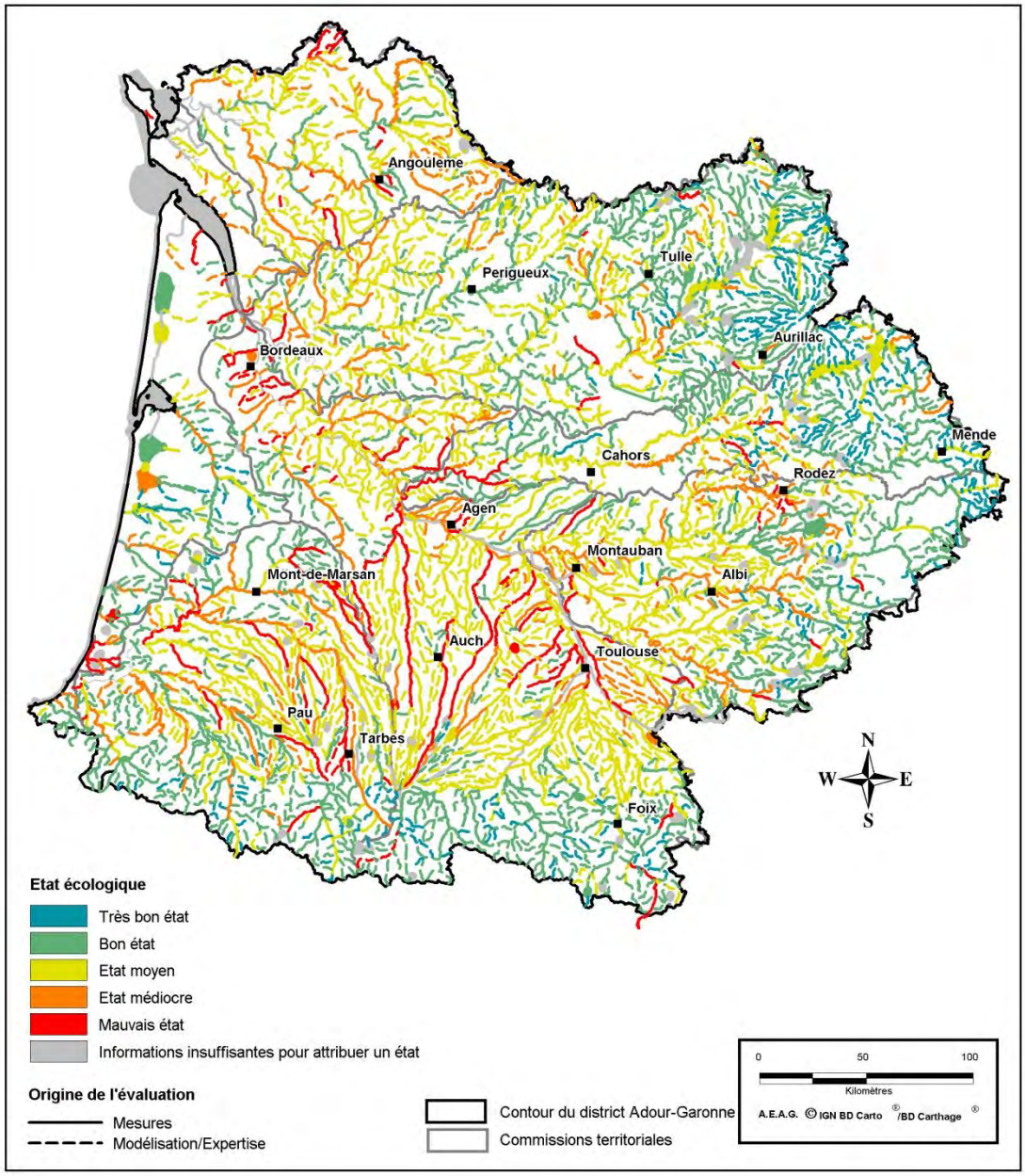
Etat chimique
Masses d'eau douce superficielles



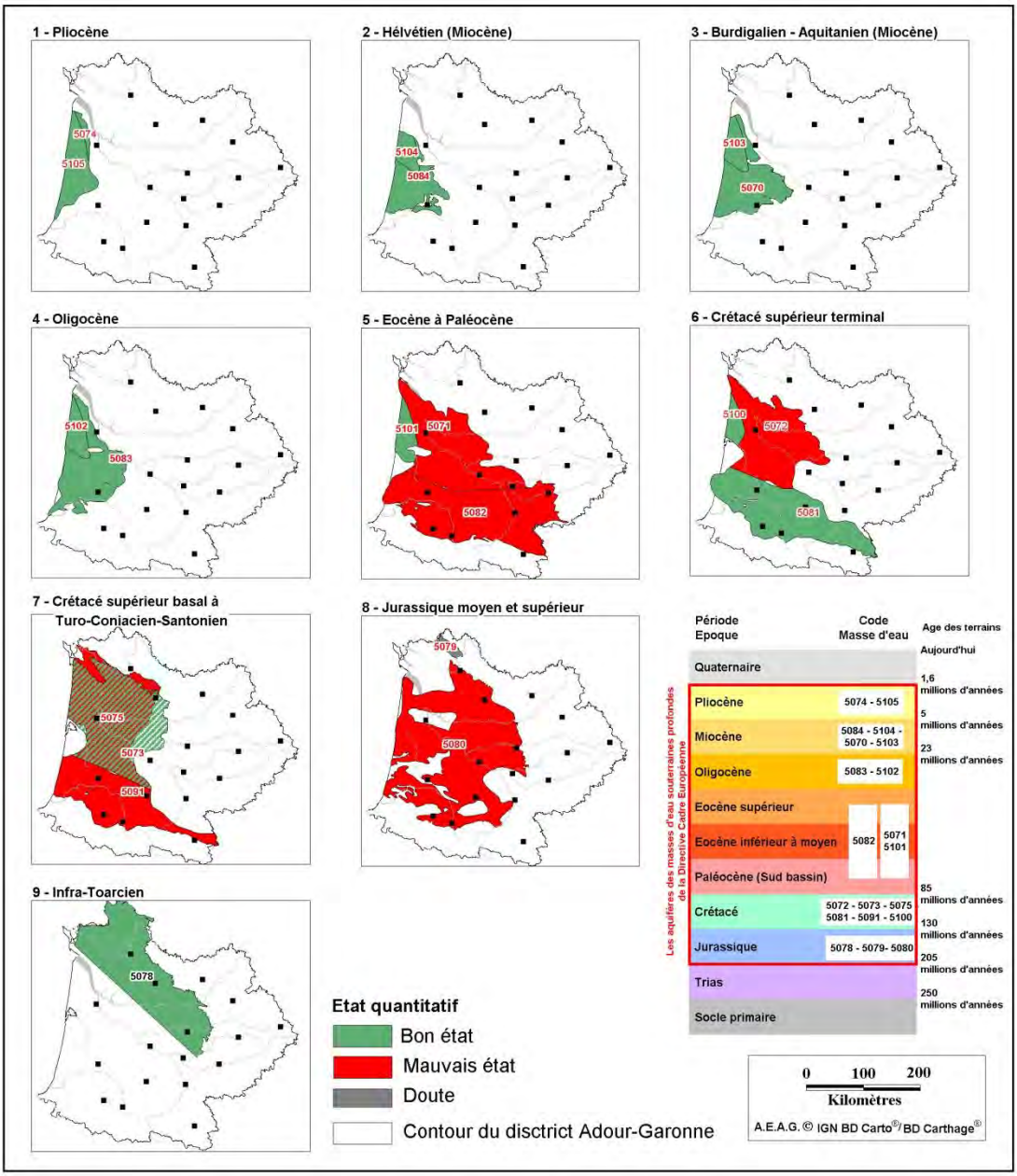
Etat écologique
Masses d'eau plans d'eau



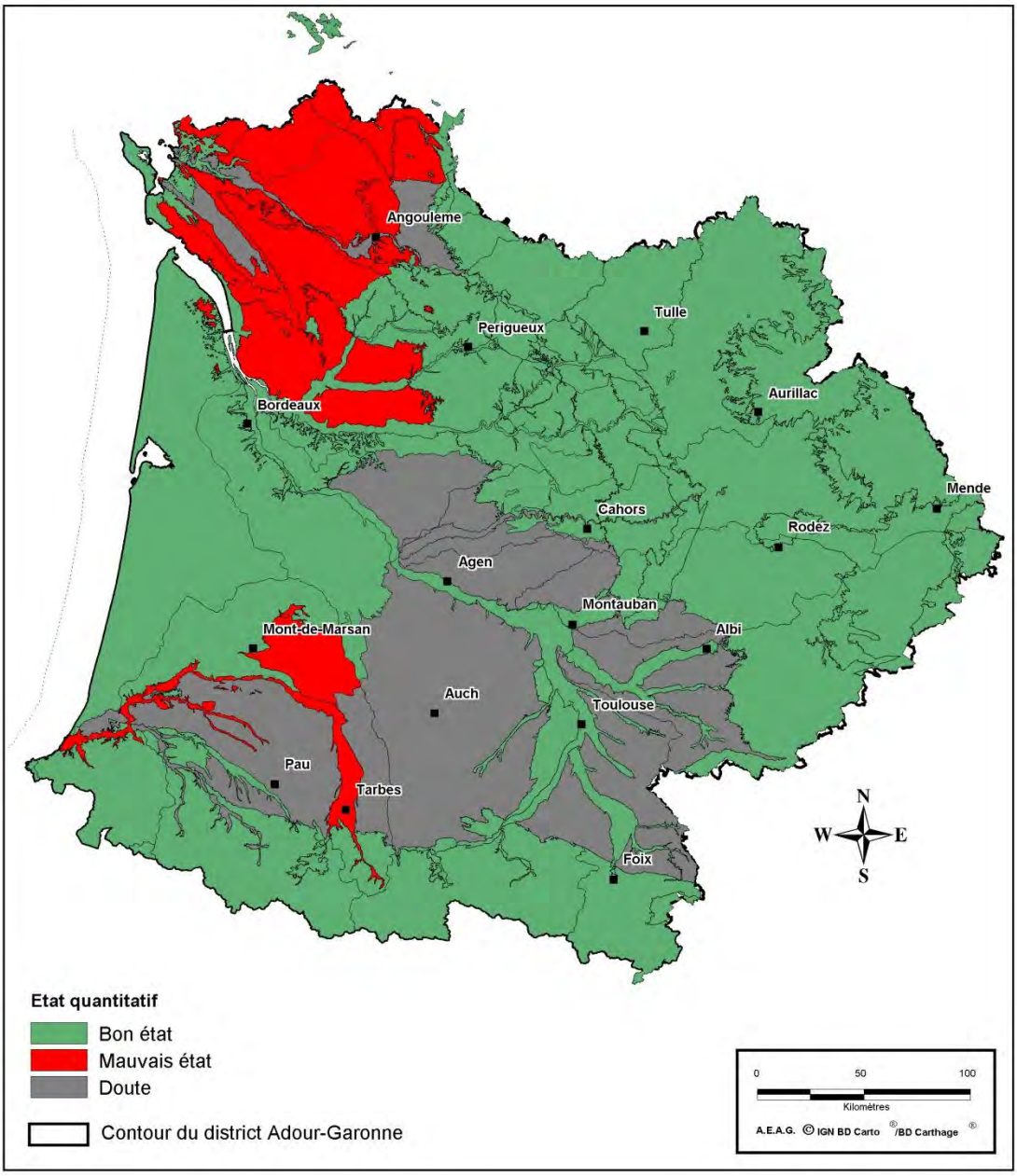
Etat écologique
Masses d'eau douce superficielles



Etat quantitatif
Masses d'eau souterraines profondes



Etat quantitatif
Masses d'eau souterraines libres



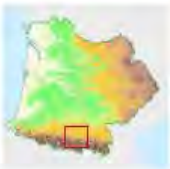
Annexe 3 : Masse d'eau souterraine FRFG086

SDAGE-PDM 2010-2015

Les éléments ci-dessous présentent les informations relatives au 1er cycle de la Directive Cadre sur l'Eau qui s'appuie sur un état des lieux, réalisé en 2004.
Les objectifs ont été fixés dans le SDAGE 2010-2015 approuvé par le comité de bassin en Décembre 2009.
Accéder à des données plus récentes en consultant **l'état des lieux préparatoire au SDAGE 2016-2021**

Alluvions de la Garonne amont, de la Neste et du Salat

Code :	FRFG**086**
Type :	Alluvial
Etat hydraulique :	Libre
Superficie :	227 Km ^{2}
Commission territoriale :	
Département(s) :	HAUTE-GARONNE, ARIEGE, HAUTES-PYRENEES





Basculer vers l'interface cartographique

Objectif d'état de la masse d'eau (SDAGE 2010-2015)

Objectif état global :	Bon état 2015
Objectif état quantitatif :	Bon état 2015
Objectif état chimique :	Bon état 2015

Etat de la masse d'eau (Données 2007-2008-2009)

Etat quantitatif :	Bon
Cause(s) de dégradation :	Bon état repris de l'état 2004
Etat chimique :	Bon — Accéder à la fiche de synthèse de l'évaluation de l'état chimique — Guide de lecture

Télécharger la directive fille 2006/118/CE du parlement Européen du 12 décembre 2006 sur la protection des eaux souterraines contre la pollution et la détérioration et consulter l'arrêté du 25 janvier 2010 établissant le programme de surveillance de l'état des eaux en application de l'article R. 212-22 du code de l'environnement

- **Stations de mesure du Réseau de Contrôle de Surveillance**

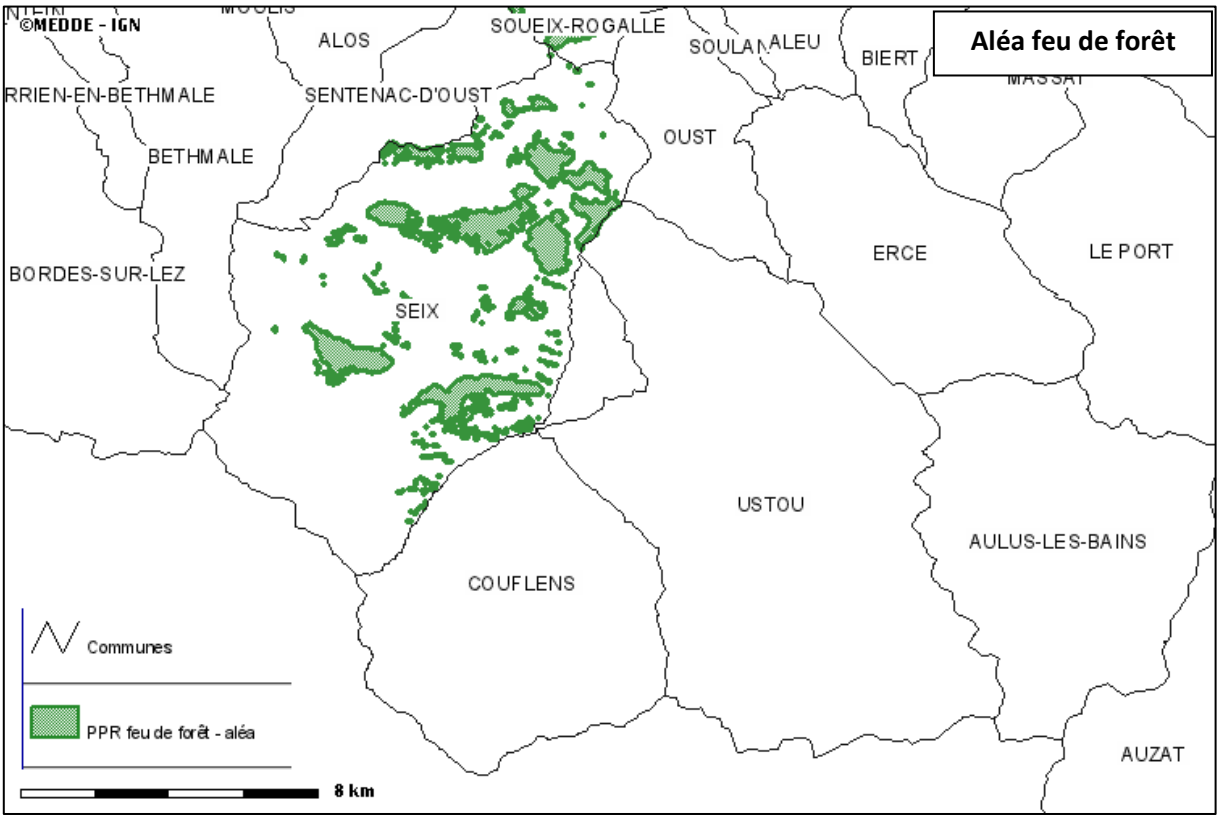
Sur le site ADES : stations de qualité et de quantité qui ont permis d'évaluer l'état des masses d'eau

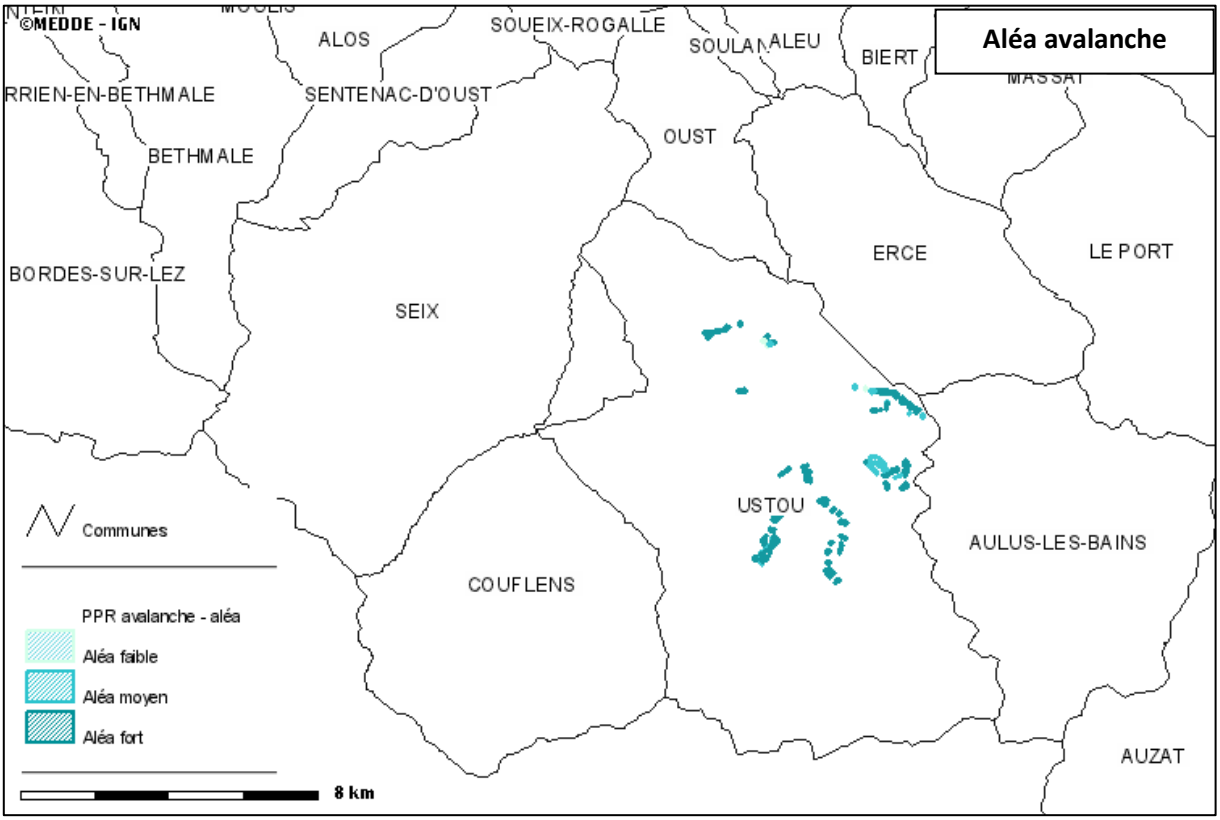
- **Pressions de la masse d'eau (Etat des lieux 2004)**

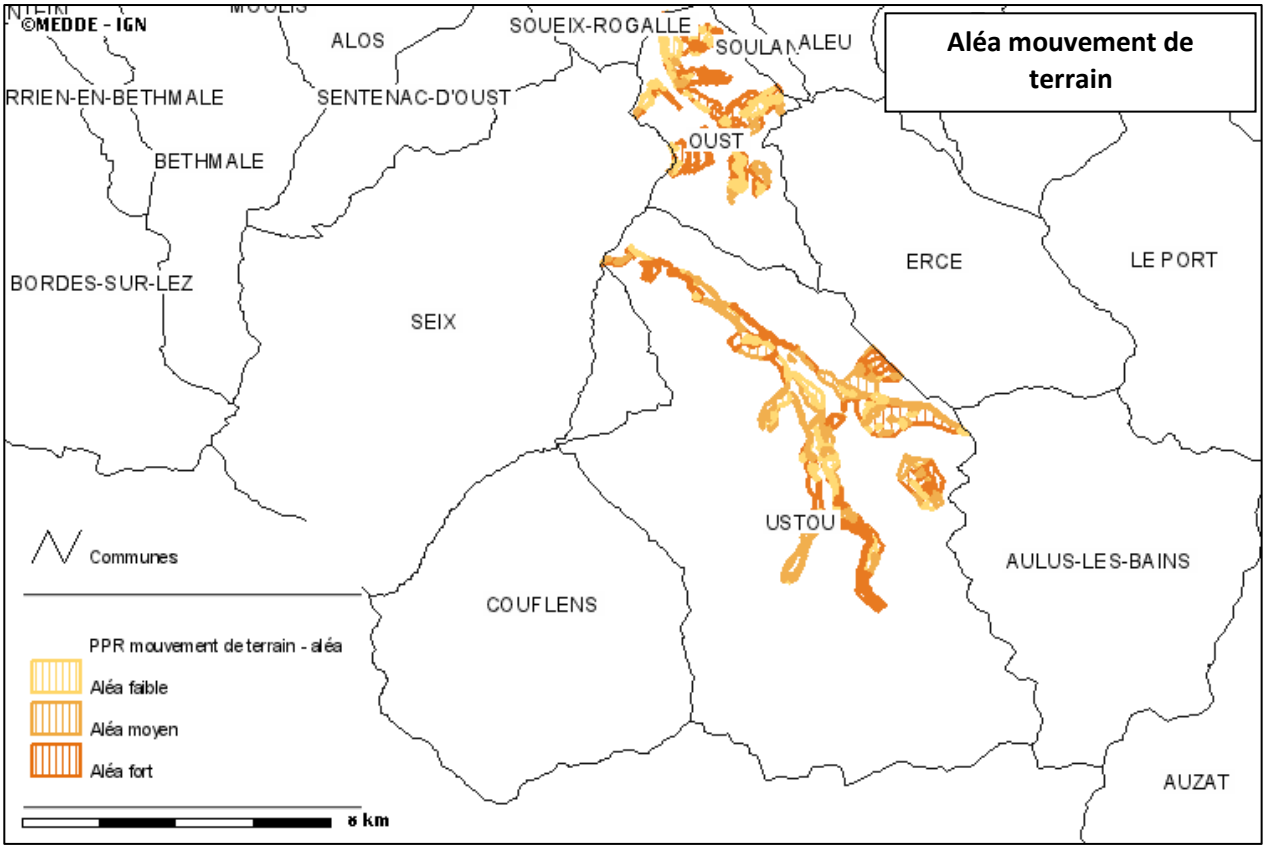
Pression qualitative	Pression
Occupation agricole des sols (répartition des cultures, azote organique et phytosanitaires) :	Moyenne
Elevage :	Moyenne
Non agricole (nitrates issus de l'assainissement autonome, phytosanitaires utilisés par les usagers non agricoles, sites et sols pollués,...) :	Moyenne
Des milieux aquatiques et écosystèmes terrestres (impact des échanges des milieux aquatiques superficiels sur la masse d'eau souterraine) :	Inconnue
Sur les milieux aquatiques et écosystèmes terrestres (impact des échanges de la masse d'eau souterraine sur les milieux aquatiques superficiels) :	Inconnue

Pression quantitative	Pression	Evolution
Prélèvement agricole :	Faible	→
Prélèvement industriel :	Forte	→
Prélèvement eau potable :	Forte	→
Recharge artificielle (par modification directe ou indirecte de la recharge) :	Absente	
Des milieux aquatiques et écosystèmes terrestres (impact des échanges des milieux aquatiques superficiels sur la masse d'eau souterraine) :	Inconnue	
Sur les milieux aquatiques et écosystèmes terrestres (impact des échanges de la masse d'eau souterraine sur les milieux aquatiques superficiels) :	Inconnue	

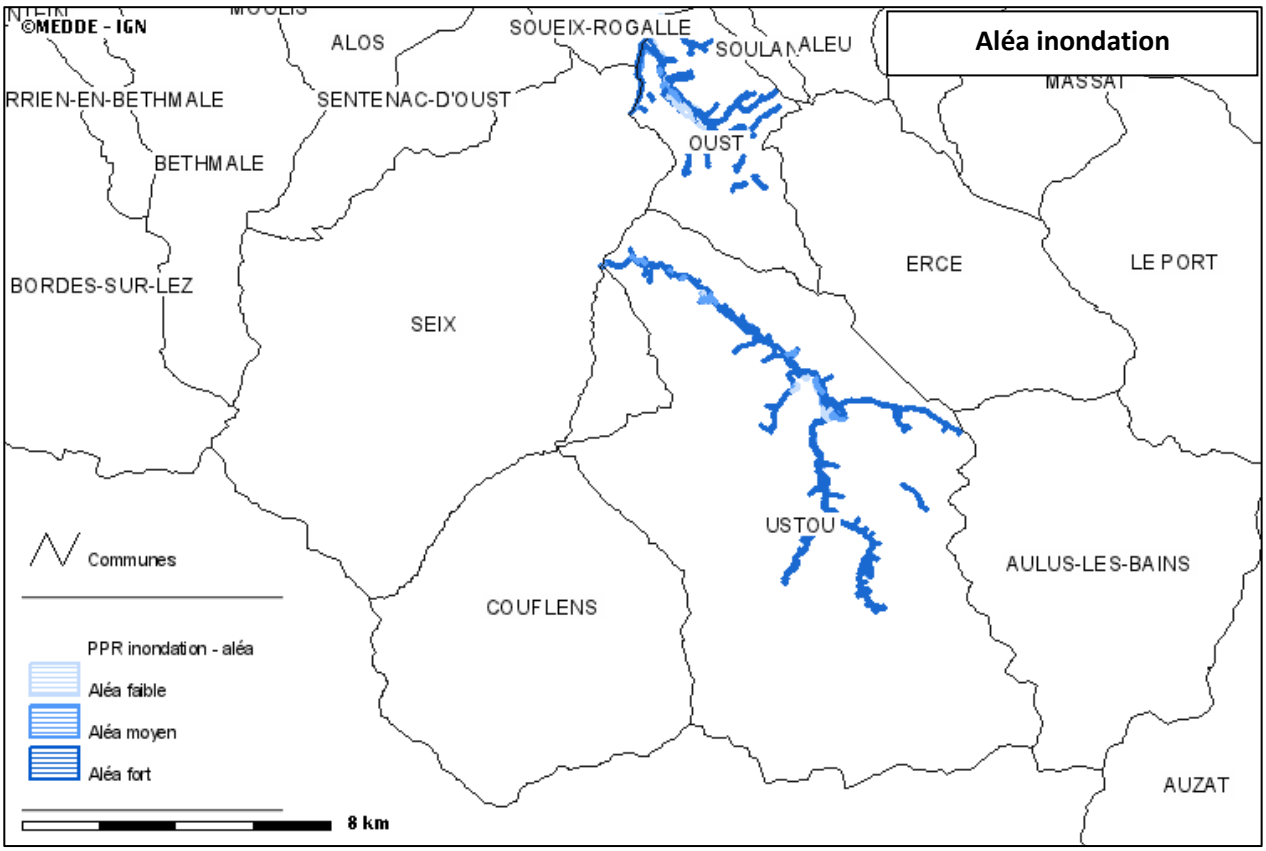
Annexe 4 : Plans de prévention des risques naturels (source : Prim.net)


©MEDDE - IGN
Aléa feu de forêt
ALOS
SOUEIX-ROGALLE
SOULAN
ALEU
BIERT
SENTENAC-D'OUST
BETHMALE
OUST
ERCE
LE PORT
BORDES-SUR-LEZ
SEIX
USTOU
AULUS-LES-BAINS
COUFLENS
AUZAT
Communes
PPR feu de forêt - aléa
8 km


©MEDDE - IGN
Aléa avalanche
ALOS
SOUEIX-ROGALLE
SOULAN
ALEU
BIERT
SENTENAC-D'OUST
BETHMALE
OUST
ERCE
LE PORT
BORDES-SUR-LEZ
SEIX
USTOU
AULUS-LES-BAINS
COUFLENS
AUZAT
Communes
PPR avalanche - aléa
Aléa faible
Aléa moyen
Aléa fort
8 km



Aléa mouvement de terrain



Aléa inondation

Annexe 5 : Fiche descriptive de l'Arrêté de Protection de Biotope FR3800264

FR3800264 - La Garonne, l'Ariège, l'Hers vif et le Salat

Arrêté de protection de biotope, d'habitat naturel ou de site d'intérêt géologique

← Nouvelle recherche

Voir la cartographie du site La Garonne, l'Ariège, l'Hers vif et le Salat

Identification du site

Code national : FR3800264

Code international : 106757

Code Inspire : -

Date de création : 17/10/1989

Procédure de création : décision préfectorale (arrêté)

Date de dernière modification : 01/03/1990

Procédure : décision préfectorale (arrêté)

Opérateur technique de la donnée : DREAL MIDI-PYRENEES

Catégorie UICN : IV

Texte(s) de référence

Arrêté préfectoral modificatif du 01/03/1990
Arrêté préfectoral de création du 17/10/1989
Arrêté préfectoral de création du 17/10/1989
Arrêté préfectoral de création du 17/10/1989
Arrêté préfectoral modificatif du 01/03/1990
Arrêté préfectoral modificatif du 01/03/1990

Localisation du site

Région(s) : Midi-Pyrénées

Coordonnées du centre :

- latitude: N 43°27'26"
- longitude: E 1°25'42"

Carte de localisation :



Superficie :

Superficie officielle (ha) :
Superficie calculée - SIG (ha) : 1702,039

Longueur officielle (m) :
Longueur calculée - SIG (m) : 260017,48

Espèces issues des textes officiels et ayant motivé la création de l'espace

Nom valide	Nom cité	Statut sur le site	Fiche de l'espèce
Alosa alosa (Linnaeus, 1758)		Reproduction certaine ou probable	fiche
Alosa fallax (Lacepède, 1803)		Reproduction certaine ou probable	fiche
Salmo salar Linnaeus, 1758		Reproduction certaine ou probable	fiche
Salmo trutta trutta Linnaeus, 1758		Reproduction certaine ou probable	fiche

Liste des communes

Code insee	Nom de la commune
65087	Bertren
09041	Bastide-du-Salat
09282	Saverdun
31144	Cierp-Gaud
31344	Miramont-de-Comminges
31345	Miremont
31361	Montaut
31372	Montespan
31390	Montréjeau
31391	Montsaunès
31542	Seilhan
31554	Touille
31555	Toulouse
31564	Valcabrère
31565	Valentine
31572	Venerque
31574	Vernet
31575	Vieille-Toulouse
31585	Villeneuve-de-Rivière
31575	Vieille-Toulouse
31585	Villeneuve-de-Rivière
31145	Cintegabelle
31147	Clarac
31148	Clermont-le-Fort
31153	Couladère
31175	Estancarbon
31176	Esténos
31177	Eup
31181	Fauga
31183	Figarol
31190	Fos
31395	Muret
31399	Noé
31405	Ore
31406	Palaminy
31420	Pinsaguel
31421	Pins-Justaret
31426	Pointis-de-Rivière
31427	Pointis-Inard

31433	Portet-sur-Garonne
31199	Fronsac
31207	Galié
31219	Gensac-sur-Garonne
31224	Gourdan-Polignan
31227	Goyrans
31233	Grépiac
31237	His
31238	Huos
31246	Labarthe-Inard
31247	Labarthe-Rivière
31455	Rieux
31457	Roquefort-sur-Garonne
31458	Roques
31460	Roquettes
31471	Saint-Béat
31472	Saint-Bertrand-de-Comminges
31474	Saint-Christaud
31483	Saint-Gaudens
31248	Labarthe-sur-Lèze
31255	Labroquère
31259	Lacroix-Falgarde
31296	Lestelle-de-Saint-Martory
31492	Saint-Julien-sur-Garonne
31503	Saint-Martory
31523	Salies-du-Salat
31525	Salles-sur-Garonne
31533	Saubens
31100	Calmont
31104	Capens
31107	Carbonne
31110	Cassagne
31112	Castagnède
31124	Castillon-de-Saint-Martory
31135	Cazères
31139	Chaum
31298	Lez
31308	Luscan
31314	Mancioux
31315	Mane
31316	Marignac

31320	Marquefave
31324	Martres-Tolosane
31327	Mauran
31334	Mauzac
31336	Mazères-sur-Salat
31337	Melles
31015	Argut-Dessous
31017	Arlos
31018	Arnaud-Guilhem
31031	Ausson
31033	Auterive
31041	Bagiry
31045	Barbazan
31050	Beauchalot
31076	Bordes-de-Rivière
31084	Boussens
65307	Mazères-de-Neste
65391	Sainte-Marie
65398	Saléchan
65444	Tibiran-Jaunac
65287	Loures-Barousse

Annexe 6 : Fiche descriptive du Parc Naturel Régional des Pyrénées Ariégeoises

FR8000047 - Pyrénées ariégeoises

Parc naturel régional

← Nouvelle recherche

Voir la cartographie du site Pyrénées ariégeoises

Identification du site

Code national : FR8000047

Code international : 391972

Code Inspire : -

Date de création : 28/05/2009

Procédure de création : décision ministérielle (décret)

Date de dernière modification :

Procédure : -

Opérateur technique de la donnée : Fédération des PNR

Catégorie UICN : V

Texte(s) de référence

Décret du 28 mai 2009 portant classement du parc naturel régional des Pyrénées ariégeoises (Midi-Pyrénées)
Décret du 28 mai 2009 portant classement du parc naturel régional des Pyrénées ariégeoises (Midi-Pyrénées)
Décret du 28 mai 2009 portant classement du parc naturel régional des Pyrénées ariégeoises (Midi-Pyrénées)

Site(s) Internet

Site Internet du Parc

Localisation du site

Région(s) : Midi-Pyrénées

Coordonnées du centre :

- latitude: N 42°54'09"
- longitude: E 1°16'51"

Carte de localisation :



Superficie :

Superficie officielle (ha) :
Superficie calculée - SIG (ha) : 245984,0

Liste des communes

Code insee	Nom de la commune
09322	Ustou
09329	Vernajoul
09334	Vicdessos
09335	Villeneuve
09017	Arrien-en-Bethmale
09018	Arrout
09025	Aucazein
09026	Audressein
09027	Augirein
09029	Aulus-les-Bains
09030	Auzat
09033	Bagert
09034	Balacet
09035	Balaguères
09037	Barjac
09041	Bastide-du-Salat
09042	Bastide-de-Sérou
09044	Baulou
09045	Bédeilhac-et-Aynat
09046	Bédeille
09049	Bénac
09054	Betchat
09055	Bethmale
09057	Biert
09059	Bonac-Irazein
09061	Bordes-sur-Arize
09062	Bordes-sur-Lez
09063	Bosc
09065	Boussenac
09066	Brassac

09068	Burret
09069	Buzan
09071	Cadarcet
09073	Camarade
09075	Campagne-sur-Arize
09077	Capoulet-et-Junac
09082	Castelnau-Durban
09085	Castillon-en-Couserans
09086	Caumont
09090	Cazaux
09091	Cazavet
09094	Cérizols
09095	Cescau
09097	Clermont
09098	Contrazy
09099	Cos
09100	Couflens
09108	Durban-sur-Arize
09110	Encourtiech
09111	Engomer
09113	Ercé
09114	Erp
09118	Esplas-de-Sérou
09119	Eycheil
09120	Fabas
09121	Ferrières-sur-Ariège
09127	Gabre
09128	Gajan
09129	Galey
09130	Ganac
09133	Génat
09134	Gestiès

09135	Goulier
09136	Gourbit
09143	Illier-et-Laramade
09148	Lacave
09149	Lacourt
09152	Lapège
09154	Larbont
09158	Lasserre
09162	Lercoul
09164	Lescure
09173	Loubens
09174	Loubières
09181	Mas-d'Azil
09182	Massat
09183	Mauvezin-de-Prat
09184	Mauvezin-de-Sainte-Croix
09187	Mercenac
09190	Mérigon
09192	Miglos
09198	Montardit
09201	Montégut-en-Couserans
09202	Montégut-Plantaurel
09203	Montels
09204	Montesquieu-Avantès
09205	Montfa
09208	Montgauch
09209	Montjoie-en-Couserans
09210	Montoulieu
09212	Montseron
09214	Moulis
09216	Nescus

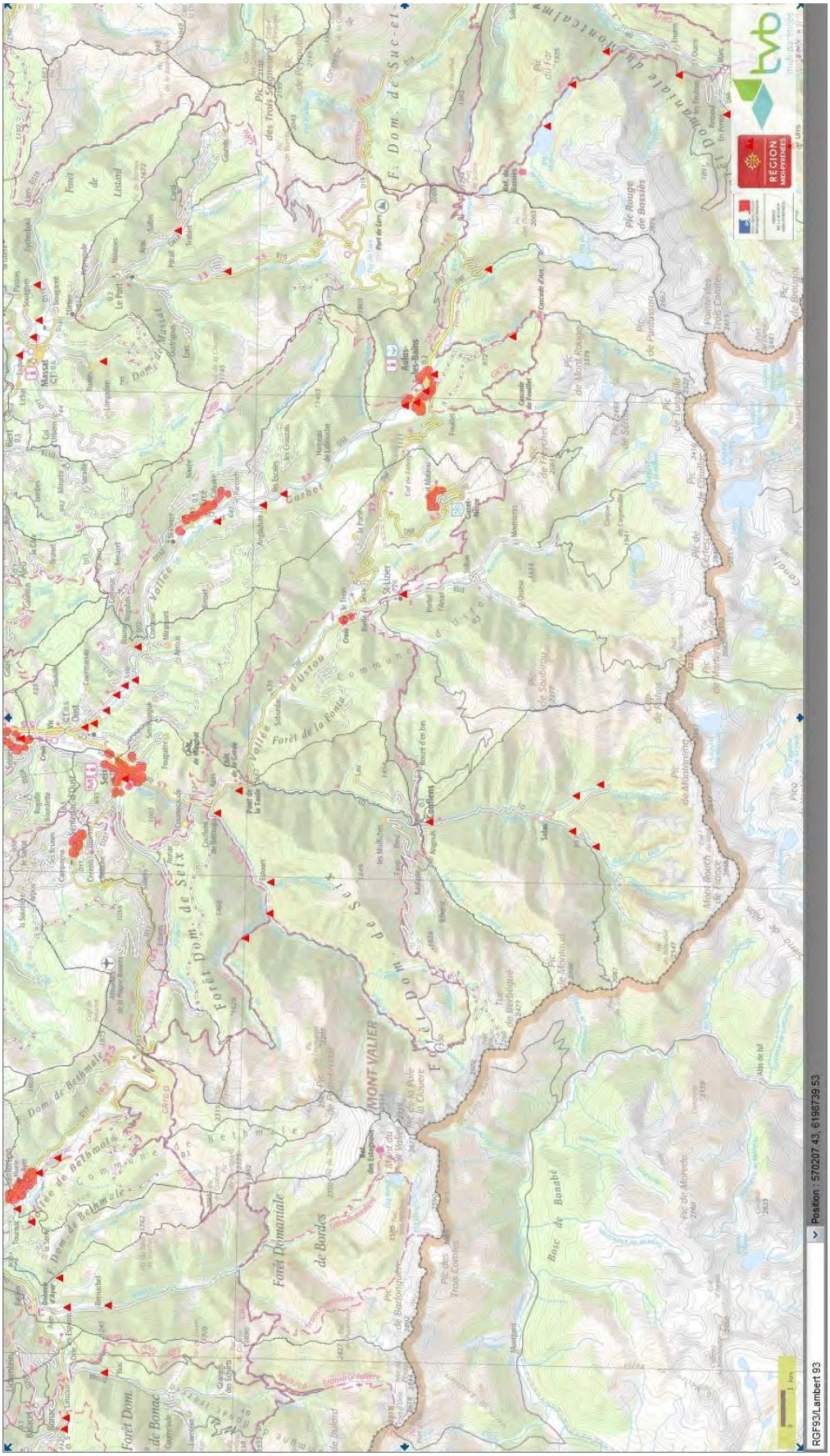
Nescus	09261	Saint-Girons
Niaux	09263	Saint-Jean-du-Castillonnais
Orgibet	09267	Saint-Lary
Orus	09268	Saint-Lizier
Oust	09269	Saint-Martin-de-Caralp
Pailhès	09273	Saint-Pierre-de-Rivière
Port	09279	Salsein
Prat-Bonrepaux	09280	Saurat
Prayols	09285	Seix
Quié	09286	Sem
Rabat-les-Trois-Seigneurs	09289	Lorp-Sentaraille
Rimont	09290	Sentein
Rivèrenert	09291	Sentenac-d'Oust
Sabarat	09292	Sentenac-de-Sérou
Sainte-Croix-Volvestre	09293	Serres-sur-Arget
	09295	Siguer

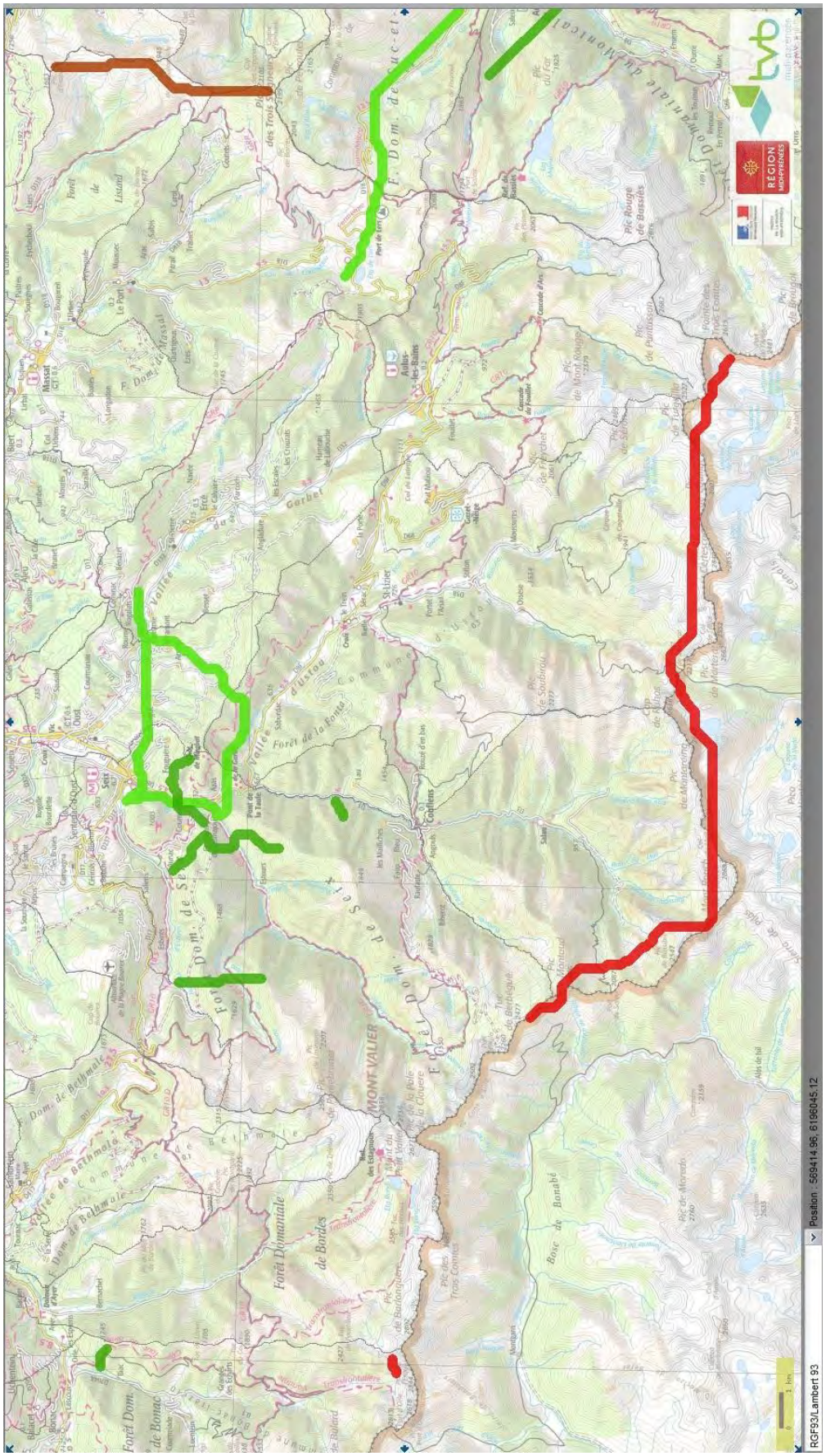
09297	Sor
09299	Soueix-Rogalle
09301	Soulan
09302	Suc-et-Sentenac
09303	Surba
09304	Suzan
09307	Taurignan-Castet
09308	Taurignan-Vieux
09313	Tourtouse
09317	Uchentein
09001	Aigues-Juntes
09005	Aleu
09006	Alliat
09007	Allières
09008	Alos
09008	Alos
09009	Alzen

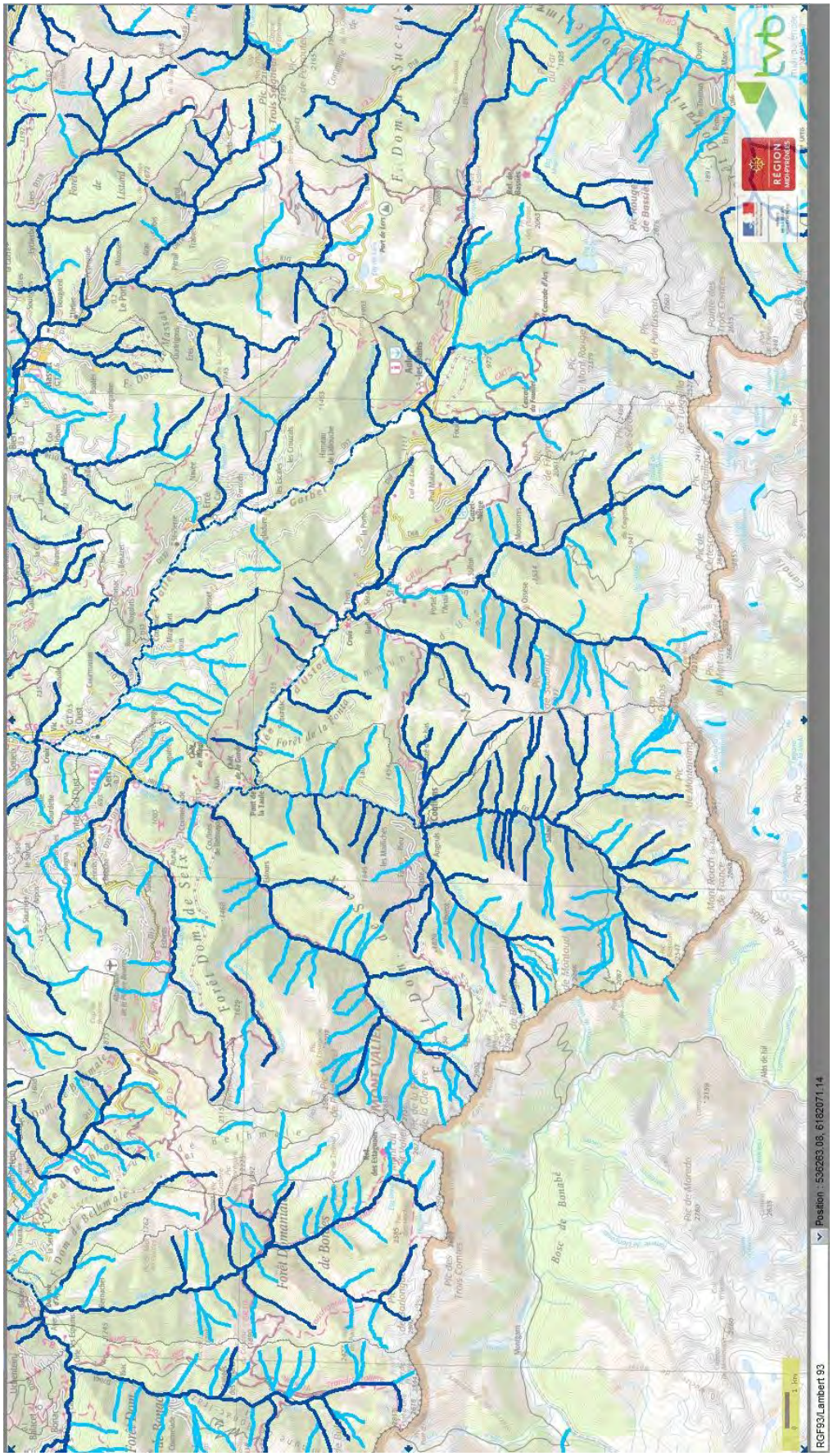
09317	Uchentein
09001	Aigues-Juntes
09005	Aleu
09006	Alliat
09007	Allières
09008	Alos
09008	Alos
09009	Alzen
09009	Alzen
09011	Antras
09011	Antras
09014	Argein
09014	Argein
09015	Arignac

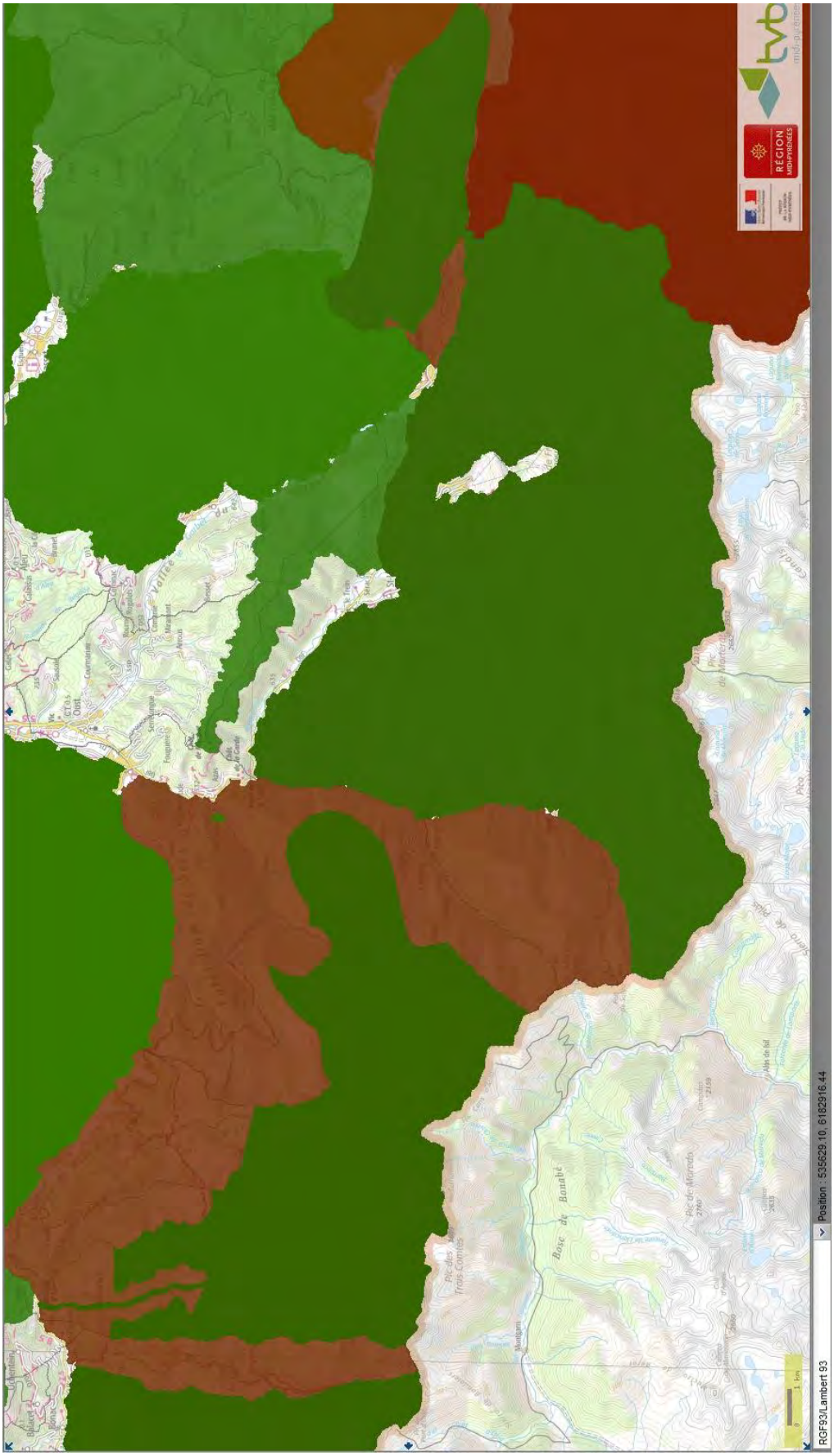
Annexe 7 : Données cartographiques du SRCE sur la TVB en cours d'élaboration


Légende
SRCE MP - Consultation avril 2014
Obstacles aux continuités
Points de conflit surfaciques
Points de conflit linéiques
Points de conflit ponctuels
Points de conflits ponctuels
Obstacles à l'écoulement
Corridors écologiques linéïques
boisé d'altitude à préserver
boisé de plaine à préserver
boisé de plaine à remettre en bon état
ouvert d'altitude à préserver
ouvert de plaine à préserver
ouvert de plaine à remettre en bon état
rocheux d'altitude à préserver
Cours d'eau linéiques - Réservoirs de biodiversité
à préserver
à remettre en bon état
Cours d'eau linéiques - Corridors
à préserver
à remettre en bon état
Cours d'eau surfaciques à préserver
Réservoirs de biodiversité
boisé d'altitude à préserver
boisé de plaine à préserver
ouvert d'altitude à préserver
ouvert de plaine à préserver
rocheux d'altitude à préserver


Position : 570207.43, 6198739.53
RGF93/Lambert 93
1 km
Forêt Domaniale de Bordes
Forêt Dom. de Bethmale
Forêt Dom. de Sem
MONT VALIER
Forêt Dom. de Marsal
Forêt Dom. de Bonac
Forêt de la Fonta
Vallée d'Ustou
Commune de Bethmale
Commune de Sentein
Commune de Seix
Commune de Couflens
Commune de Soueix
Commune de Sentenac
Commune de Bonac
Commune de Balaguères
Commune de Lercoul
Commune de Lorp-Sentaraille
Commune de Massat
Commune de Biert
Commune de Montjoie
Commune de Prat-Bonrepaux
Commune de Rimont
Commune de Saint-Lizier
Commune de Saint-Girons
Commune de Soueix-Rogalle
Commune de Ustou
Commune de Vicdessos
Commune de Vernajoul
Commune de Vernaux
Commune de Villeneuve-du-Latou
Commune de Villeneuve-d'Olmes
Commune de Villeneuve-d'Ustou
Commune de Vira
Commune de Vitrac
Commune de Vivier
Commune de Vivier-d'Olmes
Commune de Vivier-d'Ustou
Commune de Vivier-d'Vicdessos
Commune de Vivier-d'Vernajoul
Commune de Vivier-d'Vernaux
Commune de Vivier-d'Villeneuve-du-Latou
Commune de Vivier-d'Villeneuve-d'Olmes
Commune de Vivier-d'Villeneuve-d'Ustou
Commune de Vivier-d'Vira
Commune de Vivier-d'Vitrac
Commune de Vivier-d'Vivier
Commune de Vivier-d'Vivier-d'Olmes
Commune de Vivier-d'Vivier-d'Ustou
Commune de Vivier-d'Vivier-d'Vicdessos
Commune de Vivier-d'Vivier-d'Vernajoul
Commune de Vivier-d'Vivier-d'Vernaux
Commune de Vivier-d'Vivier-d'Villeneuve-du-Latou
Commune de Vivier-d'Vivier-d'Villeneuve-d'Olmes
Commune de Vivier-d'Vivier-d'Villeneuve-d'Ustou
Commune de Vivier-d'Vivier-d'Vira
Commune de Vivier-d'Vivier-d'Vitrac
Commune de Vivier-d'Vivier-d'Vivier
Commune de Vivier-d'Vivier-d'Vivier-d'Olmes
Commune de Vivier-d'Vivier-d'Vivier-d'Ustou
Commune de Vivier-d'Vivier-d'Vivier-d'Vicdessos
Commune de Vivier-d'Vivier-d'Vivier-d'Vernajoul
Commune de Vivier-d'Vivier-d'Vivier-d'Vernaux
Commune de Vivier-d'Vivier-d'Vivier-d'Villeneuve-du-Latou
Commune de Vivier-d'Vivier-d'Vivier-d'Villeneuve-d'Olmes
Commune de Vivier-d'Vivier-d'Vivier-d'Villeneuve-d'Ustou
Commune de Vivier-d'Vivier-d'Vivier-d'Vira
Commune de Vivier-d'Vivier-d'Vivier-d'Vitrac
Commune de Vivier-d'Vivier-d'Vivier-d'Vivier
Commune de Vivier-d'Vivier-d'Vivier-d'Vivier-d'Olmes
Commune de Vivier-d'Vivier-d'Vivier-d'Vivier-d'Ustou
Commune de Vivier-d'Vivier-d'Vivier-d'Vivier-d'Vicdessos
Commune de Vivier-d'Vivier-d'Vivier-d'Vivier-d'Vernajoul
Commune de Vivier-d'Vivier-d'Vivier-d'Vivier-d'Vernaux
Commune de Vivier-d'Vivier-d'Vivier-d'Vivier-d'Villeneuve-du-Latou
Commune de Vivier-d'Vivier-d'Vivier-d'Vivier-d'Villeneuve-d'Olmes
Commune de Vivier-d'Vivier-d'Vivier-d'Vivier-d'Villeneuve-d'Ustou
Commune de Vivier-d'Vivier-d'Vivier-d'Vivier-d'Vira
Commune de Vivier-d'Vivier-d'Vivier-d'Vivier-d'Vitrac
Commune de Vivier-d'Vivier-d'Vivier-d'Vivier-d'Vivier


Position : 569414.96, 6196045.12
RGF93/Lambert 93
1 km
Forêt Domaniale de Bordes
Forêt de la Bonte
Vallée d'Ustou
Vallée de Bethmale
Dom. de Bethmale
Dom. de Soulcem
Dom. de Couflens
Dom. de Bonac
Forêt de Bonac
Forêt de Soulcem
Forêt de Couflens
Forêt de Lisiard
Forêt de Massat
Dom. de Massat
Dom. de Montcalcat
Dom. de Lauzet
Dom. de Bentaillole
Dom. de Bonabé
Dom. de Montcalcat
Dom. de Lauzet
Dom. de Bentaillole
Dom. de Bonabé
Dom. de Soulcem
Dom. de Couflens
Dom. de Bethmale
Dom. de Bonac
Forêt de la Bonte
Forêt de Soulcem
Forêt de Couflens
Forêt de Lisiard
Forêt de Massat
Forêt de Bonac
Forêt de Bordes


Position : 536263.08, 6182071.14
RGF93/Lambert 93


RGF93/Lambert 93

Annexe 8 : Fiches descriptives des sites du réseau Natura 2000

NATURA 2000 - FORMULAIRE STANDARD DE DONNEES
Pour les zones de protection spéciale (ZPS), les propositions de sites d'importance communautaire (pSIC), les sites d'importance communautaire (SIC) et les zones spéciales de conservation (ZSC)

FR7300822 - Vallée du Riberot et massif du Mont Valier

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1. IDENTIFICATION DU SITE

1.1 Type
B (pSIC/SIC/ZSC)

1.2 Code du site
FR7300822

1.3 Appellation du site
Vallée du Riberot et massif du Mont Valier

1.4 Date de compilation
31/01/1996

1.5 Date d'actualisation
30/06/2005

1.6 Responsables

Responsable national et européen	Responsable du site	Responsable technique et scientifique national
Ministère en charge de l'écologie	DREAL Midi-Pyrénées	MNHN - Service du Patrimoine Naturel
www.developpement-durable.gouv.fr	www.midi-pyrenees.developpement-durable.gouv.fr	www.mnhn.fr www.spn.mnhn.fr
en3.en.deb.dgaln@developpement-durable.gouv.fr		natura2000@mnhn.fr

1.7 Dates de proposition et de désignation / classement du site
Date de transmission à la Commission Européenne : 31/05/2002

(Proposition de classement du site comme SIC)

Dernière date de parution au JO UE : 16/11/2012
(Confirmation de classement du site comme SIC)

ZSC : date de signature du dernier arrêté (JO RF) : 22/08/2006

Texte juridique national de référence pour la désignation comme ZSC : http://www.legifrance.gouv.fr/jo_pdf.do?cidTexte=JORFTEXT000000644061

2. LOCALISATION DU SITE

2.1 Coordonnées du centre du site [en degrés décimaux]

Longitude : 1,06333°

Latitude : 42,81167°

2.2 Superficie totale

7745 ha

2.3 Pourcentage de superficie marine

Non concerné

2.4 Code et dénomination de la région administrative

Code INSEE	Région
73	Midi-Pyrénées

2.5 Code et dénomination des départements

Code INSEE	Département	Couverture (%)
09	Ariège	100 %

2.6 Code et dénomination des communes

Code INSEE	Communes
09055	BETHMALE
09062	BORDES-SUR-LEZ (LES)
09285	SEIX

2.7 Région(s) biogéographique(s)

Alpine (100%)

3. INFORMATIONS ÉCOLOGIQUES

3.1 Types d'habitats présents sur le site et évaluations

Types d'habitats inscrits à l'annexe I					Évaluation du site			
Code	PF	Superficie (ha) (% de couverture)	Grottes [nombre]	Qualité des données	A|B|C|D	A|B|C		
					Représent -ativité	Superficie relative	Conservation	Évaluation globale
4030 *Landes sèches européennes*		619,6 *(6 %)*			A	C	B	B
4060 *Landes alpines et boréales*		1084,3 *(14 %)*			A	C	A	A
5130 *Formations à Juniperus communis sur landes ou pelouses calcaires*		0 *(0 %)*			B	C	B	B
6140 *Pelouses pyrénéennes siliceuses à Festuca eskia*		309,8 *(4 %)*			A	B	A	B
6170 *Pelouses calcaires alpines et subalpines*		309,8 *(4 %)*			A	C	C	C
6210 *Pelouses sèches semi-naturelles et faciès d'embuissonnement sur calcaires (Festuco-Brometalia) (* sites d'orchidées remarquables)*		309,8 *(4 %)*			A	C	C	C
6230 *Formations herbeuses à Nardus, riches en espèces, sur substrats siliceux des zones montagnardes (et des zones submontagnardes de l'Europe continentale)*	X	0 *(0 %)*			C	C	B	B
6410 *Prairies à Molinia sur sols calcaires, tourbeux ou argilo-limoneux (Molinion caeruleae)*		0 *(0 %)*			C	C	B	B
6430 *Mégaphorbiaies hygrophiles d'ourlets plantaires et des étages montagnard à alpin*		0 *(0 %)*			A	C	B	B
6520 *Prairies de fauche de montagne*		0 *(0 %)*			B	C	C	C
8110 *Eboulis siliceux de l'étage montagnard à nival (Androsacetalia alpinae et Galeopsietalia ladani)*		232,35 *(3 %)*			A	C	A	B
8130 *Eboulis ouest-méditerranéens et thermophiles*		154,9 *(2 %)*			A	C	A	B

8210 *Pentes rocheuses calcaires avec végétation chasmophytique*		154,9 *(2 %)*			A	C	A	B
8220 *Pentes rocheuses siliceuses avec végétation chasmophytique*		464,7 *(6 %)*			A	C	A	A
8310 *Grottes non exploitées par le tourisme*		77,45 *(1 %)*			A	C	B	A
9120 *Hêtraies acidophiles atlantiques à sous-bois à Ilex et parfois à Taxus (Quercion robori-petraeae ou Ilici-Fagenion)*		387,25 *(5 %)*			A	C	B	B
9150 *Hêtraies calcicoles médio-européennes du Cephalanthero-Fagion*		154,9 *(2 %)*			A	C	B	B
9430 *Forêts montagnardes et subalpines à Pinus uncinata (* si sur substrat gypseux ou calcaire)*		77,45 *(1 %)*			B	B	B	B

- **PF :** Forme prioritaire de l'habitat.
- **Qualité des données :** G = «Bonne» (données reposant sur des enquêtes, par exemple); M = «Moyenne» (données partielles + extrapolations, par exemple); P = «Médiocre» (estimation approximative, par exemple)
- **Représentativité :** A = «Excellente» ; B = «Bonne» ; C = «Significative» ; D = «Présence non significative».
- **Superficie relative :** A = $100 \geq p > 15$ % ; B = $15 \geq p > 2$ % ; C = $2 \geq p > 0$ % .
- **Conservation :** A = «Excellente» ; B = «Bonne» ; C = «Moyenne / réduite».
- **Evaluation globale :** A = «Excellente» ; B = «Bonne» ; C = «Significative».

3.2 Espèces inscrites à l'annexe II de la directive 92/43/CEE et évaluation

Espèce			Population présente sur le site						Évaluation du site			
Groupe	Code	Nom scientifique	Type	Taille		Unité	Cat.	Qualité des données	A|B|C|D	A|B|C		
				Min	Max		C|R|V|P		Pop.	Cons.	Isol.	Glob.
I	1087	*Rosalia alpina*	p			i	P		C	A	C	A
M	1301	*Galemys pyrenaicus*	p			i	P		B	A	C	A
M	1308	*Barbastella barbastellus*	p			i	P		C	A	C	A
M	1354	*Ursus arctos*	p			i	P		A	C	A	A
R	5259		p			i	P		B	A	C	A

- **Groupe :** A = Amphibiens, B = Oiseaux, F = Poissons, I = Invertébrés, M = Mammifères, P = Plantes, R = Reptiles.
- **Type :** p = espèce résidente (sédentaire), r = reproduction (migratrice), c = concentration (migratrice), w = hivernage (migratrice).
- **Unité :** i = individus, p = couples , adults = Adultes matures , area = Superficie en m2 , bfemales = Femelles reproductrices , cmales = Mâles chanteurs , colonies = Colonies , fstems = Tiges florales , grids1x1 = Grille 1x1 km , grids10x10 = Grille 10x10 km , grids5x5 = Grille 5x5 km , length = Longueur en km , localities = Stations , logs = Nombre de branches , males = Mâles , shoots = Pousses , stones = Cavités rocheuses , subadults = Sub-adultes , trees = Nombre de troncs , tufts = Touffes.
- **Catégories du point de vue de l'abondance (Cat.) :** C = espèce commune, R = espèce rare, V = espèce très rare, P: espèce présente.

- **Qualité des données :**G = «Bonne» (données reposant sur des enquêtes, par exemple); M =«Moyenne» (données partielles + extrapolations, par exemple); P = «Médiocre» (estimation approximative, par exemple); DD = Données insuffisantes.
- **Population :** A = 100 ≥ p > 15 % ; B = 15 ≥ p > 2 % ; C = 2 ≥ p > 0 % ; D = Non significative.
- **Conservation :** A = «Excellente» ; B = «Bonne» ; C = «Moyenne / réduite».
- **Isolement :** A = population (presque) isolée ; B = population non isolée, mais en marge de son aire de répartition ; C = population non isolée dans son aire de répartition élargie.
- **Evaluation globale :** A = «Excellente» ; B = «Bonne» ; C = «Significative».

3.3 Autres espèces importantes de faune et de flore

Espèce			Population présente sur le site				Motivation					
Groupe	Code	Nom scientifique	Taille		Unité	Cat.	Annexe Dir. Hab.		Autres catégories			
			Min	Max		C|R|V|P	IV	V	A	B	C	D
A		*Euproctus asper*			i	P	X					X
I		*Aphoenops mariaerosae*			i	P				X		

- **Groupe :** A = Amphibiens, B = Oiseaux, F = Poissons, Fu = Champignons, I = Invertébrés, L = Lichens, M = Mammifères, P = Plantes, R = Reptiles.
- **Unité :** i = individus, p = couples , adults = Adultes matures , area = Superficie en m2 , bfemales = Femelles reproductrices , cmales = Mâles chanteurs , colonies = Colonies , fstems = Tiges florales , grids1x1 = Grille 1x1 km , grids10x10 = Grille 10x10 km , grids5x5 = Grille 5x5 km , length = Longueur en km , localities = Stations , logs = Nombre de branches , males = Mâles , shoots = Pousses , stones = Cavités rocheuses , subadults = Sub-adultes , trees = Nombre de troncs , tufts = Touffes.
- **Catégories du point de vue de l'abondance (Cat.) :** C = espèce commune, R = espèce rare, V = espèce très rare, P: espèce présente.
- **Motivation : IV, V :** annexe où est inscrite l'espèce (directive «Habitats») ; **A :** liste rouge nationale ; **B :** espèce endémique ; **C :** conventions internationales ; **D :** autres raisons.

4. DESCRIPTION DU SITE

4.1 Caractère général du site

Classe d'habitat	Pourcentage de couverture
N06 : Eaux douces intérieures (Eaux stagnantes, Eaux courantes)	0 %
N07 : Marais (vegetation de ceinture), Bas-marais, Tourbières,	1 %
N08 : Landes, Broussailles, Recrus, Maquis et Garrigues, Phrygana	23 %
N10 : Prairies semi-naturelles humides, Prairies mésophiles améliorées	1 %
N11 : Pelouses alpine et sub-alpine	28 %
N16 : Forêts caducifoliées	27 %
N17 : Forêts de résineux	4 %
N22 : Rochers intérieurs, Eboulis rocheux, Dunes intérieures, Neige ou glace permanente	16 %

Autres caractéristiques du site

Ecocomplexe des étages montagnards à nival.
Bassin du Ribérot et massif du Valier à relief et géologie complexe (mosaïque silice/calcaire)

Vulnérabilité : Forte à la rupture de l'équilibre sylvo-pastoral.

4.2 Qualité et importance

Fort endémisme (y compris un genre de coléoptère souterrain) végétal et animal (invertébrés) et limites d'aires occidentales et/ou orientales.
Faune et flore des pyrénées trés représentatives et populations importantes.

L'habitat potentiel du Chabot (Cottus gobio) est représenté sur le site, sans que l'on puisse attester de la présence actuelle de l'espèce (présence ancienne avérée).

4.3 Menaces, pressions et activités ayant une incidence sur le site

Il s'agit des principales incidences et activités ayant des répercussions notables sur le site

Incidences négatives				
Importance	Menaces et pressions [code]	Menaces et pressions [libellé]	Pollution [code]	Intérieur / Extérieur [i|o|b]
L	A05.01	Elevage		I
L	E04.01	Bâtiments agricoles, constructions dans le paysage		I
Incidences positives				
Importance	Menaces et pressions [code]	Menaces et pressions [libellé]	Pollution [code]	Intérieur / Extérieur [i|o|b]
H	A04	Pâturage		I
L	B	Sylviculture et opérations forestières		I

- **Importance** : H = grande, M = moyenne, L = faible.

- **Pollution** : N = apport d'azote, P = apport de phosphore/phosphate, A = apport d'acide/acidification, T = substances chimiques inorganiques toxiques, O = substances chimiques organiques toxiques, X = pollutions mixtes.
- **Intérieur / Extérieur** : I = à l'intérieur du site, O = à l'extérieur du site, B = les deux.

4.4 Régime de propriété

Type	Pourcentage de couverture
Domaine privé de l'état	%

4.5 Documentation

Lien(s) :

5.1 Types de désignation aux niveaux national et régional

Code	Désignation	Pourcentage de couverture
21	Forêt domaniale	95 %

5.2 Relation du site considéré avec d'autres sites

Désignés aux niveaux national et régional :

Code	Appellation du site	Type	Pourcentage de couverture

Désignés au niveau international :

Type	Appellation du site	Type	Pourcentage de couverture

5.3 Désignation du site

6. GESTION DU SITE

6.1 Organisme(s) responsable(s) de la gestion du site

Organisation : OFFICE NATIONAL DES FORETS (Service départemental de l'Ariège) pour les terrains domaniaux et soumis aux régime forestier (la quasi totalité du site).

Adresse :

Courriel :

6.2 Plan(s) de gestion

Existe-il un plan de gestion en cours de validité ?

☐ Oui

[ ] Non, mais un plan de gestion est en préparation.

[X] Non

6.3 Mesures de conservation

Aménagements forestiers.
Document d'objectifs, réalisé par l'ONF 09, a été validé en juin 2005. Mise à jour du FSD suite au document d'objectifs réalisé par ONF 09.

NATURA 2000 - FORMULAIRE STANDARD DE DONNEES
Pour les zones de protection spéciale (ZPS), les propositions de sites d'importance communautaire (pSIC), les sites d'importance communautaire (SIC) et les zones spéciales de conservation (ZSC)

FR7301822 - Garonne, Ariège, Hers, Salat, Pique et Neste

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1. IDENTIFICATION DU SITE

1.1 Type

B (pSIC/SIC/ZSC)

1.2 Code du site

FR7301822

1.3 Appellation du site

Garonne, Ariège, Hers, Salat, Pique et Neste

1.4 Date de compilation

31/01/1996

1.5 Date d'actualisation

31/10/2005

1.6 Responsables

Responsable national et européen	Responsable du site	Responsable technique et scientifique national
Ministère en charge de l'écologie	DREAL Midi-Pyrénées	MNHN - Service du Patrimoine Naturel
www.developpement-durable.gouv.fr	www.midi-pyrenees.developpement-durable.gouv.fr	www.mnhn.fr www.spn.mnhn.fr
en3.en.deb.dgaln@developpement-durable.gouv.fr		natura2000@mnhn.fr

1.7 Dates de proposition et de désignation / classement du site

Date de transmission à la Commission Européenne : 31/12/1998

(Proposition de classement du site comme SIC)

Dernière date de parution au JO UE : 16/11/2012
(Confirmation de classement du site comme SIC)

ZSC : date de signature du dernier arrêté (JO RF) : 27/05/2009

Texte juridique national de référence pour la désignation comme ZSC : http://www.legifrance.gouv.fr/jo_pdf.do?cidTexte=JORFTEXT000020763778

2. LOCALISATION DU SITE

2.1 Coordonnées du centre du site [en degrés décimaux]

Longitude : 1,83139°

Latitude : 43,08389°

2.2 Superficie totale

9602 ha

2.3 Pourcentage de superficie marine

Non concerné

2.4 Code et dénomination de la région administrative

Code INSEE	Région
73	Midi-Pyrénées

2.5 Code et dénomination des départements

Code INSEE	Département	Couverture (%)
09	Ariège	16 %
82	Tarn-et-Garonne	27 %
65	Hautes-Pyrénées	2 %
31	Haute-Garonne	55 %

2.6 Code et dénomination des communes

Code INSEE	Communes
09003	AIGUILLON (L')
09004	ALBIES
65006	ANCIZAN
65009	ANERES
31010	ANTIGNAC
31015	ARGUT-DESSOUS
09015	ARIGNAC
31017	ARLOS
31018	ARNAUD-GUILHEM
65031	ARREAU
09022	ARVIGNA



09028	AULOS
31031	AUSSON
31033	AUTERIVE
82008	AUVILLAR
65051	AVENTIGNAN
31040	BACHOS
31041	BAGIRY
31042	BAGNERES-DE-LUCHON
31045	BARBAZAN
65069	BARTHE-DE-NESTE (LA)
09040	BASTIDE-DE-LORDAT (LA)
09041	BASTIDE-DU-SALAT (LA)
09043	BASTIDE-SUR-L'HERS (LA)
65075	BAZUS-AURE
65076	BAZUS-NESTE
31050	BEAUCHALOT
31056	BEAUZELLE
09047	BELESTA
11033	BELPECH
09050	BENAGUES
65087	BERTREN
09052	BESSET
65092	BEYREDE-JUMET
09056	BEZAC
65094	BIZOUS
31069	BLAGNAC
09058	BOMPAS
09060	BONNAC
31076	BORDES-DE-RIVIERE
09064	BOUAN
82019	BOUDOU
82023	BOURRET
31084	BOUSSENS
31092	BURGALAYS
09070	CABANNES (LES)



65116	CADEAC
31100	CALMONT
09074	CAMON
65122	CAMOUS
31104	CAPENS
31107	CARBONNE
09081	CARLARET (LE)
31110	CASSAGNE
31112	CASTAGNEDE
82030	CASTELFERRUS
82031	CASTELMAYRAN
31118	CASTELNAU-D'ESTRETEFONDS
82033	CASTELSARRASIN
31124	CASTILLON-DE-SAINT-MARTORY
09086	CAUMONT
09089	CAZALS-DES-BAYLES
31132	CAZAUX-LAYRISSE
31135	CAZERES
11091	CHALABRE
31139	CHAUM
31142	CIER-DE-LUCHON
31144	CIERP-GAUD
31145	CINTEGABELLE
31147	CLARAC
31148	CLERMONT-LE-FORT
11096	COMUS
82045	CORDES-TOLOSANNES
09100	COUFLENS
31153	COULADERE
09102	COUTENS
09103	CRAMPAGNA
82049	DONZAC
09110	ENCOURTIECH
09114	ERP
65159	ESCALA

82052	ESCATALENS
82054	ESPALAIS
31175	ESTANCARBON
31176	ESTENOS
31177	EUP
09119	EYCHEIL
31181	FAUGA (LE)
31182	FENOUILLET
09121	FERRIERES-SUR-ARIEGE
31183	FIGAROL
82062	FINHAN
09122	FOIX
31190	FOS
09125	FOUGAX-ET-BARRINEUF
65180	FRECHET-AURE
31199	FRONSAC
31205	GAGNAC-SUR-GARONNE
09128	GAJAN
31207	GALIE
09131	GARANOU
09132	GAUDIES
31219	GENSAC-SUR-GARONNE
82072	GOLFECH
31224	GOURDAN-POLIGNAN
31227	GOYRANS
31232	GRENADE
31233	GREPIAC
65209	GREZIAN
82075	GRISOLLES
65211	GUCHAN
65212	GUCHEN
31235	GURAN
65218	HECHES
31237	HIS
31238	HUOS

65228	ILHET
09145	ISSARDS (LES)
65231	IZAUX
31244	JUZET-DE-LUCHON
31246	LABARTHE-INARD
31247	LABARTHE-RIVIERE
31248	LABARTHE-SUR-LEZE
31255	LABROQUERE
09148	LACAVE
09149	LACOURT
31259	LACROIX-FALGARDE
09150	LAGARDE
82089	LAMAGISTERE
09153	LAPENNE
09159	LASSUR
31290	LEGE
09165	LESPARROU
31296	LESTELLE-DE-SAINT-MARTORY
31298	LEZ
09289	LORP-SENTARAILLE
65279	LORTET
65287	LOURES-BAROUSSE
31308	LUSCAN
09176	LUZENAC
82101	MALAUSE
31314	MANCIOUX
31315	MANE
09180	MANSES
31316	MARIGNAC
31320	MARQUEFAVE
31324	MARTRES-TOLOSANE
82105	MAS-GRENIER
31327	MAURAN
31334	MAUZAC
09185	MAZERES



65307	MAZERES-DE-NESTE
31336	MAZERES-SUR-SALAT
31337	MELLES
09187	MERCENAC
09188	MERCUS-GARRABET
82109	MERLES
31341	MERVILLE
31344	MIRAMONT-DE-COMMINGES
31345	MIREMONT
09194	MIREPOIX
11236	MOLANDIER
82114	MONBEQUI
31360	MONTAUBAN-DE-LUCHON
31361	MONTAUT
09200	MONTBEL
82125	MONTECH
65319	MONTEGUT
31372	MONTESPAN
09207	MONTGAILLARD
09210	MONTOULIEU
65322	MONTOUSSE
31390	MONTREJEAU
31391	MONTSAUNES
09211	MONTSEGUR
09213	MOULIN-NEUF
31394	MOUSTAJON
31395	MURET
65327	NESTIER
31399	NOE
31403	ONDES
31405	ORE
09221	ORNOLAC-USSAT-LES-BAINS
09223	OUST
31406	PALAMINY
09225	PAMIERS



09229	PEYRAT (LE)
31420	PINSAGUEL
31421	PINS-JUSTARET
31426	POINTIS-DE-RIVIERE
31427	POINTIS-INARD
31430	PONLAT-TAILLEBOURG
31433	PORTET-SUR-GARONNE
09235	PRAT-BONREPAUX
09236	PRAYOLS
09238	PUJOLS (LES)
09244	RIEUCROS
31455	RIEUX
09245	RIEUX-DE-PELLEPORT
11316	RIVEL
31457	ROQUEFORT-SUR-GARONNE
31458	ROQUES
31460	ROQUETTES
09251	ROUMENGOUX
82152	SAINT-AIGNAN
09254	SAINT-AMADOU
31471	SAINT-BEAT
31472	SAINT-BERTRAND-DE-COMMINGES
31474	SAINT-CHRISTAUD
11336	SAINTE-COLOMBE-SUR-L'HERS
65391	SAINTE-MARIE
09259	SAINT-FELIX-DE-TOURNEGAT
31483	SAINT-GAUDENS
09261	SAINT-GIRONS
09264	SAINT-JEAN-DE-VERGES
09265	SAINT-JEAN-DU-FALGA
31490	SAINT-JORY
31492	SAINT-JULIEN-SUR-GARONNE
65389	SAINT-LAURENT-DE-NESTE
09268	SAINT-LIZIER
82165	SAINT-LOUP

31500	SAINT-MAMET
31503	SAINT-MARTORY
82166	SAINT-MICHEL
82169	SAINT-NICOLAS-DE-LA-GRAVE
65394	SAINT-PAUL
09272	SAINT-PAUL-DE-JARRAT
82171	SAINT-PORQUIER
65398	SALECHAN
31523	SALIES-DU-SALAT
31524	SALLES-ET-PRATVIEL
31525	SALLES-SUR-GARONNE
65408	SARRANCOLIN
31533	SAUBENS
09282	SAVERDUN
31541	SEILH
31542	SEILHAN
09285	SEIX
31548	SIGNAC
09296	SINSAT
11380	SONNAC-SUR-L'HERS
09299	SOUEIX-ROGALLE
09301	SOULAN
09303	SURBA
09306	TARASCON-SUR-ARIEGE
09307	TAURIGNAN-CASTET
09308	TAURIGNAN-VIEUX
09309	TEILHET
65444	TIBIRAN-JAUNAC
31554	TOUILLE
31555	TOULOUSE
09314	TOURTROL
09315	TREMOULET
11400	TREZIERS
65455	TUZAGUET
09318	UNAC

09320	URS
09321	USSAT
31564	VALCABRERE
82186	VALENCE
31565	VALENTINE
09323	VALS
09324	VARILHES
09326	VEBRE
31572	VENERQUE
09328	VERDUN
82190	VERDUN-SUR-GARONNE
09329	VERNAJOUL
31574	VERNET
09331	VERNET (LE)
31575	VIEILLE-TOULOUSE
65465	VIELLE-AURE
65471	VIGNEC
31585	VILLENEUVE-DE-RIVIERE

2.7 Région(s) biogéographique(s)

Alpine (3,76%)
Atlantique (92,86%)
Méditerranéenne (3,36%)

3. INFORMATIONS ÉCOLOGIQUES

3.1 Types d'habitats présents sur le site et évaluations

Types d'habitats inscrits à l'annexe I					Évaluation du site			
Code	PF	Superficie (ha) (% de couverture)	Grottes [nombre]	Qualité des données	A|B|C|D	A|B|C		
					Représent -ativité	Superficie relative	Conservation	Évaluation globale
3150 *Lacs eutrophes naturels avec végétation du Magnopotamion ou de l'Hydrocharition*		192,04 (2 %)			C	C	B	B
3260 *Rivières des étages planitiaire à montagnard avec végétation du Ranunculion fluitantis et du Callitricho-Batrachion*		96,02 (1 %)			B	C	B	B
3270 *Rivières avec berges vaseuses avec végétation du Chenopodion rubri p.p. et du Bidention p.p.*		96,02 (1 %)			C	B	B	B
6120 *Pelouses calcaires de sables xériques*	X	96,02 (1 %)			D			
6430 *Mégaphorbiaies hygrophiles d'ourlets planitiaires et des étages montagnard à alpin*		96,02 (1 %)			B	C	B	B
6510 *Prairies maigres de fauche de basse altitude (Alopecurus pratensis, Sanguisorba officinalis)*		96,02 (1 %)			C	C	B	B
7220 *Sources pétrifiantes avec formation de tuf (Cratoneurion)*	X	96,02 (1 %)			D			
91E0 *Forêts alluviales à Alnus glutinosa et Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)*	X	1824,38 (19 %)			B	C	B	B
91F0 *Forêts mixtes à Quercus robur, Ulmus laevis, Ulmus minor, Fraxinus excelsior ou Fraxinus angustifolia, riveraines des grands fleuves (Ulmenion minoris)*		576,12 (6 %)			B	C	B	B
9180 *Forêts de pentes, éboulis ou ravins du Tilio-Acerion*	X	96,02 (1 %)			C	C	B	C

- **PF :** Forme prioritaire de l'habitat.
- **Qualité des données :** G = «Bonne» (données reposant sur des enquêtes, par exemple); M = «Moyenne» (données partielles + extrapolations, par exemple); P = «Médiocre» (estimation approximative, par exemple).
- **Représentativité :** A = «Excellente» ; B = «Bonne» ; C = «Significative» ; D = «Présence non significative».
- **Superficie relative :** A = $100 \geq p > 15$ % ; B = $15 \geq p > 2$ % ; C = $2 \geq p > 0$ % .
- **Conservation :** A = «Excellente» ; B = «Bonne» ; C = «Moyenne / réduite».
- **Evaluation globale :** A = «Excellente» ; B = «Bonne» ; C = «Significative».

3.2 Espèces inscrites à l'annexe II de la directive 92/43/CEE et évaluation

Espèce			Population présente sur le site						Évaluation du site			
Groupe	Code	Nom scientifique	Type	Taille		Unité	Cat.	Qualité des données	A|B|C|D	A|B|C		
				Min	Max		C|R|V|P		Pop.	Cons.	Isol.	Glob.
I	1041	*Oxygastra curtisii*	p			i	P		C		C	
I	1083	*Lucanus cervus*	p			i	P		C		C	
I	1088	*Cerambyx cerdo*	p			i	P		C		C	
I	1092	*Austropotamobius pallipes*	p			i	P		C		C	
F	1095	*Petromyzon marinus*	p			i	P		C		C	
F	1096	*Lampetra planeri*	p			i	P		C		C	
F	1102	*Alosa alosa*	p			i	P		C		B	
F	1106	*Salmo salar*	p			i	P		C		C	
F	1138	*Barbus meridionalis*	p			i	P		C		B	
F	1163	*Cottus gobio*	p			i	P		D			
R	1220	*Emys orbicularis*	p			i	P		C		C	
M	1301	*Galemys pyrenaicus*	p			i	P		B		C	
M	1303	*Rhinolophus hipposideros*	c			i	P		D			
M	1304	*Rhinolophus ferrumequinum*	c			i	P		D			
M	1305	*Rhinolophus euryale*	c			i	P		D			
M	1307	*Myotis blythii*	p			i	P		C		C	
M	1308	*Barbastella barbastellus*	c			i	P		D			
M	1310	*Miniopterus schreibersii*	p			i	P		C		C	
M	1321	*Myotis emarginatus*	p			i	P		C		C	

M	1323	*Myotis bechsteinii*	c			i	P		D			
M	1324	*Myotis myotis*	p			i	P		C		C	
M	1355	*Lutra lutra*	p			i	P		C		C	
F	6150		p			i	P		C		C	
F	5339		p			i	P		C		B	

- **Groupe :** A = Amphibiens, B = Oiseaux, F = Poissons, I = Invertébrés, M = Mammifères, P = Plantes, R = Reptiles.
- **Type :** p = espèce résidente (sédentaire), r = reproduction (migratrice), c = concentration (migratrice), w = hivernage (migratrice).
- **Unité :** i = individus, p = couples , adults = Adultes matures , area = Superficie en m2 , bfemales = Femelles reproductrices , cmales = Mâles chanteurs , colonies = Colonies , fstems = Tiges florales , grids1x1 = Grille 1x1 km , grids10x10 = Grille 10x10 km , grids5x5 = Grille 5x5 km , length = Longueur en km , localities = Stations , logs = Nombre de branches , males = Mâles , shoots = Pousses , stones = Cavités rocheuses , subadults = Sub-adultes , trees = Nombre de troncs , tufts = Touffes.
- **Catégories du point de vue de l'abondance (Cat.) :** C = espèce commune, R = espèce rare, V = espèce très rare, P: espèce présente.
- **Qualité des données :**G = «Bonne» (données reposant sur des enquêtes, par exemple); M =«Moyenne» (données partielles + extrapolations, par exemple); P = «Médiocre» (estimation approximative, par exemple); DD = Données insuffisantes.
- **Population :** A = 100 $\geq$ p > 15 % ; B = 15 $\geq$ p > 2 % ; C = 2 $\geq$ p > 0 % ; D = Non significative.
- **Conservation :** A = «Excellente» ; B = «Bonne» ; C = «Moyenne / réduite».
- **Isolement :** A = population (presque) isolée ; B = population non isolée, mais en marge de son aire de répartition ; C = population non isolée dans son aire de répartition élargie.
- **Evaluation globale :** A = «Excellente» ; B = «Bonne» ; C = «Significative».

3.3 Autres espèces importantes de faune et de flore

Espèce			Population présente sur le site				Motivation					
Groupe	Code	Nom scientifique	Taille		Unité	Cat.	Annexe Dir. Hab.		Autres catégories			
			Min	Max		C|R|V|P	IV	V	A	B	C	D

- **Groupe :** A = Amphibiens, B = Oiseaux, F = Poissons, Fu = Champignons, I = Invertébrés, L = Lichens, M = Mammifères, P = Plantes, R = Reptiles.
- **Unité :** i = individus, p = couples , adults = Adultes matures , area = Superficie en m2 , bfemales = Femelles reproductrices , cmales = Mâles chanteurs , colonies = Colonies , fstems = Tiges florales , grids1x1 = Grille 1x1 km , grids10x10 = Grille 10x10 km , grids5x5 = Grille 5x5 km , length = Longueur en km , localities = Stations , logs = Nombre de branches , males = Mâles , shoots = Pousses , stones = Cavités rocheuses , subadults = Sub-adultes , trees = Nombre de troncs , tufts = Touffes.
- **Catégories du point de vue de l'abondance (Cat.) :** C = espèce commune, R = espèce rare, V = espèce très rare, P: espèce présente.
- **Motivation : IV, V :** annexe où est inscrite l'espèce (directive «Habitats») ; **A :** liste rouge nationale ; **B :** espèce endémique ; **C :** conventions internationales ; **D :** autres raisons.

4. DESCRIPTION DU SITE

4.1 Caractère général du site

Classe d'habitat	Pourcentage de couverture
N06 : Eaux douces intérieures (Eaux stagnantes, Eaux courantes)	41 %
N07 : Marais (vegetation de ceinture), Bas-marais, Tourbières,	4 %
N08 : Landes, Broussailles, Recrus, Maquis et Garrigues, Phrygana	4 %
N10 : Prairies semi-naturelles humides, Prairies mésophiles améliorées	5 %
N15 : Autres terres arables	8 %
N16 : Forêts caducifoliées	26 %
N20 : Forêt artificielle en monoculture (ex: Plantations de peupliers ou d'Arbres exotiques)	9 %
N21 : Zones de plantations d'arbres (incluant les Vergers, Vignes, Dehesas)	1 %
N22 : Rochers intérieurs, Eboulis rocheux, Dunes intérieures, Neige ou glace permanente	1 %
N23 : Autres terres (incluant les Zones urbanisées et industrielles, Routes, Décharges, Mines)	1 %

Autres caractéristiques du site

Cours de la Garonne et ses principaux affluents en Midi-Pyrénées : Ariège, Hers, Salat, Pique et Neste. Le site comprend des parties de nature et extensions différentes :

- cours de la Garonne écocomplexe (plaine alluviale) comprenant le lit mineur et une partie du lit majeur le mieux conservé entre les départements de la Haute-Garonne et du Tarn et Garonne.

- cours de l'Hers vif (entre Saint Amadou et Roumengoux - Moulin neuf) et bas Douctouyre : partie du site plus large comprenant, outre l'intérêt piscicole, des habitats de la Directive de type ripisylve et zones humides.

- cours de la Garonne amont et de la Pique, du Salat, de la Neste, de l'Ariège ainsi que cours de l'Hers vif en amont de Roumengoux - Moulin neuf et à l'aval de Saint Amadou (dans le département de l'Ariège) : le lit mineur est seul concerné pour les poissons résidents et le Desman, des mollusques ainsi que pour les poissons migrateurs en cours de restauration (zones de frayères potentielles)

Vulnérabilité : Vulnérable à l'extension des gravières ou des populicultures.
Veiller au maintien de quantités et d'une qualité d'eau suffisante au bon fonctionnement de l'écosystème.

4.2 Qualité et importance

Grand intérêt du réseau hydrographique pour les poissons migrateurs (zones de frayères potentielles importantes pour le Saumon en particulier qui fait l'objet d'allevinages réguliers et dont des adultes atteignent déjà Foix sur l'Ariège, Carbonne sur la Garonne, suite aux équipements en échelle à poissons des barrages sur le cours aval).

Intérêts particuliers de la partie large de la Garonne (écocomplexe comportant une diversité biologique remarquable) et de la moyenne vallée de l'Hers qui comporte encore des zones de ripisylves et autres zones humides liées au cours d'eau interessantes et abrite de petites populations relictuelles de Loutre et de Cistude d'Europe notamment.

4.3 Menaces, pressions et activités ayant une incidence sur le site

Il s'agit des principales incidences et activités ayant des répercussions notables sur le site

Incidences négatives				
Importance	Menaces et pressions [code]	Menaces et pressions [libellé]	Pollution [code]	Intérieur / Extérieur [i|o|b]
Incidences positives				
Importance	Menaces et pressions [code]	Menaces et pressions [libellé]	Pollution [code]	Intérieur / Extérieur [i|o|b]

- **Importance** : H = grande, M = moyenne, L = faible.
- **Pollution** : N = apport d'azote, P = apport de phosphore/phosphate, A = apport d'acide/acidification, T = substances chimiques inorganiques toxiques, O = substances chimiques organiques toxiques, X = pollutions mixtes.
- **Intérieur / Extérieur** : I = à l'intérieur du site, O = à l'extérieur du site, B = les deux.

4.4 Régime de propriété

Type	Pourcentage de couverture
Propriété privée (personne physique)	%
Propriété d'une association, groupement ou société	%
Collectivité territoriale	%
Domaine régional	%
Domaine public de l'état	%

4.5 Documentation

Lien(s) :

5.1 Types de désignation aux niveaux national et régional

Code	Désignation	Pourcentage de couverture
38	Arrêté de protection de biotope, d#habitat naturel ou de site d#intérêt géologique	50 %

5.2 Relation du site considéré avec d'autres sites

Désignés aux niveaux national et régional :

Code	Appellation du site	Type	Pourcentage de couverture
38	Verdun Saint Pierre	+	1%
38	Tronçon du cours de l'Ariège	*	1%

38	Saulaie de Saint-Caprais	+	1%
38	Ramier de Bigorre	+	1%
38	Palayre	+	0%
38	La Garonne, l'Ariège, l'Hers vif et le Salat	*	16%
38	Iles de Verdun-Pescay	+	0%
38	Iles de Saint-Julien	+	0%
38	Iles de Saint Cassian	+	1%
38	Ile Saint Michel	+	0%
38	Ile de Pessette	+	0%
38	Ile de Merles Montardou	+	0%
38	Cours inférieur de la Garonne	+	3%
38	Cours de l'Ariège	*	1%
38	Cours de la Garonne, de l'Aveyron, du Viaur et du Tarn	*	6%
38	Confluent du Volp	+	0%
38	Bras mort de Grisolles	+	0%
38	Bras mort de Fenouillet	+	1%
38	Bras mort de Cordes-Tolosannes	+	1%

Désignés au niveau international :

Type	Appellation du site	Type	Pourcentage de couverture

5.3 Désignation du site

6. GESTION DU SITE

6.1 Organisme(s) responsable(s) de la gestion du site

Organisation : DDE de l'Ariège, de la Haute-Garonne, des Hautes-Pyrénées et du Tarn-et-Garonne pour le Domaine Public Fluvial. DDAF des 4 départements pour les Réserves de Chasse et de Pêche du DPF.

Adresse :

Courriel :

6.2 Plan(s) de gestion

Existe-il un plan de gestion en cours de validité ?

☐ Oui

☐ Non, mais un plan de gestion est en préparation.



[X] Non

6.3 Mesures de conservation

Un conseil de gestion départemental est en place pour gèrer l'ensemble des APB en Haute-Garonne et en Ariège, d'autres conseils de gestion APB par APB existent dans le Tarn et Garonne.

Date d'édition : 09/01/2014
Données issues de la dernière base transmise à la Commission européenne.
http://inpn.mnhn.fr/site/natura2000/FR7312003

NATURA 2000 - FORMULAIRE STANDARD DE DONNEES
Pour les zones de protection spéciale (ZPS), les propositions de sites d'importance communautaire (pSIC), les sites d'importance communautaire (SIC) et les zones spéciales de conservation (ZSC)

FR7312003 - Massif du Mont Valier

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6. GESTION DU SITE 6

1. IDENTIFICATION DU SITE

1.1 Type

A (ZPS)

1.2 Code du site

FR7312003

1.3 Appellation du site

Massif du Mont Valier

1.4 Date de compilation

31/01/2005

1.5 Date d'actualisation

31/01/2005

1.6 Responsables

Responsable national et européen	Responsable du site	Responsable technique et scientifique national
Ministère en charge de l'écologie	DREAL Midi-Pyrénées	MNHN - Service du Patrimoine Naturel
www.developpement-durable.gouv.fr	www.midi-pyrenees.developpement-durable.gouv.fr	www.mnhn.fr www.spn.mnhn.fr
en3.en.deb.dgaln@developpement-durable.gouv.fr		natura2000@mnhn.fr

1.7 Dates de proposition et de désignation / classement du site

ZPS : date de signature du dernier arrêté (JO RF) : 05/07/2005

Texte juridique national de référence pour la désignation comme ZPS : http://www.legifrance.gouv.fr/jo_pdf.do?cidTexte=JORFTEXT000000447159

2. LOCALISATION DU SITE

2.1 Coordonnées du centre du site [en degrés décimaux]

Longitude : 1,08917°

Latitude : 42,81278°

2.2 Superficie totale

10619 ha

2.3 Pourcentage de superficie marine

Non concerné

2.4 Code et dénomination de la région administrative

Code INSEE	Région
73	Midi-Pyrénées

2.5 Code et dénomination des départements

Code INSEE	Département	Couverture (%)
09	Ariège	100 %

2.6 Code et dénomination des communes

Code INSEE	Communes
09017	ARRIEN-EN-BETHMALE
09055	BETHMALE
09059	BONAC-IRAZEIN
09062	BORDES-SUR-LEZ (LES)
09285	SEIX

2.7 Région(s) biogéographique(s)

Alpine (100%)

3. INFORMATIONS ÉCOLOGIQUES

3.1 Types d'habitats présents sur le site et évaluations

Types d'habitats inscrits à l'annexe I					Évaluation du site			
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					Représent -ativité	Superficie relative	Conservation	Évaluation globale

- **PF :** Forme prioritaire de l'habitat.
- **Qualité des données :** G = «Bonne» (données reposant sur des enquêtes, par exemple); M = «Moyenne» (données partielles + extrapolations, par exemple); P = «Médiocre» (estimation approximative, par exemple)
- **Représentativité :** A = «Excellente» ; B = «Bonne» ; C = «Significative» ; D = «Présence non significative».
- **Superficie relative :** A = 100 ≥ p > 15 % ; B = 15 ≥ p > 2 % ; C = 2 ≥ p > 0 % .
- **Conservation :** A = «Excellente» ; B = «Bonne» ; C = «Moyenne / réduite».
- **Evaluation globale :** A = «Excellente» ; B = «Bonne» ; C = «Significative».

3.2 Espèces visées à l'article 4 de la directive 2009/147/CE et évaluation

Espèce			Population présente sur le site						Évaluation du site			
Groupe	Code	Nom scientifique	Type	Taille		Unité	Cat.	Qualité des données	A|B|C|D	A|B|C		
				Min	Max		C|R|V|P		Pop.	Cons.	Isol.	Glob.
B	A072	*Pernis apivorus*	r			i	P		D			
B	A074	*Milvus milvus*	r			i	P					
B	A076	*Gypaetus barbatus*	p	1	1	p	P		B	B	C	A
B	A078	*Gyps fulvus*	p			i	P					
B	A080	*Circaetus gallicus*	r	1	1	p	P		D			
B	A091	*Aquila chrysaetos*	p	3	3	p	P		C	A	C	A
B	A103	*Falco peregrinus*	p	3	3	p	P		C	B	C	B
B	A108	*Tetrao urogallus*	p	20	20	males	P		C	C	C	B
B	A215	*Bubo bubo*	p			i	P					

Date d'édition : 09/01/2014
Données issues de la dernière base transmise à la Commission européenne
http://inpn.mnhn.fr/site/natura2000/FR7312003

B	A236	*Dryocopus martius*	p			i	P		D			
B	A280	*Monticola saxatilis*	r			i	P					
B	A282	*Turdus torquatus*	r			i	P					
B	A407	*Lagopus mutus pyrenaicus*	p	30	30	p	P		C	B	C	A
B	A415	*Perdix perdix hispaniensis*	p	25	25	p	P		C	B	C	B

- **Groupe :** A = Amphibiens, B = Oiseaux, F = Poissons, I = Invertébrés, M = Mammifères, P = Plantes, R = Reptiles.
- **Type :** p = espèce résidente (sédentaire), r = reproduction (migratrice), c = concentration (migratrice), w = hivernage (migratrice).
- **Unité :** i = individus, p = couples , adults = Adultes matures , area = Superficie en m2 , bfemales = Femelles reproductrices , cmales = Mâles chanteurs , colonies = Colonies , fstems = Tiges florales , grids1x1 = Grille 1x1 km , grids10x10 = Grille 10x10 km , grids5x5 = Grille 5x5 km , length = Longueur en km , localities = Stations , logs = Nombre de branches , males = Mâles , shoots = Pousses , stones = Cavités rocheuses , subadults = Sub-adultes , trees = Nombre de troncs , tufts = Touffes.
- **Catégories du point de vue de l'abondance (Cat.) :** C = espèce commune, R = espèce rare, V = espèce très rare, P: espèce présente.
- **Qualité des données :**G = «Bonne» (données reposant sur des enquêtes, par exemple); M =«Moyenne» (données partielles + extrapolations, par exemple); P = «Médiocre» (estimation approximative, par exemple): DD = Données insuffisantes.
- **Population :** A = 100 ≥ p > 15 % ; B = 15 ≥ p > 2 % ; C = 2 ≥ p > 0 % ; D = Non significative.
- **Conservation :** A = «Excellente» ; B = «Bonne» ; C = «Moyenne / réduite».
- **Isolement :** A = population (presque) isolée ; B = population non isolée, mais en marge de son aire de répartition ; C = population non isolée dans son aire de répartition élargie.
- **Evaluation globale :** A = «Excellente» ; B = «Bonne» ; C = «Significative».

3.3 Autres espèces importantes de faune et de flore

Espèce			Population présente sur le site				Motivation					
Groupe	Code	Nom scientifique	Taille		Unité	Cat.	Annexe Dir. Hab.		Autres catégories			
			Min	Max		C|R|V|P	IV	V	A	B	C	D
B		*Tichodroma muraria*			i	P			X		X	

- **Groupe :** A = Amphibiens, B = Oiseaux, F = Poissons, Fu = Champignons, I = Invertébrés, L = Lichens, M = Mammifères, P = Plantes, R = Reptiles.
- **Unité :** i = individus, p = couples , adults = Adultes matures , area = Superficie en m2 , bfemales = Femelles reproductrices , cmales = Mâles chanteurs , colonies = Colonies , fstems = Tiges florales , grids1x1 = Grille 1x1 km , grids10x10 = Grille 10x10 km , grids5x5 = Grille 5x5 km , length = Longueur en km , localities = Stations , logs = Nombre de branches , males = Mâles , shoots = Pousses , stones = Cavités rocheuses , subadults = Sub-adultes , trees = Nombre de troncs , tufts = Touffes.
- **Catégories du point de vue de l'abondance (Cat.) :** C = espèce commune, R = espèce rare, V = espèce très rare, P: espèce présente.
- **Motivation : IV, V :** annexe où est inscrite l'espèce (directive «Habitats») ; **A :** liste rouge nationale ; **B :** espèce endémique ; **C :** conventions internationales ; **D :** autres raisons.

4. DESCRIPTION DU SITE

4.1 Caractère général du site

Classe d'habitat	Pourcentage de couverture
N06 : Eaux douces intérieures (Eaux stagnantes, Eaux courantes)	3 %
N07 : Marais (vegetation de ceinture), Bas-marais, Tourbières,	2 %
N08 : Landes, Broussailles, Recrus, Maquis et Garrigues, Phrygana	25 %
N10 : Prairies semi-naturelles humides, Prairies mésophiles améliorées	1 %
N11 : Pelouses alpine et sub-alpine	29 %
N16 : Forêts caducifoliées	15 %
N17 : Forêts de résineux	10 %
N19 : Forêts mixtes	5 %
N22 : Rochers intérieurs, Eboulis rocheux, Dunes intérieures, Neige ou glace permanente	10 %

Autres caractéristiques du site

Ecocomplexe des étages montagnard à nival. Bassin du Ribérot et Massif du Valier à relief et géologie complexe (mosaïque silice / calcaire)

Vulnérabilité : Ce site, de part son statut de forêt domaniale et de réserve de chasse et de faune sauvage, présente une faible vulnérabilité.

Néanmoins, le risque de déprise pastorale pourrait à moyen terme constituer un facteur de vulnérabilité. Il en serait de même en cas de développement touristique non respectueux des équilibres écologiques.

4.2 Qualité et importance

L'avifaune de montagne est bien représentée, avec, parmi les passereaux le Merle à plastron, le Tichodrome échelette et le Monticole de roche. Neuf espèces de l'annexe I sont données nicheuses dans la ZPS, parmi lesquelles : Gypaète barbu, Aigle royal, Faucon pélerin, Grand Tétras, Lagopède alpin, Perdrix grise sous-espèce hispaniensis. Trois autres espèces visées à l'annexe I fréquentent le site pour s'y alimenter : Vautour fauve, Milan royal et Hibou Grand Duc.

Faune et flore des Pyrénées très représentatives et populations importantes. Fort endémisme.

4.3 Menaces, pressions et activités ayant une incidence sur le site

Il s'agit des principales incidences et activités ayant des répercussions notables sur le site

Incidences négatives				
Importance	Menaces et pressions [code]	Menaces et pressions [libellé]	Pollution [code]	Intérieur / Extérieur [i|o|b]
Incidences positives				
Importance	Menaces et pressions [code]	Menaces et pressions [libellé]	Pollution [code]	Intérieur / Extérieur [i|o|b]

N	A04	Pâturage		I

- **Importance** : H = grande, M = moyenne, L = faible.
- **Pollution** : N = apport d'azote, P = apport de phosphore/phosphate, A = apport d'acide/acidification, T = substances chimiques inorganiques toxiques, O = substances chimiques organiques toxiques, X = pollutions mixtes.
- **Intérieur / Extérieur** : I = à l'intérieur du site, O = à l'extérieur du site, B = les deux.

4.4 Régime de propriété

Type	Pourcentage de couverture
Domaine privé de l'état	%

4.5 Documentation

Lien(s) :

5.1 Types de désignation aux niveaux national et régional

Code	Désignation	Pourcentage de couverture
52	Réserve de chasse et de faune sauvage d'ACCA	90 %
21	Forêt domaniale	98 %

5.2 Relation du site considéré avec d'autres sites

Désignés aux niveaux national et régional :

Code	Appellation du site	Type	Pourcentage de couverture
21	Réserve de chasse et de faune sauvage du Mont Valier		%

Désignés au niveau international :

Type	Appellation du site	Type	Pourcentage de couverture

5.3 Désignation du site

6. GESTION DU SITE

6.1 Organisme(s) responsable(s) de la gestion du site

Organisation : OFFICE NATIONAL DES FORETS (service départemental de l'Ariège) pour les terrains domaniaux et soumis au régime forestier (la quasi totalité du site).

Adresse :

Courriel :

6.2 Plan(s) de gestion

Existe-il un plan de gestion en cours de validité ?

[ ] Oui

[ ] Non, mais un plan de gestion est en préparation.

[X] Non

6.3 Mesures de conservation

Aménagements forestiers

Un document d'objectif est en cours de réalisation sur le site d'intérêt communautaire "vallée du Riberot et massif du mont valier". Ce document d'objectif concerne également la ZPS.

Annexe 9 : Fiches descriptives des ZNIEFF recensées à proximité du projet

Date d'édition : 11/12/2013
http://inpn.mnhn.fr/zone/znieff/730011898

ZONES NATURELLES
D'INTÉRÊT ÉCOLOGIQUE,
FAUNISTIQUE ET FLORISTIQUE

FORET DE ROUZE BOIS D'ESPIULOU
(Identifiant national : 730011898)

(ZNIEFF continentale de type 1)

(Identifiant régional : 01070012)

Région en charge de la zone : Midi-Pyrénées
Rédacteur(s) : A.R.E.M.I.P., PARDE.

1. DESCRIPTION 2
2. CRITERES D'INTERET DE LA ZONE 3
3. CRITERES DE DELIMITATION DE LA ZONE 3
4. FACTEUR INFLUENCANT L'EVOLUTION DE LA ZONE 3
5. BILAN DES CONNAISSANCES - EFFORT DE PROSPECTION 3
6. HABITATS 4
7. ESPECES 5
8. LIENS ESPECES ET HABITATS 6

1. DESCRIPTION

Date de création : 01/03/89
Date de modernisation : 01/03/89

1.1 Localisation administrative

- Couflens (INSEE : 09100)
- Ustou (INSEE : 09322)



1.2 Altitudes

Minimum (m) : 700
Maximum (m) : 1700

1.3 Superficie

1125,49 hectares

1.4 Liaisons écologiques avec d'autres ZNIEFF

Non renseigné

1.4 Commentaire général

Non renseigné

1.5 Compléments descriptif

1.5.1 Géomorphologie

Non renseigné

1.5.2 Activités humaines

- Sylviculture
- Elevage
- Chasse

1.5.3 Statut de propriété

- Collectivité territoriale

- Propriété privée (personne physique)

1.5.4 Mesures de protection

Non renseigné

2. CRITERES D'INTERET DE LA ZONE

Patrimoniaux

Ecologique
Faunistique
Oiseaux
Mammifères
Floristique
Bryophytes
Ptéridophytes

3. CRITERES DE DELIMITATION DE LA ZONE

Non renseigné

4. FACTEURS INFLUENCANT L'EVOLUTION DE LA ZONE

Non renseigné

5. BILANS DES CONNAISSANCES - EFFORTs DE PROSPECTIONS

Aucun	Faible	Moyen	Bon
Mammifères			
Oiseaux			
Reptiles			
Amphibiens			
Insectes			
Autres Invertébrés			
Phanérogames			
Ptéridophytes			
Bryophytes			
Algues			
Champignons			
Lichens			
Habitats			

6. HABITATS

6.1 Habitats déterminants

CORINE BIOTOPE	Source	Surface (%)	Observation
4 FORETS			

6.2 Habitats autres

CORINE BIOTOPE	Source	Surface (%)	Observation
24 Eaux courantes			
3 Landes, fruticées, pelouses et prairies			

6.3 Habitats périphériques

Non renseigné

7. ESPECES

7.1 Espèces déterminantes

* : Espèce en cours de validation taxonomique (Référentiel TAXREF)

Non renseigné

7.2 Espèces autres

* : Espèce en cours de validation taxonomique (Référentiel TAXREF)

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
Mammifères	60658	*Martes martes (Linnaeus, 1758)*							
	60981	*Sus scrofa Linnaeus, 1758*							
	61119	*Rupicapra rupicapra (Linnaeus, 1758)*							
Oiseaux	2964	*Tetrao urogallus Linnaeus, 1758*							
	3608	*Dryocopus martius (Linnaeus, 1758)*							
Angiospermes	97947	*Fagus sylvatica L., 1753*							
Fougères	115046	*Polystichum braunii (Spenn.) Fée, 1852*							
Gymnospermes	79319	*Abies alba Mill., 1768*							

7.3 Espèces à statut réglementé

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut de déterminance	Réglementation
Mammifères	60658	*Martes martes (Linnaeus, 1758)*	Autre	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
	60981	*Sus scrofa Linnaeus, 1758*	Autre	Liste des espèces de gibier dont la chasse est autorisée *(lien)*
	61119	*Rupicapra rupicapra (Linnaeus, 1758)*	Autre	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
Oiseaux	2964	*Tetrao urogallus Linnaeus, 1758*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
				Protection et commercialisation de certaines espèces d'oiseaux sur le territoire français national *(lien)*
	3608	*Dryocopus martius (Linnaeus, 1758)*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
Fougères	115046	*Polystichum braunii (Spenn.) Fée, 1852*	Autre	Liste des espèces végétales protégées sur l'ensemble du territoire français métropolitain *(lien)*

8. LIENS ESPECES ET HABITATS

Non renseigné

Date d'édition : 11/12/2013
http://inpn.mnhn.fr/zone/znieff/730011899

ZONES NATURELLES
D'INTÉRÊT ÉCOLOGIQUE,
FAUNISTIQUE ET FLORISTIQUE

BOIS DU MAIL DE LA FOURQUE ET D'ANGLADE (Identifiant national : 730011899)

(ZNIEFF continentale de type 1)

(Identifiant régional : 01070013)

Région en charge de la zone : Midi-Pyrénées
Rédacteur(s) : A.R.E.M.I.P., PARDE.

1. DESCRIPTION 2
2. CRITERES D'INTERET DE LA ZONE 3
3. CRITERES DE DELIMITATION DE LA ZONE 3
4. FACTEUR INFLUENCANT L'EVOLUTION DE LA ZONE 3
5. BILAN DES CONNAISSANCES - EFFORT DE PROSPECTION 3
6. HABITATS 4
7. ESPECES 5
8. LIENS ESPECES ET HABITATS 6

1. DESCRIPTION

Date de création : 01/03/89
Date de modernisation : 01/03/89

1.1 Localisation administrative

- Couflens (INSEE : 09100)



1.2 Altitudes

Minimum (m) : 900
Maximum (m) : 1880

1.3 Superficie

647,07 hectares

1.4 Liaisons écologiques avec d'autres ZNIEFF

Non renseigné

1.4 Commentaire général

Non renseigné

1.5 Compléments descriptif

1.5.1 Géomorphologie

Non renseigné

1.5.2 Activités humaines

- Sylviculture
- Elevage
- Chasse

1.5.3 Statut de propriété

- Collectivité territoriale

- Propriété privée (personne physique)

1.5.4 Mesures de protection

Non renseigné

2. CRITERES D'INTERET DE LA ZONE

Patrimoniaux	Complémentaires
Ecologique	Paysager
Faunistique	
Oiseaux	
Mammifères	
Floristique	
Bryophytes	
Ptéridophytes	

3. CRITERES DE DELIMITATION DE LA ZONE

Non renseigné

4. FACTEURS INFLUENCANT L'EVOLUTION DE LA ZONE

Non renseigné

5. BILANS DES CONNAISSANCES - EFFORTs DE PROSPECTIONS

Aucun	Faible	Moyen	Bon
Mammifères			
Oiseaux			
Reptiles			
Amphibiens			
Insectes			
Autres Invertébrés			
Phanérogames			
Ptéridophytes			
Bryophytes			
Algues			
Champignons			
Lichens			
Habitats			

6. HABITATS

6.1 Habitats déterminants

CORINE BIOTOPE	Source	Surface (%)	Observation
4 FORETS			

6.2 Habitats autres

CORINE BIOTOPE	Source	Surface (%)	Observation
3 Landes, fruticées, pelouses et prairies			
81 Prairies améliorées			
82 Cultures			

6.3 Habitats périphériques

Non renseigné

7. ESPECES

7.1 Espèces déterminantes

* : Espèce en cours de validation taxonomique (Référentiel TAXREF)

Non renseigné

7.2 Espèces autres

* : Espèce en cours de validation taxonomique (Référentiel TAXREF)

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
Mammifères	60658	*Martes martes (Linnaeus, 1758)*							
	60826	*Ursus arctos Linnaeus, 1758*							
	60981	*Sus scrofa Linnaeus, 1758*							
	61119	*Rupicapra rupicapra (Linnaeus, 1758)*							
Oiseaux	2645	*Aquila chrysaetos (Linnaeus, 1758)*							
	2964	*Tetrao urogallus Linnaeus, 1758*							
	3608	*Dryocopus martius (Linnaeus, 1758)*							
Angiospermes	97947	*Fagus sylvatica L., 1753*							
Fougères	115046	*Polystichum braunii (Spenn.) Fée, 1852*							
Gymnospermes	79319	*Abies alba Mill., 1768*							

7.3 Espèces à statut réglementé

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut de déterminance	Réglementation
Mammifères	60658	*Martes martes (Linnaeus, 1758)*	Autre	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
	60826	*Ursus arctos Linnaeus, 1758*	Autre	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces de vertébrés protégées menacées d'extinction en France et dont l'aire de répartition excède le territoire d'un département *(lien)*
				Liste des mammifères terrestres protégés sur l'ensemble du territoire français et les modalités de leur protection *(lien)*
	60981	*Sus scrofa Linnaeus, 1758*	Autre	Liste des espèces de gibier dont la chasse est autorisée *(lien)*
	61119	*Rupicapra rupicapra (Linnaeus, 1758)*	Autre	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
Oiseaux	2645	*Aquila chrysaetos (Linnaeus, 1758)*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	2964	*Tetrao urogallus Linnaeus, 1758*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
				Protection et commercialisation de certaines espèces d'oiseaux sur le territoire français national *(lien)*
	3608	*Dryocopus martius (Linnaeus, 1758)*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
Fougères	115046	*Polystichum braunii (Spenn.) Fée, 1852*	Autre	Liste des espèces végétales protégées sur l'ensemble du territoire français métropolitain *(lien)*

8. LIENS ESPECES ET HABITATS

Non renseigné

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http://inpn.mnhn.fr/zone/znieff/730011900

ZONES NATURELLES
D'INTÉRÊT ÉCOLOGIQUE,
FAUNISTIQUE ET FLORISTIQUE

MONTAGNES DE SALAU , MONT ROUCH
(Identifiant national : 730011900)

(ZNIEFF continentale de type 1)

(Identifiant régional : 01070014)

Région en charge de la zone : Midi-Pyrénées
Rédacteur(s) : A.R.E.M.I.P., PARDE.

1. DESCRIPTION 2
2. CRITERES D'INTERET DE LA ZONE 3
3. CRITERES DE DELIMITATION DE LA ZONE 3
4. FACTEUR INFLUENCANT L'EVOLUTION DE LA ZONE 3
5. BILAN DES CONNAISSANCES - EFFORT DE PROSPECTION 3
6. HABITATS 3
7. ESPECES 5
8. LIENS ESPECES ET HABITATS 6

1. DESCRIPTION

Date de création : 01/03/89
Date de modernisation : 01/03/89

1.1 Localisation administrative

- Couflens (INSEE : 09100)



1.2 Altitudes

Minimum (m) : 1600
Maximum (m) : 2858

1.3 Superficie

1298,95 hectares

1.4 Liaisons écologiques avec d'autres ZNIEFF

Non renseigné

1.4 Commentaire général

Non renseigné

1.5 Compléments descriptif

1.5.1 Géomorphologie

Non renseigné

1.5.2 Activités humaines

- Elevage

1.5.3 Statut de propriété

- Collectivité territoriale

1.5.4 Mesures de protection

Non renseigné

2. CRITERES D'INTERET DE LA ZONE

Patrimoniaux	Complémentaires
Ecologique	Paysager
Faunistique	
Oiseaux	
Mammifères	

3. CRITERES DE DELIMITATION DE LA ZONE

Non renseigné

4. FACTEURS INFLUENCANT L'EVOLUTION DE LA ZONE

Non renseigné

5. BILANS DES CONNAISSANCES - EFFORTs DE PROSPECTIONS

Aucun	Faible	Moyen	Bon
Mammifères			
Oiseaux			
Reptiles			
Amphibiens			
Insectes			
Autres Invertébrés			
Phanérogames			
Ptéridophytes			
Bryophytes			
Algues			
Champignons			
Lichens			
Habitats			

6. HABITATS

6.1 Habitats déterminants

CORINE BIOTOPE	Source	Surface (%)	Observation
62 Falaises continentales et rochers exposés			
65 Grottes			

CORINE BIOTOPE	Source	Surface (%)	Observation
86.41 Carrières			

6.2 Habitats autres

CORINE BIOTOPE	Source	Surface (%)	Observation
22 Eaux douces stagnantes			
24 Eaux courantes			
3 Landes, fruticées, pelouses et prairies			

6.3 Habitats périphériques

Non renseigné

7. ESPECES

7.1 Espèces déterminantes

* : Espèce en cours de validation taxonomique (Référentiel TAXREF)

Non renseigné

7.2 Espèces autres

* : Espèce en cours de validation taxonomique (Référentiel TAXREF)

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
Mammifères	60686	*Mustela erminea Linnaeus, 1758*							
	61119	*Rupicapra rupicapra (Linnaeus, 1758)*							
Oiseaux	2645	*Aquila chrysaetos (Linnaeus, 1758)*							
	2852	*Gypaetus barbatus (Linnaeus, 1758)*							
	2860	*Gyps fulvus (Hablizl, 1783)*							
	2951	*Lagopus mutus (Montin, 1776)*							
	2989	*Perdix perdix (Linnaeus, 1758)*							
	3984	*Prunella collaris (Scopoli, 1769)*							
	4064	*Oenanthe oenanthe (Linnaeus, 1758)*							
	4112	*Turdus torquatus Linnaeus, 1758*							
	4485	*Pyrrhocorax graculus (Linnaeus, 1766)*							
	4488	*Pyrrhocorax pyrrhocorax (Linnaeus, 1758)*							

7.3 Espèces à statut réglementé

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut de déterminance	Réglementation
Mammifères	60686	*Mustela erminea Linnaeus, 1758*	Autre	Liste des espèces de gibier dont la chasse est autorisée *(lien)*
	61119	*Rupicapra rupicapra (Linnaeus, 1758)*	Autre	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
Oiseaux	2645	*Aquila chrysaetos (Linnaeus, 1758)*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	2852	*Gypaetus barbatus (Linnaeus, 1758)*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Interdiction de la perturbation intentionnelle du gypaète barbu *(lien)*
				Liste des espèces de vertébrés protégées menacées d'extinction en France et dont l'aire de répartition excède le territoire d'un département *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	2860	*Gyps fulvus (Hablizl, 1783)*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	2951	*Lagopus mutus (Montin, 1776)*	Autre	Liste des espèces de gibier dont la chasse est autorisée *(lien)*
				Protection et commercialisation de certaines espèces d'oiseaux sur le territoire français national *(lien)*
	2989	*Perdix perdix (Linnaeus, 1758)*	Autre	Liste des espèces de gibier dont la chasse est autorisée *(lien)*
				Protection et commercialisation de certaines espèces d'oiseaux sur le territoire français national *(lien)*
	3984	*Prunella collaris (Scopoli, 1769)*	Autre	Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	4064	*Oenanthe oenanthe (Linnaeus, 1758)*	Autre	Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	4112	*Turdus torquatus Linnaeus, 1758*	Autre	Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	4485	*Pyrrhocorax graculus (Linnaeus, 1766)*	Autre	Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	4488	*Pyrrhocorax pyrrhocorax (Linnaeus, 1758)*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*

8. LIENS ESPECES ET HABITATS

Non renseigné

Muséum national d'Histoire naturelle

Date d'édition : 11/12/2013
http://inpn.mnhn.fr/zone/znieff/730011908

znieff ZONES NATURELLES D'INTÉRÊT ÉCOLOGIQUE, FAUNISTIQUE ET FLORISTIQUE

VALLEE DU FOUILLET ET RAVINS DE FONTARECH (Identifiant national : 730011908)

(ZNIEFF continentale de type 1)

(Identifiant régional : 01070003)

Région en charge de la zone : Midi-Pyrénées
Rédacteur(s) : A.R.E.M.I.P., PARDE.

1. DESCRIPTION 2
2. CRITERES D'INTERET DE LA ZONE 3
3. CRITERES DE DELIMITATION DE LA ZONE 3
4. FACTEUR INFLUENCANT L'EVOLUTION DE LA ZONE 3
5. BILAN DES CONNAISSANCES - EFFORT DE PROSPECTION 3
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1. DESCRIPTION

Date de création : 01/03/89
Date de modernisation : 01/03/89

1.1 Localisation administrative

- Aulus-les-Bains (INSEE : 09029)
- Ustou (INSEE : 09322)



1.2 Altitudes

Minimum (m) : 800
Maximum (m) : 1700

1.3 Superficie

831,46 hectares

1.4 Liaisons écologiques avec d'autres ZNIEFF

Non renseigné

1.4 Commentaire général

Non renseigné

1.5 Compléments descriptif

1.5.1 Géomorphologie

- Vallée

1.5.2 Activités humaines

- Sylviculture
- Elevage
- Chasse

1.5.3 Statut de propriété

- Collectivité territoriale

- Propriété privée (personne physique)

1.5.4 Mesures de protection

Non renseigné

2. CRITERES D'INTERET DE LA ZONE

Patrimoniaux	Complémentaires
Faunistique	Paysager
Amphibiens	
Reptiles	
Oiseaux	
Mammifères	

3. CRITERES DE DELIMITATION DE LA ZONE

Non renseigné

4. FACTEURS INFLUENCANT L'EVOLUTION DE LA ZONE

Non renseigné

5. BILANS DES CONNAISSANCES - EFFORTs DE PROSPECTIONS

Aucun	Faible	Moyen	Bon
Mammifères			
Oiseaux			
Reptiles			
Amphibiens			
Insectes			
Autres Invertébrés			
Phanérogames			
Ptéridophytes			
Bryophytes			
Algues			
Champignons			
Lichens			
Habitats			

6. HABITATS

6.1 Habitats déterminants

CORINE BIOTOPE	Source	Surface (%)	Observation
4 FORETS			

6.2 Habitats autres

CORINE BIOTOPE	Source	Surface (%)	Observation
22 Eaux douces stagnantes			
24 Eaux courantes			
3 Landes, fruticées, pelouses et prairies			
62 Falaises continentales et rochers exposés			
65 Grottes			
84.4 Bocages			
86.41 Carrières			

6.3 Habitats périphériques

Non renseigné

7. ESPECES

7.1 Espèces déterminantes

* : Espèce en cours de validation taxonomique (Référentiel TAXREF)

Non renseigné

7.2 Espèces autres

* : Espèce en cours de validation taxonomique (Référentiel TAXREF)

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
Amphibiens	56	*Euproctus asper (Dugès, 1852)*							
Mammifères	60658	*Martes martes (Linnaeus, 1758)*							
	60826	*Ursus arctos Linnaeus, 1758*							
	60981	*Sus scrofa Linnaeus, 1758*							
Oiseaux	2964	*Tetrao urogallus Linnaeus, 1758*							
	3608	*Dryocopus martius (Linnaeus, 1758)*							
Angiospermes	97947	*Fagus sylvatica L., 1753*							
Gymnospermes	79319	*Abies alba Mill., 1768*							

7.3 Espèces à statut réglementé

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut de déterminance	Réglementation
Mammifères	60658	*Martes martes (Linnaeus, 1758)*	Autre	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
	60826	*Ursus arctos Linnaeus, 1758*	Autre	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces de vertébrés protégées menacées d'extinction en France et dont l'aire de répartition excède le territoire d'un département *(lien)*
				Liste des mammifères terrestres protégés sur l'ensemble du territoire français et les modalités de leur protection *(lien)*
	60981	*Sus scrofa Linnaeus, 1758*	Autre	Liste des espèces de gibier dont la chasse est autorisée *(lien)*
Oiseaux	2964	*Tetrao urogallus Linnaeus, 1758*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
				Protection et commercialisation de certaines espèces d'oiseaux sur le territoire français national *(lien)*
	3608	*Dryocopus martius (Linnaeus, 1758)*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*

8. LIENS ESPECES ET HABITATS

Non renseigné

Muséum national d'Histoire naturelle

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http://inpn.mnhn.fr/zone/znieff/730011910

znieff ZONES NATURELLES D'INTÉRÊT ÉCOLOGIQUE, FAUNISTIQUE ET FLORISTIQUE

Massif du Pic de Certescans (Identifiant national : 730011910)

(ZNIEFF continentale de type 1)

(Identifiant régional : Z2PZ0462)

Région en charge de la zone : Midi-Pyrénées
Rédacteur(s) : Brousseau Cécile (Association des naturalistes de l'Ariège - Espaces naturels d'Ariège)



1. DESCRIPTION 2
2. CRITERES D'INTERET DE LA ZONE 3
3. CRITERES DE DELIMITATION DE LA ZONE 4
4. FACTEUR INFLUENCANT L'EVOLUTION DE LA ZONE 4
5. BILAN DES CONNAISSANCES - EFFORT DE PROSPECTION 4
6. HABITATS 5
7. ESPECES 7
8. LIENS ESPECES ET HABITATS 25
9. SOURCES 25

1. DESCRIPTION

1.1 Localisation administrative

- Aulus-les-Bains (INSEE : 09029)
- Auzat (INSEE : 09030)
- Couflens (INSEE : 09100)
- Ustou (INSEE : 09322)

1.2 Altitudes

Minimum (m) : 575
Maximum (m) : 2840

1.3 Superficie

16070,54 hectares

1.4 Liaisons écologiques avec d'autres ZNIEFF

Non renseigné

1.5 Commentaire général

La ZNIEFF du « massif du pic de Certescans » étend ses 16 100 ha à l'ouest du département de l'Ariège. Comprise entre 575 et 2 840 m d'altitude (étages montagnard à nival), elle correspond à une partie de la haute chaîne des Pyrénées avec des paysages de haute montagne grandioses. La géologie complexe de la zone associe des zones à substrat acide (granite et micaschiste) et des zones sur substrat alcalin (calcschiste). Les structures géologiques s'interpénètrent d'une façon telle que l'on passe sans transition nette de terrains calcaires à des terrains plus acides. Le climat est de type montagnard atlantique avec des précipitations assez élevées. Les vallées sont occupées par les villages et une agriculture extensive de montagne qui développe un paysage bocager avec un réseau de haies préservé. La forêt (hêtraie, hêtraie-sapinière) occupe une large place à l'étage montagnard. Au-delà de la limite de la forêt, les landes, landines et pelouses subalpines et alpines dominent le paysage. Les falaises (cirques spectaculaires : cirques d'Anglade et de Cagateille) et les éboulis sont aussi très présents sur la zone, créant un univers très minéral à partir d'une certaine altitude.
La ZNIEFF occupant les étages de végétation montagnard (voire collinéen) à nival, elle comprend de nombreux milieux d'un grand intérêt : un complexe de micro-habitats tourbeux et humides déterminants comme les tourbières hautes, bas-marais acides et alcalins, tourbières de transition # outre leur intérêt en tant qu'habitats d'espèces, ces milieux jouent un rôle important d'un point de vue fonctionnel (atténuation des effets de crues par stockage d'eau, ralentissement des ruissellements de surface) ; des mégaphorbiaies (communautés de hautes herbes) pyrénéo-ibériques ; des pelouses à Gispet (Festuca eskia) bien présentes à partir de l'étage subalpin ; des communautés végétales des combes à neige comme les communautés acidiphiles à Carex-Gnaphalium ; des habitats rocheux, éboulis et falaises bien représentés à la fois en contexte calcaire et siliceux (Saxifragion mediae, etc.).
D'un point de vue floristique, les éléments patrimoniaux concernent : la flore de milieux humides et tourbeux avec des espèces comme le Rossolis à feuilles rondes (Drosera rotundifolia), protégé au niveau national, la Linaigrette engainante (Eriophorum vaginatum), protégée en Midi-Pyrénées, ou encore le Rubanier à feuilles étroites (Sparganium angustifolium), les cortèges de sphaignes étant eux aussi intéressants ; les milieux rocheux, avec des espèces spécialisées patrimoniales comme la Campanule remarquable (Campanula speciosa), des saxifrages (Saxifraga geranioides, Saxifraga media, Saxifraga pentadactylis...), la Passerine à calice large (Thymelaea calycina) ou le Cystoptéris des montagnes (Cystopteris montana), une fougère protégée au niveau national ; les espèces déterminantes caractéristiques des pelouses d'altitude comme le Panicaut de Bourgat (Eryngium bourgatii), la Gentiane des Pyrénées (Gentiana pyrenaica), le Lis des Pyrénées (Lilium pyrenaicum) ou encore la Gagée de Liotard et la Gagée jaune (Gagea fragifera, Gagea lutea subsp. lutea), cette dernière étant protégée au niveau national. D'un point de vue faunistique, les intérêts sont très variés. Le Desman des Pyrénées est présent dans les différents cours d'eau de la zone. Ce petit mammifère endémique est inscrit à l'annexe II de la directive « Habitats-Faune-Flore ». La zone est importante pour les galliformes de montagne : le Grand Tétras (Tetrao urogallus), la Perdrix grise de montagne (Perdix perdix hispanicus) et le Lagopède alpin (Lagopus mutus) sont nicheurs sur la zone ; ces trois espèces font partie de la directive « Oiseaux ». C'est aussi un site important (nidification et terrain de chasse) pour les grands rapaces emblématiques de montagne. L'Aigle royal, notamment, est nicheur sur la zone. Les ruisseaux accueillent des populations d'Euprocte des Pyrénées (Euproctus asper), amphibien endémique déterminant. Enfin, l'entomofaune est également concernée avec la présence de papillons patrimoniaux des pelouses d'altitude comme la sous-espèce pyrénéenne de l'Apollon (Parnassius apollo pyrenaica), la Gorgone (Lasiommata petropolitana) ou le Moiré pyrénéen (Erebia gorgone). Un cortège intéressant de coléoptères de milieu souterrain est connu

dans certaines grottes et cavités. Les autres groupes d'invertébrés comme les mollusques et les crustacés présentent eux aussi des assemblages d'espèces intéressants.

1.6 Compléments descriptif

1.6.1 Géomorphologie

- Ruisseau, torrent
- Chute d'eau, cascade
- Etang
- Affleurement rocheux
- Falaise continentale
- Montagne
- Crête
- Escarpement, versant pentu

Commentaire sur la géomorphologie

aucun commentaire

1.6.2 Activités humaines

- Sylviculture
- Elevage
- Pêche
- Chasse
- Tourisme et loisirs

Commentaire sur les activités humaines

aucun commentaire

1.6.3 Statut de propriété

Non renseigné

Commentaire sur le statut de propriété

aucun commentaire

1.6.4 Mesures de protection

- Site classé selon la loi de 1930
- Parc Naturel Régional
- Zone Spéciale de Conservation (Directive Habitat)

Commentaire sur les mesures de protection

aucun commentaire

2. CRITERES D'INTERET DE LA ZONE

Patrimoniaux | Fonctionnels | Complémentaires

Ecologique	Ralentissement du ruissellement	Paysager
Invertébrés (sauf insectes)	Soutien naturel d'étiage	Géomorphologique
Insectes	Auto-épuration des eaux	Géologique
Amphibiens	Fonction d'habitat pour les populations animales ou végétales	
Oiseaux	Zone particulière d'alimentation	
Mammifères	Zone particulière liée à la reproduction	
Floristique		
Ptéridophytes		
Phanérogames		

Commentaire sur les intèrêts

aucun commentaire

3. CRITERES DE DELIMITATION DE LA ZONE

- Répartition des espèces (faune, flore)
- Répartition et agencement des habitats
- Degré d'artificialisation du milieu ou pression d'usage
- Contraintes du milieu physique

Commentaire sur les critères de délimitation de la zone

La ZNIEFF du « massif du pic de Certescans » correspond au massif montagneux délimité par la haute vallée du Salat à l'ouest et la vallée du Garbet à l'est. Au sud, les limites de la zone suivent la crête frontière, et au nord les vallées de l'Ustou et du Garbet. La station de ski de Guzet, zone plus artificialisée et sensiblement moins riche en enjeux naturels identifiés, est exclue du périmètre de la ZNIEFF. Elle est cependant intégrée à la ZNIEFF de type 2 « Montagnes d'Ercé, d'Oust et de Massat ».

4. FACTEURS INFLUENCANT L'EVOLUTION DE LA ZONE

FACTEUR	Pontentiel / Réel
Nuisances liées a la surfréquentation, au piétinement	
Pâturage	
Pratiques et travaux forestiers	
Sports et loisirs de plein-air	
Fermeture du milieu	

Commentaire sur les facteurs

aucun commentaire

5. BILANS DES CONNAISSANCES - EFFORTS DES PROSPECTIONS

Aucun	Faible	Moyen	Bon
- Reptiles	- Insectes	- Mammifères	
- Poissons	- Autres Invertébrés	- Oiseaux	
- Phanérogames	- Bryophytes	- Amphibiens	
- Ptéridophytes	- Habitats		
- Algues			
- Champignons			
- Lichens			

6. HABITATS

6.1 Habitats déterminants

CORINE BIOTOPE	Source	Surface (%)	Observation
24 Eaux courantes		1	
314		10	
361113	Informateur : CBNPMP (Corriol Gilles, Laigneau Françoise), PNR PA (Georges Nicolas, Séjalon Sophie), Cornic Yann	1	2006 - 2008
363		14	
36314	Informateur : CBNPMP (Corriol Gilles, Laigneau Françoise), PNR PA (Georges Nicolas, Séjalon Sophie)	1	2006 - 2008
364		1	
3783	Informateur : CBNPMP (Corriol Gilles, Laigneau Françoise), PNR PA (Georges Nicolas, Séjalon Sophie), Cornic Yann, Georges Nicolas	1	2002 - 2008
42 Forêts de conifères		1	
43 Forêts mixtes		10	
51 Tourbières hautes		1	
511		0	
54 Bas-marais, tourbières de transition et sources		1	
5424	Informateur : ANA (Tessier Marc), CBNPMP (Laigneau Françoise), Cornic Yann	0	2007 - 2007
544		1	
545		1	
611		2	
613		2	
62 Falaises continentales et rochers exposés		2	
6212	Informateur : CBNPMP (Laigneau Françoise), PNR PA (Séjalon Sophie), Georges Nicolas	1	2004 - 2008
63 Neiges et glaces éternelles		1	
65 Grottes		1	

6.2 Habitats autres

CORINE BIOTOPE	Source	Surface (%)	Observation
22 Eaux douces stagnantes		1	
37 Prairies humides et mégaphorbiaies		1	
41 Forêts caducifoliées		30	
53 Végétation de ceinture des bords des eaux		1	
862		1	
864		1	

6.3 Habitats périphériques

Non renseigné

6.4 Commentaire sur les habitats

aucun commentaire

7. ESPECES

7.1 Espèces déterminantes

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
Amphibiens	197	*Alytes obstetricans (Laurenti, 1768)*	Occasionnelle		Informateur : Nature Midi-Pyrénées (Pottier Gilles)		1	1	2001 - 2001
	444427	*Calotriton asper (Dugès, 1852)*	Occasionnelle		Informateur : ANA (Bertrand Alain, Cadiran Pierre, Delmas Carine, Delmas Claudine), ECODIV (Muratet Jean), Nature Midi-Pyrénées (Pottier Gilles)		1	5	1985 - 2006
	444432	*Lissotriton helveticus (Razoumowsky, 1789)*	Occasionnelle		Informateur : Nature Midi-Pyrénées (Pottier Gilles)		10	10	2001 - 2001
Gastéropodes	162685	*Cochlostoma obscurum obscurum (Draparnaud, 1805)*			Informateur : Anonyme		1	1	1993 - 2005
	162690	*Cochlostoma nouleti (Dupuy, 1851)*			Informateur : Anonyme		1	1	1993 - 2005
	162728	*Moitessieria fontsaintei Bertrand, 2001*			Informateur : Anonyme		1	1	1993 - 2005
	199831	*Abida pyrenaearia (Michaud, 1831)*			Informateur : Anonyme		1	1	1993 - 2005
	336326	*Pyrenaearia carascalopsis (Fagot, 1884)*			Informateur : Anonyme		1	1	1993 - 2005
Insectes	7922	*Thymalus limbatus*			Informateur : EIP (Brustel Hervé)		3	3	1994 - 1994
	53229	*Pyrgus alveus (Hübner, [1803])*			Informateur : Laboratoire EcoLab (UMR 5245) (Albre Jérôme, Legal Luc)		1	1	2003 - 2003
	53516	*Erebia gorgone Boisduval, [1833]*			Informateur : Laboratoire EcoLab (UMR 5245) (Albre Jérôme, Legal Luc)		1	1	2003 - 2003

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
	53546	*Erebia lefebvrei (Boisduval, [1828])*			Informateur : Laboratoire EcoLab (UMR 5245) (Albre Jérôme, Legal Luc)		1	1	2003 - 2003
	53576	*Erebia pandrose (Borkhausen, 1788)*			Informateur : Laboratoire EcoLab (UMR 5245) (Albre Jérôme)		1	1	2004 - 2004
	53611	*Lasiommata petropolitana (Fabricius, 1787)*	Occasionnelle		Informateur : ANA (Bertrand Alain), Laboratoire EcoLab (UMR 5245) (Albre Jérôme), SHNAO (Demergès David)		1	10	2004 - 2007
	53918	*Boloria pales ([Denis & Schiffermüller], 1775)*			Informateur : Laboratoire EcoLab (UMR 5245) (Albre Jérôme, Legal Luc)		1	1	2003 - 2003
	65721	*Metrioptera bicolor (Philippi, 1830)*			Informateur : Nature Midi-Pyrénées (Annoyer Philippe, Danflous Samuel)		1	1	2006 - 2006
	217503	*Leucozona glaucia (Linnaeus, 1758)*			Informateur : EIP (Brustel Hervé)		3	3	2001 - 2001
	219804	*Erebia sthennyo Graslin, 1850*	Occasionnelle		Informateur : Laboratoire EcoLab (UMR 5245) (Albre Jérôme), SHNAO (Demergès David)		1	1	2003 - 2005
	222771	*Geotrechus vandeli Coiffait, 1959*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	2002 - 2002
	222772	*Geotrechus vanderberghi Perreau & Queinnec, 1987*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	1987 - 1987
	223771	*Troglophyes aubryi Coiffait, 1953*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	2002 - 2002
	223781	*Speonomus monticola Coiffait, 1959*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	2002 - 2002
	223808	*Speonomus pyreneus (Lespès, 1857)*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	2002 - 2002
	223811	*Speonomus stygius (Dieck, 1869)*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	2002 - 2002

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
	223830	*Paratroglophyes jeanneli Coiffait, 1955*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	2002 - 2002
	223891	*Antrocharis querilhaci (Lespès, 1857)*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	2002 - 2002
	416802	*Erebia pronoe glottis Fruhstorfer, 1920*			Informateur : Laboratoire EcoLab (UMR 5245) (Albre Jérôme, Legal Luc)		1	1	2003 - 2003
	416803	*Parnassius apollo pyrenaica Harcourt-Bath, 1896*			Informateur : Laboratoire EcoLab (UMR 5245) (Albre Jérôme)		1	1	2003 - 2003
	416842	*Parnassius mnemosyne vernetanus Fruhstorfer, 1908*	Occasionnelle		Informateur : SHNAO (Demergès David)		1	1	2005 - 2005
	432542	*Colias phicomone oberthueri (Esper, 1780)*			Informateur : Laboratoire EcoLab (UMR 5245) (Albre Jérôme)		1	1	2003 - 2003
	432549	*Aiolopus thalassinus thalassinus (Fabricius, 1781)*			Informateur : Nature Midi-Pyrénées (Annoyer Philippe, Danflous Samuel)		1	1	2006 - 2006
	458967	*Aphaenops delbreili Genest, 1983*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	1983 - 1983
	610364	*Euchloe simplonia oberthueri Verity, 1908*			Informateur : Laboratoire EcoLab (UMR 5245) (Albre Jérôme)		1	1	2004 - 2004
Mammifères	60243	*Galemys pyrenaicus (E. Geoffroy, 1811)*			Informateur : ANA (Bertrand Alain)		1	1	1985 - 2006
	61128	*Rupicapra pyrenaica Bonaparte, 1845*		Reproducteur	Informateur : ANA (Cadiran Pierre), FDC 09 (Marty Évelyn), Nature Midi-Pyrénées (Calas Jérôme, Pignon Fanny, Rombaut Cyril)		1	200	1980 - 2005
Oiseaux	2645	*Aquila chrysaetos (Linnaeus, 1758)*		Reproducteur	Informateur : ANA (Duquesne Adrien, Garric Julien)		2	2	1997 - 2001
	2957	*Lagopus mutus pyrenaicus Hartert, 1921*	Occasionnelle	Reproducteur	Informateur : ANA (Cadiran Pierre, Garric Julien), OGM		1	2	2004 - 2005

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	2966	*Tetrao urogallus aquitanicus Ingram, 1915*	Occasionnelle	Reproducteur	Informateur : ANA (Bertrand Alain, Cadiran Pierre, Duquesne Adrien, Vergne Julien), FDC 09 (Marty Évelyn), Nature Midi-Pyrénées (Annoyer Philippe, Danflous Samuel, Delmas Norbert), OGM		1	4	1989 - 2007
	2992	*Perdix perdix hispaniensis Reichenow, 1892*		Reproducteur	Informateur : ANA (Bertrand Alain), FDC 09 (Marty Évelyn), OGM		1	1	1998 - 2007
	3780	*Tichodroma muraria (Linnaeus, 1758)*		Reproducteur	Informateur : ANA (Cadiran Pierre)		1	1	1986 - 1986
	4485	*Pyrrhocorax graculus (Linnaeus, 1766)*		Reproducteur	Informateur : ANA (Bertrand Alain, Garric Julien)		4	20	2001 - 2007
	4488	*Pyrrhocorax pyrrhocorax (Linnaeus, 1758)*		Reproducteur	Informateur : ANA (Bertrand Alain, Duquesne Adrien)		2	4	1997 - 2007
Angiospermes	81369	*Allium ericetorum Thore, 1803*			Informateur : CBNPMP (Laigneau Françoise)	Fort			2008 - 2008
	81543	*Allium victorialis L., 1753*			Informateur : CBNPMP (Bergès Christophe), Georges Nicolas, Maugé Christian, ISATIS (Tessier Marc), PNR PA (Georges Nicolas, Séjalon Sophie)		1	10	2004 - 2007
	82542	*Androsace vandellii (Turra) Chiov., 1919*			Informateur : ANA (Tessier Marc), CBNPMP (Bergès Christophe, Laigneau Françoise), ISATIS (Tessier Marc), Maugé Christian		11	100	2004 - 2008
	83260	*Aquilegia pyrenaica DC., 1815*			Informateur : ANA (Dedieu Maurice), CBNPMP (Bergès Christophe, Laigneau Françoise, Penin David), Georges Nicolas, Maugé Christian, PNR PA (Georges Nicolas, Séjalon Sophie)	Fort	1	10	1991 - 2008
	83969	*Artemisia eriantha Ten., 1831*			Informateur : CBNPMP (Laigneau Françoise), Cornic Yann				2008 - 2008

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	84229	*Asarina procumbens Mill., 1768*			Informateur : ANA (Tessier Marc), PNR PA (Georges Nicolas, Séjalon Sophie)		11	100	2006 - 2007
	84937	*Astrantia minor L., 1753*			Informateur : ARIANE (De Munnik Nicolas)	Fort	1	10	2004 - 2004
	85705	*Bellardiochloa variegata (Lam.) Kerguélen, 1983*			Informateur : CBNPMP (Laigneau Françoise)				2008 - 2008
	86732	*Bromus racemosus L., 1762*			Informateur : CBNPMP (Laigneau Françoise)	Fort			2008 - 2008
	87699	*Campanula precatoria Timb.-Lagr., 1873*			Informateur : CBNPMP (Bergès Christophe, Laigneau Françoise, Penin David), Georges Nicolas, PNR PA (Georges Nicolas, Séjalon Sophie)	Fort			2001 - 2008
	88359	*Carex atrata L., 1753*			Informateur : CBNPMP (Laigneau Françoise), Cornic Yann				2008 - 2008
	88653	*Carex macrostylon Lapeyr., 1813*			Informateur : CBNPMP (Laigneau Françoise), Cornic Yann				2008 - 2008
	88802	*Carex pulicaris L., 1753*			Informateur : CBNPMP (Laigneau Françoise)	Fort			2008 - 2008
	88840	*Carex rostrata Stokes, 1787*			Informateur : CBNPMP (Laigneau Françoise), Cornic Yann	Fort			2008 - 2008
	89264	*Carum verticillatum (L.) W.D.J Koch, 1824*			Informateur : CBNPMP (Laigneau Françoise)	Fort			2008 - 2008
	90077	*Cerastium pyrenaicum J.Gay, 1832*			Informateur : CBNPMP (Laigneau Françoise), PNR PA (Georges Nicolas, Séjalon Sophie)				2006 - 2008
	94653	*Dethawia splendens (Lapeyr.) Kerguélen, 1993*			Informateur : Georges Nicolas, Maugé Christian, PNR PA (Séjalon Sophie)				2004 - 2006

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	95442	*Drosera rotundifolia L., 1753*			Informateur : ANA (Cadiran Pierre, Tessier Marc), ARIANE (De Munnik Nicolas), CBNPMP (Laigneau Françoise), Cornic Yann, ISATIS (Tessier Marc), Maugé Christian, PNR PA (Georges Nicolas, Séjalon Sophie)	Fort	101	1000	2004 - 2008
	96127	*Epilobium alpestre (Jacq.) Krock., 1787*			Informateur : Georges Nicolas, PNR PA (Séjalon Sophie)				2004 - 2004
	96218	*Epilobium nutans F.W.Schmidt, 1794*			Informateur : CBNPMP (Laigneau Françoise)	Fort			2008 - 2008
	96861	*Eriophorum vaginatum L., 1753*			Informateur : ANA (Tessier Marc), CBNPMP (Corriol Gilles, Laigneau Françoise), ISATIS (Tessier Marc), Maugé Christian		11	100	2005 - 2008
	97140	*Eryngium bourgatii Gouan, 1773*			Informateur : ANA (Tessier Marc)		1	10	2005 - 2005
	98107	*Festuca borderei (Hack.) K.Richt., 1890*			Informateur : CBNPMP (Corriol Gilles, Laigneau Françoise), Cornic Yann				2008 - 2008
	98252	*Festuca glacialis Miégev., 1874*			Informateur : CBNPMP (Laigneau Françoise), Cornic Yann	Fort			2008 - 2008
	98407	*Festuca niphobia (St.-Yves) Kerguélen, 1976*			Informateur : CBNPMP (Corriol Gilles, Laigneau Françoise, Pichillou Simon), Cornic Yann	Fort			2008 - 2008
	99180	*Gagea fragifera (Vill.) E.Bayer & G.López, 1989*			Informateur : ANA (Tessier Marc)		11	100	2007 - 2007
	99460	*Galium marchandii Roem. & Schult., 1818*			Informateur : CBNPMP (Laigneau Françoise)				2008 - 2008
	99495	*Galium papillosum Lapeyr., 1813*			Informateur : CBNPMP (Laigneau Françoise)	Fort			2007 - 2008

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	99931	*Gentiana pyrenaica L., 1767*			Informateur : ANA (Tessier Marc), CBNPMP (Corriol Gilles, Laigneau Françoise), ISATIS (Tessier Marc)		11	100	2007 - 2008
	103028	*Hugueninia tanacetifolia (L.) Rchb., 1832*			Informateur : Maugé Christian				2006 - 2006
	103553	*Impatiens noli-tangere L., 1753*			Informateur : CBNPMP (Bergès Christophe, Laigneau Françoise, Penin David), ONF (Savoie Jean-Marie)				1991 - 2008
	104334	*Juncus squarrosus L., 1753*			Informateur : CBNPMP (Laigneau Françoise), Cornic Yann				2008 - 2008
	105799	*Leucanthemum maximum (Ramond) DC., 1837*			Informateur : CBNPMP (Bergès Christophe, Laigneau Françoise, Penin David), Georges Nicolas, Maugé Christian, PNR PA (Séjalon Sophie)		1	10	2001 - 2008
	105992	*Lilium pyrenaicum Gouan, 1773*			Informateur : ANA (Cadiran Pierre, Dedieu Maurice, Garric Julien, Vergne Julien), CBNPMP (Bergès Christophe, Laigneau Françoise), Cornic Yann, Georges Nicolas, Maugé Christian, PNR PA (Georges Nicolas, Séjalon Sophie)	Fort	101	1000	1996 - 2008
	106320	*Linum narbonense L., 1753*			Informateur : PNR PA (Georges Nicolas, Séjalon Sophie)				2006 - 2006
	106457	*Loiseleuria procumbens (L.) Desv., 1813*			Informateur : CBNPMP (Corriol Gilles, Laigneau Françoise), Maugé Christian	Fort			2005 - 2008
	106813	*Luzula alpinopilosa (Chaix) Breistr., 1947*			Informateur : CBNPMP (Laigneau Françoise), Cornic Yann, PNR PA (Georges Nicolas, Séjalon Sophie)				2006 - 2008

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	106825	*Luzula desvauxii Kunth, 1841*			Informateur : CBNPMP (Bergès Christophe, Corriol Gilles, Laigneau Françoise), Georges Nicolas, PNR PA (Séjalon Sophie)				2004 - 2008
	108345	*Menyanthes trifoliata L., 1753*			Informateur : CBNPMP (Laigneau Françoise), Cornic Yann				2008 - 2008
	108739	*Molopospermum peloponnesiacum (L.) W.D.J.Koch, 1824*			Informateur : ANA (Dedieu Maurice), CBNPMP (Laigneau Françoise), ISATIS (Tessier Marc), Maugé Christian, PNR PA (Georges Nicolas, Séjalon Sophie)	Fort	1	10	1995 - 2008
	108840	*Mucizonia sedoides (DC.) D.A.Webb, 1961*			Informateur : CBNPMP (Laigneau Françoise), Cornic Yann, Maugé Christian, PNR PA (Georges Nicolas, Séjalon Sophie)				2006 - 2008
	109703	*Nothobartsia spicata (Ramond) Bolliger & Molau, 1992*			Informateur : ONF (Savoie Jean-Marie)				1991 - 1991
	111234	*Oreochloa elegans (Sennen) A.W.Hill, 1933*			Informateur : CBNPMP (Corriol Gilles, Laigneau Françoise, Pichillou Simon), Cornic Yann, Maugé Christian	Fort			2005 - 2008
	112586	*Pedicularis mixta Gren., 1853*			Informateur : Georges Nicolas, ISATIS (Tessier Marc), PNR PA (Séjalon Sophie)		1	10	2004 - 2007
	112591	*Pedicularis pyrenaica J.Gay, 1832*			Informateur : Maugé Christian, PNR PA (Georges Nicolas, Séjalon Sophie)				2005 - 2006
	112872	*Peucedanum ostruthium (L.) W.D.J.Koch, 1824*			Informateur : CBNPMP (Laigneau Françoise), Georges Nicolas, PNR PA (Séjalon Sophie)				2002 - 2008
	113397	*Phyteuma pyrenaicum R.Schulz, 1904*			Informateur : CBNPMP (Bergès Christophe)				2004 - 2004

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	115414	*Potentilla aurea L., 1756*			Informateur : ARIANE (De Munnik Nicolas), Maugé Christian				2004 - 2006
	115619	*Potentilla pyrenaica Ramond ex DC., 1805*			Informateur : Georges Nicolas, PNR PA (Séjalon Sophie)				2004 - 2004
	116919	*Ranunculus amplexicaulis L., 1753*			Informateur : CBNPMP (Corriol Gilles, Laigneau Françoise), Maugé Christian				2005 - 2008
	117174	*Ranunculus platanifolius L., 1767*			Informateur : CBNPMP (Bergès Christophe, Laigneau Françoise)	Fort			2004 - 2008
	117446	*Reseda glauca L., 1753*			Informateur : Georges Nicolas, Maugé Christian, PNR PA (Georges Nicolas, Séjalon Sophie)				2004 - 2006
	118204	*Rosa glauca Pourr., 1788*			Informateur : CBNPMP (Bergès Christophe)				2004 - 2004
	120037	*Salix foetida Schleich. ex DC., 1805*			Informateur : PNR PA (Georges Nicolas, Séjalon Sophie)				2006 - 2006
	120976	*Saxifraga aquatica Lapeyr., 1801*			Informateur : ANA (Dedieu Maurice), CBNPMP (Laigneau Françoise), Cornic Yann, PNR PA (Georges Nicolas, Séjalon Sophie)	Fort	1	10	1991 - 2008
	120977	*Saxifraga aretioides Lapeyr., 1801*			Informateur : ANA (Tessier Marc), Maugé Christian		1	10	2005 - 2006
	121059	*Saxifraga geranioides L., 1755*			Informateur : ANA (Dedieu Maurice, Tessier Marc), CBNPMP (Corriol Gilles, Laigneau Françoise), Cornic Yann, Maugé Christian, PNR PA (Georges Nicolas, Séjalon Sophie)	Faible	11	100	1996 - 2008
	121110	*Saxifraga media Gouan, 1773*			Informateur : ANA (Tessier Marc)		1	10	2007 - 2007

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	121154	*Saxifraga praetermissa D.A.Webb, 1963*			Informateur : CBNPMP (Laigneau Françoise), Cornic Yann				2008 - 2008
	125319	*Swertia perennis L., 1753*			Informateur : ANA (Dedieu Maurice), Maugé Christian, PNR PA (Georges Nicolas, Séjalon Sophie)	Fort	1	10	1991 - 2006
	126461	*Thymelaea calycina (Lapeyr.) Meisn., 1857*			Informateur : Maugé Christian, PNR PA (Georges Nicolas, Séjalon Sophie)				2005 - 2006
	126925	*Tozzia alpina L., 1753*			Informateur : PNR PA (Georges Nicolas, Séjalon Sophie)				2006 - 2006
	127872	*Trollius europaeus L., 1753*			Informateur : CBNPMP (Bergès Christophe, Laigneau Françoise)	Fort			2004 - 2008
	128810	*Veronica bellidioides L., 1753*			Informateur : CBNPMP (Laigneau Françoise), Cornic Yann, PNR PA (Georges Nicolas, Séjalon Sophie)	Fort			2006 - 2008
	129033	*Veronica urticifolia Jacq., 1773*			Informateur : ARIANE (De Munnik Nicolas)				2004 - 2004
	131688	*Arnica montana var. montana*			Informateur : ANA (Dedieu Maurice), CBNPMP (Bergès Christophe, Laigneau Françoise), Georges Nicolas, Maugé Christian, ISATIS (Tessier Marc), PNR PA (Georges Nicolas, Séjalon Sophie)	Fort	11	100	1996 - 2008
	132527	*Campanula speciosa Pourr. subsp. speciosa*			Informateur : ANA (Tessier Marc), Maugé Christian		1	10	2006 - 2007
	132652	*Carex atrata L. subsp. atrata*			Informateur : Georges Nicolas, PNR PA (Séjalon Sophie)				2004 - 2004
	133806	*Dethawia splendens (Lapeyr.) Kerguélen subsp. splendens*			Informateur : CBNPMP (Laigneau Françoise)	Fort			2008 - 2008

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	133817	*Dianthus barbatus L. subsp. barbatus*			Informateur : CBNPMP (Bergès Christophe, Laigneau Françoise), Cornic Yann, Georges Nicolas, PNR PA (Georges Nicolas, Séjalon Sophie)	Fort			2004 - 2008
	134801	*Gagea lutea (L.) Ker Gawl. subsp. lutea*			Informateur : ANA (Cadiran Pierre)		1	10	1990 - 1990
	139512	*Pulsatilla alpina (L.) Delarbre subsp. alpina*			Informateur : Maugé Christian				2006 - 2006
	139513	*Pulsatilla alpina subsp. apiifolia (Scop.) Nyman, 1878*			Informateur : PNR PA (Georges Nicolas, Séjalon Sophie)				2006 - 2006
	140611	*Saxifraga clusii Gouan subsp. clusii*			Informateur : CBNPMP (Bergès Christophe)				2004 - 2004
	140677	*Saxifraga pentadactylis Lapeyr. subsp. pentadactylis*			Informateur : CBNPMP (Corriol Gilles, Laigneau Françoise), Georges Nicolas, ISATIS (Tessier Marc), PNR PA (Séjalon Sophie)	Fort	1	10	2004 - 2009
	140929	*Sempervivum tectorum L. subsp. tectorum*			Informateur : ANA (Tessier Marc)		1	10	2005 - 2005
	141891	*Trifolium pratense subsp. nivale Ces., 1844*			Informateur : Georges Nicolas, PNR PA (Séjalon Sophie)				2004 - 2004
Fougères	94068	*Cystopteris montana (Lam.) Desv., 1827*			Informateur : CBNPMP (Laigneau Françoise), Maugé Christian				2006 - 2008
	96553	*Equisetum variegatum Schleich., 1797*			Informateur : CBNPMP (Laigneau Françoise)				2008 - 2008
	106993	*Lycopodiella inundata (L.) Holub, 1964*			Informateur : CBNPMP (Laigneau Françoise), Cornic Yann				2008 - 2008
	115046	*Polystichum braunii (Spenn.) Fée, 1852*			Informateur : CBNPMP (Bergès Christophe, Penin David)		1	10	2001 - 2001

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Hépatiques et Anthocérotes	6605	*Anthelia juratzkana (Limpr.) Trevis.*			Informateur : CBNPMP (Corriol Gilles, Laigneau Françoise)	Faible			2008 - 2008
Mousses	6728	*Sphagnum capillifolium (Ehrh.) Hedw.*			Informateur : CBNPMP (Corriol Gilles, Laigneau Françoise), Royaud Alain	Moyen			2003 - 2008
	6734	*Sphagnum compactum Lam. & DC.*			Informateur : CBNPMP (Corriol Gilles, Laigneau Françoise), Royaud Alain	Moyen			2003 - 2008
	6740	*Sphagnum denticulatum Brid.*			Informateur : CBNPMP (Corriol Gilles, Laigneau Françoise), Royaud Alain	Moyen			2003 - 2008
	6751	*Sphagnum girgensohnii Russow*			Informateur : CBNPMP (Corriol Gilles, Laigneau Françoise)				2008 - 2008
	6774	*Sphagnum papillosum Lindb.*			Informateur : Royaud Alain	Moyen			2003 - 2003
	6784	*Sphagnum rubellum Wilson*			Informateur : Royaud Alain	Moyen			2003 - 2003
	6785	*Sphagnum russowii Warnst.*			Informateur : CBNPMP (Corriol Gilles, Laigneau Françoise)				2008 - 2008
	6789	*Sphagnum squarrosum Crome*			Informateur : Royaud Alain	Moyen			2003 - 2003
	6790	*Sphagnum subnitens Russow & Warnst.*			Informateur : Royaud Alain	Moyen			2003 - 2003
	6794	*Sphagnum subsecundum Nees*			Informateur : CBNPMP (Corriol Gilles, Laigneau Françoise), Royaud Alain	Moyen			2003 - 2008
	6795	*Sphagnum tenellum (Brid.) Pers. ex Brid.*			Informateur : Royaud Alain	Moyen			2003 - 2003
	6797	*Sphagnum teres (Schimp.) Angstr.*			Informateur : CBNPMP (Corriol Gilles, Laigneau Françoise), Royaud Alain	Moyen			2003 - 2008

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Autres	34316	*Nothopanus porrigens (Pers. : Fr.) Singer*			Informateur : ARIANE (De Munnik Nicolas)				1994 - 1994
	35563	*Cortinarius salor Fr.*			Informateur : ARIANE (De Munnik Nicolas)				2002 - 2002
	38169	*Cystoderma fallax A.H. Smith & Singer*			Informateur : ARIANE (Pellicier Maurice)				1990 - 1990
	43108	*Inonotus nodulosus (Fr.) Pilát*			Informateur : ARIANE (De Munnik Nicolas)				1997 - 1997
	44733	*Thelephora palmata (Scop. : Fr.) Fr.*			Informateur : ARIANE (De Munnik Nicolas)				1997 - 1997
	47414	*Eutypa spinosa (Persoon ex Fries) Tulasne & Tulasne*			Informateur : ARIANE (De Munnik Nicolas)				2000 - 2000
	49863	*Scutellinia scutellata (Linnaeus ex Fries) Lambotte*			Informateur : ARIANE (De Munnik Nicolas)				2000 - 2000
	191213				Informateur : ONEMA		160	160	1992 - 1993

7.2 Espèces autres

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Crustacés	216441	*Vandelibathynella vandeli (Delamare Deboutteville & Chappuis, 1954)*			Informateur : ATEK (Bou Claude)		1	1	1972 - 1972
	237165	*Oritoniscus remyi Dalens, 1964*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	1973 - 1973
	237174	*Phymatoniscus tuberculatus (Racovitza, 1907)*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	1960 - 1960
	240815	*Nitocrella dussarti Chappuis & Rouch, 1959*			Informateur : ATEK (Rouch Raymond)		1	1	1968 - 1968
	252486	*Speocyclops racovitzai incerta Chappuis & Kiefer, 1952*			Informateur : ATEK (Lescher-Moutoue Françoise)		1	1	1973 - 1973

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
Entognathes	216325	*Oncopodura tricuspidata Cassagnau, 1964*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	1964 - 1964
Insectes	53569	*Erebia meolans (de Prunner, 1798)*			Informateur : Laboratoire EcoLab (UMR 5245) (Albre Jérôme, Legal Luc)		1	1	2002 - 2004
	65719	*Metrioptera saussuriana (Frey-Gessner, 1872)*			Informateur : Nature Midi-Pyrénées (Annoyer Philippe, Danflous Samuel)		1	1	2006 - 2006
Oiseaux	3608	*Dryocopus martius (Linnaeus, 1758)*		Reproducteur	Informateur : ANA (Bertrand Alain)		2	2	2007 - 2007
Angiospermes	87021	*Bupleurum angulosum L., 1753*			Informateur : ANA (Tessier Marc), CBNPMP (Laigneau Françoise), Georges Nicolas, Maugé Christian, PNR PA (Georges Nicolas, Séjalon Sophie)	Fort	1	10	2004 - 2008
	87545	*Calycocorsus stipitatus (Jacq.) Rauschert, 1966*			Informateur : Maugé Christian				2005 - 2005
	89928	*Cephalanthera rubra (L.) Rich., 1817*			Informateur : ONF (Savoie Jean-Marie)	Fort			1992 - 1992
	96165	*Epilobium duriaei J.Gay ex Godr., 1849*			Informateur : CBNPMP (Laigneau Françoise), Georges Nicolas, PNR PA (Séjalon Sophie)	Fort			2004 - 2008
	98086	*Festuca auquieri Kerguélen, 1979*			Informateur : CBNPMP (Laigneau Françoise)				2008 - 2008
	98506	*Festuca rivularis Boiss., 1838*			Informateur : CBNPMP (Laigneau Françoise)	Fort			2008 - 2008
	106275	*Linum alpinum Jacq., 1762*			Informateur : CBNPMP (Bergès Christophe), Maugé Christian				2004 - 2006
	106846	*Luzula nivea (L.) DC., 1805*			Informateur : Maugé Christian				2005 - 2006
	119827	*Sagina saginoides (L.) H.Karst., 1882*			Informateur : CBNPMP (Laigneau Françoise), Cornic Yann	Fort			2008 - 2008

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
	126563	*Thymus polytrichus A.Kern. ex Borbás, 1890*			Informateur : CBNPMP (Laigneau Françoise, Pichillou Simon), Cornic Yann	Fort			2008 - 2008
	127337	*Trifolium hybridum L., 1753*			Informateur : Maugé Christian				2005 - 2005
	128428	*Valeriana pyrenaica L., 1753*			Informateur : CBNPMP (Bergès Christophe, Laigneau Françoise), Georges Nicolas, Maugé Christian, PNR PA (Georges Nicolas, Séjalon Sophie)				2004 - 2008
	128476	*Valerianella locusta (L.) Laterr., 1821*			Informateur : Maugé Christian				2006 - 2006
	129263	*Vicia orobus DC., 1815*			Informateur : Maugé Christian				2006 - 2006
	133499	*Crepis albida Vill. subsp. albida*			Informateur : PNR PA (Georges Nicolas, Séjalon Sophie)				2006 - 2006
	133934	*Draba aizoides L. subsp. aizoides*			Informateur : Georges Nicolas, Maugé Christian, PNR PA (Séjalon Sophie)				2004 - 2006
	135019	*Gentiana burseri Lapeyr. subsp. burseri*			Informateur : ARIANE (De Munnik Nicolas), CBNPMP (Bergès Christophe), Georges Nicolas, Maugé Christian, Quenea Hélène, PNR PA (Georges Nicolas, Séjalon Sophie)				2003 - 2006
	140428	*Sagina saginoides (L.) H.Karst. subsp. saginoides*			Informateur : CBNPMP (Laigneau Françoise), Cornic Yann				2008 - 2008
Fougères	110313	*Ophioglossum vulgatum L., 1753*			Informateur : ANA (Tessier Marc)		1	10	2007 - 2007
Autres	29660	*Porphyrellus porphyrosporus (Fr.) E.-J. Gilbert*			Informateur : ARIANE (De Munnik Nicolas)				1993 - 1993
	30158	*Hygrocybe euroflavescens Kühner*			Informateur : ARIANE (De Munnik Nicolas)				1994 - 1994

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
	30280	*Hygrocybe psittacina (J.C. Sch. : Fr.) Kummer*			Informateur : ARIANE (De Munnik Nicolas)				1994 - 1994
	39862	*Russula laurocerasi Melzer*			Informateur : ARIANE (De Munnik Nicolas)				2002 - 2002
	44837	*Tomentella umbrinospora M.J. Larsen*			Informateur : ARIANE (De Munnik Nicolas)				2000 - 2000
	48070	*Hypocrea rufa (Persoon ex Fries) Fries*			Informateur : ARIANE (De Munnik Nicolas)				2002 - 2002

7.3 Espèces à statut réglementé

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut de déterminance	Réglementation
Amphibiens	197	*Alytes obstetricans (Laurenti, 1768)*	Déterminante	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Listes des amphibiens et des reptiles protégés sur l'ensemble du territoire fançais et les modalités de leur protection *(lien)*
	444427	*Calotriton asper (Dugès, 1852)*	Déterminante	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Listes des amphibiens et des reptiles protégés sur l'ensemble du territoire fançais et les modalités de leur protection *(lien)*
	444432	*Lissotriton helveticus (Razoumowsky, 1789)*	Déterminante	Listes des amphibiens et des reptiles protégés sur l'ensemble du territoire fançais et les modalités de leur protection *(lien)*
Insectes	416842	*Parnassius mnemosyne vernetanus Fruhstorfer, 1908*	Déterminante	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des insectes protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
Mammifères	60243	*Galemys pyrenaicus (E. Geoffroy, 1811)*	Déterminante	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des mammifères terrestres protégés sur l'ensemble du territoire français et les modalités de leur protection *(lien)*
	61128	*Rupicapra pyrenaica Bonaparte, 1845*	Déterminante	Liste des espèces de gibier dont la chasse est autorisée *(lien)*
Oiseaux	2645	*Aquila chrysaetos (Linnaeus, 1758)*	Déterminante	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	2957	*Lagopus mutus pyrenaicus Hartert, 1921*	Déterminante	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
				Protection et commercialisation de certaines espèces d'oiseaux sur le territoire français national *(lien)*
	2966	*Tetrao urogallus aquitanicus Ingram, 1915*	Déterminante	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
				Protection et commercialisation de certaines espèces d'oiseaux sur le territoire français national *(lien)*
	2992	*Perdix perdix hispaniensis Reichenow, 1892*	Déterminante	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
				Protection et commercialisation de certaines espèces d'oiseaux sur le territoire français national *(lien)*
	3608	*Dryocopus martius (Linnaeus, 1758)*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	3780	*Tichodroma muraria (Linnaeus, 1758)*	Déterminante	Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	4485	*Pyrrhocorax graculus (Linnaeus, 1766)*	Déterminante	Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut de déterminance	Réglementation
	4488	*Pyrrhocorax pyrrhocorax (Linnaeus, 1758)*	Déterminante	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
Angiospermes	82542	*Androsace vandellii (Turra) Chiov., 1919*	Déterminante	Liste des espèces végétales protégées sur l'ensemble du territoire français métropolitain *(lien)*
	83969	*Artemisia eriantha Ten., 1831*	Déterminante	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces végétales sauvages pouvant faire l'objet d'une réglementation préfectorale permanente ou temporaire *(lien)*
	95442	*Drosera rotundifolia L., 1753*	Déterminante	Liste des espèces végétales protégées sur l'ensemble du territoire français métropolitain *(lien)*
	109703	*Nothobartsia spicata (Ramond) Bolliger & Molau, 1992*	Déterminante	Liste des espèces végétales protégées sur l'ensemble du territoire français métropolitain *(lien)*
	131688	*Arnica montana var. montana*	Déterminante	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces végétales sauvages pouvant faire l'objet d'une réglementation préfectorale permanente ou temporaire *(lien)*
	133817	*Dianthus barbatus L. subsp. barbatus*	Déterminante	Liste des espèces végétales sauvages pouvant faire l'objet d'une réglementation préfectorale permanente ou temporaire *(lien)*
Fougères	94068	*Cystopteris montana (Lam.) Desv., 1827*	Déterminante	Liste des espèces végétales protégées sur l'ensemble du territoire français métropolitain *(lien)*
	106993	*Lycopodiella inundata (L.) Holub, 1964*	Déterminante	Liste des espèces végétales protégées sur l'ensemble du territoire français métropolitain *(lien)*
	115046	*Polystichum braunii (Spenn.) Fée, 1852*	Déterminante	Liste des espèces végétales protégées sur l'ensemble du territoire français métropolitain *(lien)*
Mousses	6728	*Sphagnum capillifolium (Ehrh.) Hedw.*	Déterminante	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces végétales sauvages pouvant faire l'objet d'une réglementation préfectorale permanente ou temporaire *(lien)*
	6734	*Sphagnum compactum Lam. & DC.*	Déterminante	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces végétales sauvages pouvant faire l'objet d'une réglementation préfectorale permanente ou temporaire *(lien)*
	6751	*Sphagnum girgensohnii Russow*	Déterminante	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces végétales sauvages pouvant faire l'objet d'une réglementation préfectorale permanente ou temporaire *(lien)*
	6774	*Sphagnum papillosum Lindb.*	Déterminante	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces végétales sauvages pouvant faire l'objet d'une réglementation préfectorale permanente ou temporaire *(lien)*
	6784	*Sphagnum rubellum Wilson*	Déterminante	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces végétales sauvages pouvant faire l'objet d'une réglementation préfectorale permanente ou temporaire *(lien)*
	6785	*Sphagnum russowii Warnst.*	Déterminante	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces végétales sauvages pouvant faire l'objet d'une réglementation préfectorale permanente ou temporaire *(lien)*

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut de déterminance	Réglementation
	6789	*Sphagnum squarrosum Crome*	Déterminante	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces végétales sauvages pouvant faire l'objet d'une réglementation préfectorale permanente ou temporaire *(lien)*
	6790	*Sphagnum subnitens Russow & Warnst.*	Déterminante	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces végétales sauvages pouvant faire l'objet d'une réglementation préfectorale permanente ou temporaire *(lien)*
	6794	*Sphagnum subsecundum Nees*	Déterminante	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces végétales sauvages pouvant faire l'objet d'une réglementation préfectorale permanente ou temporaire *(lien)*
	6795	*Sphagnum tenellum (Brid.) Pers. ex Brid.*	Déterminante	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces végétales sauvages pouvant faire l'objet d'une réglementation préfectorale permanente ou temporaire *(lien)*
	6797	*Sphagnum teres (Schimp.) Angstr.*	Déterminante	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces végétales sauvages pouvant faire l'objet d'une réglementation préfectorale permanente ou temporaire *(lien)*

8. LIENS ESPECES ET HABITATS

Non renseigné

9. SOURCES

- ANA (Bertrand Alain, Cadiran Pierre, Delmas Carine, Delmas Claudine), ECODIV (Muratet Jean), Nature Midi-Pyrénées (Pottier Gilles)() "".
- CBNPMP (Corriol Gilles, Laigneau Françoise)() "".
- () "".
- ANA (Dedieu Maurice), CBNPMP (Bergès Christophe, Laigneau Françoise, Penin David), Georges Nicolas, Maugé Christian, PNR PA (Georges Nicolas, Séjalon Sophie)() "".
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- Anonyme() "".
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- CBNPMP (Bergès Christophe, Penin David)() "".
- ONF (Savoie Jean-Marie)() "".
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- ANA (Bertrand Alain, Duquesne Adrien)() "".
- Georges Nicolas, ISATIS (Tessier Marc), PNR PA (Séjalon Sophie)() "".
- ANA (Tessier Marc), CBNPMP (Corriol Gilles, Laigneau Françoise), ISATIS (Tessier Marc)() "".
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- ANA (Tessier Marc)() "".
- CBNPMP (Bergès Christophe, Laigneau Françoise, Penin David), ONF (Savoie Jean-Marie)() "".
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- ATEK (Bou Claude)() "".
- ANA (Dedieu Maurice), Maugé Christian, PNR PA (Georges Nicolas, Séjalon Sophie)() "".
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- CBNPMP (Laigneau Françoise), PNR PA (Séjalon Sophie), Georges Nicolas() "".

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- CBNPMP (Bergès Christophe, Laigneau Françoise), Cornic Yann, Georges Nicolas, PNR PA (Georges Nicolas, Séjalon Sophie)() "".
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- CBNPMP (Corriol Gilles, Laigneau Françoise), PNR PA (Georges Nicolas, Séjalon Sophie), Cornic Yann() "".
- CBNPMP (Bergès Christophe), Maugé Christian() "".
- CBNPMP (Laigneau Françoise), Maugé Christian() "".
- CBNPMP (Laigneau Françoise, Pichillou Simon), Cornic Yann() "".
- SHNAO (Demergès David)() "".
- ANA (Bertrand Alain, Garric Julien)() "".
- Georges Nicolas, PNR PA (Séjalon Sophie)() "".
- ANA (Tessier Marc), CBNPMP (Laigneau Françoise), Georges Nicolas, Maugé Christian, PNR PA (Georges Nicolas, Séjalon Sophie)() "".
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- Laboratoire EcoLab (UMR 5245) (Albre Jérôme), SHNAO (Demergès David)() "".
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- CBNPMP (Bergès Christophe)() "".
- ANA (Bertrand Alain), Laboratoire EcoLab (UMR 5245) (Albre Jérôme), SHNAO (Demergès David)() "".
- CBNPMP (Corriol Gilles, Laigneau Françoise, Pichillou Simon), Cornic Yann() "".
- ATEK (Lescher-Moutoue Françoise)() "".
- ANA (Duquesne Adrien, Garric Julien)() "".
- ANA (Tessier Marc), CBNPMP (Corriol Gilles, Laigneau Françoise), ISATIS (Tessier Marc), Maugé Christian() "".
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- ANA (Cadiran Pierre, Garric Julien), OGM() "".
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- Royaud Alain() "".
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- CBNPMP (Bergès Christophe, Laigneau Françoise), Georges Nicolas, Maugé Christian, PNR PA (Georges Nicolas, Séjalon Sophie)() "".
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- Georges Nicolas, Maugé Christian, PNR PA (Séjalon Sophie)() "".
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- ANA (Bertrand Alain, Cadiran Pierre, Duquesne Adrien, Vergne Julien), FDC 09 (Marty Évelyn), Nature Midi-Pyrénées (Annoyer Philippe, Danflous Samuel, Delmas Norbert), OGM() "".
- CBNPMP (Corriol Gilles, Laigneau Françoise), Maugé Christian() "".
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- CBNPMP (Laigneau Françoise), PNR PA (Georges Nicolas, Séjalon Sophie)() "".
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- CBNPMP (Bergès Christophe, Corriol Gilles, Laigneau Françoise), Georges Nicolas, PNR PA (Séjalon Sophie)() "".
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- ANA (Cadiran Pierre, Tessier Marc), ARIANE (De Munnik Nicolas), CBNPMP (Laigneau Françoise), Cornic Yann, ISATIS (Tessier Marc), Maugé Christian, PNR PA (Georges Nicolas, Séjalon Sophie)() "".
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- PNR PA (Georges Nicolas, Séjalon Sophie)() "".
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- CBNPMP (Bergès Christophe, Laigneau Françoise, Penin David), Georges Nicolas, PNR PA (Georges Nicolas, Séjalon Sophie)() "".
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- Maugé Christian, PNR PA (Georges Nicolas, Séjalon Sophie)() "".
- () "".
- CBNPMP (Corriol Gilles, Laigneau Françoise), Royaud Alain() "".
- ANA (Cadiran Pierre), FDC 09 (Marty Évelyn), Nature Midi-Pyrénées (Calas Jérôme, Pignon Fanny, Rombaut Cyril)() "".
- CBNPMP (Corriol Gilles, Laigneau Françoise), Cornic Yann() "".
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- EIP (Brustel Hervé)() "".
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- ANA (Cadiran Pierre)() "".
- CBNPMP (Corriol Gilles, Laigneau Françoise), Georges Nicolas, ISATIS (Tessier Marc), PNR PA (Séjalon Sophie)() "".
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- CBNPMP (Laigneau Françoise)() "".
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- ATEK (Rouch Raymond)() "".
- ARIANE (De Munnik Nicolas), Maugé Christian() "".
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- CBNPMP (Corriol Gilles, Laigneau Françoise), PNR PA (Georges Nicolas, Séjalon Sophie)() "".
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ZONES NATURELLES
D'INTÉRÊT ÉCOLOGIQUE,
FAUNISTIQUE ET FLORISTIQUE

LANDE DU TUCAU
(Identifiant national : 730012033)

(ZNIEFF continentale de type 1)

(Identifiant régional : 01070011)

Région en charge de la zone : Midi-Pyrénées
Rédacteur(s) : A.R.E.M.I.P., GUERBY, PARDE.

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1. DESCRIPTION

Date de création : 01/03/89
Date de modernisation : 01/03/89

1.1 Localisation administrative

- Ustou (INSEE : 09322)



1.2 Altitudes

Minimum (m) : 670
Maximum (m) : 750

1.3 Superficie

4,05 hectares

1.4 Liaisons écologiques avec d'autres ZNIEFF

Non renseigné

1.4 Commentaire général

Non renseigné

1.5 Compléments descriptif

1.5.1 Géomorphologie

Non renseigné

1.5.2 Activités humaines

- Chasse

1.5.3 Statut de propriété

- Propriété privée (personne physique)

1.5.4 Mesures de protection

Non renseigné

2. CRITERES D'INTERET DE LA ZONE

Patrimoniaux

Floristique
Phanérogames

3. CRITERES DE DELIMITATION DE LA ZONE

Non renseigné

4. FACTEURS INFLUENCANT L'EVOLUTION DE LA ZONE

Non renseigné

5. BILANS DES CONNAISSANCES - EFFORTs DE PROSPECTIONS

Aucun	Faible	Moyen	Bon
Mammifères			
Oiseaux			
Reptiles			
Amphibiens			
Insectes			
Autres Invertébrés			
Phanérogames			
Ptéridophytes			
Bryophytes			
Algues			
Champignons			
Lichens			
Habitats			

6. HABITATS

6.1 Habitats déterminants

CORINE BIOTOPE	Source	Surface (%)	Observation
3 Landes, fruticées, pelouses et prairies			

6.2 Habitats autres

CORINE BIOTOPE	Source	Surface (%)	Observation
4 FORETS			

6.3 Habitats périphériques

Non renseigné

7. ESPECES

7.1 Espèces déterminantes

* : Espèce en cours de validation taxonomique (Référentiel TAXREF)

Non renseigné

7.2 Espèces autres

* : Espèce en cours de validation taxonomique (Référentiel TAXREF)

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
Angiospermes	96695	*Erica tetralix L., 1753*							

7.3 Espèces à statut réglementé

Non renseigné

8. LIENS ESPECES ET HABITATS

Non renseigné

Date d'édition : 11/12/2013
http://inpn.mnhn.fr/zone/znieff/730012034

ZONES NATURELLES
D'INTÉRÊT ÉCOLOGIQUE,
FAUNISTIQUE ET FLORISTIQUE

BOIS DE FOUGAS ET BOIS DE L'ARRECH (Identifiant national : 730012034)

(ZNIEFF continentale de type 1)

(Identifiant régional : 01070007)

Région en charge de la zone : Midi-Pyrénées
Rédacteur(s) : A.R.E.M.I.P., PARDE.

1. DESCRIPTION 2
2. CRITERES D'INTERET DE LA ZONE 3
3. CRITERES DE DELIMITATION DE LA ZONE 3
4. FACTEUR INFLUENCANT L'EVOLUTION DE LA ZONE 3
5. BILAN DES CONNAISSANCES - EFFORT DE PROSPECTION 3
6. HABITATS 3
7. ESPECES 5
8. LIENS ESPECES ET HABITATS 6

1. DESCRIPTION

Date de création : 01/03/89
Date de modernisation : 01/03/89

1.1 Localisation administrative

- Ustou (INSEE : 09322)



1.2 Altitudes

Minimum (m) : 800
Maximum (m) : 1600

1.3 Superficie

530,75 hectares

1.4 Liaisons écologiques avec d'autres ZNIEFF

Non renseigné

1.4 Commentaire général

Non renseigné

1.5 Compléments descriptif

1.5.1 Géomorphologie

Non renseigné

1.5.2 Activités humaines

- Sylviculture
- Elevage

1.5.3 Statut de propriété

- Collectivité territoriale
- Propriété privée (personne physique)

1.5.4 Mesures de protection

Non renseigné

2. CRITERES D'INTERET DE LA ZONE

Patrimoniaux	Complémentaires
Faunistique Oiseaux	Paysager

3. CRITERES DE DELIMITATION DE LA ZONE

Non renseigné

4. FACTEURS INFLUENCANT L'EVOLUTION DE LA ZONE

Non renseigné

5. BILANS DES CONNAISSANCES - EFFORTs DE PROSPECTIONS

Aucun	Faible	Moyen	Bon
Mammifères			
Oiseaux			
Reptiles			
Amphibiens			
Insectes			
Autres Invertébrés			
Phanérogames			
Ptéridophytes			
Bryophytes			
Algues			
Champignons			
Lichens			
Habitats			

6. HABITATS

6.1 Habitats déterminants

CORINE BIOTOPE	Source	Surface (%)	Observation
4 FORETS			

6.2 Habitats autres

CORINE BIOTOPE	Source	Surface (%)	Observation
24 Eaux courantes			
3 Landes, fruticées, pelouses et prairies			
84.4 Bocages			

6.3 Habitats périphériques

Non renseigné

7. ESPECES

7.1 Espèces déterminantes

* : Espèce en cours de validation taxonomique (Référentiel TAXREF)

Non renseigné

7.2 Espèces autres

* : Espèce en cours de validation taxonomique (Référentiel TAXREF)

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
Mammifères	60658	*Martes martes (Linnaeus, 1758)*							
	60981	*Sus scrofa Linnaeus, 1758*							
Oiseaux	2964	*Tetrao urogallus Linnaeus, 1758*							
	3608	*Dryocopus martius (Linnaeus, 1758)*							
Angiospermes	97947	*Fagus sylvatica L., 1753*							
Gymnospermes	79319	*Abies alba Mill., 1768*							

7.3 Espèces à statut réglementé

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut de déterminance	Réglementation
Mammifères	60658	*Martes martes (Linnaeus, 1758)*	Autre	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
	60981	*Sus scrofa Linnaeus, 1758*	Autre	Liste des espèces de gibier dont la chasse est autorisée *(lien)*
Oiseaux	2964	*Tetrao urogallus Linnaeus, 1758*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
				Protection et commercialisation de certaines espèces d'oiseaux sur le territoire français national *(lien)*
	3608	*Dryocopus martius (Linnaeus, 1758)*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*

8. LIENS ESPECES ET HABITATS

Non renseigné

Date d'édition : 11/12/2013
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ZONES NATURELLES
D'INTÉRÊT ÉCOLOGIQUE,
FAUNISTIQUE ET FLORISTIQUE

BOIS DES ACEDIS , VALLEE D'OSSESE
(Identifiant national : 730012035)

(ZNIEFF continentale de type 1)

(Identifiant régional : 01070008)

Région en charge de la zone : Midi-Pyrénées
Rédacteur(s) : A.R.E.M.I.P., PARDE.

1. DESCRIPTION 2
2. CRITERES D'INTERET DE LA ZONE 3
3. CRITERES DE DELIMITATION DE LA ZONE 3
4. FACTEUR INFLUENCANT L'EVOLUTION DE LA ZONE 3
5. BILAN DES CONNAISSANCES - EFFORT DE PROSPECTION 3
6. HABITATS 3
7. ESPECES 5
8. LIENS ESPECES ET HABITATS 6

1. DESCRIPTION

Date de création : 01/03/89
Date de modernisation : 01/03/89

1.1 Localisation administrative

- Ustou (INSEE : 09322)



1.2 Altitudes

Minimum (m) : 745
Maximum (m) : 2000

1.3 Superficie

1610,67 hectares

1.4 Liaisons écologiques avec d'autres ZNIEFF

Non renseigné

1.4 Commentaire général

Non renseigné

1.5 Compléments descriptif

1.5.1 Géomorphologie

- Vallée

1.5.2 Activités humaines

- Sylviculture
- Elevage

1.5.3 Statut de propriété

- Collectivité territoriale
- Propriété privée (personne physique)

1.5.4 Mesures de protection

Non renseigné

2. CRITERES D'INTERET DE LA ZONE

Patrimoniaux	Complémentaires
Ecologique	Paysager
Faunistique	
Oiseaux	
Mammifères	

3. CRITERES DE DELIMITATION DE LA ZONE

Non renseigné

4. FACTEURS INFLUENCANT L'EVOLUTION DE LA ZONE

Non renseigné

5. BILANS DES CONNAISSANCES - EFFORTs DE PROSPECTIONS

Aucun	Faible	Moyen	Bon
Mammifères			
Oiseaux			
Reptiles			
Amphibiens			
Insectes			
Autres Invertébrés			
Phanérogames			
Ptéridophytes			
Bryophytes			
Algues			
Champignons			
Lichens			
Habitats			

6. HABITATS

6.1 Habitats déterminants

CORINE BIOTOPE	Source	Surface (%)	Observation
4 FORETS			

6.2 Habitats autres

CORINE BIOTOPE	Source	Surface (%)	Observation
3 Landes, fruticées, pelouses et prairies			

6.3 Habitats périphériques

Non renseigné

7. ESPECES

7.1 Espèces déterminantes

* : Espèce en cours de validation taxonomique (Référentiel TAXREF)

Non renseigné

7.2 Espèces autres

* : Espèce en cours de validation taxonomique (Référentiel TAXREF)

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
Mammifères	60658	*Martes martes (Linnaeus, 1758)*							
	60981	*Sus scrofa Linnaeus, 1758*							
	61119	*Rupicapra rupicapra (Linnaeus, 1758)*							
Oiseaux	2645	*Aquila chrysaetos (Linnaeus, 1758)*							
	2852	*Gypaetus barbatus (Linnaeus, 1758)*							
	2964	*Tetrao urogallus Linnaeus, 1758*							
	3608	*Dryocopus martius (Linnaeus, 1758)*							
Angiospermes	97947	*Fagus sylvatica L., 1753*							
Gymnospermes	79319	*Abies alba Mill., 1768*							

7.3 Espèces à statut réglementé

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut de déterminance	Réglementation
Mammifères	60658	*Martes martes (Linnaeus, 1758)*	Autre	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
	60981	*Sus scrofa Linnaeus, 1758*	Autre	Liste des espèces de gibier dont la chasse est autorisée *(lien)*
	61119	*Rupicapra rupicapra (Linnaeus, 1758)*	Autre	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
Oiseaux	2645	*Aquila chrysaetos (Linnaeus, 1758)*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	2852	*Gypaetus barbatus (Linnaeus, 1758)*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Interdiction de la perturbation intentionnelle du gypaète barbu *(lien)*
				Liste des espèces de vertébrés protégées menacées d'extinction en France et dont l'aire de répartition excède le territoire d'un département *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	2964	*Tetrao urogallus Linnaeus, 1758*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
				Protection et commercialisation de certaines espèces d'oiseaux sur le territoire français national *(lien)*
	3608	*Dryocopus martius (Linnaeus, 1758)*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*

8. LIENS ESPECES ET HABITATS

Non renseigné

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ZONES NATURELLES D'INTÉRÊT ÉCOLOGIQUE, FAUNISTIQUE ET FLORISTIQUE

CRETE DU PIC DE SOUBIROU ET PIC DE MARTERAT,FOND DU CIRQUE D'OSSESE (Identifiant national : 730012036)

(ZNIEFF continentale de type 1)

(Identifiant régional : 01070009)

Région en charge de la zone : Midi-Pyrénées
Rédacteur(s) : A.R.E.M.I.P., PARDE.

1. DESCRIPTION 2
2. CRITERES D'INTERET DE LA ZONE 3
3. CRITERES DE DELIMITATION DE LA ZONE 3
4. FACTEUR INFLUENCANT L'EVOLUTION DE LA ZONE 3
5. BILAN DES CONNAISSANCES - EFFORT DE PROSPECTION 3
6. HABITATS 3
7. ESPECES 5
8. LIENS ESPECES ET HABITATS 6

1. DESCRIPTION

Date de création : 01/03/89
Date de modernisation : 01/03/89

1.1 Localisation administrative

- Couflens (INSEE : 09100)
- Ustou (INSEE : 09322)



1.2 Altitudes

Minimum (m) : 1600
Maximum (m) : 2662

1.3 Superficie

1872,84 hectares

1.4 Liaisons écologiques avec d'autres ZNIEFF

Non renseigné

1.4 Commentaire général

Non renseigné

1.5 Compléments descriptif

1.5.1 Géomorphologie

Non renseigné

1.5.2 Activités humaines

- Elevage

1.5.3 Statut de propriété

- Collectivité territoriale

1.5.4 Mesures de protection

Non renseigné

2. CRITERES D'INTERET DE LA ZONE

Patrimoniaux

Ecologique
Faunistique
Oiseaux
Mammifères
Floristique
Phanérogames

Complémentaires

Paysager

3. CRITERES DE DELIMITATION DE LA ZONE

Non renseigné

4. FACTEURS INFLUENCANT L'EVOLUTION DE LA ZONE

Non renseigné

5. BILANS DES CONNAISSANCES - EFFORTs DE PROSPECTIONS

Aucun	Faible	Moyen	Bon
Mammifères			
Oiseaux			
Reptiles			
Amphibiens			
Insectes			
Autres Invertébrés			
Phanérogames			
Ptéridophytes			
Bryophytes			
Algues			
Champignons			
Lichens			
Habitats			

6. HABITATS

6.1 Habitats déterminants

CORINE BIOTOPE	Source	Surface (%)	Observation
3 Landes, fruticées, pelouses et prairies			

6.2 Habitats autres

CORINE BIOTOPE	Source	Surface (%)	Observation
24 Eaux courantes			
62 Falaises continentales et rochers exposés			
65 Grottes			
86.41 Carrières			

6.3 Habitats périphériques

Non renseigné

7. ESPECES

7.1 Espèces déterminantes

* : Espèce en cours de validation taxonomique (Référentiel TAXREF)

Non renseigné

7.2 Espèces autres

* : Espèce en cours de validation taxonomique (Référentiel TAXREF)

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
Mammifères	60686	*Mustela erminea Linnaeus, 1758*							
	61119	*Rupicapra rupicapra (Linnaeus, 1758)*							
Oiseaux	2645	*Aquila chrysaetos (Linnaeus, 1758)*							
	2852	*Gypaetus barbatus (Linnaeus, 1758)*							
	2860	*Gyps fulvus (Hablizl, 1783)*							
	2951	*Lagopus mutus (Montin, 1776)*							
	2989	*Perdix perdix (Linnaeus, 1758)*							
	3984	*Prunella collaris (Scopoli, 1769)*							
	4064	*Oenanthe oenanthe (Linnaeus, 1758)*							
	4112	*Turdus torquatus Linnaeus, 1758*							
	4485	*Pyrrhocorax graculus (Linnaeus, 1766)*							
	4488	*Pyrrhocorax pyrrhocorax (Linnaeus, 1758)*							
Angiospermes	122651	*Senecio leucophyllus DC., 1813*							

7.3 Espèces à statut réglementé

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut de déterminance	Réglementation
Mammifères	60686	*Mustela erminea Linnaeus, 1758*	Autre	Liste des espèces de gibier dont la chasse est autorisée *(lien)*
	61119	*Rupicapra rupicapra (Linnaeus, 1758)*	Autre	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
Oiseaux	2645	*Aquila chrysaetos (Linnaeus, 1758)*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	2852	*Gypaetus barbatus (Linnaeus, 1758)*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Interdiction de la perturbation intentionnelle du gypaète barbu *(lien)*
				Liste des espèces de vertébrés protégées menacées d'extinction en France et dont l'aire de répartition excède le territoire d'un département *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	2860	*Gyps fulvus (Hablizl, 1783)*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	2951	*Lagopus mutus (Montin, 1776)*	Autre	Liste des espèces de gibier dont la chasse est autorisée *(lien)*
				Protection et commercialisation de certaines espèces d'oiseaux sur le territoire français national *(lien)*
	2989	*Perdix perdix (Linnaeus, 1758)*	Autre	Liste des espèces de gibier dont la chasse est autorisée *(lien)*
				Protection et commercialisation de certaines espèces d'oiseaux sur le territoire français national *(lien)*
	3984	*Prunella collaris (Scopoli, 1769)*	Autre	Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	4064	*Oenanthe oenanthe (Linnaeus, 1758)*	Autre	Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	4112	*Turdus torquatus Linnaeus, 1758*	Autre	Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	4485	*Pyrrhocorax graculus (Linnaeus, 1766)*	Autre	Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	4488	*Pyrrhocorax pyrrhocorax (Linnaeus, 1758)*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*

8. LIENS ESPECES ET HABITATS

Non renseigné

Muséum national d'Histoire naturelle

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http://inpn.mnhn.fr/zone/znieff/730012042

znieff ZONES NATURELLES D'INTÉRÊT ÉCOLOGIQUE, FAUNISTIQUE ET FLORISTIQUE

Bois de Mirabat, d´Oust et du Picou de Géu (Identifiant national : 730012042)

(ZNIEFF continentale de type 1)

(Identifiant régional : Z2PZ0418)

Région en charge de la zone : Midi-Pyrénées
Rédacteur(s) : Brousseau Cécile (Association des naturalistes de l'Ariège - Espaces naturels d'Ariège)



1. DESCRIPTION 2
2. CRITERES D'INTERET DE LA ZONE 3
3. CRITERES DE DELIMITATION DE LA ZONE 3
4. FACTEUR INFLUENCANT L'EVOLUTION DE LA ZONE 4
5. BILAN DES CONNAISSANCES - EFFORT DE PROSPECTION 4
6. HABITATS 4
7. ESPECES 6
8. LIENS ESPECES ET HABITATS 8
9. SOURCES 8

1. DESCRIPTION

1.1 Localisation administrative

- Aulus-les-Bains (INSEE : 09029)
- Ercé (INSEE : 09113)
- Oust (INSEE : 09223)
- Seix (INSEE : 09285)
- Ustou (INSEE : 09322)

1.2 Altitudes

Minimum (m) : 641
Maximum (m) : 1653

1.3 Superficie

1670,39 hectares

1.4 Liaisons écologiques avec d'autres ZNIEFF

Non renseigné

1.5 Commentaire général

La ZNIEFF du « bois de Mirabat, d'Oust et du Picou de Géu » correspond à la partie sommitale du petit massif forestier le Picou / Tuc de l'Adosse (1 653 m), dans le Couserans. Elle est dominée par les paysages forestiers : hêtraies, hêtraies-sapinières et plantations de résineux. Elle correspond à un massif calcaire avec un réseau karstique. Les pentes sont assez abruptes. À l'est du zonage, une zone de moindre altitude avec un petit plateau accueille des zones de prairies de fauche plus ou moins abandonnées, mais le paysage offre encore une structure bocagère avec un réseau de haies assez développé. En dehors des parties boisées, on observe une diversité de milieux : milieux rocheux (falaises, éboulis, roches affleurantes), landes et pelouses sèches plus ou moins rocailleuses. De par la nature géologique de la zone, les grottes et cavités sont assez nombreuses.
La ZNIEFF accueille de façon ponctuelle des complexes de micro-habitats tourbeux et humides d'un grand intérêt (buttes à sphaignes, prairies humides et mégaphorbiaies). Outre leur intérêt en tant qu'habitats et habitats d'espèces, ces milieux jouent un rôle important d'un point de vue fonctionnel : atténuation des effets de crues par stockage d'eau, ralentissement des ruissellements de surface, et ce d'autant plus en complexe calcaire. Les autres habitats intéressants le sont plus en tant qu'habitats d'espèces que vis à vis de leur valeur patrimoniale intrinsèque. Il s'agit des milieux rocheux, des grottes et cavités, et des habitats forestiers qui sont des habitats pour des espèces à fort intérêt patrimonial et parfois marquées par un fort endémisme.
Au niveau de la flore, les espèces d'intérêt sont principalement des espèces de milieux rocheux comme la Campanule remarquable (Campanula speciosa) ou la Saxifrage de Burser (Saxifraga aretioides), et des espèces de milieux humides comme le Trèfle d'eau (Menyanthes trifolia), l'Épipactis des marais (Epipactis palustris), ou encore des sphaignes. Pour la faune, les enjeux reposent essentiellement sur l'avifaune avec la présence du Grand Tétras (Tetrao urogallus) et de la Perdrix grise de montagne (Perdix perdix hispanicus), tous deux nicheurs sur les zones les plus hautes de la ZNIEFF. Le Faucon pèlerin (Falco peregrinus) est aussi nicheur dans les zones de falaises. Ces espèces sont inscrites à la directive « Oiseaux ». Des mollusques à aire de répartition réduite (Cochlostoma obscurum obscurum, Abida pyrenaica vergniesiana, etc.) sont bien représentés dans cette zone. Enfin, la faune cavernicole est également riche avec des taxons eux aussi rares et localisés (coléoptères du genre Aphaenops).

1.6 Compléments descriptif

1.6.1 Géomorphologie

- Ruisseau, torrent
- Affleurement rocheux
- Falaise continentale
- Karst
- Vallon
- Eboulis
- Montagne
- Sommet
- Escarpement, versant pentu

- Grotte

Commentaire sur la géomorphologie

aucun commentaire

1.6.2 Activités humaines

- Agriculture
- Elevage
- Chasse
- Tourisme et loisirs
- Habitat dispersé

Commentaire sur les activités humaines

aucun commentaire

1.6.3 Statut de propriété

Non renseigné

Commentaire sur le statut de propriété

aucun commentaire

1.6.4 Mesures de protection

- Parc Naturel Régional

Commentaire sur les mesures de protection

aucun commentaire

2. CRITERES D'INTERET DE LA ZONE

Patrimoniaux	Fonctionnels	Complémentaires
Ecologique	Ralentissement du ruissellement	Paysager
Invertébrés (sauf insectes)	Role naturel de protection contre l'érosion des sols	Archéologique
Insectes	Fonction d'habitat pour les populations animales ou végétales	Historique
Oiseaux	Zone particulière d'alimentation	
Bryophytes	Zone particulière liée à la reproduction	
Phanérogames		

Commentaire sur les intèrêts

aucun commentaire

3. CRITERES DE DELIMITATION DE LA ZONE

- Répartition des espèces (faune, flore)
- Répartition et agencement des habitats
- Fonctionnement et relation d'écosystèmes
- Contraintes du milieu physique

Commentaire sur les critères de délimitation de la zone

La ZNIEFF du « bois de Mirabat, d'Oust et du Picou de Géu » correspond à la partie haute (à partir de 1 100 m) du massif calcaire constitué du pic du Picou, du Tuc d'Adosse et d'autres petits sommets, les contours intégrant les aires de présence du Grand Tétras et de la Perdrix grise de montagne. Une zone de moindre altitude à l'est s'arrêtant au ruisseau du Gabet et constituée d'un petit plateau bocager et de petits sommets vient compléter cette ZNIEFF de par la présence d'enjeux naturels importants (zones humides et tourbeuses, insectes cavernicoles, gastéropodes endémiques, Faucon pèlerin...).

4. FACTEURS INFLUENCANT L'EVOLUTION DE LA ZONE

FACTEUR	Pontentiel / Réel
Pollutions et nuisances	
Débroussaillage, suppression des haies et des bosquets, remembrement et travaux connexes	
Pâturage	
Abandons de systèmes culturaux et pastoraux, apparition de friches	
Fermeture du milieu	

Commentaire sur les facteurs

aucun commentaire

5. BILANS DES CONNAISSANCES - EFFORTS DES PROSPECTIONS

Aucun	Faible	Moyen	Bon
- Reptiles	- Mammifères	- Oiseaux	
- Amphibiens	- Bryophytes		
- Poissons			
- Insectes			
- Autres Invertébrés			
- Phanérogames			
- Ptéridophytes			
- Algues			
- Champignons			
- Lichens			
- Habitats			

6. HABITATS

6.1 Habitats déterminants

CORINE BIOTOPE	Source	Surface (%)	Observation
24 Eaux courantes		1	
37 Prairies humides et mégaphorbiaies		3	
411		60	
42 Forêts de conifères		10	
51 Tourbières hautes		1	

CORINE BIOTOPE	Source	Surface (%)	Observation
5111		0	
62 Falaises continentales et rochers exposés		1	
65 Grottes		1	
8331		4	

6.2 Habitats autres

CORINE BIOTOPE	Source	Surface (%)	Observation
3182		1	
3186		1	
3188		1	
34 Pelouses calcicoles sèches et steppes		5	
38 Prairies mésophiles		5	
61 Eboulis		1	
844		1	
862		1	
8641		1	
88 Mines et passages souterrains		1	

6.3 Habitats périphériques

Non renseigné

6.4 Commentaire sur les habitats

aucun commentaire

7. ESPECES

7.1 Espèces déterminantes

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
Gastéropodes	162685	*Cochlostoma obscurum obscurum (Draparnaud, 1805)*			Informateur : Anonyme		1	1	1993 - 2005
	162690	*Cochlostoma nouleti (Dupuy, 1851)*			Informateur : Anonyme		1	1	1993 - 2005
	199831	*Abida pyrenaearia (Michaud, 1831)*			Informateur : Anonyme		1	1	1993 - 2005
Insectes	458967	*Aphaenops delbreili Genest, 1983*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	2002 - 2002
Oiseaux	2938	*Falco peregrinus Tunstall, 1771*	Occasionnelle	Reproducteur	Informateur : ANA (Garric Julien), Nature Midi-Pyrénées (Fremaux Sylvain)		2	2	1995 - 2005
	2966	*Tetrao urogallus aquitanicus Ingram, 1915*		Reproducteur	Informateur : OGM		1	1	2005 - 2005
	2992	*Perdix perdix hispaniensis Reichenow, 1892*		Reproducteur	Informateur : FDC 09 (Marty Évelyn), OGM		1	1	1998 - 2005
Angiospermes	89264	*Carum verticillatum (L.) W.D.J.Koch, 1824*			Informateur : CBNPMP (Laigneau Françoise)				2008 - 2008
	96465	*Epipactis palustris (L.) Crantz, 1769*			Informateur : ANA (Dedieu Maurice)	Moyen	1	10	1997 - 1997
	108345	*Menyanthes trifoliata L., 1753*			Informateur : CBNPMP (Laigneau Françoise)				2008 - 2008
	120977	*Saxifraga aretioides Lapeyr., 1801*			Informateur : CBNPMP (Laigneau Françoise)				2008 - 2008
	128491	*Valerianella rimosa Bastard, 1814*			Informateur : Maugé Christian				2005 - 2005
	132527	*Campanula speciosa Pourr. subsp. speciosa*			Informateur : CBNPMP (Corriol Gilles)		1	10	2008 - 2008

7.2 Espèces autres

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
Angiospermes	87545	*Calycocorsus stipitatus (Jacq.) Rauschert, 1966*			Informateur : CBNPMP (Laigneau Françoise)	Fort			2008 - 2008
	96165	*Epilobium duriaei J.Gay ex Godr., 1849*			Informateur : CBNPMP (Laigneau Françoise)	Fort			2008 - 2008
	98086	*Festuca auquieri Kerguélen, 1979*			Informateur : CBNPMP (Corriol Gilles)		1	10	2008 - 2008

7.3 Espèces à statut réglementé

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut de déterminance	Réglementation
Oiseaux	2938	*Falco peregrinus Tunstall, 1771*	Déterminante	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	2966	*Tetrao urogallus aquitanicus Ingram, 1915*	Déterminante	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
				Protection et commercialisation de certaines espèces d'oiseaux sur le territoire français national *(lien)*
	2992	*Perdix perdix hispaniensis Reichenow, 1892*	Déterminante	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
				Protection et commercialisation de certaines espèces d'oiseaux sur le territoire français national *(lien)*

8. LIENS ESPECES ET HABITATS

Non renseigné

9. SOURCES

- () "".
- () "".
- Laboratoire EcoLab (UMR 5245)() "".
- Maugé Christian() "".
- () "".
- () "".
- () "".
- Anonyme() "".
- () "".
- ANA (Garric Julien), Nature Midi-Pyrénées (Fremaux Sylvain)() "".
- () "".
- CBNPMP (Corriol Gilles)() "".
- OGM() "".
- CBNPMP (Laigneau Françoise)() "".
- ANA (Dedieu Maurice)() "".
- () "".
- () "".
- () "".
- FDC 09 (Marty Évelyn), OGM() "".
- () "".

Muséum national d'Histoire naturelle

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http://inpn.mnhn.fr/zone/znieff/730012048

znieff ZONES NATURELLES D'INTÉRÊT ÉCOLOGIQUE, FAUNISTIQUE ET FLORISTIQUE

MASSIF DU PIC DE CERTESCANS
(Identifiant national : 730012048)

(ZNIEFF continentale de type 2)

(Identifiant régional : 01070000)

Région en charge de la zone : Midi-Pyrénées
Rédacteur(s) : A.R.E.M.I.P., PARDE.

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2. CRITERES D'INTERET DE LA ZONE 3
3. CRITERES DE DELIMITATION DE LA ZONE 3
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1. DESCRIPTION

Date de création : 01/02/89
Date de modernisation : 01/02/89

1.1 Localisation administrative

- Aulus-les-Bains (INSEE : 09029)
- Couflens (INSEE : 09100)
- Ustou (INSEE : 09322)



1.2 Altitudes

Minimum (m) : 570
Maximum (m) : 2860

1.3 Superficie

30349,92 hectares

1.4 Liaisons écologiques avec d'autres ZNIEFF

Non renseigné

1.4 Commentaire général

Non renseigné

1.5 Compléments descriptif

1.5.1 Géomorphologie

- Montagne

1.5.2 Activités humaines

- Sylviculture
- Elevage
- Chasse

1.5.3 Statut de propriété

- Collectivité territoriale

- Propriété privée (personne physique)

1.5.4 Mesures de protection

Non renseigné

2. CRITERES D'INTERET DE LA ZONE

Patrimoniaux	Complémentaires
Ecologique	Paysager
Faunistique	
Amphibiens	
Reptiles	
Oiseaux	
Mammifères	
Floristique	
Bryophytes	
Ptéridophytes	
Phanérogames	

3. CRITERES DE DELIMITATION DE LA ZONE

Non renseigné

4. FACTEURS INFLUENCANT L'EVOLUTION DE LA ZONE

Non renseigné

5. BILANS DES CONNAISSANCES - EFFORTs DE PROSPECTIONS

Aucun	Faible	Moyen	Bon
Mammifères			
Oiseaux			
Reptiles			
Amphibiens			
Insectes			
Autres Invertébrés			
Phanérogames			
Ptéridophytes			
Bryophytes			
Algues			
Champignons			
Lichens			
Habitats			

6. HABITATS

6.1 Habitats déterminants

CORINE BIOTOPE	Source	Surface (%)	Observation
3 Landes, fruticées, pelouses et prairies			

6.2 Habitats autres

CORINE BIOTOPE	Source	Surface (%)	Observation
22 Eaux douces stagnantes			
24 Eaux courantes			
4 FORETS			
62 Falaises continentales et rochers exposés			
65 Grottes			
81 Prairies améliorées			
82 Cultures			
86.41 Carrières			

6.3 Habitats périphériques

Non renseigné

7. ESPECES

7.1 Espèces déterminantes

* : Espèce en cours de validation taxonomique (Référentiel TAXREF)

Non renseigné

7.2 Espèces autres

* : Espèce en cours de validation taxonomique (Référentiel TAXREF)

Non renseigné

7.3 Espèces à statut réglementé

Non renseigné

8. LIENS ESPECES ET HABITATS

Non renseigné

Muséum national d'Histoire naturelle

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http://inpn.mnhn.fr/zone/znieff/730012050

znieff ZONES NATURELLES D'INTÉRÊT ÉCOLOGIQUE, FAUNISTIQUE ET FLORISTIQUE

Massif du Mont Valier (Identifiant national : 730012050)

(ZNIEFF continentale de type 1)

(Identifiant régional : Z2PZ0441)

Région en charge de la zone : Midi-Pyrénées
Rédacteur(s) : Bonneil Philippe (Parc naturel régional des Pyrénées ariégeoises)



1. DESCRIPTION 2
2. CRITERES D'INTERET DE LA ZONE 4
3. CRITERES DE DELIMITATION DE LA ZONE 4
4. FACTEUR INFLUENCANT L'EVOLUTION DE LA ZONE 4
5. BILAN DES CONNAISSANCES - EFFORT DE PROSPECTION 5
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7. ESPECES 7
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1. DESCRIPTION

1.1 Localisation administrative

- Arrien-en-Bethmale (INSEE : 09017)
- Bethmale (INSEE : 09055)
- Bonac-Irazein (INSEE : 09059)
- Bordes-sur-Lez (INSEE : 09062)
- Couflens (INSEE : 09100)
- Seix (INSEE : 09285)
- Sentenac-d'Oust (INSEE : 09291)
- Uchentein (INSEE : 09317)
- Ustou (INSEE : 09322)

1.2 Altitudes

Minimum (m) : 516
Maximum (m) : 2817

1.3 Superficie

18785,2 hectares

1.4 Liaisons écologiques avec d'autres ZNIEFF

Non renseigné

1.5 Commentaire général

Le massif du mont Valier, situé sur la zone axiale de la chaîne pyrénéenne, abrite un ensemble de milieux, une faune et une flore typiques des zones de montagnes des Pyrénées centrales. Un peu plus de 18 000 ha sont inventoriés en ZNIEFF de type 1. La zone s'échelonne de 510 à 2 868 m d'altitude. Le climat est de type montagnard à régime atlantique avec des précipitations annuelles de plus de 1 000 mm, l'ensemble étant modulé par le relief et l'altitude. Au niveau géologique, on observe une alternance de faciès pélitiques, schisteux et calcaires. Le fort gradient altitudinal, associé aux diversités topographiques, lithologiques et climatiques, engendre une grande diversité de paysages et de milieux. L'étage collinéen correspond aux prairies de fauche et aux prairies pâturées, dont l'abandon entraîne la transformation progressive en landes à fougères et en taillis de Noisetier. On y rencontre également des frênaies-chênaies de bas de versants humides, en bordure des cours d'eau. L'étage montagnard est essentiellement forestier avec des hêtraies pures majoritaires et quelques sapinières. La limite supérieure de la forêt voit l'apparition d'une frange de bouleaux, de landes à callunes et à genêts ainsi que de landes à myrtilles. L'étage subalpin est marqué par la dominance des landes et des pelouses. Cette zone est marquée par la présence d'un pâturage extensif favorisant le maintien des pelouses. À l'étage alpin, les combes à neige présentent des communautés végétales originales différentes selon la nature du substrat calcaire ou schisteux. Les falaises et les éboulis sont aussi très présents sur la zone. Au niveau des milieux, l'intérêt de la zone est important. On y retrouve de nombreux habitats d'importance communautaire européenne (directive « Habitats ») avec notamment : des sources pétrifiantes avec dépôt de calcaire, abritant une communauté végétale très spécialisée, dominée par les bryophytes (habitat jugé prioritaire pour sa conservation au niveau européen) ; des habitats forestiers comme la hêtraie acidiphile très répandue et la hêtraie calcicole à l'étage montagnard, la forêt de pins à crochets qui est devenu rare en Ariège ; des landes à Rhododendron et des landes à callunes et à genêts largement répandues aux étages montagnards et subalpins, ainsi que des landes à Myrtille et des landes à genévriers ; des pelouses dominées par le Brachypode penné (Brachypodium pinnatum) sur de grandes surfaces de l'étage montagnard en exposition bien ensoleillée, des pelouses à Gispet (Festuca eskia) bien représentées aux étages subalpins et alpins, des pelouses alpines calcaires à Elyna et Laîche toujours verte (Carex sempervirens) aux étages subalpins et alpins et, moins répandues, des pelouses à Canche flexueuse (Deschampsia flexuosa) et Nard raide (Nardus stricta) (habitat jugé prioritaire pour sa conservation au niveau européen lorsqu'il est riche en espèces) ; des mégaphorbiaies à la végétation luxuriante le long de certains cours d'eau et au niveau des zones humides ; quelques prairies de fauche aux étages collinéen et montagnard inférieur, avec une tendance à l'abandon ; des habitats rocheux bien représentés avec des éboulis et des falaises siliceux et calcaires ; des cavités et grottes abritant une faune cavernicole intéressante.
Sur le plan botanique, on retrouve de nombreuses espèces remarquables dont une bryophyte protégée au niveau européen (annexe II de la directive « Habitats ») : la Buxbaumie verte (Buxbaumia viridis), espèce sapro-lignicole rare au niveau mondial, et tout un cortège de sphaignes (Sphagnum denticulatum, Sphagnum fallax, Sphagnum palustre, Sphagnum papillosum, Sphagnum quinquefarium, Sphagnum subnitens et Sphagnum tenellum). Parmi les espèces protégées au niveau national, on observe le Lycopode des Alpes (Diphasiastrum alpinum), le Rossolis à feuilles rondes (Drosera rotundifolia) et le Géranium cendré (Geranium cinereum). Quelques espèces sont protégées au niveau régional : la Gymnadénie odorante (Gymnadenia

odoratissima), le Myosotis des Pyrénées (Myosotis corsicana subsp. pyrenaearum), la Fétuque de Bordère (Festuca borderei), la Pédiculaire rose (Pedicularis rosea), la Saxifrage intermédiaire (Saxifraga media) et le Pigamon à gros fruits (Thalictrum macrocarpum). Sur le plan faunistique, la zone est riche en espèces montagnardes et endémiques des Pyrénées. Plusieurs sont inscrites au titre de la directive « Habitats » (annexes II, IV ou V). Parmi les mammifères, on observe le Desman des Pyrénées, indicateur de la qualité des cours d'eau, ainsi que plusieurs espèces de chauves-souris sensibles au dérangement. Sur le plan ornithologique, la zone présente une grande richesse d'espèces montagnardes dont un certain nombre est protégé au niveau national ou international et d'importance au niveau européen. Parmi celles-ci, on peut notamment observer des espèces de rapaces comme le Faucon pèlerin, le Grand-duc d'Europe, l'Aigle royal et le Vautour fauve dont la zone est importante pour leur conservation. Parmi les rapaces, on retrouve également la Bondrée apivore (non déterminant), le Circaète Jean-le-Blanc et le Busard Saint-Martin dont les effectifs sont à surveiller en France. Plusieurs espèces de galliformes de montagne sont observées comme le Grand Tétras, le Lagopède alpin et la Perdrix grise de montagne. Le Pic noir et la Chouette de Tengmalm sont présents dans les forêts anciennes et les zones à vieux arbres de l'étage montagnard. Des passereaux des milieux montagnard et rocheux se rencontrent aussi, comme le Merle à plastron (non déterminant) et le Monticole de roche. La zone est également riche en insectes. On retrouve des espèces protégées nationalement et/ou inscrites au titre de la directive « Habitats », comme la sous-espèce pyrénéenne de l'Apollon (Parnassius apollo pyrenaica), la Rosalie des Alpes (Rosalia alpina), dont la conservation est jugée prioritaire au niveau européen, ainsi que plusieurs espèces de coléoptères cavernicoles du genre Aphaenops entre autres. Les facteurs d'évolution de la zone sont principalement : la diminution des pratiques agropastorales avec l'abandon des prairies de fauche et la diminution des surfaces pâturées avec une évolution vers des faciès à landes ; l'augmentation de la fréquentation touristique avec un piétinement exagéré sur certains secteurs, la cueillette excessive...

1.6 Compléments descriptif

1.6.1 Géomorphologie

- Source, résurgence
- Ruisseau, torrent
- Talweg
- Falaise continentale
- Eboulis
- Montagne
- Sommet
- Crête
- Escarpement, versant pentu
- Cuvette

Commentaire sur la géomorphologie

aucun commentaire

1.6.2 Activités humaines

- Elevage
- Pêche
- Chasse
- Tourisme et loisirs
- Activités hydroélectriques, barrages
- Gestion conservatoire

Commentaire sur les activités humaines

aucun commentaire

1.6.3 Statut de propriété

- Propriété privée (personne physique)
- Domaine communal
- Domaine privé de l'état

Commentaire sur le statut de propriété

aucun commentaire

1.6.4 Mesures de protection

- Parc Naturel Régional
- Zone Spéciale de Conservation (Directive Habitat)
- Zone de Protection Spéciale (Directive Oiseaux)

Commentaire sur les mesures de protection

aucun commentaire

2. CRITERES D'INTERET DE LA ZONE

Patrimoniaux	Fonctionnels	Complémentaires
Ecologique	Ralentissement du ruissellement	Paysager
Insectes	Role naturel de protection contre	Géologique
Oiseaux	l'érosion des sols	Scientifique
Mammifères	Corridor écologique, zone de	Pédagogique ou autre (préciser)
Champignons	passages, zone d'échanges	
Lichens	Zone particulière d'alimentation	
Bryophytes	Zone particulière liée à la	
Phanérogames	reproduction	

Commentaire sur les intèrêts

aucun commentaire

3. CRITERES DE DELIMITATION DE LA ZONE

- Répartition des espèces (faune, flore)
- Répartition et agencement des habitats
- Contraintes du milieu physique

Commentaire sur les critères de délimitation de la zone

D'un point de vue géographique, la zone s'étend sur l'ensemble du massif du mont Valier, sur la zone axiale de la chaîne pyrénéenne. Au sud, elle est délimitée par la crête frontière avec le val d'Aran, au nord les ruisseaux de Balamet et d'Esbonts. Elle s'étend à l'ouest jusqu'à la vallée de l'Orle sur la commune de Bonac-Irazein, et à l'est jusqu'à la vallée du Salat sur les communes de Couflens et de Seix. L'ensemble de la zone fait l'objet d'un réseau dense de données déterminantes d'habitats, de flore et de faune.

4. FACTEURS INFLUENCANT L'EVOLUTION DE LA ZONE

FACTEUR	Pontentiel / Réel
Abandons de systèmes culturaux et pastoraux, apparition de friches	
Pratiques liées aux loisirs	
Gestion des populations	
Limitations, tirs sélectifs	
Gestion des habitats pour l'accueil et l'information du public	
Fermeture du milieu	

Commentaire sur les facteurs

aucun commentaire

5. BILANS DES CONNAISSANCES - EFFORTS DES PROSPECTIONS

Aucun	Faible	Moyen	Bon
- Poissons		- Bryophytes	- Mammifères
- Insectes		- Champignons	- Oiseaux
- Autres Invertébrés			- Reptiles
- Ptéridophytes			- Amphibiens
- Algues			- Phanérogames
- Lichens			- Habitats

6. HABITATS

6.1 Habitats déterminants

CORINE BIOTOPE	Source	Surface (%)	Observation
31215	Informateur : ONF Midi-Pyrénées	3	2001 - 2001
36314	Informateur : ONF Midi-Pyrénées	5	2001 - 2001
364112	Informateur : CBNPMP (Laigneau Françoise), ONF Midi-Pyrénées	2	2001 - 2001
3652		0	
3783	Informateur : CBNPMP (Laigneau Françoise), ONF Midi-Pyrénées, PNR PA (Séjalon Sophie), Georges Nicolas	1	2001 - 2002
383	Informateur : ONF Midi-Pyrénées	4	2001 - 2001
4122	Informateur : CBNPMP (Laigneau Françoise), ONF Midi-Pyrénées (Savoie Jean-Marie)	3	1991 - 1991
42413	Informateur : ONF Midi-Pyrénées	1	2001 - 2001
4b	Informateur : Nature Midi-Pyrénées (Celle Jaoua)	1	2006 - 2006
5412	Informateur : ANA (Duquesne Adrien)	0	1997 - 1997
5424	Informateur : CBNPMP (Laigneau Françoise)	0	2008 - 2008
6134	Informateur : ARIANE (De Munnik Nicolas), CBNPMP (Laigneau Françoise), ONF Midi-Pyrénées, PNR PA (Georges Nicolas, Séjalon Sophie)	4	2001 - 2003
6212	Informateur : CBNPMP (Laigneau Françoise), ONF Midi-Pyrénées, PNR PA (Séjalon Sophie), Georges Nicolas	2	2001 - 2004
65 Grottes		0	

6.2 Habitats autres

CORINE BIOTOPE	Source	Surface (%)	Observation
31226		10	
3141		0	
3142		10	
31872		1	
31882		1	
318C		2	
34323		6	
3513		1	
36311		1	
3633		1	
3641		1	
3642		1	
3731		0	
3788		0	
4112		9	
4114		3	
4116		3	
4141		1	
42424		0	
4243		0	
5411		0	
5442		0	
6111		4	
6221		2	

6.3 Habitats périphériques

Non renseigné

6.4 Commentaire sur les habitats

aucun commentaire

7. ESPECES

7.1 Espèces déterminantes

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
Amphibiens	197	*Alytes obstetricans (Laurenti, 1768)*	Occasionnelle		Informateur : ANA (Vergne Julien), ECODIV (Muratet Jean)		1	10	2002 - 2005
	444427	*Calotriton asper (Dugès, 1852)*	Occasionnelle		Informateur : ANA (Bertrand Alain, Delmas Carine, Delmas Claudine, Duquesne Adrien, Vergne Julien), ECODIV (Muratet Jean)		1	32	1985 - 2006
	444432	*Lissotriton helveticus (Razoumowsky, 1789)*	Occasionnelle		Informateur : ECODIV (Muratet Jean)		1	1	2002 - 2002
Crustacés	237157	*Oritoniscus intermedius Vandel, 1957*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	1996 - 1996
	237165	*Oritoniscus remyi Dalens, 1964*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	1973 - 1996
Entognathes	215880	*Monobella cassagnaui Deharveng, 1981*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	1981 - 1981
	215886	*Monobella pyrenaica (Deharveng, 1979)*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	1979 - 1986
	216168	*Tetracanthella bipartita Cassagnau, 1959*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	1987 - 1987
	216193	*Tetracanthella uniseta Deharveng, 1987*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	1987 - 1987
	216254	*Pseudosinella subduodecima Gisin & da Gama, 1970*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	1984 - 1984
Gastéropodes	162685	*Cochlostoma obscurum obscurum (Draparnaud, 1805)*			Informateur : Anonyme		1	1	1993 - 2005
	162690	*Cochlostoma nouleti (Dupuy, 1851)*			Informateur : Anonyme		1	1	1993 - 2005

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	162728	*Moitessieria fontsaintei Bertrand, 2001*			Informateur : Anonyme		1	1	1993 - 2005
	199831	*Abida pyrenaearia (Michaud, 1831)*			Informateur : Anonyme		1	1	1993 - 2005
	336326	*Pyrenaearia carascalopsis (Fagot, 1884)*			Informateur : Anonyme		1	1	1993 - 2005
Insectes	7922	*Thymalus limbatus*			Informateur : EIP (Brustel Hervé, Valladares Lionel)		2	2	2004 - 2004
	12159	*Ischnomera cinerascens (Pandellé in Grénier, 1867)*			Informateur : EIP (Brustel Hervé, Valladares Lionel)		1	1	2004 - 2004
	12211	*Oxyminus cursor Linnaeus, 1758*			Informateur : EIP (Brustel Hervé, Valladares Lionel)		2	2	2004 - 2004
	53294	*Carcharodus lavatherae (Esper, 1783)*	Occasionnelle		Informateur : SHNAO (Demergès David)		1	1	2005 - 2005
	53485	*Erebia triaria (de Prunner, 1798)*			Informateur : Laboratoire EcoLab (UMR 5245) (Luque)		1	1	1999 - 1999
	53546	*Erebia lefebvrei (Boisduval, [1828])*	Occasionnelle		Informateur : SHNAO (Alain Bruno)		1	1	1992 - 1992
	53611	*Lasiommata petropolitana (Fabricius, 1787)*	Occasionnelle		Informateur : SHNAO (Demergès David)		1	1	2005 - 2005
	53918	*Boloria pales ([Denis & Schiffermüller], 1775)*			Informateur : Laboratoire EcoLab (UMR 5245) (Albre Jérôme, Legal Luc), SHNAO (Demergès David)		1	1	1905 - 2005
	54176	*Aricia artaxerxes (Fabricius, 1793)*			Informateur : SHNAO (Alain Bruno)		1	1	1992 - 1992
	54200	*Agriades glandon (Prunner, 1798)*			Informateur : SHNAO (Demergès David)		1	1	2005 - 2005
	54283	*Polyommatus eros (Ochsenheimer, 1808)*	Occasionnelle		Informateur : SHNAO (Alain Bruno, Demergès David)		1	1	1992 - 2005

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	54366	*Pontia callidice (Hübner, [1800])*	Occasionnelle		Informateur : SHNAO (Demergès David)		1	1	2005 - 2005
	217369	*Arctophila bombiforme (Failén, 1810)*			Informateur : CEN Midi-Pyrénées (Hollingworth Terence)		1	1	1995 - 1995
	217503	*Leucozona glaucia (Linnaeus, 1758)*			Informateur : EIP (Brustel Hervé)		2	2	2003 - 2003
	219804	*Erebia sthennyo Graslin, 1850*	Occasionnelle		Informateur : SHNAO (Demergès David)		1	1	2005 - 2005
	223771	*Troglophyes aubryi Coiffait, 1953*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	2002 - 2002
	223798	*Speonomus leleupi Coiffait, 1953*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	2002 - 2002
	223811	*Speonomus stygius (Dieck, 1869)*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	2002 - 2002
	223831	*Paraspeonomus vandeli Coiffait, 1952*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	2002 - 2002
	223845	*Gesciella delioti Giachino & Guéorguiev, 1989*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	2002 - 2002
	224049	*Ischnomera sanguinicollis (Fabricius, 1787)*			Informateur : EIP (Brustel Hervé, Valladares Lionel)		1	1	2004 - 2004
	224166	*Tetratoma ancora Fabricius, 1790*			Informateur : EIP (Brustel Hervé, Valladares Lionel)		10	10	2004 - 2004
	235102	*Dictyoptera aurora (Herbst, 1874)*			Informateur : EIP (Brustel Hervé, Valladares Lionel)		1	1	2004 - 2004
	416802	*Erebia pronoe glottis Fruhstorfer, 1920*	Occasionnelle		Informateur : Laboratoire EcoLab (UMR 5245) (Albre Jérôme, Legal Luc), SHNAO (Alain Bruno)		1	1	1992 - 2003
	416803	*Parnassius apollo pyrenaica Harcourt-Bath, 1896*			Informateur : Laboratoire EcoLab (UMR 5245) (Albre Jérôme, Legal Luc, Luque), SHNAO (Demergès David)		1	1	1999 - 2005

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
	416807	*Aredolpona scutellata*			Informateur : EIP (Brustel Hervé)		1	1	1993 - 1993
	432542	*Colias phicomone oberthueri (Esper, 1780)*	Occasionnelle		Informateur : SHNAO (Demergès David)		1	1	1905 - 2005
	458861	*Aphaenops pluto (Dieck, 1869)*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	1983 - 1983
	458952	*Aphaenops carrerei Coiffait, 1953*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	1953 - 2002
	458973	*Aphaenops laurenti Genest, 1983*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	1983 - 1983
	458985	*Aphaenops mariaerosae Genest, 1983*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	1983 - 1983
	458987	*Aphaenops michaeli Fourès, 1954*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	1954 - 2002
	459009	*Aphaenops sioberae Fourès, 1954*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	1983 - 1983
	610364	*Euchloe simplonia oberthueri Verity, 1908*	Occasionnelle		Informateur : SHNAO (Demergès David)		1	1	2005 - 2005
Mammifères	60243	*Galemys pyrenaicus (E. Geoffroy, 1811)*			Informateur : ANA (Bertrand Alain, Duquesne Adrien)		1	1	1985 - 2006
	61128	*Rupicapra pyrenaica Bonaparte, 1845*			Informateur : ANA (Cadiran Pierre, Vergne Julien), Nature Midi-Pyrénées (Calas Jérôme, Delmas Norbert, Pignon Fanny, Rombaut Cyril)		1	50	1980 - 2005
Oiseaux	2645	*Aquila chrysaetos (Linnaeus, 1758)*	Occasionnelle	Reproducteur	Informateur : ANA (Bertrand Alain, Duquesne Adrien, Garric Julien), Nature Midi-Pyrénées (Caniot Philippe)		2	3	1992 - 2007
	2938	*Falco peregrinus Tunstall, 1771*		Reproducteur	Informateur : ANA (Morscheidt Jérôme)		2	2	1991 - 2004

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	2957	*Lagopus mutus pyrenaicus Hartert, 1921*	Occasionnelle	Reproducteur	Informateur : ANA (Duquesne Adrien, Garric Julien, Morscheidt Jérôme), Nature Midi-Pyrénées (Chatonnay Marc), OGM		1	7	1992 - 2005
	2966	*Tetrao urogallus aquitanicus Ingram, 1915*	Occasionnelle	Reproducteur	Informateur : ANA (Bertrand Alain, Duquesne Adrien, Morscheidt Jérôme), FDC 09 (Marty Évelyn), OGM		1	2	1987 - 2006
	2992	*Perdix perdix hispaniensis Reichenow, 1892*	Occasionnelle	Reproducteur	Informateur : ANA (Bertrand Alain), Nature Midi-Pyrénées (Rombaut Cyril), OGM		1	5	1989 - 2005
	3780	*Tichodroma muraria (Linnaeus, 1758)*		Reproducteur	Informateur : ANA (Cadiran Pierre)		1	1	1986 - 1996
	4485	*Pyrrhocorax graculus (Linnaeus, 1766)*		Reproducteur	Informateur : ANA (Cadiran Pierre, Garric Julien)		10	100	1990 - 2004
	4488	*Pyrrhocorax pyrrhocorax (Linnaeus, 1758)*		Reproducteur	Informateur : ANA (Cadiran Pierre)		2	20	1990 - 2004
	4537	*Montifringilla nivalis (Linnaeus, 1766)*	Occasionnelle	Reproducteur	Informateur : ANA (Cadiran Pierre, Garric Julien, Morscheidt Jérôme)		2	4	1992 - 2004
Reptiles	79283	*Iberolacerta aranica (Arribas, 1993)*	Occasionnelle		Informateur : ANA (Cadiran Pierre, Garric Julien), Nature Midi-Pyrénées (Pottier Gilles)		1	10	2002 - 2005
Angiospermes	81369	*Allium ericetorum Thore, 1803*			Informateur : CBNPMP (Laigneau Françoise)	Fort			2008 - 2008
	82545	*Androsace vitaliana (L.) Lapeyr., 1813*			Informateur : ARIANE (De Munnik Nicolas)	Fort	11	100	2003 - 2003
	83260	*Aquilegia pyrenaica DC., 1815*			Informateur : ANA (Dedieu Maurice), ARIANE (De Munnik Nicolas), CBNPMP (Laigneau Françoise), Georges Nicolas, Maugé Christian, Kuku-Belharra (Presseq Boris), PNR PA (Georges Nicolas, Séjalon Sophie), SSNTG (Pessoto Lilliane)	Fort	1	10	1992 - 2008

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	83969	*Artemisia eriantha Ten., 1831*			Informateur : Georges Nicolas, PNR PA (Georges Nicolas, Séjalon Sophie), SSNTG (Pessoto Lilliane)				2005 - 2006
	87699	*Campanula precatoria Timb.-Lagr., 1873*			Informateur : CBNPMP (Lavaupot Nadine)	Fort			2004 - 2004
	88359	*Carex atrata L., 1753*			Informateur : Georges Nicolas, PNR PA (Séjalon Sophie)				2004 - 2004
	88756	*Carex parviflora Host, 1801*			Informateur : PNR PA (Georges Nicolas, Séjalon Sophie)				2005 - 2005
	88802	*Carex pulicaris L., 1753*			Informateur : CBNPMP (Laigneau Françoise), PNR PA (Georges Nicolas, Séjalon Sophie)	Fort			2005 - 2008
	89155	*Carlina corymbosa L., 1753*			Informateur : ARIANE (De Munnik Nicolas)				2004 - 2004
	92097	*Coeloglossum viride (L.) Hartm., 1820*			Informateur : CBNPMP (Lavaupot Nadine)	Fort			2004 - 2004
	93088	*Crepis mollis (Jacq.) Asch., 1864*			Informateur : CBNPMP (Lavaupot Nadine)	Fort			2004 - 2004
	94653	*Dethawia splendens (Lapeyr.) Kerguélen, 1993*			Informateur : Maugé Christian				2006 - 2006
	95365	*Draba subnivalis Braun-Blanq., 1945*			Informateur : CBNPMP (Laigneau Françoise)				2008 - 2008
	95442	*Drosera rotundifolia L., 1753*			Informateur : ANA, Georges Nicolas, PNR PA (Séjalon Sophie)				1990 - 2003
	97140	*Eryngium bourgatii Gouan, 1773*			Informateur : ANA (Dedieu Maurice), ARIANE (De Munnik Nicolas)	Moyen	11	100	1990 - 2004
	98252	*Festuca glacialis Miégev., 1874*			Informateur : CBNPMP (Leblond Nicolas)				2003 - 2003

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	98485	*Festuca pyrenaica Reut., 1861*			Informateur : CBNPMP (Laigneau Françoise)				2008 - 2008
	99180	*Gagea fragifera (Vill.) E.Bayer & G.López, 1989*			Informateur : ANA (Piot Christian)		11	100	2004 - 2004
	99922	*Gentiana pneumonanthe L., 1753*			Informateur : Georges Nicolas, PNR PA (Séjalon Sophie)				2003 - 2003
	103028	*Hugueninia tanacetifolia (L.) Rchb., 1832*			Informateur : Maugé Christian				2006 - 2006
	103553	*Impatiens noli-tangere L., 1753*			Informateur : CBNPMP (Chaney Matthieu, Laigneau Françoise), Chaney Thomas, ONF (Savoie Jean-Marie)				1992 - 2008
	105148	*Lathraea squamaria L., 1753*			Informateur : ISATIS (Tessier Marc)		1	10	2009 - 2009
	105492	*Leontodon duboisii Sennen, 1936*			Informateur : CBNPMP (Laigneau Françoise)				2008 - 2008
	105544	*Leontopodium alpinum Cass., 1822*			Informateur : ANA (Bertrand Alain), ARIANE (De Munnik Nicolas)		1	10	1995 - 2004
	105799	*Leucanthemum maximum (Ramond) DC., 1837*			Informateur : ANA (Dedieu Maurice), CBNPMP (Laigneau Françoise), PNR PA (Georges Nicolas, Séjalon Sophie)	Moyen	101	1000	1992 - 2008
	105992	*Lilium pyrenaicum Gouan, 1773*			Informateur : ANA (Dedieu Maurice, Tessier Marc), PNR PA (Georges Nicolas, Séjalon Sophie)	Fort	11	100	1993 - 2005
	106367	*Listera cordata (L.) R.Br., 1813*			Informateur : Kuku-Belharra (Presseq Boris)	Fort			2004 - 2004
	106457	*Loiseleuria procumbens (L.) Desv., 1813*			Informateur : ANA, ARIANE (De Munnik Nicolas), Maugé Christian				1990 - 2006

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	106825	*Luzula desvauxii Kunth, 1841*			Informateur : PNR PA (Georges Nicolas, Séjalon Sophie)				2005 - 2005
	107725	*Medicago suffruticosa Ramond ex DC., 1805*			Informateur : Georges Nicolas, Maugé Christian, PNR PA (Séjalon Sophie)				2003 - 2006
	108840	*Mucizonia sedoides (DC.) D.A.Webb, 1961*			Informateur : PNR PA (Georges Nicolas, Séjalon Sophie)				2005 - 2005
	111234	*Oreochloa elegans (Sennen) A.W.Hill, 1933*			Informateur : Maugé Christian				2006 - 2006
	111980	*Oxytropis halleri Bunge ex W.D.J.Koch, 1844*			Informateur : Pessoto Lilliane				2007 - 2007
	112574	*Pedicularis comosa L., 1753*			Informateur : CBNPMP (Laigneau Françoise)	Fort			2008 - 2008
	112591	*Pedicularis pyrenaica J.Gay, 1832*			Informateur : ARIANE (De Munnik Nicolas)	Fort	11	100	2003 - 2004
	112595	*Pedicularis rosea Wulfen, 1781*			Informateur : Pessoto Lilliane				2007 - 2007
	112803	*Petrocallis pyrenaica (L.) R.Br., 1812*			Informateur : Georges Nicolas, PNR PA (Georges Nicolas, Séjalon Sophie), SSNTG (Pessoto Lilliane)				2005 - 2007
	112872	*Peucedanum ostruthium (L.) W.D.J.Koch, 1824*			Informateur : Georges Nicolas, PNR PA (Séjalon Sophie)				2002 - 2002
	113397	*Phyteuma pyrenaicum R.Schulz, 1904*			Informateur : ANA (Dedieu Maurice)	Fort	1	10	1994 - 1995
	114398	*Poa supina Schrad., 1806*			Informateur : CBNPMP (Lavaupot Nadine)				2004 - 2004
	115414	*Potentilla aurea L., 1756*			Informateur : Maugé Christian				2006 - 2006

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	116459	*Pulsatilla vernalis (L.) Mill., 1768*			Informateur : PNR PA (Georges Nicolas, Séjalon Sophie)				2005 - 2005
	117043	*Ranunculus glacialis L., 1753*			Informateur : ARIANE (De Munnik Nicolas)				2004 - 2004
	117446	*Reseda glauca L., 1753*			Informateur : ANA (Dedieu Maurice), PNR PA (Georges Nicolas, Séjalon Sophie)	Fort	1	10	1993 - 2005
	118204	*Rosa glauca Pourr., 1788*			Informateur : PNR PA (Georges Nicolas, Séjalon Sophie)				2005 - 2005
	118498	*Rosa sempervirens L., 1753*			Informateur : ONF (Savoie Jean-Marie)				1991 - 1991
	118582	*Rosa villosa L., 1753*			Informateur : ANA (Tessier Marc)		1	10	2002 - 2002
	119959	*Salix bicolor Willd., 1796*			Informateur : ANA (Dedieu Maurice)	Fort	1	10	1992 - 1992
	120977	*Saxifraga aretioides Lapeyr., 1801*			Informateur : ARIANE (De Munnik Nicolas), Maugé Christian				2004 - 2006
	121110	*Saxifraga media Gouan, 1773*			Informateur : Maugé Christian				2006 - 2006
	121154	*Saxifraga praetermissa D.A.Webb, 1963*			Informateur : CBNPMP (Laigneau Françoise), Kuku-Belharra (Presseq Boris), PNR PA (Georges Nicolas, Séjalon Sophie)	Moyen			2005 - 2008
	122419	*Sempervivum arachnoideum L., 1753*			Informateur : CBNPMP (Laigneau Françoise)				2008 - 2008
	123607	*Silene pusilla Waldst. & Kit., 1812*			Informateur : Maugé Christian				2006 - 2006
	125319	*Swertia perennis L., 1753*			Informateur : CBNPMP (Laigneau Françoise)				2008 - 2008
	125894	*Tephroseris helenitis (L.) B.Nord., 1978*			Informateur : ANA (Tessier Marc)		1	10	2007 - 2007

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	125976	*Teucrium botrys L., 1753*			Informateur : ONF (Savoie Jean-Marie)	Fort			1991 - 1991
	126152	*Thalictrum macrocarpum Gren., 1838*			Informateur : Georges Nicolas, Maugé Christian, PNR PA (Séjalon Sophie)				2004 - 2006
	126461	*Thymelaea calycina (Lapeyr.) Meisn., 1857*			Informateur : Georges Nicolas, Maugé Christian, PNR PA (Georges Nicolas, Séjalon Sophie)				2003 - 2006
	127237	*Trifolium badium Schreb., 1804*			Informateur : ANA (Dedieu Maurice)	Moyen	11	100	1997 - 1997
	129033	*Veronica urticifolia Jacq., 1773*			Informateur : ARIANE (De Munnik Nicolas), Kuku-Belharra (Presseq Boris)	Fort			2004 - 2004
	132527	*Campanula speciosa Pourr. subsp. speciosa*			Informateur : ANA (Tessier Marc)		1	10	2007 - 2007
	133806	*Dethawia splendens (Lapeyr.) Kerguélen subsp. splendens*			Informateur : CBNPMP (Laigneau Françoise)	Fort			2008 - 2008
	133817	*Dianthus barbatus L. subsp. barbatus*			Informateur : ANA (Dedieu Maurice), ONF (Savoie Jean-Marie)	Moyen	1	10	1991 - 2000
	134801	*Gagea lutea (L.) Ker Gawl. subsp. lutea*			Informateur : ISATIS (Tessier Marc)		11	100	2009 - 2009
	135056	*Geranium cinereum Cav. subsp. cinereum*			Informateur : ANA (Dedieu Maurice), ARIANE (De Munnik Nicolas), Georges Nicolas, Maugé Christian, Kuku-Belharra (Presseq Boris), PNR PA (Georges Nicolas, Séjalon Sophie)	Moyen	101	1000	1990 - 2006
	139512	*Pulsatilla alpina (L.) Delarbre subsp. alpina*			Informateur : ANA (Dedieu Maurice)	Faible	101	1000	1993 - 1997
	140929	*Sempervivum tectorum L. subsp. tectorum*			Informateur : ANA (Vergne Julien)				2004 - 2004
Fougères	95056	*Diphasiastrum alpinum (L.) Holub, 1975*			Informateur : ANA				1990 - 1990

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	95589	*Dryopteris remota (A.Braun ex Döll) Druce, 1908*			Informateur : ANA				1990 - 1990
	96553	*Equisetum variegatum Schleich., 1797*			Informateur : ANA (Tessier Marc)		11	100	2007 - 2007
	115046	*Polystichum braunii (Spenn.) Fée, 1852*			Informateur : ANA		1	10	1990 - 1990
	130124	*Woodsia alpina (Bolton) Gray, 1821*			Informateur : ANA				1990 - 1990
Hépatiques et Anthocérotes	6261	*Riccardia palmata (Hedw.) Carruth.*			Informateur : Nature Midi-Pyrénées (Celle Jaoua)				2006 - 2006
Mousses	3885	*Buxbaumia viridis (Moug. ex Lam. & DC.) Brid. ex Moug. & Nestl.*			Informateur : Nature Midi-Pyrénées (Celle Jaoua)				2006 - 2006
	4377	*Fissidens grandifrons Brid.*			Informateur : Nature Midi-Pyrénées (Celle Jaoua)				2006 - 2006
	5132	*Hookeria lucens (Hedw.) Sm.*			Informateur : Nature Midi-Pyrénées (Celle Jaoua)				2006 - 2006
	6740	*Sphagnum denticulatum Brid.*			Informateur : Royaud Alain	Faible			2003 - 2003
	6746	*Sphagnum fallax (H.Klinggr.) H.Klinggr.*			Informateur : Royaud Alain	Faible			2003 - 2003
	6769	*Sphagnum palustre L.*			Informateur : Royaud Alain	Faible			2003 - 2003
	6774	*Sphagnum papillosum Lindb.*			Informateur : Nature Midi-Pyrénées (Celle Jaoua)				2006 - 2006
	6780	*Sphagnum quinquefarium (Braithw.) Warnst.*			Informateur : Royaud Alain	Faible			2003 - 2003
	6790	*Sphagnum subnitens Russow & Warnst.*			Informateur : Royaud Alain	Faible			2003 - 2003
	6795	*Sphagnum tenellum (Brid.) Pers. ex Brid.*			Informateur : Nature Midi-Pyrénées (Celle Jaoua), Royaud Alain	Faible			2003 - 2006

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
Autres	30222	*Hygrocybe miniata (Fr. : Fr.) Kummer*			Informateur : ARIANE (De Munnik Nicolas)				1997 - 1997
	32094	*Floccularia decorosa (Peck) M. Bon & Courtecuisse*			Informateur : AMB (Cazenave Robert)				2007 - 2007
	32836	*Phaeotellus griseopallidus (Desmazières : Fr.) Kühner & Lamoure ex Courtecuisse*			Informateur : ARIANE (De Munnik Nicolas)				1997 - 1997
	34188	*Hohenbuehelia atrocaerulea (Fr. : Fr.) Singer*			Informateur : AMB (Cazenave Robert)				2007 - 2007
	34242	*Lentinellus flabelliformis (Bolt. : Fr.) Ito*			Informateur : ARIANE (De Munnik Nicolas)				1996 - 1996
	34495	*Pleurotus pulmonarius (Fr. : Fr.) Quélet*			Informateur : ARIANE (De Munnik Nicolas)				1990 - 1990
	36023	*Galerina paludosa (Fr.) Kühner*			Informateur : ARIANE (De Munnik Nicolas)				1993 - 1993
	36100	*Hebeloma alpinum (J. Favre) Bruchet*			Informateur : ARIANE (De Munnik Nicolas)				1991 - 1991
	36707	*Agrocybe firma (Peck) Singer*			Informateur : AMB (Cazenave Robert)				2007 - 2007
	39282	*Lactarius cremor Fr.*			Informateur : ARIANE (De Munnik Nicolas)				1991 - 1991
	39720	*Russula silvestris (Singer) Reumaux*			Informateur : ARIANE (De Munnik Nicolas)				1990 - 1990
	39737	*Russula farinipes Romell*			Informateur : ARIANE (De Munnik Nicolas)				1991 - 1991
	48551	*Mitrula paludosa Fries ex Fries*			Informateur : ARIANE (De Munnik Nicolas)				1990 - 1990
	464244	*Tricholoma bresadolanum Clémençon*			Informateur : ARIANE (De Munnik Nicolas)				1990 - 1990
	514136	*Lasiochlaena anisea Pouzar*			Informateur : AMB (Cazenave Robert)				2007 - 2007
	516646	*Pholiota aurivella (Batsch : Fr.) Kummer*			Informateur : ARIANE (De Munnik Nicolas)				1996 - 1996

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
	191213				Informateur : AFL, ONEMA		1	160	1992 - 2000

7.2 Espèces autres

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
Crustacés	237106	*Sphaerobathytropa ribauti Verhoeff, 1908*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	1962 - 1962
	237168	*Oritoniscus trajani Vandel, 1933*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	1957 - 1960
	237174	*Phymatoniscus tuberculatus (Racovitza, 1907)*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	1960 - 1960
	237178	*Trichoniscoides arcangelii Vandel, 1952*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	1960 - 1960
	310804	*Tiroloscia pyrenaica (Dollfus, 1897)*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	1962 - 1962
Entognathes	215838	*Schaefferia ariegica Cassagnau, 1969*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	1959 - 1959
	215842	*Schaefferia decemoculata (Stach, 1939)*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	1952 - 1952
	215967	*Cassagnaudina coiffaiti (Cassagnau, 1955)*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	1955 - 1955
	216026	*Onychiurus ariegicus Deharveng, 1978*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	1979 - 1979
	250399	*Deutonura deficiens deficiens Deharveng, 1979*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	1979 - 1979
Insectes	53462	*Erebia manto constans Eiffinger, 1908*			Informateur : SHNAO (Alain Bruno)		1	1	1992 - 1992
	53509	*Erebia gorge ramondi Oberthür, 1909*	Occasionnelle		Informateur : SHNAO (Demergès David)		1	1	2005 - 2005

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
	53516	*Erebia gorgone Boisduval, [1833]*			Informateur : SHNAO (Alain Bruno)		1	1	1992 - 1992
	53569	*Erebia meolans (de Prunner, 1798)*			Informateur : Laboratoire EcoLab (UMR 5245) (Albre Jérôme, Legal Luc, Luque), SHNAO (Alain Bruno)		1	1	1992 - 2005
	219802	*Erebia arvernensis Oberthür, 1908*			Informateur : SHNAO (Demergès David)		1	1	2005 - 2005
	222771	*Geotrechus vandeli Coiffait, 1959*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	1959 - 1959
	392335	*Erebia rondoui Oberthür, 1908*			Informateur : SHNAO (Alain Bruno, Demergès David)		1	1	1992 - 2005
	416799	*Erebia epiphron pyrenaica Herrich-Schäffer, 1851*			Informateur : SHNAO (Alain Bruno, Demergès David)		1	1	1992 - 2005
	416800	*Erebia euryale phoreta Fruhstorfer, 1918*			Informateur : SHNAO (Alain Bruno)		1	1	1992 - 1992
	458947	*Aphaenops bouilloni Coiffait, 1955*			Informateur : Laboratoire EcoLab (UMR 5245)		1	1	1962 - 1962
Mammifères	60313	*Rhinolophus hipposideros (Bechstein, 1800)*			Informateur : ANA		1	1	1995 - 2006
	79306	*Felis silvestris Schreber, 1775*			Informateur : Nature Midi-Pyrénées (Pedron Gwenaël, Segond Aline)		1	1	2003 - 2003
Angiospermes	87021	*Bupleurum angulosum L., 1753*			Informateur : CBNPMP (Laigneau Françoise), Maugé Christian				2006 - 2008
	92864	*Crataegus laevigata (Poir.) DC., 1825*			Informateur : ONF (Savoie Jean-Marie)				1991 - 1991
	98086	*Festuca auquieri Kerguélen, 1979*			Informateur : CBNPMP (Laigneau Françoise), ONF (Savoie Jean-Marie)	Fort			1991 - 2008

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
	98981	*Fritillaria nigra Mill., 1768*			Informateur : ANA (Cadiran Pierre, Tessier Marc)		11	100	2005 - 2007
	106275	*Linum alpinum Jacq., 1762*			Informateur : ANA (Dedieu Maurice, Vergne Julien), Maugé Christian	Moyen	11	100	1994 - 2006
	126563	*Thymus polytrichus A.Kern. ex Borbás, 1890*			Informateur : CBNPMP (Laigneau Françoise)	Fort			2008 - 2008
	128428	*Valeriana pyrenaica L., 1753*			Informateur : ANA (Dedieu Maurice), ARIANE (De Munnik Nicolas), Maugé Christian	Moyen	11	100	1993 - 2006
	133835	*Dianthus deltoides L. subsp. deltoides*			Informateur : Georges Nicolas, PNR PA (Séjalon Sophie)				2003 - 2003
	133934	*Draba aizoides L. subsp. aizoides*			Informateur : CBNPMP (Laigneau Françoise), Maugé Christian				2006 - 2008
	135019	*Gentiana burseri Lapeyr. subsp. burseri*			Informateur : ANA (Dedieu Maurice), ARIANE (De Munnik Nicolas), Maugé Christian	Moyen	11	100	1992 - 2006
	159922	*Potentilla alchimilloides Lapeyr. subsp. alchimilloides*			Informateur : ARIANE (De Munnik Nicolas), CBNPMP (Laigneau Françoise)	Fort			2004 - 2008
Autres	29678	*Strobilomyces floccopus (Vahl : Fr.) P. Karsten*			Informateur : ARIANE (Bodin Michel, De Munnik Nicolas)				1991 - 1993
	29908	*Cantharellus amethysteus (Quélet) Saccardo*			Informateur : AMB (Cazenave Robert)				2007 - 2007
	29920	*Cantharellus friesii Quélet*			Informateur : AMB (Cazenave Robert)				2007 - 2007
	34534	*Tectella patellaris (Fr.) Murrill*			Informateur : ARIANE (De Munnik Nicolas)				1994 - 1994
	35683	*Cortinarius claricolor (Fr.) Fr.*			Informateur : AMB (Cazenave Robert)				2007 - 2007

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
	35806	*Cortinarius variecolor (Pers. : Fr.) Fr.*			Informateur : ARIANE (De Munnik Nicolas)				1990 - 1990
	38807	*Pluteus boudieri P.D. Orton*			Informateur : ARIANE (De Munnik Nicolas)				1991 - 1991
	39751	*Russula foetens (Pers. : Fr.) Pers.*			Informateur : ARIANE (Bodin Michel, De Munnik Nicolas)				1990 - 1993
	40883	*Clavariadelphus pistillaris (L. : Fr.) Donk*			Informateur : ARIANE (De Munnik Nicolas)				1991 - 1991
	465266	*Pluteus leoninus (J.C. Sch. : Fr.) Kummer*			Informateur : AMB (Cazenave Robert), ARIANE (De Munnik Nicolas)				1991 - 2007
	469744	*Hygrocybe persistens var. langei (Kühner) M. Bon*			Informateur : ARIANE (De Munnik Nicolas)				1991 - 1991

7.3 Espèces à statut réglementé

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut de déterminance	Réglementation
Amphibiens	197	*Alytes obstetricans (Laurenti, 1768)*	Déterminante	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Listes des amphibiens et des reptiles protégés sur l'ensemble du territoire fançais et les modalités de leur protection *(lien)*
	444427	*Calotriton asper (Dugès, 1852)*	Déterminante	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Listes des amphibiens et des reptiles protégés sur l'ensemble du territoire fançais et les modalités de leur protection *(lien)*
	444432	*Lissotriton helveticus (Razoumowsky, 1789)*	Déterminante	Listes des amphibiens et des reptiles protégés sur l'ensemble du territoire fançais et les modalités de leur protection *(lien)*
Mammifères	60243	*Galemys pyrenaicus (E. Geoffroy, 1811)*	Déterminante	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des mammifères terrestres protégés sur l'ensemble du territoire français et les modalités de leur protection *(lien)*
	60313	*Rhinolophus hipposideros (Bechstein, 1800)*	Autre	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des mammifères terrestres protégés sur l'ensemble du territoire français et les modalités de leur protection *(lien)*
	61128	*Rupicapra pyrenaica Bonaparte, 1845*	Déterminante	Liste des espèces de gibier dont la chasse est autorisée *(lien)*
	79306	*Felis silvestris Schreber, 1775*	Autre	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des mammifères terrestres protégés sur l'ensemble du territoire français et les modalités de leur protection *(lien)*
Oiseaux	2645	*Aquila chrysaetos (Linnaeus, 1758)*	Déterminante	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	2938	*Falco peregrinus Tunstall, 1771*	Déterminante	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	2957	*Lagopus mutus pyrenaicus Hartert, 1921*	Déterminante	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
				Protection et commercialisation de certaines espèces d'oiseaux sur le territoire français national *(lien)*
	2966	*Tetrao urogallus aquitanicus Ingram, 1915*	Déterminante	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
				Protection et commercialisation de certaines espèces d'oiseaux sur le territoire français national *(lien)*
	2992	*Perdix perdix hispaniensis Reichenow, 1892*	Déterminante	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
				Protection et commercialisation de certaines espèces d'oiseaux sur le territoire français national *(lien)*

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut de déterminance	Réglementation
	3780	*Tichodroma muraria (Linnaeus, 1758)*	Déterminante	Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	4485	*Pyrrhocorax graculus (Linnaeus, 1766)*	Déterminante	Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	4488	*Pyrrhocorax pyrrhocorax (Linnaeus, 1758)*	Déterminante	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	4537	*Montifringilla nivalis (Linnaeus, 1766)*	Déterminante	Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
Angiospermes	83969	*Artemisia eriantha Ten., 1831*	Déterminante	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces végétales sauvages pouvant faire l'objet d'une réglementation préfectorale permanente ou temporaire *(lien)*
	95442	*Drosera rotundifolia L., 1753*	Déterminante	Liste des espèces végétales protégées sur l'ensemble du territoire français métropolitain *(lien)*
	133817	*Dianthus barbatus L. subsp. barbatus*	Déterminante	Liste des espèces végétales sauvages pouvant faire l'objet d'une réglementation préfectorale permanente ou temporaire *(lien)*
	133835	*Dianthus deltoides L. subsp. deltoides*	Autre	Liste des espèces végétales sauvages pouvant faire l'objet d'une réglementation préfectorale permanente ou temporaire *(lien)*
Fougères	95056	*Diphasiastrum alpinum (L.) Holub, 1975*	Déterminante	Liste des espèces végétales protégées sur l'ensemble du territoire français métropolitain *(lien)*
	115046	*Polystichum braunii (Spenn.) Fée, 1852*	Déterminante	Liste des espèces végétales protégées sur l'ensemble du territoire français métropolitain *(lien)*
Mousses	3885	*Buxbaumia viridis (Moug. ex Lam. & DC.) Brid. ex Moug. & Nestl.*	Déterminante	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces végétales protégées sur l'ensemble du territoire français métropolitain *(lien)*
	6746	*Sphagnum fallax (H.Klinggr.) H.Klinggr.*	Déterminante	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces végétales sauvages pouvant faire l'objet d'une réglementation préfectorale permanente ou temporaire *(lien)*
	6769	*Sphagnum palustre L.*	Déterminante	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces végétales sauvages pouvant faire l'objet d'une réglementation préfectorale permanente ou temporaire *(lien)*
	6774	*Sphagnum papillosum Lindb.*	Déterminante	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces végétales sauvages pouvant faire l'objet d'une réglementation préfectorale permanente ou temporaire *(lien)*
	6780	*Sphagnum quinquefarium (Braithw.) Warnst.*	Déterminante	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces végétales sauvages pouvant faire l'objet d'une réglementation préfectorale permanente ou temporaire *(lien)*
	6790	*Sphagnum subnitens Russow & Warnst.*	Déterminante	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces végétales sauvages pouvant faire l'objet d'une réglementation préfectorale permanente ou temporaire *(lien)*
	6795	*Sphagnum tenellum (Brid.) Pers. ex Brid.*	Déterminante	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut de déterminance	Réglementation
				Liste des espèces végétales sauvages pouvant faire l'objet d'une réglementation préfectorale permanente ou temporaire *(lien)*

8. LIENS ESPECES ET HABITATS

Non renseigné

9. SOURCES

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- ANA (Bertrand Alain, Duquesne Adrien, Garric Julien), Nature Midi-Pyrénées (Caniot Philippe)() "".
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- Georges Nicolas, Maugé Christian, PNR PA (Georges Nicolas, Séjalon Sophie)() "".
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- Laboratoire EcoLab (UMR 5245) (Albre Jérôme, Legal Luc), SHNAO (Demergès David)() "".
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- ANA (Duquesne Adrien, Garric Julien, Morscheidt Jérôme), Nature Midi-Pyrénées (Chatonnay Marc), OGM() "".
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- () "".
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- Laboratoire EcoLab (UMR 5245) (Albre Jérôme, Legal Luc, Luque), SHNAO (Alain Bruno)() "".

- () "".
- ANA (Vergne Julien)() "".
- PNR PA (Georges Nicolas, Séjalon Sophie)() "".
- ANA() "".
- () "".
- ARIANE (De Munnik Nicolas), CBNPMP (Laigneau Françoise)() "".
- () "".
- ANA (Cadiran Pierre, Tessier Marc)() "".
- () "".
- CEN Midi-Pyrénées (Hollingworth Terence)() "".
- ANA (Cadiran Pierre, Vergne Julien), Nature Midi-Pyrénées (Calas Jérôme, Delmas Norbert, Pignon Fanny, Rombaut Cyril)() "".
- () "".
- () "".
- ANA (Dedieu Maurice, Tessier Marc), PNR PA (Georges Nicolas, Séjalon Sophie)() "".
- Laboratoire EcoLab (UMR 5245) (Albre Jérôme, Legal Luc, Luque), SHNAO (Demergès David)() "".
- () "".
- SHNAO (Alain Bruno, Demergès David)() "".
- () "".
- () "".
- ONF Midi-Pyrénées() "".
- Nature Midi-Pyrénées (Pedron Gwenaël, Segond Aline)() "".
- ANA (Dedieu Maurice), ARIANE (De Munnik Nicolas), Maugé Christian() "".
- () "".
- EIP (Brustel Hervé)() "".
- CBNPMP (Lavaupot Nadine)() "".
- ANA (Cadiran Pierre)() "".
- () "".
- () "".
- CBNPMP (Laigneau Françoise)() "".
- () "".
- () "".
- () "".
- ARIANE (De Munnik Nicolas), Maugé Christian() "".
- () "".
- () "".
- () "".
- ANA (Dedieu Maurice), ONF (Savoie Jean-Marie)() "".
- CBNPMP (Laigneau Françoise), ONF Midi-Pyrénées, PNR PA (Séjalon Sophie), Georges Nicolas() "".
- () "".

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http://inpn.mnhn.fr/zone/znieff/730012051

ZONES NATURELLES
D'INTÉRÊT ÉCOLOGIQUE,
FAUNISTIQUE ET FLORISTIQUE

MONTAGNE D'AULA
(Identifiant national : 730012051)

(ZNIEFF continentale de type 1)

(Identifiant régional : 01040019)

Région en charge de la zone : Midi-Pyrénées
Rédacteur(s) : A.R.E.M.I.P., PARDE.

1. DESCRIPTION 2
2. CRITERES D'INTERET DE LA ZONE 3
3. CRITERES DE DELIMITATION DE LA ZONE 3
4. FACTEUR INFLUENCANT L'EVOLUTION DE LA ZONE 3
5. BILAN DES CONNAISSANCES - EFFORT DE PROSPECTION 3
6. HABITATS 3
7. ESPECES 5
8. LIENS ESPECES ET HABITATS 8

1. DESCRIPTION

Date de création : 01/02/89
Date de modernisation : 01/02/89

1.1 Localisation administrative

- Seix (INSEE : 09285)



1.2 Altitudes

Minimum (m) : 1500
Maximum (m) : 2477

1.3 Superficie

641,84 hectares

1.4 Liaisons écologiques avec d'autres ZNIEFF

Non renseigné

1.4 Commentaire général

Non renseigné

1.5 Compléments descriptif

1.5.1 Géomorphologie

- Montagne

1.5.2 Activités humaines

- Elevage

1.5.3 Statut de propriété

- Domaine de l'état

1.5.4 Mesures de protection

- Réserve de chasse et de faune sauvage

2. CRITERES D'INTERET DE LA ZONE

Patrimoniaux

Ecologique
Faunistique
Oiseaux
Mammifères
Floristique
Phanérogames

Complémentaires

Paysager

3. CRITERES DE DELIMITATION DE LA ZONE

Non renseigné

4. FACTEURS INFLUENCANT L'EVOLUTION DE LA ZONE

Non renseigné

5. BILANS DES CONNAISSANCES - EFFORTs DE PROSPECTIONS

Aucun	Faible	Moyen	Bon
Mammifères			
Oiseaux			
Reptiles			
Amphibiens			
Insectes			
Autres Invertébrés			
Phanérogames			
Ptéridophytes			
Bryophytes			
Algues			
Champignons			
Lichens			
Habitats			

6. HABITATS

6.1 Habitats déterminants

CORINE BIOTOPE	Source	Surface (%)	Observation
62 Falaises continentales et rochers exposés			
65 Grottes			

CORINE BIOTOPE	Source	Surface (%)	Observation
86.41 Carrières			

6.2 Habitats autres

CORINE BIOTOPE	Source	Surface (%)	Observation
22 Eaux douces stagnantes			
24 Eaux courantes			
3 Landes, fruticées, pelouses et prairies			

6.3 Habitats périphériques

Non renseigné

7. ESPECES

7.1 Espèces déterminantes

* : Espèce en cours de validation taxonomique (Référentiel TAXREF)

Non renseigné

7.2 Espèces autres

* : Espèce en cours de validation taxonomique (Référentiel TAXREF)

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
Mammifères	60686	*Mustela erminea Linnaeus, 1758*							
	61119	*Rupicapra rupicapra (Linnaeus, 1758)*							
	61143	*Marmota marmota (Linnaeus, 1758)*							
Oiseaux	2645	*Aquila chrysaetos (Linnaeus, 1758)*							
	2852	*Gypaetus barbatus (Linnaeus, 1758)*							
	2860	*Gyps fulvus (Hablizl, 1783)*							
	2951	*Lagopus mutus (Montin, 1776)*							
	2989	*Perdix perdix (Linnaeus, 1758)*							
	4064	*Oenanthe oenanthe (Linnaeus, 1758)*							
	4112	*Turdus torquatus Linnaeus, 1758*							
	4485	*Pyrrhocorax graculus (Linnaeus, 1766)*							
	4488	*Pyrrhocorax pyrrhocorax (Linnaeus, 1758)*							
	4537	*Montifringilla nivalis (Linnaeus, 1766)*							
Angiospermes	83260	*Aquilegia pyrenaica DC., 1815*							
	83638	*Arenaria purpurascens Ramond ex DC., 1805*							

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
	87642	*Campanula ficarioides Timb.-Lagr., 1862*							
	87665	*Campanula lanceolata Lapeyr., 1813*							
	87729	*Campanula speciosa Pourr., 1788*							
	88845	*Carex rupestris All., 1785*							
	93125	*Crepis rubra L., 1753*							
	94654	*Dethawia tenuifolia Endl., 1839*							
	95349	*Draba pyrenaica L., 1753*							
	98252	*Festuca glacialis Miégev., 1874*							
	100042	*Geranium cinereum Cav., 1787*							
	103028	*Hugueninia tanacetifolia (L.) Rchb., 1832*							
	103037	*Hutchinsia alpina (L.) R.Br., 1812*							
	104680	*Koeleria vallesiana (Honck.) Gaudin, 1808*							
	115573	*Potentilla nivalis Lapeyr., 1782*							
	117047	*Ranunculus gouanii Willd., 1799*							
	117548	*Rhamnus pumila Turra, 1764*							
	120191	*Salix pyrenaica Gouan, 1773*							
	120193	*Salix reticulata L., 1753*							
	120195	*Salix retusa L., 1759*							
	121110	*Saxifraga media Gouan, 1773*							
	121132	*Saxifraga oppositifolia L., 1753*							
	128401	*Valeriana globulariifolia Ramond ex DC., 1805*							
	128872	*Veronica fruticulosa L., 1762*							
Gymnospermes	161959	*Pinus montana sensu Coste*							

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
Autres	999015762	Saxifraga ajugifolia *							
	999017564	Erigeron pyrenaicum *							

7.3 Espèces à statut réglementé

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut de déterminance	Réglementation
Mammifères	60686	*Mustela erminea Linnaeus, 1758*	Autre	Liste des espèces de gibier dont la chasse est autorisée *(lien)*
	61119	*Rupicapra rupicapra (Linnaeus, 1758)*	Autre	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
	61143	*Marmota marmota (Linnaeus, 1758)*	Autre	Liste des espèces de gibier dont la chasse est autorisée *(lien)*
Oiseaux	2645	*Aquila chrysaetos (Linnaeus, 1758)*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	2852	*Gypaetus barbatus (Linnaeus, 1758)*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Interdiction de la perturbation intentionnelle du gypaète barbu *(lien)*
				Liste des espèces de vertébrés protégées menacées d'extinction en France et dont l'aire de répartition excède le territoire d'un département *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	2860	*Gyps fulvus (Hablizl, 1783)*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	2951	*Lagopus mutus (Montin, 1776)*	Autre	Liste des espèces de gibier dont la chasse est autorisée *(lien)*
				Protection et commercialisation de certaines espèces d'oiseaux sur le territoire français national *(lien)*
	2989	*Perdix perdix (Linnaeus, 1758)*	Autre	Liste des espèces de gibier dont la chasse est autorisée *(lien)*
				Protection et commercialisation de certaines espèces d'oiseaux sur le territoire français national *(lien)*
	4064	*Oenanthe oenanthe (Linnaeus, 1758)*	Autre	Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	4112	*Turdus torquatus Linnaeus, 1758*	Autre	Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	4485	*Pyrrhocorax graculus (Linnaeus, 1766)*	Autre	Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	4488	*Pyrrhocorax pyrrhocorax (Linnaeus, 1758)*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	4537	*Montifringilla nivalis (Linnaeus, 1766)*	Autre	Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
Angiospermes	100042	*Geranium cinereum Cav., 1787*	Autre	Liste des espèces végétales protégées sur l'ensemble du territoire français métropolitain *(lien)*

8. LIENS ESPECES ET HABITATS

Non renseigné

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ZONES NATURELLES
D'INTÉRÊT ÉCOLOGIQUE,
FAUNISTIQUE ET FLORISTIQUE

FORETS D'OUST, TUC DE L'ADOSSE ET DE MIRABAT (Identifiant national : 730012059)

(ZNIEFF continentale de type 1)

(Identifiant régional : 01060001)

Région en charge de la zone : Midi-Pyrénées
Rédacteur(s) : A.R.E.M.I.P., PARDE.

1. DESCRIPTION 2
2. CRITERES D'INTERET DE LA ZONE 3
3. CRITERES DE DELIMITATION DE LA ZONE 3
4. FACTEUR INFLUENCANT L'EVOLUTION DE LA ZONE 3
5. BILAN DES CONNAISSANCES - EFFORT DE PROSPECTION 3
6. HABITATS 4
7. ESPECES 5
8. LIENS ESPECES ET HABITATS 6

1. DESCRIPTION

Date de création : 01/03/89
Date de modernisation : 01/03/89

1.1 Localisation administrative

- Ercé (INSEE : 09113)
- Oust (INSEE : 09223)
- Seix (INSEE : 09285)
- Ustou (INSEE : 09322)



1.2 Altitudes

Minimum (m) : 520
Maximum (m) : 1669

1.3 Superficie

3126,72 hectares

1.4 Liaisons écologiques avec d'autres ZNIEFF

Non renseigné

1.4 Commentaire général

Non renseigné

1.5 Compléments descriptif

1.5.1 Géomorphologie

- Vallée

1.5.2 Activités humaines

- Sylviculture
- Elevage
- Chasse

1.5.3 Statut de propriété

- Collectivité territoriale

- Domaine de l'état
- Propriété privée (personne physique)

1.5.4 Mesures de protection

Non renseigné

2. CRITERES D'INTERET DE LA ZONE

Patrimoniaux

Ecologique
Faunistique
Oiseaux
Mammifères
Floristique
Phanérogames

3. CRITERES DE DELIMITATION DE LA ZONE

Non renseigné

4. FACTEURS INFLUENCANT L'EVOLUTION DE LA ZONE

Non renseigné

5. BILANS DES CONNAISSANCES - EFFORTs DE PROSPECTIONS

Aucun	Faible	Moyen	Bon
Mammifères			
Oiseaux			
Reptiles			
Amphibiens			
Insectes			
Autres Invertébrés			
Phanérogames			
Ptéridophytes			
Bryophytes			
Algues			
Champignons			
Lichens			
Habitats			

6. HABITATS

6.1 Habitats déterminants

CORINE BIOTOPE	Source	Surface (%)	Observation
4 FORETS			

6.2 Habitats autres

CORINE BIOTOPE	Source	Surface (%)	Observation
24 Eaux courantes			
3 Landes, fruticées, pelouses et prairies			
84.4 Bocages			

6.3 Habitats périphériques

Non renseigné

7. ESPECES

7.1 Espèces déterminantes

* : Espèce en cours de validation taxonomique (Référentiel TAXREF)

Non renseigné

7.2 Espèces autres

* : Espèce en cours de validation taxonomique (Référentiel TAXREF)

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
Mammifères	60596	*Felis sylvestris Schreber, 1775*							
	60658	*Martes martes (Linnaeus, 1758)*							
	60981	*Sus scrofa Linnaeus, 1758*							
	61119	*Rupicapra rupicapra (Linnaeus, 1758)*							
Oiseaux	3493	*Bubo bubo (Linnaeus, 1758)*							
	3608	*Dryocopus martius (Linnaeus, 1758)*							
	4485	*Pyrrhocorax graculus (Linnaeus, 1766)*							
	4488	*Pyrrhocorax pyrrhocorax (Linnaeus, 1758)*							
Angiospermes	96698	*Erica vagans L., 1770*							
	97947	*Fagus sylvatica L., 1753*							
	98985	*Fritillaria pyrenaica sensu auct plur.*							
	101101	*Helichrysum stoechas (L.) Moench, 1794*							

7.3 Espèces à statut réglementé

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut de déterminance	Réglementation
Mammifères	60658	*Martes martes (Linnaeus, 1758)*	Autre	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
	60981	*Sus scrofa Linnaeus, 1758*	Autre	Liste des espèces de gibier dont la chasse est autorisée *(lien)*
	61119	*Rupicapra rupicapra (Linnaeus, 1758)*	Autre	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
Oiseaux	3493	*Bubo bubo (Linnaeus, 1758)*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	3608	*Dryocopus martius (Linnaeus, 1758)*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	4485	*Pyrrhocorax graculus (Linnaeus, 1766)*	Autre	Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	4488	*Pyrrhocorax pyrrhocorax (Linnaeus, 1758)*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
Angiospermes	101101	*Helichrysum stoechas (L.) Moench, 1794*	Autre	Liste des espèces végétales sauvages pouvant faire l'objet d'une réglementation préfectorale permanente ou temporaire *(lien)*

8. LIENS ESPECES ET HABITATS

Non renseigné

Muséum national d'Histoire naturelle

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http://inpn.mnhn.fr/zone/znieff/730012060

znieff ZONES NATURELLES D'INTÉRÊT ÉCOLOGIQUE, FAUNISTIQUE ET FLORISTIQUE

BOIS DE POURSUGUES
(Identifiant national : 730012060)

(ZNIEFF continentale de type 1)

(Identifiant régional : 01040008)

Région en charge de la zone : Midi-Pyrénées
Rédacteur(s) : A.R.E.M.I.P., PARDE.

1. DESCRIPTION 2
2. CRITERES D'INTERET DE LA ZONE 3
3. CRITERES DE DELIMITATION DE LA ZONE 3
4. FACTEUR INFLUENCANT L'EVOLUTION DE LA ZONE 3
5. BILAN DES CONNAISSANCES - EFFORT DE PROSPECTION 3
6. HABITATS 3
7. ESPECES 5
8. LIENS ESPECES ET HABITATS 6

1. DESCRIPTION

Date de création : 01/02/89
Date de modernisation : 01/02/89

1.1 Localisation administrative

- Seix (INSEE : 09285)



1.2 Altitudes

Minimum (m) : 600
Maximum (m) : 1600

1.3 Superficie

436,18 hectares

1.4 Liaisons écologiques avec d'autres ZNIEFF

Non renseigné

1.4 Commentaire général

Non renseigné

1.5 Compléments descriptif

1.5.1 Géomorphologie

Non renseigné

1.5.2 Activités humaines

- Sylviculture

1.5.3 Statut de propriété

- Domaine de l'état

1.5.4 Mesures de protection

Non renseigné

2. CRITERES D'INTERET DE LA ZONE

Patrimoniaux

Ecologique
Faunistique
Oiseaux
Mammifères
Floristique

3. CRITERES DE DELIMITATION DE LA ZONE

Non renseigné

4. FACTEURS INFLUENCANT L'EVOLUTION DE LA ZONE

Non renseigné

5. BILANS DES CONNAISSANCES - EFFORTs DE PROSPECTIONS

Aucun	Faible	Moyen	Bon
Mammifères			
Oiseaux			
Reptiles			
Amphibiens			
Insectes			
Autres Invertébrés			
Phanérogames			
Ptéridophytes			
Bryophytes			
Algues			
Champignons			
Lichens			
Habitats			

6. HABITATS

6.1 Habitats déterminants

CORINE BIOTOPE	Source	Surface (%)	Observation
4 FORETS			

6.2 Habitats autres

CORINE BIOTOPE	Source	Surface (%)	Observation
24 Eaux courantes			
3 Landes, fruticées, pelouses et prairies			

6.3 Habitats périphériques

Non renseigné

7. ESPECES

7.1 Espèces déterminantes

* : Espèce en cours de validation taxonomique (Référentiel TAXREF)

Non renseigné

7.2 Espèces autres

* : Espèce en cours de validation taxonomique (Référentiel TAXREF)

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
Mammifères	60658	*Martes martes (Linnaeus, 1758)*							
	60981	*Sus scrofa Linnaeus, 1758*							
Oiseaux	2964	*Tetrao urogallus Linnaeus, 1758*							
	3608	*Dryocopus martius (Linnaeus, 1758)*							
Angiospermes	97947	*Fagus sylvatica L., 1753*							

7.3 Espèces à statut réglementé

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut de déterminance	Réglementation
Mammifères	60658	*Martes martes (Linnaeus, 1758)*	Autre	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
	60981	*Sus scrofa Linnaeus, 1758*	Autre	Liste des espèces de gibier dont la chasse est autorisée *(lien)*
Oiseaux	2964	*Tetrao urogallus Linnaeus, 1758*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
				Protection et commercialisation de certaines espèces d'oiseaux sur le territoire français national *(lien)*
	3608	*Dryocopus martius (Linnaeus, 1758)*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*

8. LIENS ESPECES ET HABITATS

Non renseigné

Muséum national d'Histoire naturelle

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znieff ZONES NATURELLES D'INTÉRÊT ÉCOLOGIQUE, FAUNISTIQUE ET FLORISTIQUE

BOIS D'ARCOUZAN,DE JAPTOI ET DE BIBET,VALLEE DE L'ARTIGUE (Identifiant national : 730012063)

(ZNIEFF continentale de type 1)

(Identifiant régional : 01040011)

Région en charge de la zone : Midi-Pyrénées
Rédacteur(s) : A.R.E.M.I.P., PARDE.

1. DESCRIPTION 2
2. CRITERES D'INTERET DE LA ZONE 3
3. CRITERES DE DELIMITATION DE LA ZONE 3
4. FACTEUR INFLUENCANT L'EVOLUTION DE LA ZONE 3
5. BILAN DES CONNAISSANCES - EFFORT DE PROSPECTION 3
6. HABITATS 3
7. ESPECES 5
8. LIENS ESPECES ET HABITATS 6

1. DESCRIPTION

Date de création : 01/02/89
Date de modernisation : 01/02/89

1.1 Localisation administrative

- Seix (INSEE : 09285)



1.2 Altitudes

Minimum (m) : 950
Maximum (m) : 1700

1.3 Superficie

583,67 hectares

1.4 Liaisons écologiques avec d'autres ZNIEFF

Non renseigné

1.4 Commentaire général

Non renseigné

1.5 Compléments descriptif

1.5.1 Géomorphologie

Non renseigné

1.5.2 Activités humaines

- Sylviculture

1.5.3 Statut de propriété

- Domaine de l'état

1.5.4 Mesures de protection

- Réserve de chasse et de faune sauvage

2. CRITERES D'INTERET DE LA ZONE

Patrimoniaux	Complémentaires
Ecologique	Paysager
Faunistique	
Oiseaux	
Mammifères	

3. CRITERES DE DELIMITATION DE LA ZONE

Non renseigné

4. FACTEURS INFLUENCANT L'EVOLUTION DE LA ZONE

Non renseigné

5. BILANS DES CONNAISSANCES - EFFORTs DE PROSPECTIONS

Aucun	Faible	Moyen	Bon
Mammifères			
Oiseaux			
Reptiles			
Amphibiens			
Insectes			
Autres Invertébrés			
Phanérogames			
Ptéridophytes			
Bryophytes			
Algues			
Champignons			
Lichens			
Habitats			

6. HABITATS

6.1 Habitats déterminants

CORINE BIOTOPE	Source	Surface (%)	Observation
4 FORETS			

6.2 Habitats autres

CORINE BIOTOPE	Source	Surface (%)	Observation
24 Eaux courantes			
3 Landes, fruticées, pelouses et prairies			
62 Falaises continentales et rochers exposés			
65 Grottes			
86.41 Carrières			

6.3 Habitats périphériques

Non renseigné

7. ESPECES

7.1 Espèces déterminantes

* : Espèce en cours de validation taxonomique (Référentiel TAXREF)

Non renseigné

7.2 Espèces autres

* : Espèce en cours de validation taxonomique (Référentiel TAXREF)

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
Mammifères	60658	*Martes martes (Linnaeus, 1758)*							
	60981	*Sus scrofa Linnaeus, 1758*							
	61119	*Rupicapra rupicapra (Linnaeus, 1758)*							
Oiseaux	2645	*Aquila chrysaetos (Linnaeus, 1758)*							
	2964	*Tetrao urogallus Linnaeus, 1758*							
	3608	*Dryocopus martius (Linnaeus, 1758)*							
Angiospermes	87665	*Campanula lanceolata Lapeyr., 1813*							
	95209	*Doronicum austriacum Jacq., 1774*							
	97947	*Fagus sylvatica L., 1753*							
	99871	*Gentiana burseri Lapeyr., 1813*							
	105989	*Lilium martagon L., 1753*							
	107519	*Meconopsis cambrica (L.) Vig., 1814*							
	119149	*Rubus idaeus L., 1753*							
Fougères	84387	*Aspidium aculeatum (L.) Sw., 1802*							
Gymnospermes	79319	*Abies alba Mill., 1768*							

7.3 Espèces à statut réglementé

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut de déterminance	Réglementation
Mammifères	60658	*Martes martes (Linnaeus, 1758)*	Autre	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
	60981	*Sus scrofa Linnaeus, 1758*	Autre	Liste des espèces de gibier dont la chasse est autorisée *(lien)*
	61119	*Rupicapra rupicapra (Linnaeus, 1758)*	Autre	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
Oiseaux	2645	*Aquila chrysaetos (Linnaeus, 1758)*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	2964	*Tetrao urogallus Linnaeus, 1758*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
				Protection et commercialisation de certaines espèces d'oiseaux sur le territoire français national *(lien)*
	3608	*Dryocopus martius (Linnaeus, 1758)*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
Angiospermes	105989	*Lilium martagon L., 1753*	Autre	Liste des espèces végétales sauvages pouvant faire l'objet d'une réglementation préfectorale permanente ou temporaire *(lien)*

8. LIENS ESPECES ET HABITATS

Non renseigné

Muséum national d'Histoire naturelle

Date d'édition : 11/12/2013
http://inpn.mnhn.fr/zone/znieff/730012065

znieff ZONES NATURELLES D'INTÉRÊT ÉCOLOGIQUE, FAUNISTIQUE ET FLORISTIQUE

BOIS DE FOURQUET,DE GALEDRE ET DE SAINT JOUAN (Identifiant national : 730012065)

(ZNIEFF continentale de type 1)

(Identifiant régional : 01040013)

Région en charge de la zone : Midi-Pyrénées
Rédacteur(s) : A.R.E.M.I.P., PARDE.

1. DESCRIPTION 2
2. CRITERES D'INTERET DE LA ZONE 3
3. CRITERES DE DELIMITATION DE LA ZONE 3
4. FACTEUR INFLUENCANT L'EVOLUTION DE LA ZONE 3
5. BILAN DES CONNAISSANCES - EFFORT DE PROSPECTION 3
6. HABITATS 3
7. ESPECES 5
8. LIENS ESPECES ET HABITATS 7

1. DESCRIPTION

Date de création : 01/02/89
Date de modernisation : 01/02/89

1.1 Localisation administrative

- Couflens (INSEE : 09100)



1.2 Altitudes

Minimum (m) : 700
Maximum (m) : 1800

1.3 Superficie

861,97 hectares

1.4 Liaisons écologiques avec d'autres ZNIEFF

Non renseigné

1.4 Commentaire général

Non renseigné

1.5 Compléments descriptif

1.5.1 Géomorphologie

Non renseigné

1.5.2 Activités humaines

- Sylviculture

1.5.3 Statut de propriété

- Propriété privée (personne physique)

1.5.4 Mesures de protection

Non renseigné

2. CRITERES D'INTERET DE LA ZONE

Patrimoniaux

Ecologique
Faunistique
Oiseaux
Mammifères
Floristique
Phanérogames

3. CRITERES DE DELIMITATION DE LA ZONE

Non renseigné

4. FACTEURS INFLUENCANT L'EVOLUTION DE LA ZONE

Non renseigné

5. BILANS DES CONNAISSANCES - EFFORTs DE PROSPECTIONS

Aucun	Faible	Moyen	Bon
Mammifères			
Oiseaux			
Reptiles			
Amphibiens			
Insectes			
Autres Invertébrés			
Phanérogames			
Ptéridophytes			
Bryophytes			
Algues			
Champignons			
Lichens			
Habitats			

6. HABITATS

6.1 Habitats déterminants

CORINE BIOTOPE	Source	Surface (%)	Observation
4 FORETS			

6.2 Habitats autres

CORINE BIOTOPE	Source	Surface (%)	Observation
24 Eaux courantes			
3 Landes, fruticées, pelouses et prairies			

6.3 Habitats périphériques

Non renseigné

7. ESPECES

7.1 Espèces déterminantes

* : Espèce en cours de validation taxonomique (Référentiel TAXREF)

Non renseigné

7.2 Espèces autres

* : Espèce en cours de validation taxonomique (Référentiel TAXREF)

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
Mammifères	60658	*Martes martes (Linnaeus, 1758)*							
	60826	*Ursus arctos Linnaeus, 1758*							
	60981	*Sus scrofa Linnaeus, 1758*							
	61119	*Rupicapra rupicapra (Linnaeus, 1758)*							
Oiseaux	2964	*Tetrao urogallus Linnaeus, 1758*							
	3608	*Dryocopus martius (Linnaeus, 1758)*							
Angiospermes	84937	*Astrantia minor L., 1753*							
	87665	*Campanula lanceolata Lapeyr., 1813*							
	89578	*Centaurea debeauxii Godr. & Gren., 1850*							
	93075	*Crepis lampsanoides (Gouan) Tausch, 1828*							
	97947	*Fagus sylvatica L., 1753*							
	112421	*Paris quadrifolia L., 1753*							
	116768	*Quercus sessiliflora Salisb., 1796*							
	119149	*Rubus idaeus L., 1753*							
Gymnospermes	79319	*Abies alba Mill., 1768*							

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
	125816	*Taxus baccata L., 1753*							

7.3 Espèces à statut réglementé

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut de déterminance	Réglementation
Mammifères	60658	*Martes martes (Linnaeus, 1758)*	Autre	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
	60826	*Ursus arctos Linnaeus, 1758*	Autre	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces de vertébrés protégées menacées d'extinction en France et dont l'aire de répartition excède le territoire d'un département *(lien)*
				Liste des mammifères terrestres protégés sur l'ensemble du territoire français et les modalités de leur protection *(lien)*
	60981	*Sus scrofa Linnaeus, 1758*	Autre	Liste des espèces de gibier dont la chasse est autorisée *(lien)*
	61119	*Rupicapra rupicapra (Linnaeus, 1758)*	Autre	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
Oiseaux	2964	*Tetrao urogallus Linnaeus, 1758*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
				Protection et commercialisation de certaines espèces d'oiseaux sur le territoire français national *(lien)*
	3608	*Dryocopus martius (Linnaeus, 1758)*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
Gymnospermes	125816	*Taxus baccata L., 1753*	Autre	Liste des espèces végétales sauvages pouvant faire l'objet d'une réglementation préfectorale permanente ou temporaire *(lien)*

8. LIENS ESPECES ET HABITATS

Non renseigné

Date d'édition : 11/12/2013
http://inpn.mnhn.fr/zone/znieff/730012072

ZONES NATURELLES
D'INTÉRÊT ÉCOLOGIQUE,
FAUNISTIQUE ET FLORISTIQUE

MASSIF DU MONT VALIER
(Identifiant national : 730012072)

(ZNIEFF continentale de type 2)

(Identifiant régional : 01040000)

Région en charge de la zone : Midi-Pyrénées
Rédacteur(s) : A.R.E.M.I.P., PARDE.

1. DESCRIPTION 2
2. CRITERES D'INTERET DE LA ZONE 3
3. CRITERES DE DELIMITATION DE LA ZONE 3
4. FACTEUR INFLUENCANT L'EVOLUTION DE LA ZONE 3
5. BILAN DES CONNAISSANCES - EFFORT DE PROSPECTION 3
6. HABITATS 4
7. ESPECES 5
8. LIENS ESPECES ET HABITATS 9

1. DESCRIPTION

Date de création : 01/02/89
Date de modernisation : 01/02/89

1.1 Localisation administrative

- Arrien-en-Bethmale (INSEE : 09017)
- Bethmale (INSEE : 09055)
- Bonac-Irazein (INSEE : 09059)
- Bordes-sur-Lez (INSEE : 09062)
- Couflens (INSEE : 09100)
- Seix (INSEE : 09285)
- Sentenac-d'Oust (INSEE : 09291)
- Uchentein (INSEE : 09317)



1.2 Altitudes

Minimum (m) : 550
Maximum (m) : 2838

1.3 Superficie

18550,89 hectares

1.4 Liaisons écologiques avec d'autres ZNIEFF

Non renseigné

1.4 Commentaire général

Non renseigné

1.5 Compléments descriptif

1.5.1 Géomorphologie

- Montagne

1.5.2 Activités humaines

- Sylviculture
- Elevage
- Chasse
- Tourisme et loisirs

1.5.3 Statut de propriété

- Domaine de l'état
- Propriété privée (personne physique)

1.5.4 Mesures de protection

- Réserve de chasse et de faune sauvage

2. CRITERES D'INTERET DE LA ZONE

Patrimoniaux

Ecologique
Faunistique
Oiseaux
Mammifères
Floristique
Bryophytes
Ptéridophytes

Complémentaires

Paysager

3. CRITERES DE DELIMITATION DE LA ZONE

Non renseigné

4. FACTEURS INFLUENCANT L'EVOLUTION DE LA ZONE

Non renseigné

5. BILANS DES CONNAISSANCES - EFFORTs DE PROSPECTIONS

Aucun	Faible	Moyen	Bon
Mammifères			
Oiseaux			
Reptiles			
Amphibiens			
Insectes			
Autres Invertébrés			
Phanérogames			
Ptéridophytes			
Bryophytes			
Algues			
Champignons			
Lichens			
Habitats			

6. HABITATS

6.1 Habitats déterminants

CORINE BIOTOPE	Source	Surface (%)	Observation
4 FORETS			

6.2 Habitats autres

CORINE BIOTOPE	Source	Surface (%)	Observation
22 Eaux douces stagnantes			
24 Eaux courantes			
3 Landes, fruticées, pelouses et prairies			
62 Falaises continentales et rochers exposés			
65 Grottes			
86.41 Carrières			

6.3 Habitats périphériques

Non renseigné

7. ESPECES

7.1 Espèces déterminantes

* : Espèce en cours de validation taxonomique (Référentiel TAXREF)

Non renseigné

7.2 Espèces autres

* : Espèce en cours de validation taxonomique (Référentiel TAXREF)

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
Angiospermes	80037	*Aconitum napellus L., 1753*							
	80070	*Aconitum vulparia Rchb., 1819*							
	82796	*Antennaria dioica (L.) Gaertn., 1791*							
	83260	*Aquilegia pyrenaica DC., 1815*							
	83874	*Arnica montana L., 1753*							
	84949	*Astrocarpa sesamoides (L.) DC., 1828*							
	85602	*Bartsia alpina L., 1753*							
	87501	*Calluna vulgaris (L.) Hull, 1808*							
	88090	*Carduus carlinoides Gouan, 1773*							
	88453	*Carex curvula All., 1785*							
	88806	*Carex pyrenaica Wahlenb., 1803*							
	89928	*Cephalanthera rubra (L.) Rich., 1817*							
	91017	*Chrysanthemum alpinum L., 1753*							
	91053	*Chrysanthemum leucanthemum L., 1753*							
	93115	*Crepis pygmaea L., 1753*							
	94654	*Dethawia tenuifolia Endl., 1839*							

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
	94783	*Dianthus monspessulanus L., 1759*							
	95461	*Dryas octopetala L., 1753*							
	96698	*Erica vagans L., 1770*							
	97947	*Fagus sylvatica L., 1753*							
	98213	*Festuca eskia Ramond ex DC., 1805*							
	99871	*Gentiana burseri Lapeyr., 1813*							
	99910	*Gentiana nivalis L., 1753*							
	100042	*Geranium cinereum Cav., 1787*							
	100487	*Gnaphalium norvegicum Gunnerus, 1772*							
	100515	*Gnaphalium supinum L., 1768*							
	103037	*Hutchinsia alpina (L.) R.Br., 1812*							
	104362	*Juncus trifidus L., 1753*							
	105992	*Lilium pyrenaicum Gouan, 1773*							
	106144	*Linaria alpina (L.) Mill., 1768*							
	106457	*Loiseleuria procumbens (L.) Desv., 1813*							
	106831	*Luzula glabrata (Hoppe) Desv.*							
	106859	*Luzula spicata (L.) DC., 1805*							
	111233	*Oreochloa disticha (Wulfen) Link, 1827*							
	111960	*Oxyria digyna (L.) Hill, 1768*							
	112872	*Peucedanum ostruthium (L.) W.D.J.Koch, 1824*							
	114897	*Polygonum viviparum L., 1753*							
	115538	*Potentilla lanata (Lange) Zimmeter, 1884*							
	115883	*Primula integrifolia L., 1753*							

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
	116917	*Ranunculus alpestris L., 1753*							
	117192	*Ranunculus pyrenaeus L., 1771*							
	120057	*Salix herbacea L., 1753*							
	120191	*Salix pyrenaica Gouan, 1773*							
	120193	*Salix reticulata L., 1753*							
	121115	*Saxifraga moschata Wulfen, 1781*							
	121203	*Saxifraga umbrosa L., 1762*							
	121699	*Scirpus cespitosus L., 1753*							
	122734	*Senecio tournefortii Lapeyr., 1813*							
	123374	*Silene acaulis (L.) Jacq., 1762*							
	124139	*Soldanella alpina L., 1753*							
	124913	*Statice montana sensu P.Fourn., 1937*							
	126070	*Thalictrum alpinum L., 1753*							
	126461	*Thymelaea calycina (Lapeyr.) Meisn., 1857*							
	126812	*Tolpis barbata (L.) Gaertn., 1791*							
	127219	*Trifolium alpinum L., 1753*							
	128345	*Vaccinium myrtillus L., 1753*							
	128354	*Vaccinium uliginosum L., 1753*							
	128810	*Veronica bellidioides L., 1753*							
	129520	*Viola biflora L., 1753*							
	130833	*Adenostyles alliariae subsp. pyrenaica (Lange) P.Fourn., 1940*							
	136771	*Hypericum richeri subsp. burseri (DC.) Nyman, 1878*							

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
	139613	*Ranunculus aduncus subsp. gouanii (Willd.) P.Fourn., 1936*							
Fougères	86183	*Botrychium lunaria (L.) Sw., 1802*							
	106998	*Lycopodium alpinum L., 1753*							
	115046	*Polystichum braunii (Spenn.) Fée, 1852*							
Autres	999002105	Alopecurus gerardii *							
	999015762	Saxifraga ajugifolia *							

7.3 Espèces à statut réglementé

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut de déterminance	Réglementation
Angiospermes	80037	*Aconitum napellus L., 1753*	Autre	Liste des espèces végétales sauvages pouvant faire l'objet d'une réglementation préfectorale permanente ou temporaire *(lien)*
	82796	*Antennaria dioica (L.) Gaertn., 1791*	Autre	Liste des espèces végétales sauvages pouvant faire l'objet d'une réglementation préfectorale permanente ou temporaire *(lien)*
	83874	*Arnica montana L., 1753*	Autre	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces végétales sauvages pouvant faire l'objet d'une réglementation préfectorale permanente ou temporaire *(lien)*
	100042	*Geranium cinereum Cav., 1787*	Autre	Liste des espèces végétales protégées sur l'ensemble du territoire français métropolitain *(lien)*
	128345	*Vaccinium myrtillus L., 1753*	Autre	Liste des espèces végétales sauvages pouvant faire l'objet d'une réglementation préfectorale permanente ou temporaire *(lien)*
	128354	*Vaccinium uliginosum L., 1753*	Autre	Liste des espèces végétales sauvages pouvant faire l'objet d'une réglementation préfectorale permanente ou temporaire *(lien)*
Fougères	115046	*Polystichum braunii (Spenn.) Fée, 1852*	Autre	Liste des espèces végétales protégées sur l'ensemble du territoire français métropolitain *(lien)*

8. LIENS ESPECES ET HABITATS

Non renseigné

Muséum national d'Histoire naturelle

Date d'édition : 11/12/2013
http://inpn.mnhn.fr/zone/znieff/730012078

znieff ZONES NATURELLES D'INTÉRÊT ÉCOLOGIQUE, FAUNISTIQUE ET FLORISTIQUE

BOIS DE L'AUBE,LA MEDE,BOIS D'ARROS (Identifiant national : 730012078)

(ZNIEFF continentale de type 1)

(Identifiant régional : 01040006)

Région en charge de la zone : Midi-Pyrénées
Rédacteur(s) : A.R.E.M.I.P., PARDE.

1. DESCRIPTION 2
2. CRITERES D'INTERET DE LA ZONE 3
3. CRITERES DE DELIMITATION DE LA ZONE 3
4. FACTEUR INFLUENCANT L'EVOLUTION DE LA ZONE 3
5. BILAN DES CONNAISSANCES - EFFORT DE PROSPECTION 3
6. HABITATS 3
7. ESPECES 5
8. LIENS ESPECES ET HABITATS 6

1. DESCRIPTION

Date de création : 01/02/89
Date de modernisation : 01/02/89

1.1 Localisation administrative

- Seix (INSEE : 09285)
- Sentenac-d'Oust (INSEE : 09291)



1.2 Altitudes

Minimum (m) : 730
Maximum (m) : 1638

1.3 Superficie

750,09 hectares

1.4 Liaisons écologiques avec d'autres ZNIEFF

Non renseigné

1.4 Commentaire général

Non renseigné

1.5 Compléments descriptif

1.5.1 Géomorphologie

Non renseigné

1.5.2 Activités humaines

- Sylviculture

1.5.3 Statut de propriété

- Domaine de l'état
- Propriété privée (personne physique)

1.5.4 Mesures de protection

Non renseigné

2. CRITERES D'INTERET DE LA ZONE

Patrimoniaux

Ecologique
Faunistique
Oiseaux
Floristique

3. CRITERES DE DELIMITATION DE LA ZONE

Non renseigné

4. FACTEURS INFLUENCANT L'EVOLUTION DE LA ZONE

Non renseigné

5. BILANS DES CONNAISSANCES - EFFORTs DE PROSPECTIONS

Aucun	Faible	Moyen	Bon
Mammifères			
Oiseaux			
Reptiles			
Amphibiens			
Insectes			
Autres Invertébrés			
Phanérogames			
Ptéridophytes			
Bryophytes			
Algues			
Champignons			
Lichens			
Habitats			

6. HABITATS

6.1 Habitats déterminants

CORINE BIOTOPE	Source	Surface (%)	Observation
4 FORETS			

6.2 Habitats autres

CORINE BIOTOPE	Source	Surface (%)	Observation
3 Landes, fruticées, pelouses et prairies			

6.3 Habitats périphériques

Non renseigné

7. ESPECES

7.1 Espèces déterminantes

* : Espèce en cours de validation taxonomique (Référentiel TAXREF)

Non renseigné

7.2 Espèces autres

* : Espèce en cours de validation taxonomique (Référentiel TAXREF)

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
Mammifères	60658	*Martes martes (Linnaeus, 1758)*							
	60981	*Sus scrofa Linnaeus, 1758*							
	61119	*Rupicapra rupicapra (Linnaeus, 1758)*							
Oiseaux	2964	*Tetrao urogallus Linnaeus, 1758*							
	3608	*Dryocopus martius (Linnaeus, 1758)*							
Angiospermes	97947	*Fagus sylvatica L., 1753*							
Gymnospermes	79319	*Abies alba Mill., 1768*							

7.3 Espèces à statut réglementé

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut de déterminance	Réglementation
Mammifères	60658	*Martes martes (Linnaeus, 1758)*	Autre	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
	60981	*Sus scrofa Linnaeus, 1758*	Autre	Liste des espèces de gibier dont la chasse est autorisée *(lien)*
	61119	*Rupicapra rupicapra (Linnaeus, 1758)*	Autre	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
Oiseaux	2964	*Tetrao urogallus Linnaeus, 1758*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
				Protection et commercialisation de certaines espèces d'oiseaux sur le territoire français national *(lien)*
	3608	*Dryocopus martius (Linnaeus, 1758)*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*

8. LIENS ESPECES ET HABITATS

Non renseigné

Date d'édition : 11/12/2013
http://inpn.mnhn.fr/zone/znieff/730012079

ZONES NATURELLES
D'INTÉRÊT ÉCOLOGIQUE,
FAUNISTIQUE ET FLORISTIQUE

FORET DE LAMECH,BOIS D'ESCALERES
(Identifiant national : 730012079)

(ZNIEFF continentale de type 1)

(Identifiant régional : 01040007)

Région en charge de la zone : Midi-Pyrénées
Rédacteur(s) : A.R.E.M.I.P., PARDE.

1. DESCRIPTION 2
2. CRITERES D'INTERET DE LA ZONE 3
3. CRITERES DE DELIMITATION DE LA ZONE 3
4. FACTEUR INFLUENCANT L'EVOLUTION DE LA ZONE 3
5. BILAN DES CONNAISSANCES - EFFORT DE PROSPECTION 3
6. HABITATS 3
7. ESPECES 5
8. LIENS ESPECES ET HABITATS 7

1. DESCRIPTION

Date de création : 01/02/89
Date de modernisation : 01/02/89

1.1 Localisation administrative

- Seix (INSEE : 09285)



1.2 Altitudes

Minimum (m) : 550
Maximum (m) : 1700

1.3 Superficie

1217,18 hectares

1.4 Liaisons écologiques avec d'autres ZNIEFF

Non renseigné

1.4 Commentaire général

Non renseigné

1.5 Compléments descriptif

1.5.1 Géomorphologie

Non renseigné

1.5.2 Activités humaines

- Sylviculture

1.5.3 Statut de propriété

- Domaine de l'état

1.5.4 Mesures de protection

- Réserve de chasse et de faune sauvage

2. CRITERES D'INTERET DE LA ZONE

Patrimoniaux

Ecologique
Faunistique
Oiseaux
Mammifères
Floristique
Phanérogames

3. CRITERES DE DELIMITATION DE LA ZONE

Non renseigné

4. FACTEURS INFLUENCANT L'EVOLUTION DE LA ZONE

Non renseigné

5. BILANS DES CONNAISSANCES - EFFORTs DE PROSPECTIONS

Aucun	Faible	Moyen	Bon
Mammifères			
Oiseaux			
Reptiles			
Amphibiens			
Insectes			
Autres Invertébrés			
Phanérogames			
Ptéridophytes			
Bryophytes			
Algues			
Champignons			
Lichens			
Habitats			

6. HABITATS

6.1 Habitats déterminants

CORINE BIOTOPE	Source	Surface (%)	Observation
4 FORETS			

6.2 Habitats autres

CORINE BIOTOPE	Source	Surface (%)	Observation
62 Falaises continentales et rochers exposés			
65 Grottes			
86.41 Carrières			

6.3 Habitats périphériques

Non renseigné

7. ESPECES

7.1 Espèces déterminantes

* : Espèce en cours de validation taxonomique (Référentiel TAXREF)

Non renseigné

7.2 Espèces autres

* : Espèce en cours de validation taxonomique (Référentiel TAXREF)

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
Mammifères	60658	*Martes martes (Linnaeus, 1758)*							
	60981	*Sus scrofa Linnaeus, 1758*							
	61119	*Rupicapra rupicapra (Linnaeus, 1758)*							
Oiseaux	2645	*Aquila chrysaetos (Linnaeus, 1758)*							
	2964	*Tetrao urogallus Linnaeus, 1758*							
	3608	*Dryocopus martius (Linnaeus, 1758)*							
Angiospermes	82733	*Angelica razulii Gouan, 1773*							
	94698	*Dianthus barbatus L., 1753*							
	97947	*Fagus sylvatica L., 1753*							
	99798	*Genista pilosa L., 1753*							
	99871	*Gentiana burseri Lapeyr., 1813*							
	101296	*Heracleum pyrenaicum Lam., 1785*							
	105989	*Lilium martagon L., 1753*							
	107519	*Meconopsis cambrica (L.) Vig., 1814*							
	116751	*Quercus pubescens Willd., 1805*							
	116768	*Quercus sessiliflora Salisb., 1796*							

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut(s) Chorologique(s)	Statut(s) biologique(s)	Sources	Degré d'abondance	Effectif inférieur estimé	Effectif supérieur estimé	Année/ Période d'observation
Fougères	159792	*Polystichum spinulosum Meisn.*							
Gymnospermes	79319	*Abies alba Mill., 1768*							

7.3 Espèces à statut réglementé

Groupe	Code Espèce (CD_NOM)	Espèce (nom scientifique)	Statut de déterminance	Réglementation
Mammifères	60658	*Martes martes (Linnaeus, 1758)*	Autre	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
	60981	*Sus scrofa Linnaeus, 1758*	Autre	Liste des espèces de gibier dont la chasse est autorisée *(lien)*
	61119	*Rupicapra rupicapra (Linnaeus, 1758)*	Autre	Directive 92/43/CEE (Directive européenne dite Directive Habitats-Faune-Flore) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
Oiseaux	2645	*Aquila chrysaetos (Linnaeus, 1758)*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
	2964	*Tetrao urogallus Linnaeus, 1758*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des espèces de gibier dont la chasse est autorisée *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
				Protection et commercialisation de certaines espèces d'oiseaux sur le territoire français national *(lien)*
	3608	*Dryocopus martius (Linnaeus, 1758)*	Autre	Directive 79/409/CEE (Directive européenne dite Directive Oiseaux) *(lien)*
				Liste des oiseaux protégés sur l'ensemble du territoire et les modalités de leur protection *(lien)*
Angiospermes	94698	*Dianthus barbatus L., 1753*	Autre	Liste des espèces végétales sauvages pouvant faire l'objet d'une réglementation préfectorale permanente ou temporaire *(lien)*
	105989	*Lilium martagon L., 1753*	Autre	Liste des espèces végétales sauvages pouvant faire l'objet d'une réglementation préfectorale permanente ou temporaire *(lien)*

8. LIENS ESPECES ET HABITATS

Non renseigné

Annexe 10 : Recensement agricole en 2010 à proximité du PERM

Commune	Exploitations agricoles ayant leur siège dans la commune	Superficie agricole utilisée (en ha)	Cheptel (en unité de gros bétail)	Orientation technico-économique de la commune	Superficie en terres labourables (en ha)	Superficie en terres permanentes (en ha)	Superficie toujours en herbe (en ha)
Couflens	2	51	17	Ovins et caprins	0	0	s
Seix	21	724	516	Autres herbivores	2	s	721
Ustou	19	456	464	Ovins et caprins	s	0	455

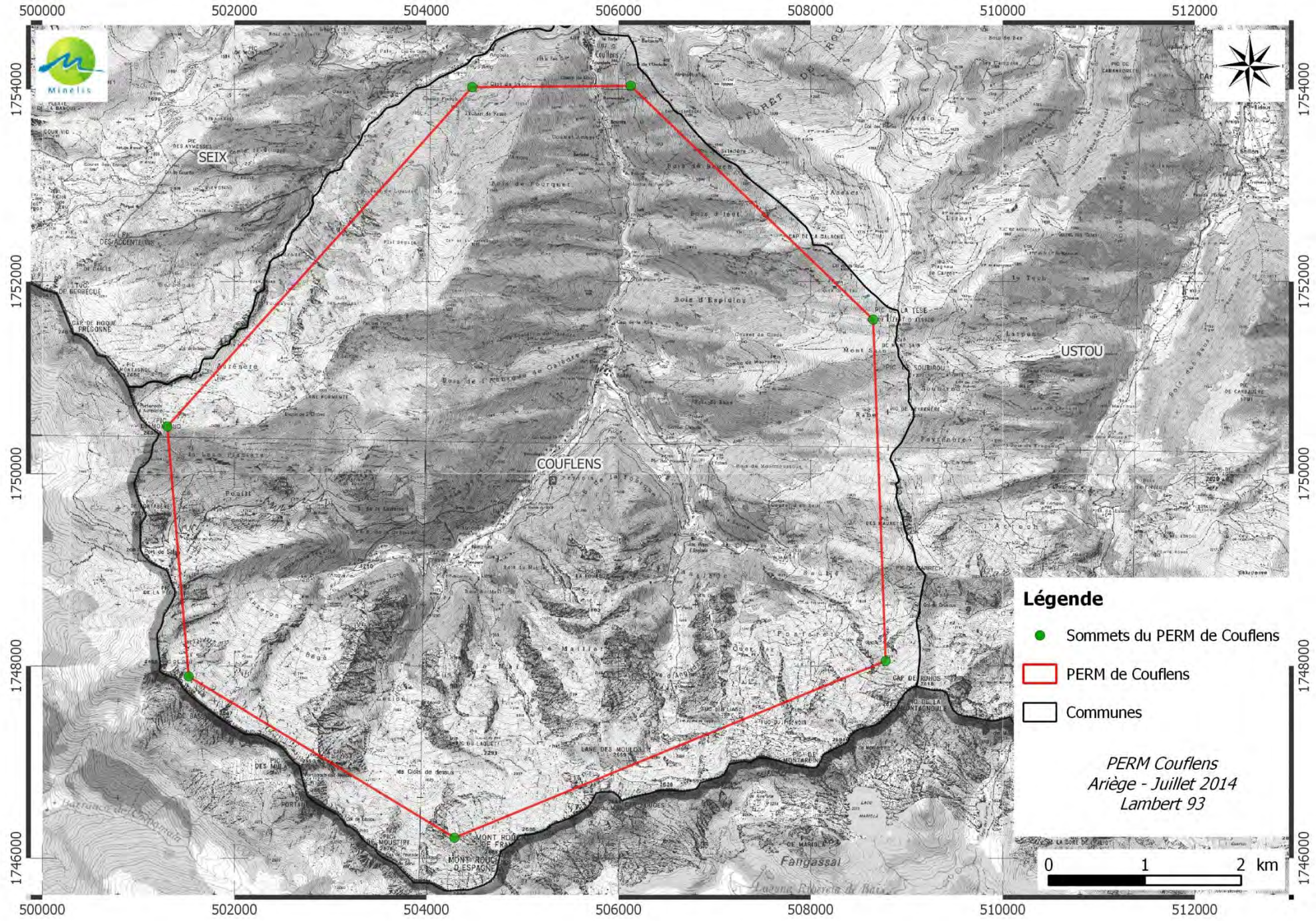
« s » signifie « donnée soumis au secret statistique »

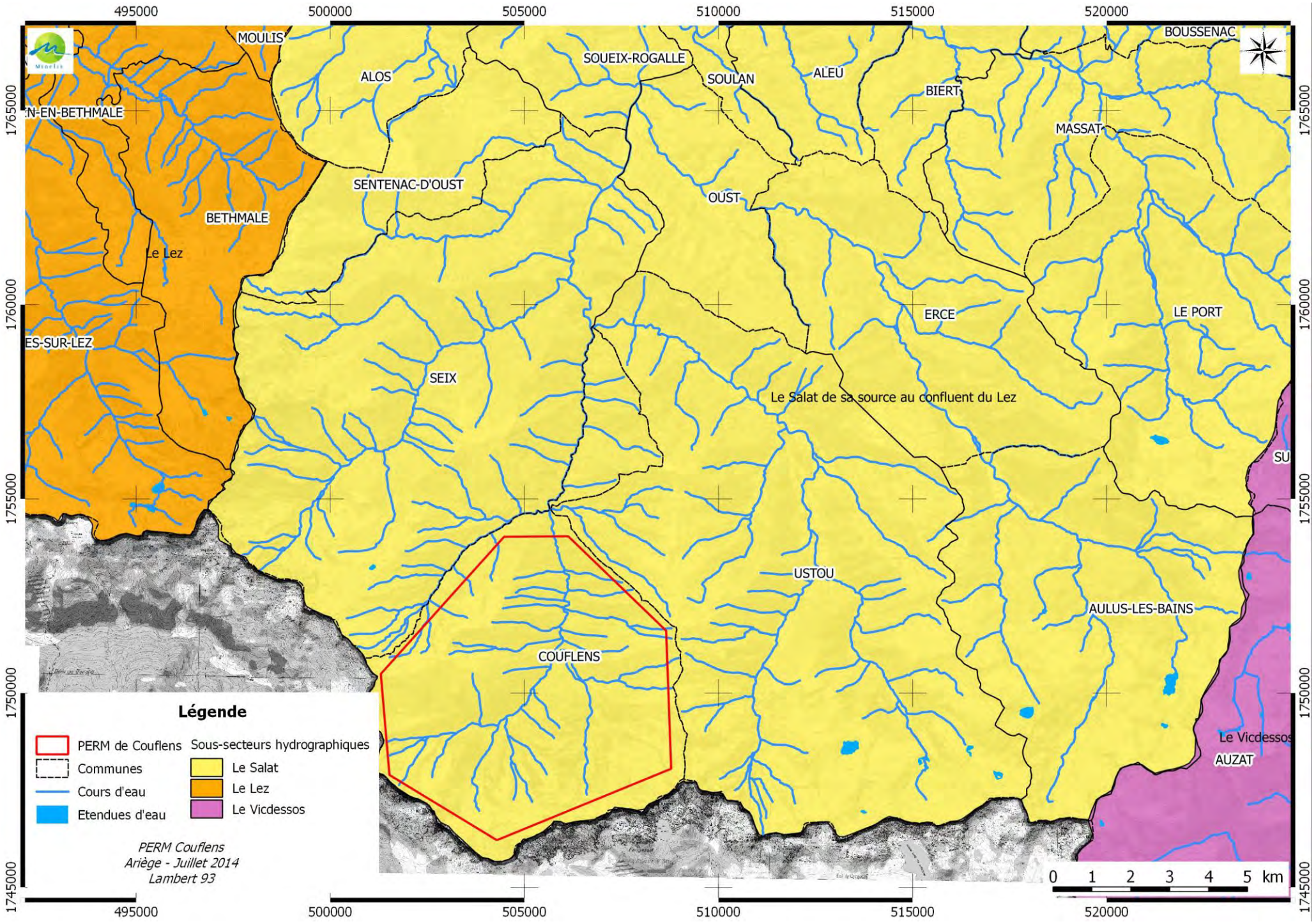
Annexe 11 : Liste des sites recensés dans la B.A.S.I.A.S.

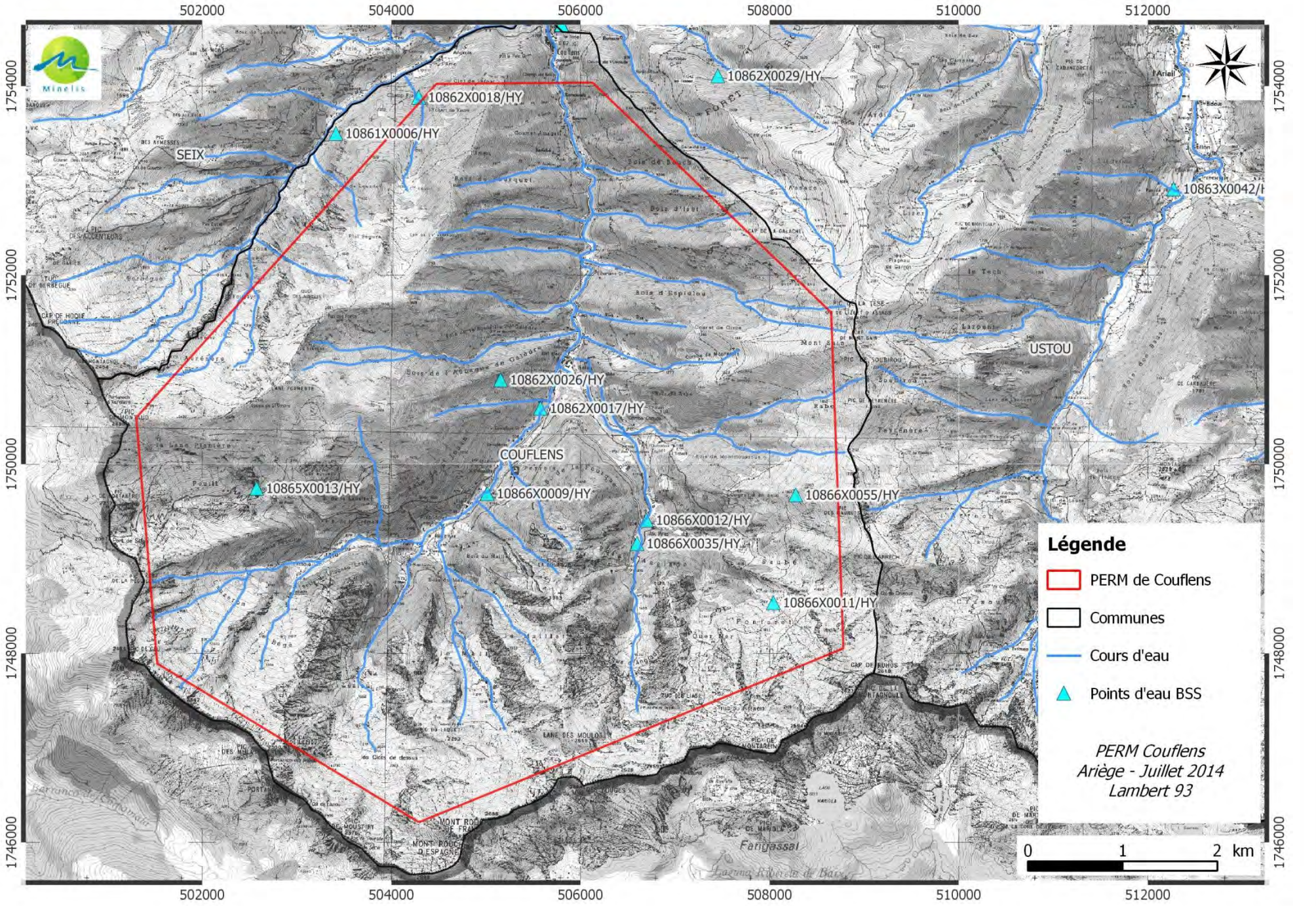
Identifiant	Etat du site	Raison sociale	Commune	Activité
MPY0903524	En activité	Commune de Couflens / Station d'épuration	Couflens	Traitement des eaux usées
MPY0901006	Activité terminée	Forest Gabriel / Fabrication de pâte à papier	Couflens	Fabrication de pâte à papier
MPY0901368	Activité terminée	Minière d'Anglade Site / Extraction de tungstène	Couflens	Extraction de minerais de métaux non ferreux
MPY0901722	Activité terminée	ARMAND SARL / Carrosserie, peinture, garage	Seix	Garage, ateliers, mécanique, soudure, carrosserie
MPY0903054	En activité	MALATESTE / Station service, garage	Seix	Station service, garages, ateliers, mécanique, soudure
MPY0902109	Activité terminée	Décharge brute / Décharge	Seix	Collecte et stockage des déchets non dangereux
MPY0903577	En activité	Commune de Seix / Station d'épuration	Seix	Traitement des eaux usées
MPY0902110	Activité terminée	Décharge brute / Décharge	Seix	Collecte et stockage des déchets non dangereux
MPY0903576	En activité	Commune de Seix / Station d'épuration	Seix	Traitement des eaux usées
MPY0901291	Ne sait pas	Teinturerie	Seix	Ennoblissement textile
MPY0901686	Activité terminée	PIPPI FRERES / GUZET CFL / Décharge brute	Ustou	Collecte et stockage des déchets non dangereux
MPY0902124	Activité terminée	Ustou Commune / Décharge brute	Ustou	Collecte et stockage des déchets non dangereux
MPY0903585	En activité	Commune d'Ustou / Station d'épuration	Ustou	Traitement des eaux usées

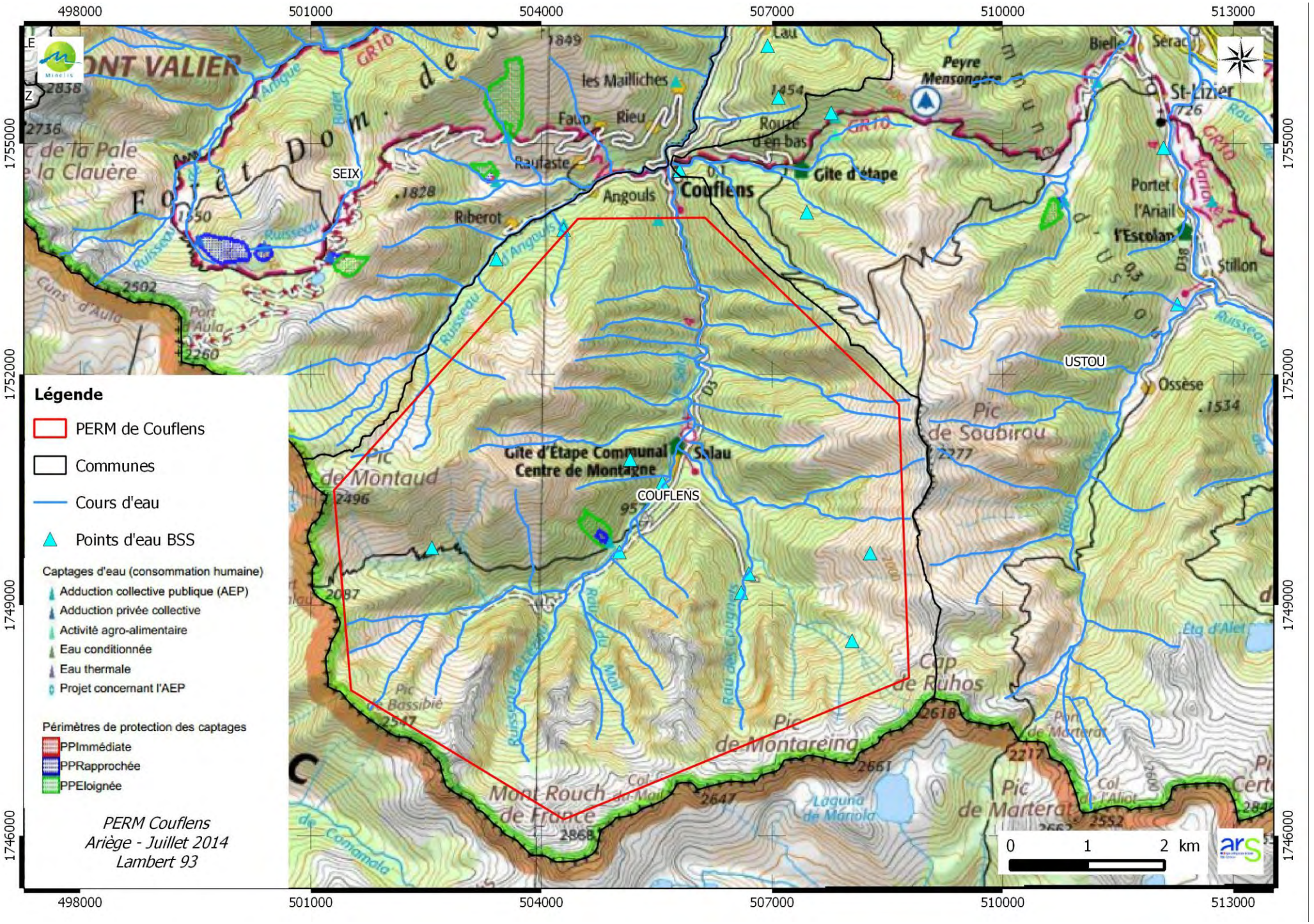
Annexe 12 : Figures construites dans le cadre de cette étude

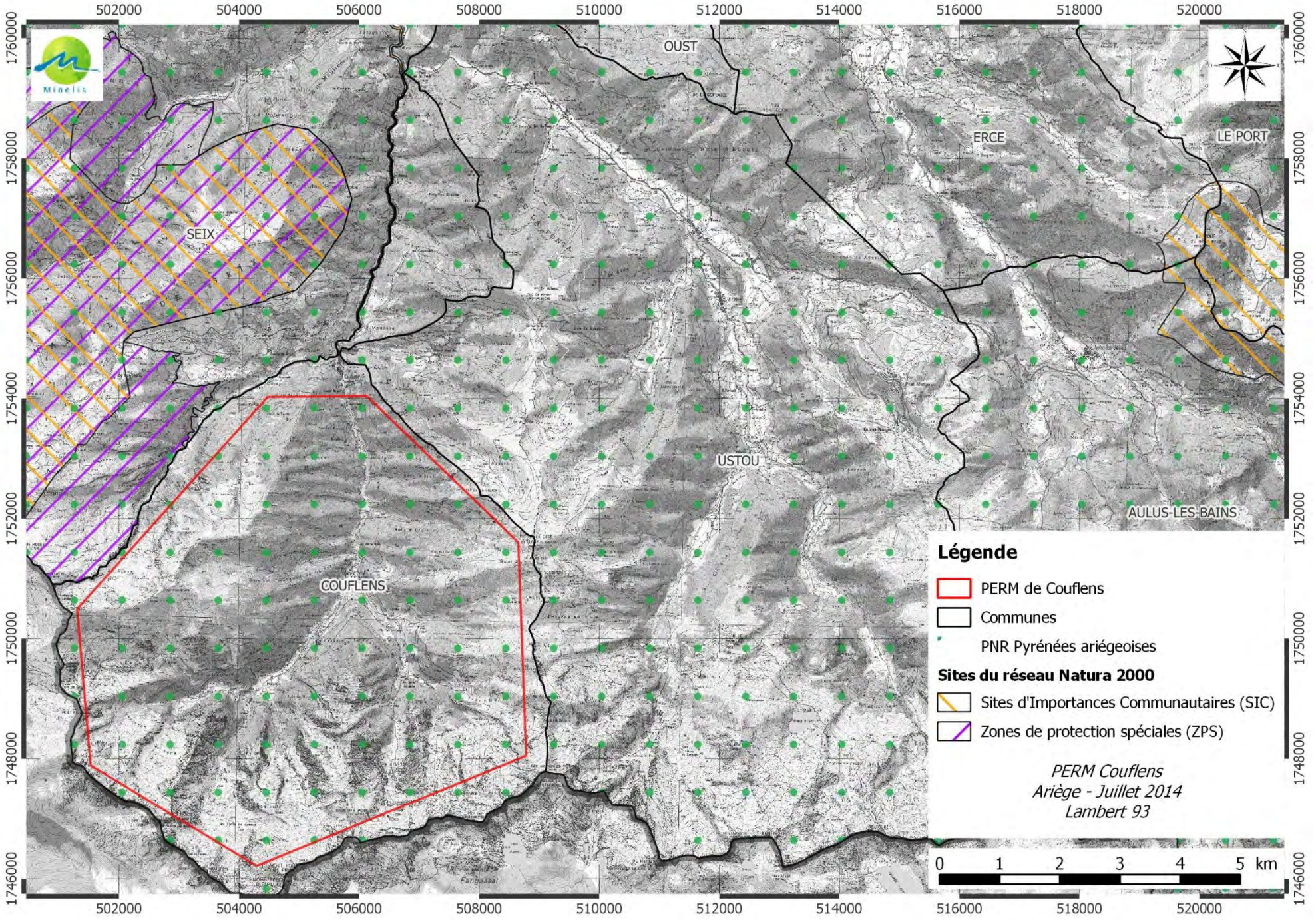
1. Carte des limites et sommets du PERM COUFLENS
2. Carte du réseau hydrographique et des masses d'eau superficielles
3. Carte de localisation des ouvrages recensés dans la BSS et des masses d'eau souterraines
4. Carte de localisation des captages AEP et des périmètres de protection associés
5. Carte des espaces naturels bénéficiant de protections réglementaires ou contractuelles
6. Carte des espaces naturels inventoriés
7. Carte des sites du réseau Natura 2000 (grande échelle)
8. Carte des sites du réseau Natura 2000 par type (grande échelle)
9. Carte des sites du réseau Nature 2000 (échelle plus restreinte)
10. Carte de localisation des sites répertoriés dans la BASIAS
11. Carte de sensibilité du patrimoine culturel, historique, architectural et paysager

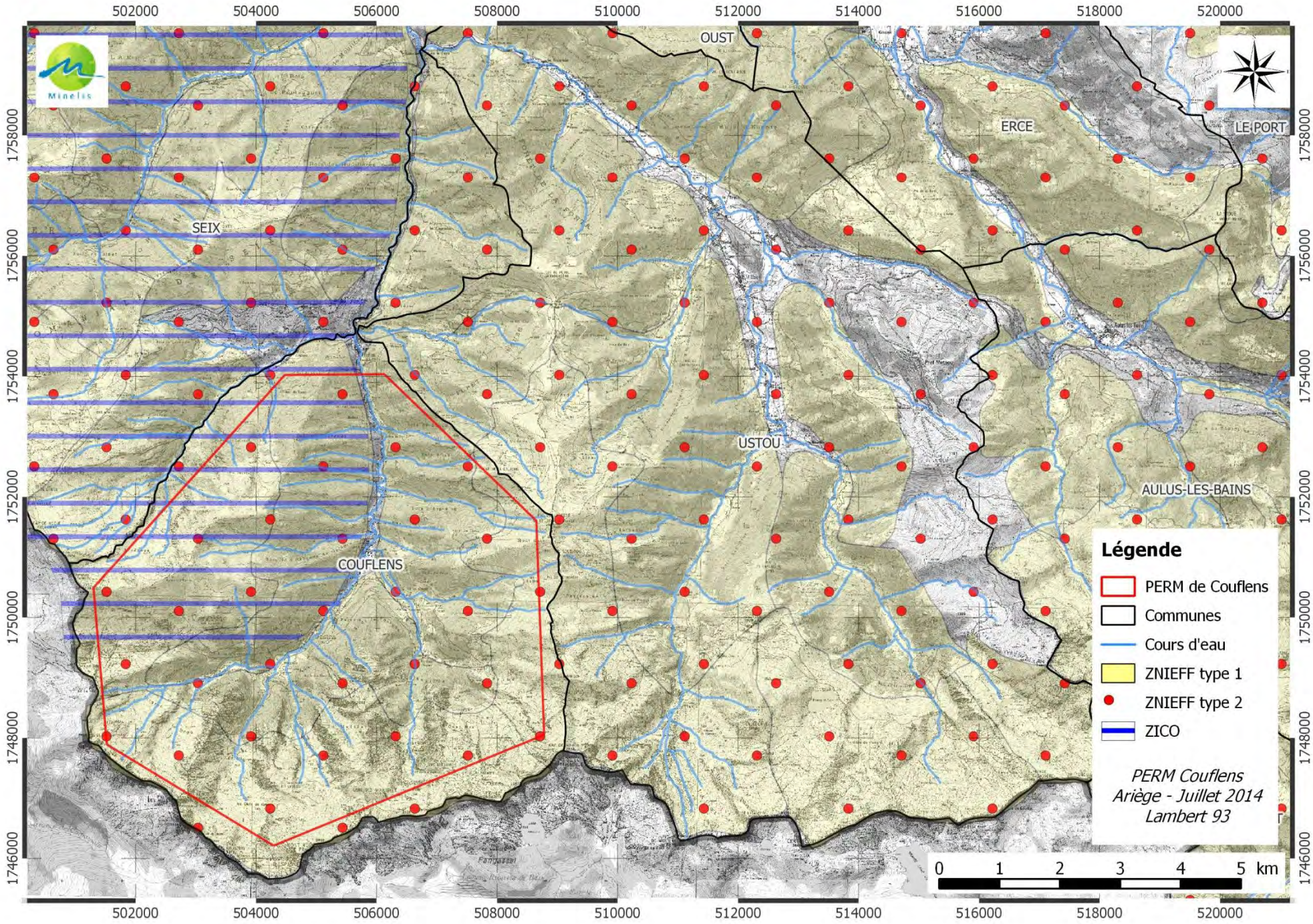

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PERM de Couflens
Communes
PERM Couflens
Ariège - Juillet 2014
Lambert 93
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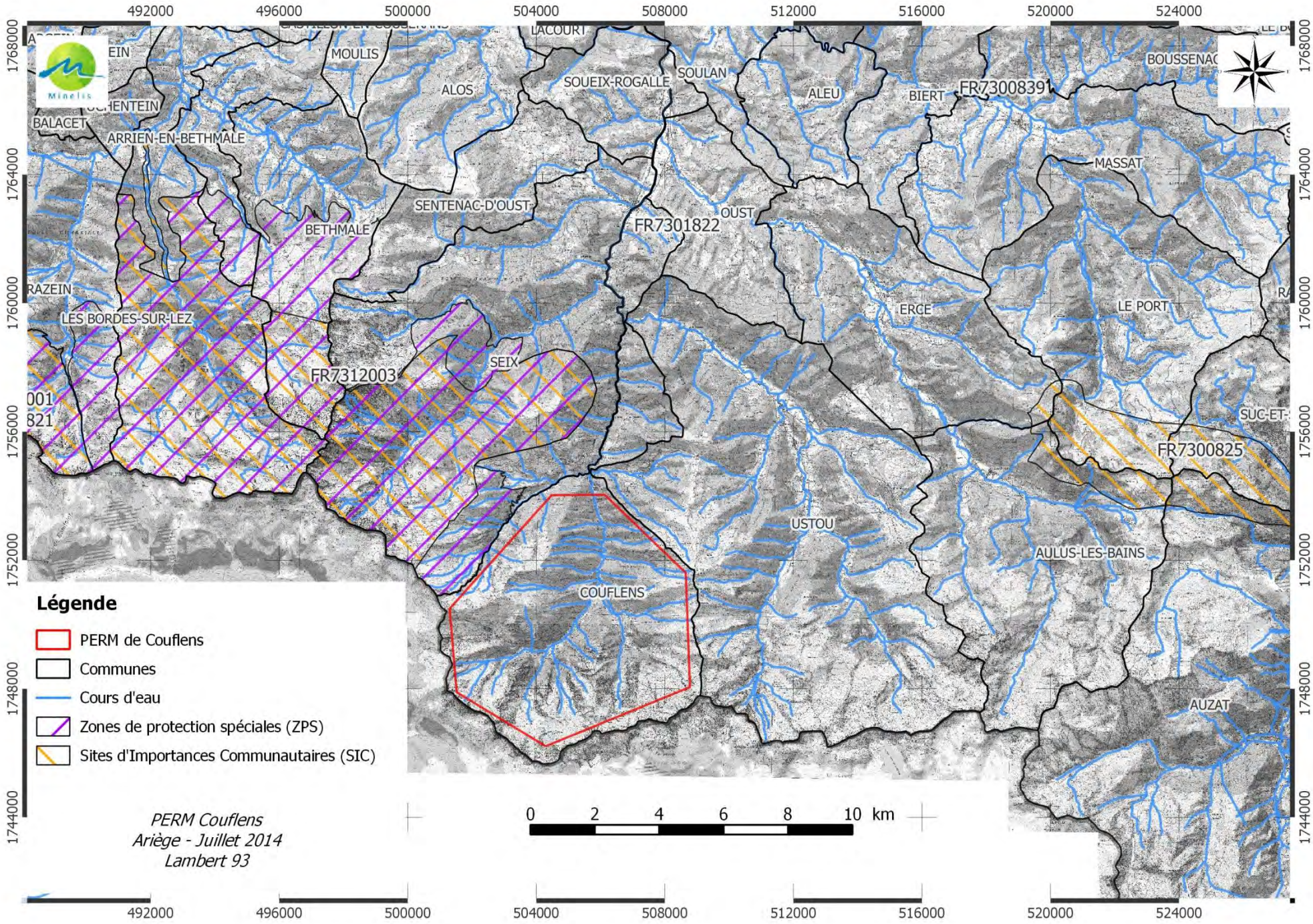

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SENTENAC-D'OUST
OUST
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Le Lez
ERCE
LE PORT
ES-SUR-LEZ
SEIX
Le Salat de sa source au confluent du Lez
SU
USTOU
AULUS-LES-BAINS
COUFLENS
Le Vicdessos
AUZAT
Légende
PERM de Couflens
Communes
Cours d'eau
Etendues d'eau
Sous-secteurs hydrographiques
Le Salat
Le Lez
Le Vicdessos
PERM Couflens
Ariège - Juillet 2014
Lambert 93
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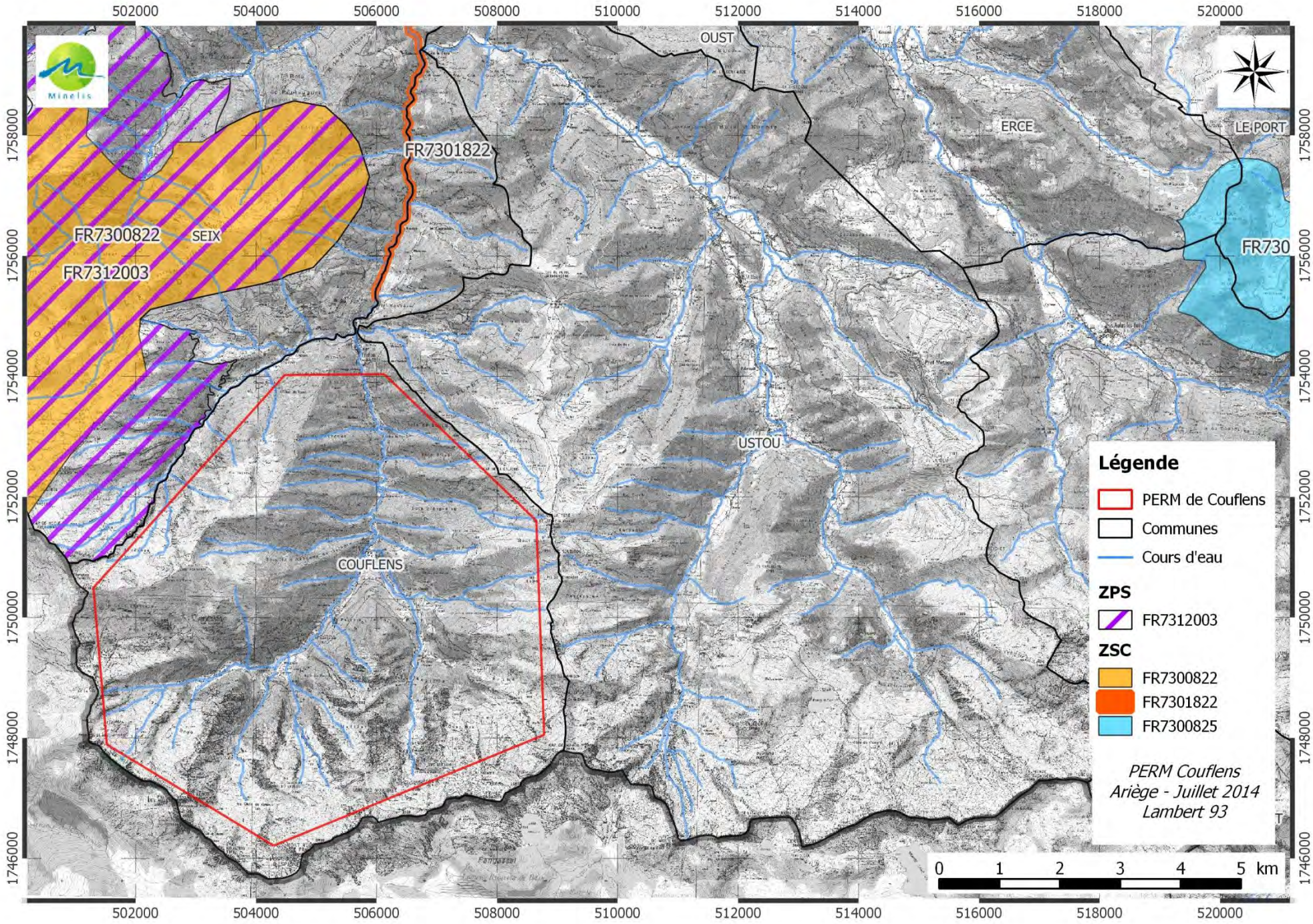

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10866X0009/HY
10866X0055/HY
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10866X0035/HY
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Légende
PERM de Couflens
Communes
Cours d'eau
Points d'eau BSS
PERM Couflens
Ariège - Juillet 2014
Lambert 93
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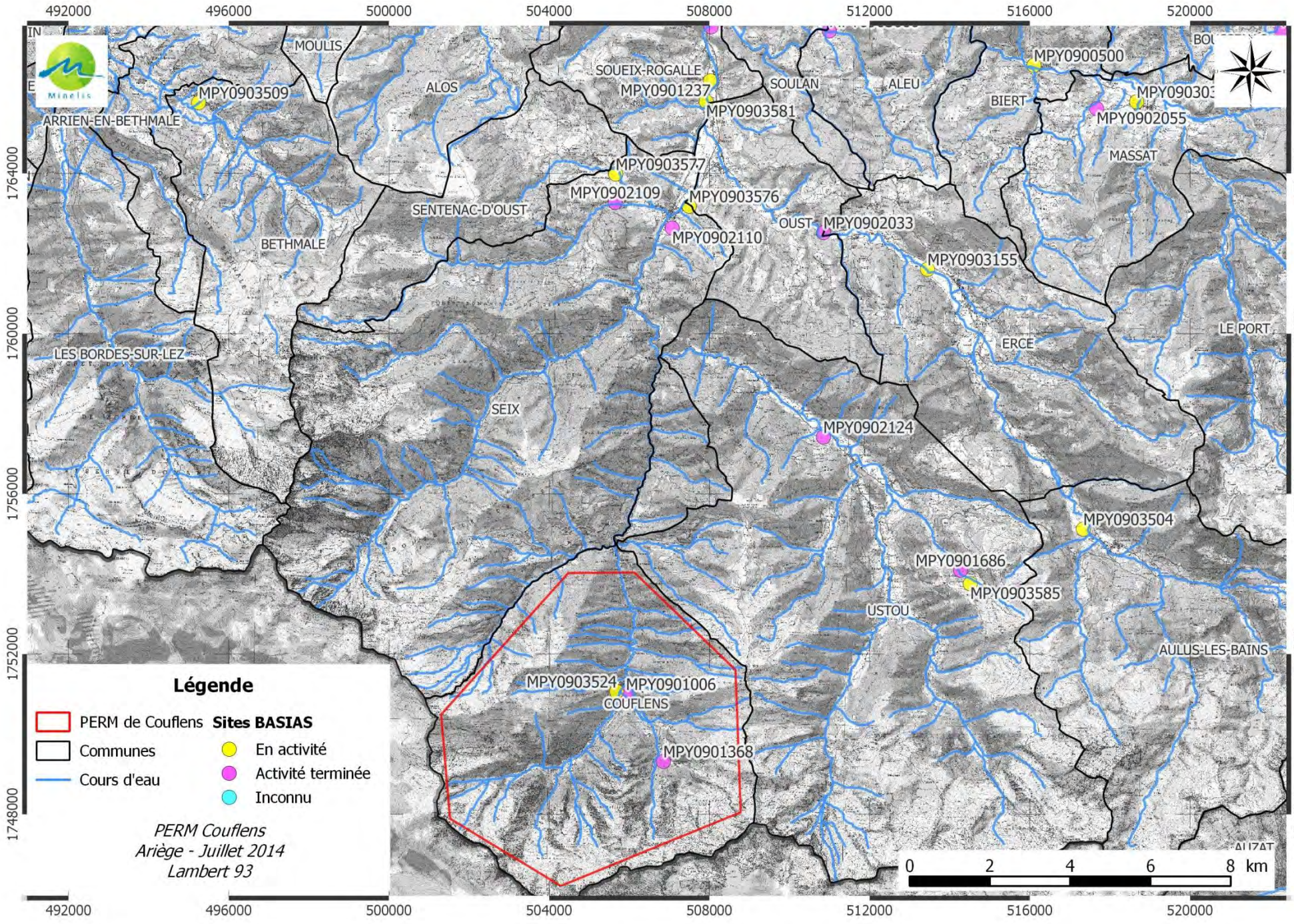

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PERM de Couflens
Communes
Cours d'eau
Points d'eau BSS
Captages d'eau (consommation humaine)
Adduction collective publique (AEP)
Adduction privée collective
Activité agro-alimentaire
Eau conditionnée
Eau thermale
Projet concernant l'AEP
Périmètres de protection des captages
PPImmédiate
PPRapprochée
PPEloignée
PERM Couflens
Ariège - Juillet 2014
Lambert 93
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Forêt Dom. de
SEIX
Couflens
Gîte d'étape
Gîte d'Étape Communal
Centre de Montagne
COUFLENS
USTOU
St-Lizier
Portet
l'Ariail
l'Escolan
Stillon
Ossèse
Pic de Soubirou
Pic de Montaud
Pic de Montareing
Cap de Ruhos
Mont Rouch
de France
Pic de Marterat
Pic Bassibié
Peyre Menongère
les Mailliches
Raufaste
Riberot
Angouls
Rieu
Route d'en bas
Laguna de Mariola
Étg d'Alet

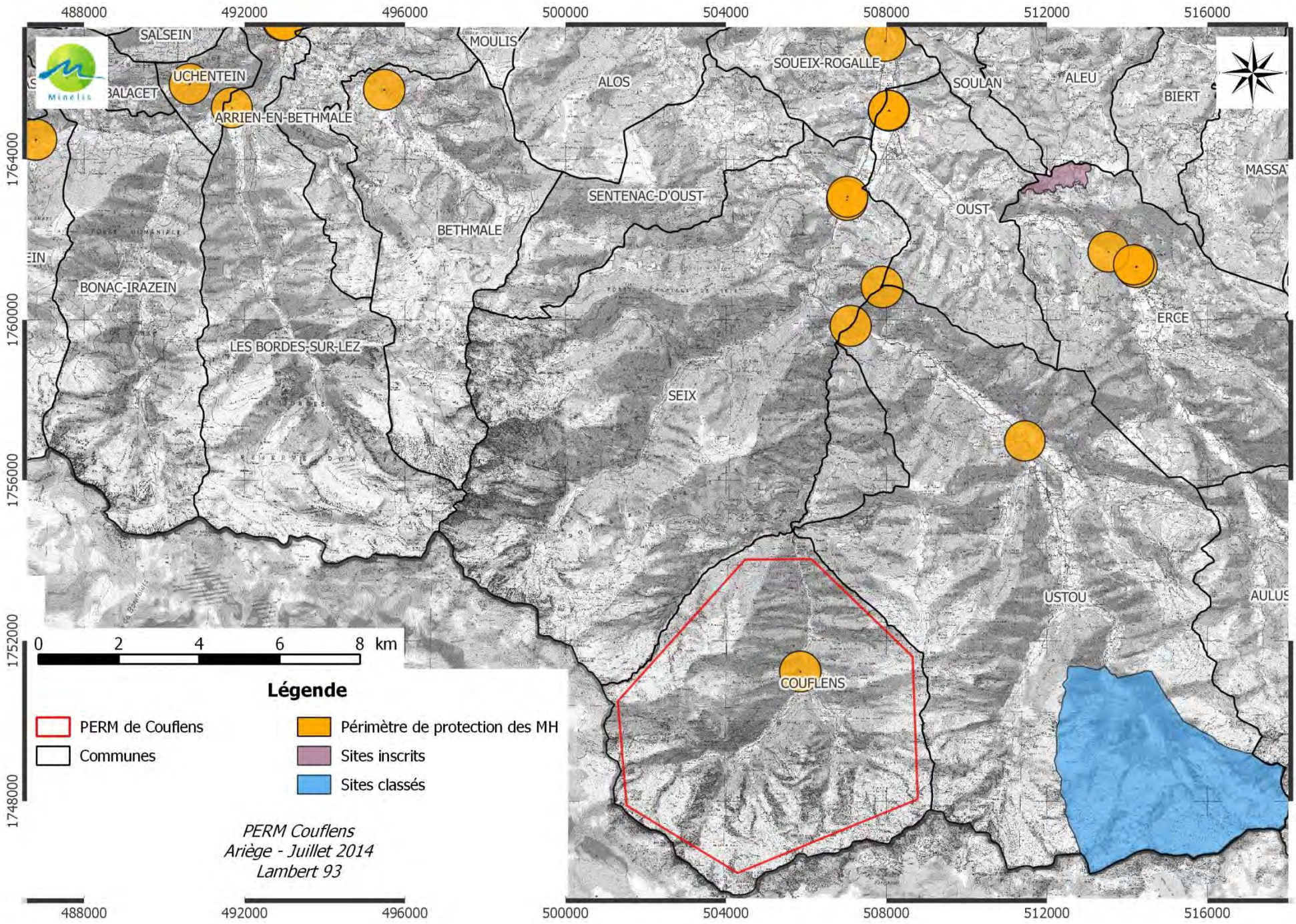

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COUFLENS
Légende
PERM de Couflens
Communes
PNR Pyrénées ariégeoises
Sites du réseau Natura 2000
Sites d'Importances Communautaires (SIC)
Zones de protection spéciales (ZPS)
PERM Couflens
Ariège - Juillet 2014
Lambert 93
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SEIX
USTOU
AULUS-LES-BAINS
COUFLENS
Légende
PERM de Couflens
Communes
Cours d'eau
ZNIEFF type 1
ZNIEFF type 2
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PERM Couflens
Ariège - Juillet 2014
Lambert 93
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BOUSSENAC
MASSAT
BALACET
ARRIEN-EN-BETHMALE
SENTENAC-D'OUST
OUST
FR7301822
BETHMALE
RAZEIN
LES BORDES-SUR-LEZ
ERCE
LE PORT
SEIX
FR7312003
SUC-ET-
FR7300825
USTOU
AULUS-LES-BAINS
COUFLENS
AUZAT
Légende
PERM de Couflens
Communes
Cours d'eau
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Sites d'Importances Communautaires (SIC)
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Ariège - Juillet 2014
Lambert 93
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FR7312003
FR730
USTOU
COUFLENS
Légende
PERM de Couflens
Communes
Cours d'eau
ZPS
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FR7300822
FR7301822
FR7300825
PERM Couflens
Ariège - Juillet 2014
Lambert 93
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SOUEIX-ROGALLE
SOULAN
ALEU
BIERT
MASSAT
ARRIEN-EN-BETHMALE
SENTENAC-D'OUST
BETHMALE
OUST
LES BORDES-SUR-LEZ
SEIX
ERCE
LE PORT
USTOU
AULUS-LES-BAINS
COUFLENS
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MPY0903581
MPY0900500
MPY0902055
MPY0903577
MPY0902109
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MPY0902110
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MPY0902124
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MPY0903585
MPY0903524
MPY0901006
MPY0901368
Légende
PERM de Couflens
Communes
Cours d'eau
Sites BASIAS
En activité
Activité terminée
Inconnu
PERM Couflens
Ariège - Juillet 2014
Lambert 93
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4
6
8 km


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ALOS
SOUEIX-ROGALLE
SOULAN
ALEU
BIERT
MASSAT
SENTENAC-D'OUST
OUST
BETHMALE
BONAC-IRAZEIN
LES BORDES-SUR-LEZ
SEIX
ERCE
USTOU
AULUS
COUFLENS
0 2 4 6 8 km
Légende
PERM de Couflens
Communes
Périmètre de protection des MH
Sites inscrits
Sites classés
PERM Couflens
Ariège - Juillet 2014
Lambert 93

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Permis Exclusif de Recherche de Mines de COUFLENS

MINELIS	Variscan - Couflens - Notice d'incidence Natura 2000	VAR-COU-b-1404	07/08/2014

Permis Exclusif de Recherche de Mines de COUFLENS
Notice d'incidence Natura 2000

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PREAMBULE

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LISTE DES ACRONYMES

INPN	Inventaire National du Patrimoine Naturel
MNHN	Muséum National d'Histoire Naturelle
PERM	Permis Exclusif de Recherche de Mines
SIC	Site d'Importance Communautaire
ZPS	Zone de Protection Spéciale
ZSC	Zone Spéciale de Conservation

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Introduction

La Société VARISCAN MINES sollicite l'octroi d'un permis exclusif de recherche de mines en application des dispositions du décret n°2006-648 du 2 juin 2006 relatif aux Titres Miniers et aux Titres de Stockage Souterrain. Une notice d'impact est donc préparée pour répondre aux dispositions du décret du 2 juin 2006. Le décret n°2011-2019 du 29 décembre 2011 apporte une nouvelle règlementation des études d'impact applicable au 1er juin 2012.

Lors de l'élaboration de cette notice d'impact, aucun site du réseau Natura 2000 n'a été recensé sur l'emprise du permis exclusif de recherche de mines de COUFLENS. Cependant, la proximité de certains sites Natura 2000 conduit à l'établissement d'un dossier d'évaluation des incidences en parallèle de la notice d'impact et qui vient la compléter.

La définition d'un SIC (site d'intérêt communautaire) est l'étape préalable à la désignation d'un site en Zone Spéciale de Conservation. Ce type de protection communautaire a vocation à mettre en œuvre une politique contractuelle visant à protéger et à préserver des milieux sensibles ou remarquables identifiés pour leurs habitats (faune et flore). C'est pourquoi la Directive à l'origine de cette protection (Directive 92/43/CEE du 21 mai 1992, modifiée) prend souvent le nom de Directive « Habitats-Faune-Flore ».

La ZPS (Zone de Protection Spéciale) correspond quant à elle à la Directive dite « Oiseaux » (Directive 79/409/CEE du 2 avril 1979, modifiée) et a vocation à assurer la préservation de zones importantes pour la nidification, l'habitat et l'alimentation de certaines espèces d'oiseaux sauvages.

Ces Directives européennes sont transposées en droit français par :

- l'ordonnance n°2001-321 du 11 avril 2001 (JO du 14/04/2001), modifiée par la loi n°2005-157 du 23 février 2005 *relative au Développement des territoires ruraux* (livre IV (Faune et Flore), articles L.414-1 à L.414-4 du Code de l'environnement) ;
- l'arrêté du 16 novembre 2001 (JO n°32 du 07/02/2002 page 2518 à 2527 ; article R.214-15 du code de l'environnement) *relatif à la liste des types d'habitats naturels et des espèces de faune et de flore sauvages qui peuvent justifier la désignation de zones spéciales de conservation* ;
- le décret n°2001-1031 du 8 novembre 2001 (JO du 9/11/2011) *relatif à la procédure de désignation des sites Natura 2000* ;
- le décret n°2001-1216 du 20 décembre 2001 *relatif à la gestion des sites Natura 2000* ;
- la circulaire du 5 octobre 2004 (DNP/SDEN N°2004-1) *relative aux évaluations des incidences des programmes et projets de travaux, d'ouvrages ou d'aménagements susceptibles d'affecter de façon notable les sites Natura 2000*.

La présente notice d'incidence est conçue dans le respect de ces Directives. Elle présente notamment :

- une description du projet ;
- une analyse de l'état de conservation des habitats naturels et des espèces ;
- une liste des mesures envisagées par le pétitionnaire pour supprimer ou réduire les conséquences dommageables du projet sur l'état de conservation des habitats naturels et des espèces du ou des sites concernés en rapport avec les documents d'objectifs de chaque zone Natura 2000 ;
- une conclusion sur l'atteinte portée ou non par le projet à l'intégrité du ou des sites Natura 2000 ;
- dans le cas où le projet, malgré les mesures évoquées ci-dessus porte atteinte à l'état de conservation des habitats naturels et des espèces du ou des sites concernés, les raisons justifiant, le cas échéant, sa réalisation :
    - Absence de solutions alternatives de moindre incidence ;
    - Raisons impératives d'intérêt public ;
    - Mesures envisagées par le maître d'ouvrage pour compenser les conséquences dommageables du projet ;
- une analyse des méthodes utilisées pour évaluer les incidences du projet et les difficultés rencontrées.

1 Description du projet

1.1 Localisation du projet

Le projet se situe intégralement dans le département de l'Ariège (Région Midi-Pyrénées), au sud-ouest de la ville de Foix, centré sur la commune de Couflens, en bordure de la frontière espagnole (cf. **Figure 1**). L'ensemble du projet de PERM couvre une superficie de 42,00 km^2 à l'intérieur d'un bloc délimité par les lignes joignant les sommets A, B, C, D, E, F et G ci-dessous (cf. **Tableau 1** et **Erreur ! Source du renvoi introuvable.**).

Sommet	Coordonnées en Projection Lambert 93		Cote
	X (m)	Y (m)	Z (m NGF)
A	547050	6185300	2440
B	550250	6188800	920
C	551900	6188800	970
D	554400	6186350	2050
E	554500	6182800	2320
F	550000	6181000	2580
G	547250	6182700	2380

Tableau 1 : Coordonnées des points délimitant le périmètre du PERM COUFLENS

Le polygone d'application du PERM s'inscrit à l'intérieur du périmètre de la commune de Couflens.

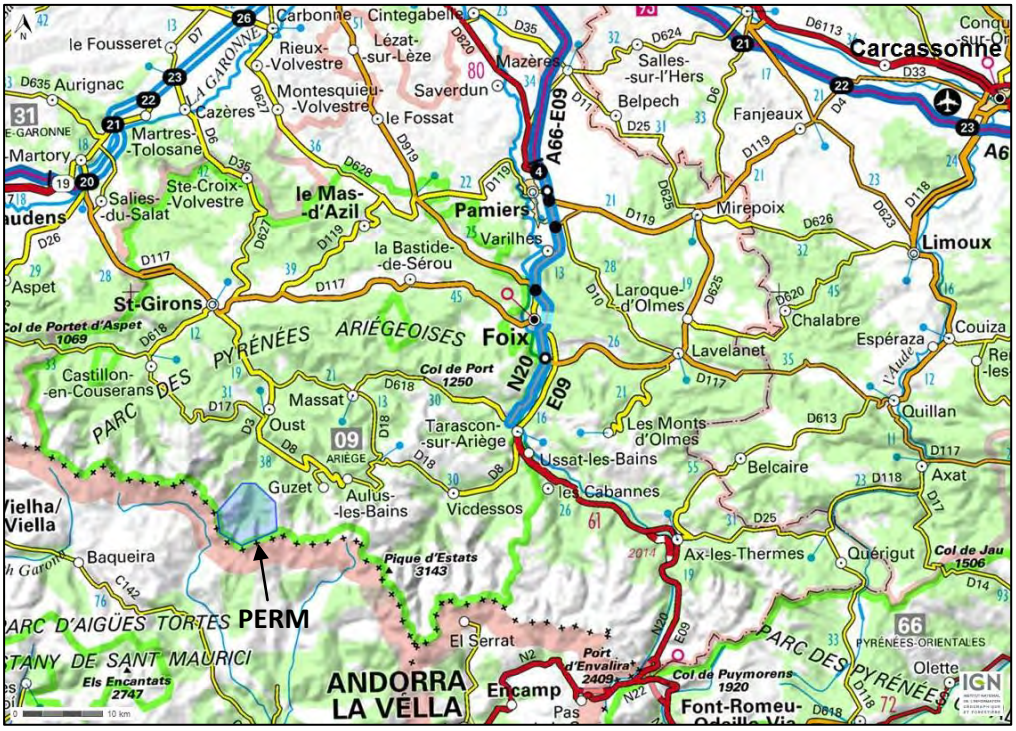


Figure 1 : Localisation du PERM COUFLENS dans son contexte départemental (en bleu clair)

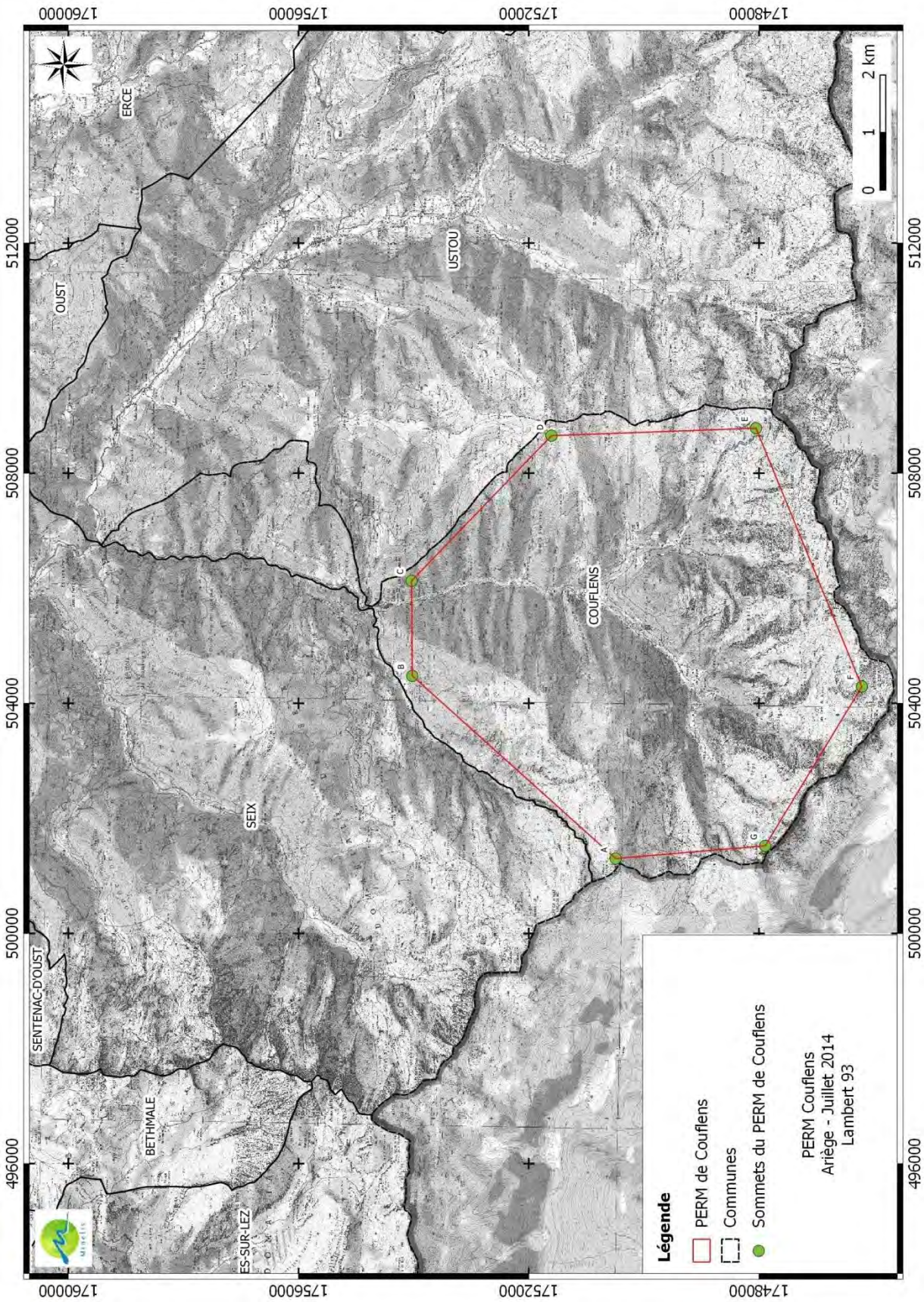


Figure 2 : Carte de localisation du PERM COUFLENS

1.2 Installation dûne base op®rationnelle

Le titulaire du PERM achètera un bâtiment adapté et un terrain suffisant pour aménager des locaux techniques et mener à bien l'ensemble du projet sur les cinq années imparties. L'impact environnemental de l'installation d'une base opérationnelle se limitera à celui de l'aménagement d'un bâtiment pour installation de bureaux et d'un magasin de stockage pour l'organisation d'une lithothèque (banque de stockage des échantillons de roche, carottes de sondage, etc.).

1.3 Etudes g®ologiques

La partie préliminaire consiste à réaliser une synthèse des données antérieures par recherches bibliographiques et création d'une base de données informatique de représentation spatiale.

Le travail en bureau peut être complété par une vérification sur le terrain (simple visite sur le terrain, prélèvements d'échantillons, analyses Niton). Les géologues en charge des études veilleront à obtenir toutes les autorisations requises avant toute intervention dans les propriétés privées.

1.4 Travaux de g®ochimie

Les études géochimiques qui seront entreprises concerneront les contrôles au sol des anomalies géophysiques. De même que pour les études géologiques, les géologues en charge des études veilleront à obtenir toutes les autorisations requises avant toute intervention dans les propriétés privées.

Deux types de prélèvements sont prévus : les prélèvements de sols superficiels et éventuellement les prélèvements de sols profonds (2 à 5 m) par tarière à main. Ces prélèvements seront effectués dans le respect de l'environnement et des cultures.

<u>Pour les sols superficiels</u>

- En zone de prairie ou en sous-bois, l'échantillon sera prélevé à la base des racines. Une motte de 20 cm x 20 cm sera retirée à la pelle, puis environ 250 g de terre seront prélevés au fond du trou, et la motte herbeuse sera ensuite remise en place.
- En zone de labours, les échantillons seront directement prélevés à la surface des mottes ou en fond de sillon (suivant la profondeur des labours).

<u>Pour les sols profonds (2 à 5 m au maximum)</u>
Le prélèvement géochimique s'effectuera à la base des sols, dans la saprolite. Une tarière hélicoïdale à main sera utilisée, la faible profondeur à atteindre ne nécessitant pas la mise en œuvre de moyens mécaniques.

1.5 Travaux de g®ophysique

Ces travaux consisteront en :

- Une **campagne aéroportée de magnétométrie, de scintillométrie et de gravimétrie potentielle**. Cette technique consiste à réaliser des lignes de vol à partir d'un petit avion (éventuellement un hélicoptère) équipé de capteurs mesurant les variations du champ magnétique terrestre et la radioactivité naturelle U, Th et K^{40}. Les lignes de vol seront espacées de 100 m et le capteur embarqué évoluera à plus de 40 m du sol pour éviter tout risque de collision avec les arbres et lignes électriques. Pour couvrir la superficie de 42,00 km^2, le petit avion de tourisme effectuera des survols selon des trajectoires programmées à l'avance. Cette technique ne provoque aucune nuisance, si ce n'est le bruit causé par le petit avion de tourisme. Toutefois, une campagne d'information sera menée dans les communes concernées par le PERM COUFLENS et dans les médias pour ne pas que la population soit surprise de voir un avion faire de nombreux passages à faible altitude.

- Une **campagne d'électromagnétisme héliporté HELITEM**. Cette technique consiste à réaliser des lignes de vol à partir d'un hélicoptère AS 350 B de l'Aérospatiale équipé d'une boucle d'émission de champ électromagnétique et d'un capteur pour en mesurer les variations liées à la nature des roches survolées. De même que précédemment, cette technique ne provoque aucune nuisance si ce n'est la brève nuisance sonore liée au survol de l'hélicoptère. Une campagne d'information sera également menée dans les communes concernées par le PERM COUFLENS et dans les medias car le caractère spectaculaire de la boucle d'émission est susceptible de soulever de nombreuses interrogations.

- Un **contrôle au sol par magnétométrie et gravimétrie** des principales anomalies définies par les techniques aéroportées et héliportées. Ces mesures, effectuées à partir d'appareils portables de petite dimension (magnétomètre au Césium de type G-858 de Geometrics et petite station gravimétrique sur une grille de mesure de 200 x 50 m) et qui s'apparentent aux travaux de géologie, ne présentent aucun impact environnemental. Les géophysiciens impliqués veilleront à obtenir toutes les autorisations requises avant toute intervention dans les propriétés privées.

1.6 Tranch®es d©exploration

Les travaux éventuellement envisagés peuvent s'apparenter à de petits travaux publics et consistent à creuser des tranchées perpendiculairement aux structures minéralisées affleurantes afin de permettre leur localisation précise et leur échantillonnage. Ces tranchées seront éventuellement réutilisées en cas de découverte de chapeau de fer non localisé jusqu'à aujourd'hui (cette éventualité demeurant peu probable). La profondeur maximale ne doit pas excéder 1,30 m afin de satisfaire à la législation relative aux travaux publics (articles 66, 67, 68, 70, 71, 72, 74 et 77 du décret du 8 janvier 1965 modifié intitulé « travaux de terrassement à ciel ouvert »).
Lors de leur réalisation, la terre végétale sera stockée séparément de la partie plus profonde. Les tranchées seront rebouchées aussitôt réalisés le levé géologique et l'échantillonnage. La terre végétale sera remise en place, limitant au strict minimum l'impact environnemental de leur ouverture.

La réalisation de ces tranchées implique l'amenée d'une pelle hydraulique et l'immobilisation pour plusieurs jours d'une partie des terrains concernés (le temps de leur étude). Ces tranchées seront signalées et balisées afin d'éviter toute chute accidentelle et ne seront réalisées qu'avec l'accord formel du propriétaire du terrain. Elles feront systématiquement l'objet d'un contrat d'indemnisation pour la gêne causée.

Par ailleurs, le chantier sera surveillé en permanence et interdit au personnel non autorisé.

1.7 Sondages

Les travaux envisagés peuvent se décomposer en trois stades : des travaux d'accès, d'aménagement et de déploiement du matériel (1 jour), les travaux de forage proprement dits d'une durée de quelques jours à deux ou trois semaines (à la vitesse approximative de 100 m par jour) et la remise en état du terrain et le repli du matériel (1 jour). Ces durées sont données à titre indicatif pour un sondage type. Le temps de sondage, hors incidents, est dépendant de la profondeur finale à atteindre. Il sera donc un peu plus long pour forer à 1 000 m, ou au contraire plus court si le sondage est arrêté à 50 m. Le carottage demande parfois un peu plus de temps du fait de la manutention des carottes. Cependant, dans le cas de sondages multiples à partir d'une même plate-forme, la durée de sondage peut s'étendre à 2 ou 3 semaines. La profondeur des sondages sera adaptée à la nature des terrains. Ils pourront être de 15 à 20 m ou de plus de 1 000 m de profondeur. A titre indicatif, la profondeur moyenne des sondages est estimée être entre 250 et 500 m. Elle ne dépassera pas les 1 500 m de profondeur.

	Jour 1	Jour 2	Jour 3	Jour 4	Jour 5	Jour 6
Préparation et mise en place						
Réalisation des sondages						
Remise en état et replis						

Tableau 2 : Planning théorique d'un sondage-type (cas d'un sondage unique)

Diverses techniques de sondages seront utilisées :

- Les sondages destructifs par circulation inverse (RC) qui offrent l'avantage d'un coût plus réduit (80 à 100 € le mètre foré) et permettent un contrôle des déviations. Ces sondages seront utilisés prioritairement pour traverser les terrains encaissants correspondant aux cibles profondes. Pour donner une idée du matériel, sa taille est approximativement de 6 m de long sur 2,5 m de large et 3 m de haut avec un poids inférieur à 8 tonnes.



Figure 3 : Foreuse à circulation inverse



Figure 4 : Foreuse pour carottage

- Les sondages carottés HQ (diamètre 68 mm), plus coûteux (200 à 300 € le mètre foré), mais offrant une bien meilleure connaissance des minéralisations recoupées. La foreuse utilisée sera de petite taille (cf. **Figure 4**).

Pour réaliser des sondages profonds, la méthode destructive sera retenue pour la première partie du trou et la méthode par carottage pour la fin du trou. De plus, plusieurs sondages carottés seront réalisés à partir du fond d'un même sondage destructif. Cette approche par sondages multiples volontairement déviés permet une réduction significative des coûts et de l'impact environnemental (réduction du métrage total foré pour une connaissance équivalente). Pour assurer une lubrification de l'outil de forage et une densité au fluide de forage pour remonter les éclats de roche qui seront étudiés en surface, une boue de forage de type bentonite (appelée aussi argile « gonflante » ou argiles de type 14-17 Å) sera utilisée. Ce fluide est mis dans un circuit fermé lors du forage avec un bac de rétention. Lorsque la campagne de forage s'arrête, cette boue peut être mise en décharge de type inertes du BTP (classe 3) sauf cas particulier de souillure (sans raison *a priori* sauf cas accidentel). Le volume de boue dépend de la longueur du forage (environ 0,00785 m^3/ml soit 7 à 8 m^3 pour 1 000 m).

Le forage sera initié en diamètre de 140 à 150 mm ce qui permettra d'instrumenter plus facilement les trous en avant-puits.

La position, la profondeur et le nombre de ces sondages dépendront bien évidemment des résultats des campagnes de géophysique qui seront réalisées en préalable.

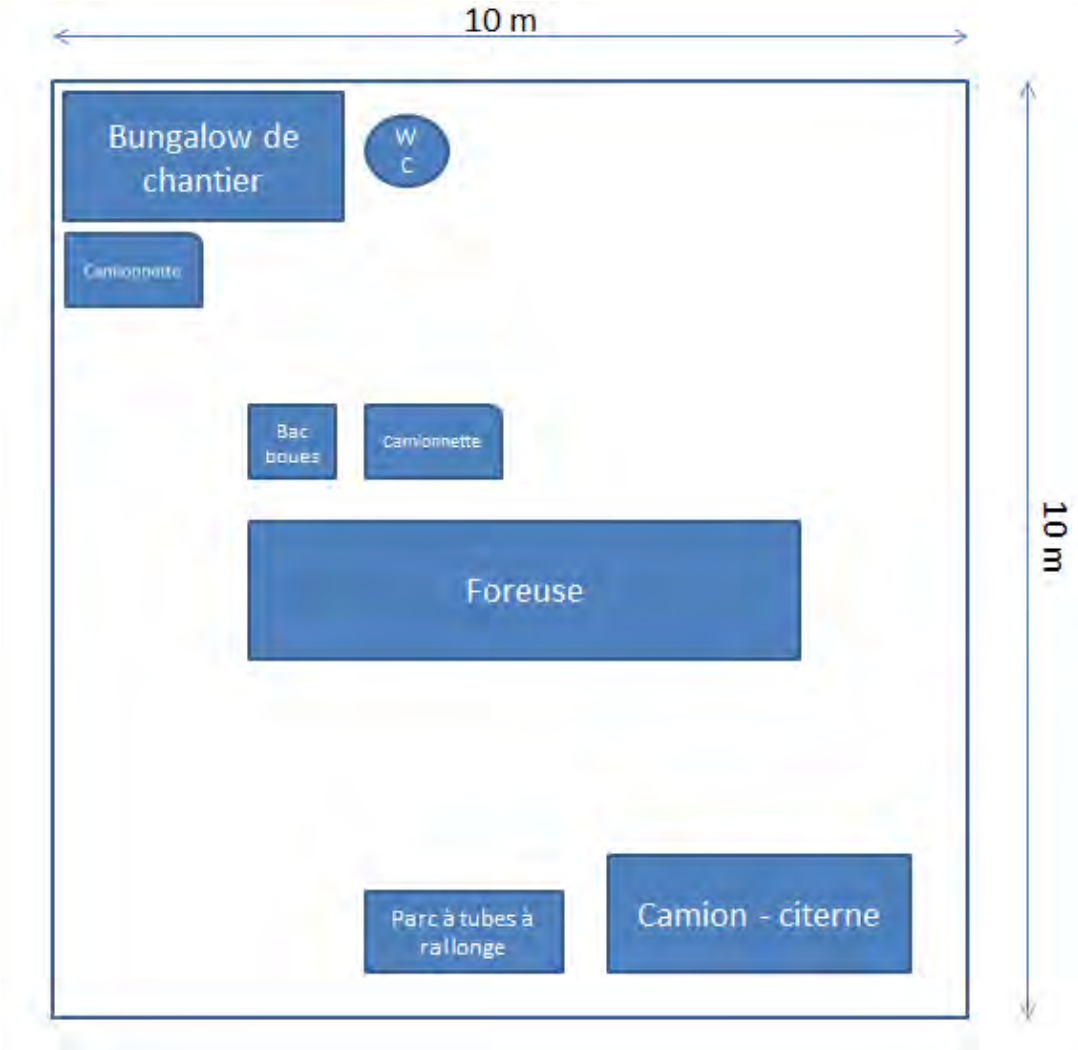


Figure 5 : Installation type d'une plateforme de forage

La sondeuse utilisée que ce soit pour les sondages destructifs (cutting) ou carottés peut être sur une remorque légère, un outil chenillé ou un camion adapté de classe 12 à 20 tonnes environ. Elle peut être accompagnée d'un petit camion-citerne (ou d'une remorque « tonne à eau »), d'une camionnette de service et d'un « parc à tubes à rallonges» pour permettre le forage. La « zone vie » des foreurs (baraque de chantier, toilettes chimiques, camionnette d'accompagnement) n'accompagne pas la sondeuse en tous points, mais peut être stabilisée sur une zone à distance raisonnable du chantier mobile. Des barrières de type HERAS ou équivalent pourront être utilisées.

Le procédé type de forage est le suivant : le forage se fait avec de l'eau pour remonter la matière et refroidir la tête de la foreuse. Quand le forage est de type destructif, les boues de roches broyées remontent et sont cyclonées sur le camion de forage. Les échantillons de roches peuvent alors être prélevés et les boues sont récupérées dans un bac de 1 à 2 m^3 où elles décantent. L'eau du bac de décantation est ensuite réinjectée dans le forage en circuit fermé. Une fois le forage terminé, les boues de forage sont emmenées hors du site et envoyées en décharge de classe adaptée.

2 Etat de conservation des habitats naturels et des esp¯ces

2.1 Le r®seau Natura 2000

Le réseau Natura 2000 a pour objectif de contribuer à la préservation de la diversité biologique sur le territoire de l'Union Européenne. Il assurera le maintien ou le rétablissement dans un état de conservation favorable des habitats naturels et des habitats d'espèces de la flore et de la faune sauvage d'intérêt communautaire.

Il est composé de sites désignés spécialement par chacun des Etats membres en application des Directives européennes dites « Oiseaux » (79/409/CEE du 2 avril 1979 pour la conservation des oiseaux sauvages) et « Habitats, Faune, Flore » (92/43/CEE du 21 mai 1992 pour la conservation des habitats naturels ainsi que de la faune et de la flore sauvages), transposées dans le droit national de chaque Etat membre.

2.2 La proc®dure de d®signation des sites Natura 2000

Les zones de protection spéciale sont les sites désignés au titre de la Directive « Oiseaux » et les zones spéciales de conservation sont celles issues de la Directive « Habitat, Faune, Flore ». Elle comprend entre autre :

- Une annexe I qui définit les habitats naturels d'intérêt communautaire ;
- Une annexe II qui définit des espèces d'intérêt communautaire.

Des inventaires ont été réalisés permettant d'établir les Formulaires Standard de Données (FSD : fiche d'identité pour chaque site Natura 2000) et les premières délimitations de sites. Ces sites sont ensuite soumis à consultation par le préfet aux communes et aux Etablissements Publics de Coopération Intercommunale.

Au regard de ces précédentes étapes de désignation, la France propose à la Commission Européenne une liste nationale de sites (sites transmis) susceptibles d'être reconnus d'importance communautaire (pSIC : proposition de site d'importance communautaire).

Après une mise en cohérence et une sélection au niveau européen, la liste des SIC est établie par la Commission Européenne en accord avec les Etats membres.

Les Etats membres désignent ensuite ces sites en zones spéciales de conservation qui constituent avec les zones de protection spéciale le réseau Natura 2000.

2.3 Description des sites Natura 2000 sur et autour du p®rim¯tre d®tude

Aucun site du réseau Natura 2000 n'est localisé sur l'emprise du PERM. Cependant, trois sites sont identifiés à proximité des bordures nord et ouest du PERM. D'autres sites sont assez proches, mais ne sont pas implantés sur les mêmes bassins versants et ne peuvent par conséquent aucunement être impactés par le projet de PERM. Ils ne sont donc pas retenus dans l'évaluation des incidences qui suit. Les trois sites retenus sont décrits plus en détail ci-après et les fiches de présentation correspondantes sont jointes en annexes.

Le site FR7301822 : « Garonne, Ariège, Hers, Salat, Pique et Neste »

Proposé en SIC dès le 31 décembre 1998, ce site a fait l'objet d'un classement en ZSC par arrêté du 27 mai 2009. Il s'agit d'une entité d'une superficie totale de 9 602 ha suivant le cours de la Garonne amont et de la Pique, du Salat, de la Neste, de l'Ariège ainsi que le cours de l'Hers vif en amont de Roumengoux - Moulin neuf et à l'aval de Saint Amadou pour ce qui concerne le département de l'Ariège. La Garonne amont et ses affluents traversent 94 communes en Ariège. A l'échelle du projet, les communes concernées par le passage du Salat sont les communes de Seix et Couflens.

Le réseau hydrographique présente un grand intérêt pour les poissons migrateurs (zones de frayères potentielles importantes pour le Saumon en particulier qui fait l'objet d'alevinages réguliers et dont des adultes atteignent déjà Foix sur l'Ariège, Carbonne sur la Garonne, suite aux équipements en échelles à poissons des barrages sur le cours aval).
La partie large de la Garonne présente un écocomplexe comportant une diversité biologique remarquable. La moyenne vallée de l'Hers comporte encore des zones de ripisylves et autres zones humides liées au cours d'eau et abrite de petites populations relictuelles de Loutre et de Cistude d'Europe.
Le lit mineur du cours de la Garonne amont et de ses affluents est seul concerné pour les poissons résidents et le Desman des Pyrénées, des mollusques ainsi que pour les poissons migrateurs.
Une liste plus exhaustive des espèces recensées est consultable sur la fiche de l'annexe 2.

Du point de vue des milieux, le site est dominé par les eaux douces intérieures stagnantes et courantes (41%), de forêts caducifoliées (26%), de forêt artificielle en monoculture (ex: plantations de peupliers ou d'arbres exotiques) (9%), de terres arables (8%), de prairies semi-naturelles humides, prairies mésophiles améliorées (5%), de landes, broussailles, recrus, maquis et garrigues, phrygana (4%) et de marais (végétation de ceinture), bas-marais, tourbières (4%).

La limite sud du site Natura 2000 « Garonne, Ariège, Hers, Salat, Pique et Neste » est située sur le cours du Salat, juste en aval du village de Couflens.

Le document d'objectifs (DOCOB), référence pour tous les partenaires publics et privés, décrit les habitats et les espèces d'intérêt communautaire présents dans une zone et les actions à mettre en œuvre pour assurer leur préservation.

Au niveau de la rivière du Salat, plusieurs éléments ont concouru au classement de cette zone en site d'importance communautaire :

- Des mammifères : la loutre d'Europe, le desman des Pyrénées et de nombreuses de chauve-souris (21 espèces dont 8 d'intérêt communautaire),
- Des habitats naturels puisqu'il s'agit d'une rivière qui possède une diversité d'habitats relativement importante sur une surface restreinte (lit mineur). 12 habitats naturels ont été répertoriés dont 6 relèvent de la Directive Habitat (4 sont d'intérêt communautaire et 2 sont d'intérêt prioritaire). On retiendra la forêt alluviale (l'aulnaie frênaie et plus modestement, en superficie, la forêt de saules blancs) et les habitats humides relativement fréquents sur les berges, les îlots ou les bancs de galets (végétation pionnière).

Le site FR7300822 : « Vallée du Riberot et massif du Mont Valier »

Le Site Natura 2000 « Vallée du Riberot et massif du Mont Valier » se situe au centre de la chaîne des Pyrénées, au sein du Parc naturel régional des Pyrénées Ariégeoises, dans le département de l'Ariège. Il est localisé dans le Couserans, à l'Ouest du département.

Proposé en SIC dès le 31 mai 2002, ce site a fait l'objet d'un classement en ZSC par arrêté du 22 août 2006. Le site occupe une surface de 7 7445 ha entièrement situé dans un environnement montagnard et comprend la Vallée du Ribérot, l'amont de la vallée d'Estours et le Massif du Valier. Il s'échelonne de 1000 m à 2838 m d'altitude (Mont Valier). Le site s'étend sur une partie des communes de Bethmale, Bordes-sur-Lez et Seix, commune mitoyenne de Couflens dans sa partie ouest.

La faune et la flore des Pyrénées sont très représentatives et les populations sont importantes. Il est constaté un fort endémisme (y compris un genre de coléoptère souterrain) végétal et animal (invertébrés). Au niveau des étages montagnard à nival on constate également un écocomplexe, système d'écosystèmes interdépendants et résultat d'une histoire naturelle et d'une histoire humaine imbriquée.
L'habitat potentiel du Chabot (*Cottus gobio*) est représenté sur le site, sans que l'on puisse attester de la présence actuelle de l'espèce (présence ancienne avérée).

Les inventaires réalisés dans le cadre de l'élaboration du DOCOB ont permis d'identifier et de localiser sur le site 18 habitats naturels de l'Annexe I de la Directive Habitats. Ces habitats représentent une superficie de 3 195 ha, soit 58% de la surface du site :

- un seul habitat d'intérêt communautaire et prioritaire (les prairies à Canche flexueuse) a été inventorié, de 37 ha (0,66% de la surface du site)
- 850 ha de milieux herbeux, faisant quasiment tous l'objet d'une utilisation agricole. Cela concerne 8 habitats d'intérêt communautaire (IC) unitaires, essentiellement des pelouses et des prairies,
- 1 336 ha de landes, correspondant à 4 habitats d'IC unitaires,
- 396 ha de milieux forestiers, correspondant à des peuplements de Hêtre (2 habitats unitaires d'IC) ou de Pin à crochets (3 habitats unitaires d'IC),
- 613 ha de milieux rocheux, falaises ou éboulis (5 habitats unitaires d'IC).

Les espèces de la directive présentes sur le site sont :

- Mammifères : Barbastelle, Grand Rhinolophe, Petit Rhinolophe, Petit Murin, Minioptère de Schreibers, Desman des Pyrénées, Ours brun
- Invertébrés : Rosalie des Alpes
- Reptiles : Lézard des Pyrénées

La liste complète des espèces recensées est consultable sur la fiche de l'annexe 3.

Du point de vue des milieux, le site est dominé par les pelouses alpines et sub-alpines (28%), des forêts caducifoliées (27%), des landes, broussailles, recrues, maquis et garrigues, phrygana (23%) et des rochers intérieurs, éboulis rocheux, dunes intérieures, neige ou glace permanente (16%).
Les surfaces agricoles sont essentiellement des zones d'estives. Les surfaces utilisées collectivement pour le pâturage représentent 98 % de la SAU totale déclarée sur le site Natura 2000. Le reste des surfaces agricoles consistent en des prairies pâturées ou plus rarement fauchées.

Le site FR7312003 : « Massif du Mont Valier »

Les limites du site Natura 2000 « Massif du Mont Valier » sont pratiquement les mêmes que celles du site précédemment décrit « « Vallée du Riberot et massif du Mont Valier ». Cependant la limite est du site vient jusqu'au ruisseau d'Angouls, en bordure ouest de la commune de Couflens.

Ce site a fait l'objet d'un classement en ZPS par arrêté du 05 juillet 2005. Le site occupe une surface de 10 619 ha entièrement situé dans un environnement montagnard et comprend la Vallée du Ribérot, l'amont de la vallée d'Estours et le Massif du Valier (cf. **Erreur ! Source du renvoi introuvable.**. Il s'échelonne de 675 m à 2838 m d'altitude (Mont Valier). Le site s'étend sur une partie des communes d'Arrien-en-Bethmale, Bethmale, Bonac-Irazein, Bordes-sur-Lez et Seix, commune mitoyenne de Couflens dans sa partie ouest.

L'avifaune de montagne est bien représentée, avec, parmi les passereaux le Merle à plastron, le Tichodrome échelette et le Monticole de roche. Neuf espèces de l'annexe I sont données nicheuses dans la ZPS, parmi lesquelles : Gypaète barbu, Aigle royal, Faucon pélerin, Grand Tétras, Lagopède alpin, Perdrix grise sous-espèce *hispaniensis*. Trois autres espèces visées à l'annexe I fréquentent le site pour s'y alimenter : Vautour fauve, Milan royal et Hibou Grand Duc.
La faune et la flore des Pyrénées sont très représentatives et les populations importantes présentent un fort endémisme.
La liste complète des espèces recensées est consultable sur la fiche de l'annexe 4.

Bilan

Aucun site du réseau Natura 2000 n'est situé sur l'emprise du projet de PERM COUFLENS. Les travaux de recherche minière ne seront donc pas entrepris dans ce type de zone. Toutefois, les interactions susceptibles de survenir avec ces sites sont discutées ci-après car ces sites sont localisés à proximité immédiate. L'un des trois (la ZSC FR7301822) est localisé en aval hydraulique du PERM.

3 Incidences g®n®rales du projet

Les incidences décrites ci-après ne prennent pas en compte les mesures de suppression ou d'atténuation qui seront mises en œuvre pour la réalisation de ce projet. Ces mesures de suppression et d'atténuation seront présentées au paragraphe 4 de ce rapport.

3.1 Incidences sur les habitats naturels dõnt®r° t communautaire

La destruction ou la dégradation des habitats incluent les sites de repos, de reproduction et d'alimentation des espèces qu'ils abritent.
La destruction d'habitats est le processus par lequel l'habitat est endommagé ou détruit à un point tel qu'il n'est plus capable de supporter les espèces et les communautés écologiques qui s'y produisent naturellement. Il en résulte souvent une extinction des espèces et, par conséquent, une perte de biodiversité. L'habitat peut être détruit directement (consommation d'espace) ou indirectement (pollutions, fragmentation, changement climatique, introduction d'espèces invasives). Bien que généralement imputable à l'homme, la destruction des habitats peut résulter d'événements naturels exceptionnels (tempêtes, inondations, glissements de terrain, etc.).

La dégradation des habitats est le processus par lequel l'habitat est endommagé. Il en résulte souvent une diminution conjointe du nombre d'individus spécifiques et de la biodiversité en général.

Le projet ne peut contribuer à la destruction directe d'habitats car il ne concerne pas les deux sites Natura 2000 situés à l'ouest du PERM. En revanche, une pollution importante des eaux peut potentiellement entraîner des conséquences sur les habitats en aval. Seul le site FR7301822 est concerné car il est situé en aval hydraulique de l'ensemble de la surface du projet de PERM. On note dès à présent que les investigations prévues ne nécessitent le recours à aucun produit toxique ou dangereux en dehors des opérations de forage pour lesquelles de la bentonite (argile nécessaire au maintien de la pression dans le puits), des lubrifiants et du fuel (pour les engins) seront utilisés sur le site en très modestes quantités. Les forages envisagés sont de type sondage géotechnique à des profondeurs un peu supérieures. Ainsi, il n'apparaît pas réaliste d'envisager une pollution majeure du Salat, même en cas de déversement accidentel du fût de fuel (200 litres au maximum) à proximité.

3.2 Incidences sur les esp¯ces dõnt®r° t communautaire

La destruction d'espèces comprend la destruction d'individus adultes mais aussi des pontes, des semences et des stades juvéniles. L'incidence du projet sur les espèces d'intérêt communautaire est liée aux interventions sur leurs habitats. Dans notre cas, l'influence sur les habitats au sol a déjà été évaluée dans le paragraphe précédent. On peut néanmoins ajouter que le survol du PERM dans le cadre des travaux de géophysique aéroportés et héliportés sera de nature à perturber temporairement l'avifaune (le temps du passage des appareils), mais pas de manière significative (dérangement correspondant au passage d'un petit avion de tourisme sans plus de gêne).

4 Mesures dâatt®nuation des incidences

4.1 Mesures de suppression des incidences directes

Aucun site du réseau Natura 2000 n'est concerné par le périmètre du projet de PERM. Ainsi, il n'est attendu aucune incidence directe.

4.2 Mesures de r®duction des incidences indirectes

Dans la mesure du possible et si la cible géologique le permet, l'emplacement des tranchés et des travaux de forage sera retenu de manière à s'éloigner au maximum des sites Natura 2000, c'est-à-dire des bordures nord et surtout ouest du PERM.

Les travaux ne pouvant être effectués qu'à proximité d'habitats protégés, des mesures de réduction d'incidence seront prises telles que la lutte contre les pollutions accidentelles et diffuses, la réduction de l'emprise des aménagements et des travaux, et une programmation adaptée des travaux dans le temps.

Lutte contre les pollutions accidentelles et diffuses

Pour lutter contre les risques de pollutions accidentelles lors de travaux effectués à faible distance des habitats d'espèces protégées que l'on soit ou non en zone Natura 2000, des mesures simples seront prises :

- Les véhicules et engins de chantier devront justifier d'un contrôle technique récent ;
- Le stationnement des engins se fera hors zone inondable ;
- Le stockage des huiles et carburant se fera uniquement sur des emplacements réservés, dans des bacs de rétention adaptés, loin de toute zone écologiquement sensible, et notamment en dehors des zones inondables ;
- L'accès du chantier et des zones de stockages sera interdit au public ;
- Les eaux usées seront traitées avant leur remise dans le milieu naturel ;
- Les vidanges, ravitaillement et nettoyages des engins et du matériel se feront en dehors de la zone des travaux, dans une zone spécialement définie et aménagée (zone imperméabilisée…) ;
- Les émissions de poussières seront limitées au maximum ;
- Une collecte des déchets, avec poubelles, sera mise en place.

Réduction au maximum de l'emprise des aménagements et des travaux

Lors des phases d'aménagement et de travaux, il est indispensable d'essayer de limiter l'emprise afin de réduire de manière générale les incidences sur les habitats. Pour ce faire :

- L'emprise des aménagements précédant la phase de travaux se limitera à l'utilisation de voies d'accès existantes. Dans le cas présent ces aménagements ne nécessiteront pas de travaux particuliers puisque l'ensemble de la zone est accessible par tracteur. L'accès aux plateformes de sondage ne posera pas de difficultés particulières et n'utilisera que des tracés existants.
- L'emprise des travaux se limitera à la réalisation d'une plateforme pour y installer le matériel de sondage et le bassin de réception des eaux de forage.

L'organisation du chantier se fera en tenant compte des périmètres d'intérêt majeur. Un balisage de la zone de chantier sera mis en place pour éviter toute destruction du milieu à préserver.

Pour ce qui est du bruit, des vibrations et des poussières occasionnés par les phases d'aménagement et de sondage, le désagrément sera limité dans le temps. De plus, les plateformes de forage seront les plus éloignées possibles des zones d'habitats des espèces protégées.

Programmation adaptée des travaux dans le temps

Certains travaux gênants (bruit, vibrations, poussières) pourront éventuellement et dans la mesure du possible être programmés de manière à éviter certaines périodes cruciales pour les espèces les plus sensibles (reproduction, migration notamment).

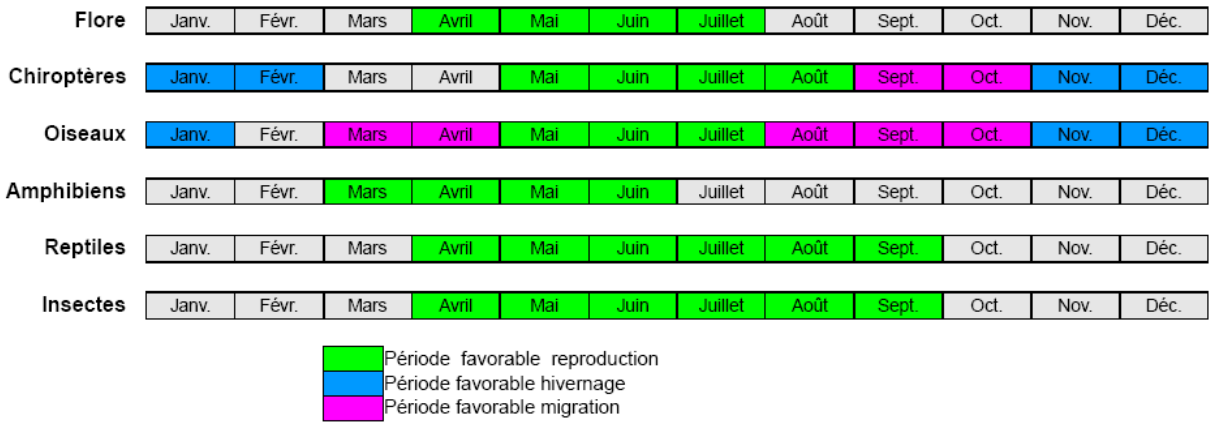


Tableau 3 : Périodes sensibles pour la flore et la faune

5 Conclusion sur les incidences r®siduelles

Au regard de l'évaluation des incidences du projet après intégration des propositions de mesures d'atténuation, et confrontation aux mesures de conservation des documents d'objectif de chaque site, il apparait que les incidences résiduelles du projet, à l'échelle de l'ensemble des sites Natura 2000 concernés , n'engendreront pas **d'incidences significatives sur l'état de conservation des habitats naturels et des espèces d'intérêt communautaire**, à court, moyen et long terme ; et sur le fonctionnement écologique, à partir du moment où les mesures proposées sont bien mises en œuvre.

6 M®thodologie et limites

Afin de mettre en place cette notice d'incidence, une analyse complète du projet et des travaux engendrés par celle-ci a été effectuée. Il a ensuite fallu dresser les incidences que pourraient avoir ces travaux sur les différents sites Natura 2000 afin de réfléchir aux mesures de réduction qui pouvaient être prises.

REFERENCES BIBLIOGRAPHIQUES

Décret n°2011-2019 du 29 décembre 2011, modifié portant réforme des études d'impact des projets de travaux, d'ouvrages ou d'aménagements :
http://www.legifrance.gouv.fr/affichTexte.do;jsessionid=86F183EB606494A0EE3B3E6970F7A704.tpdjo16v_1?cidTexte=JORFTEXT000025054134&dateTexte=20140530

Portail du réseau Natura 2000
http://www.developpement-durable.gouv.fr/-Natura-2000,2414-.html

Fiche de gestion des milieux et des espèces dans les sites Natura 2000
http://ct83.espaces-naturels.fr/natura-2000

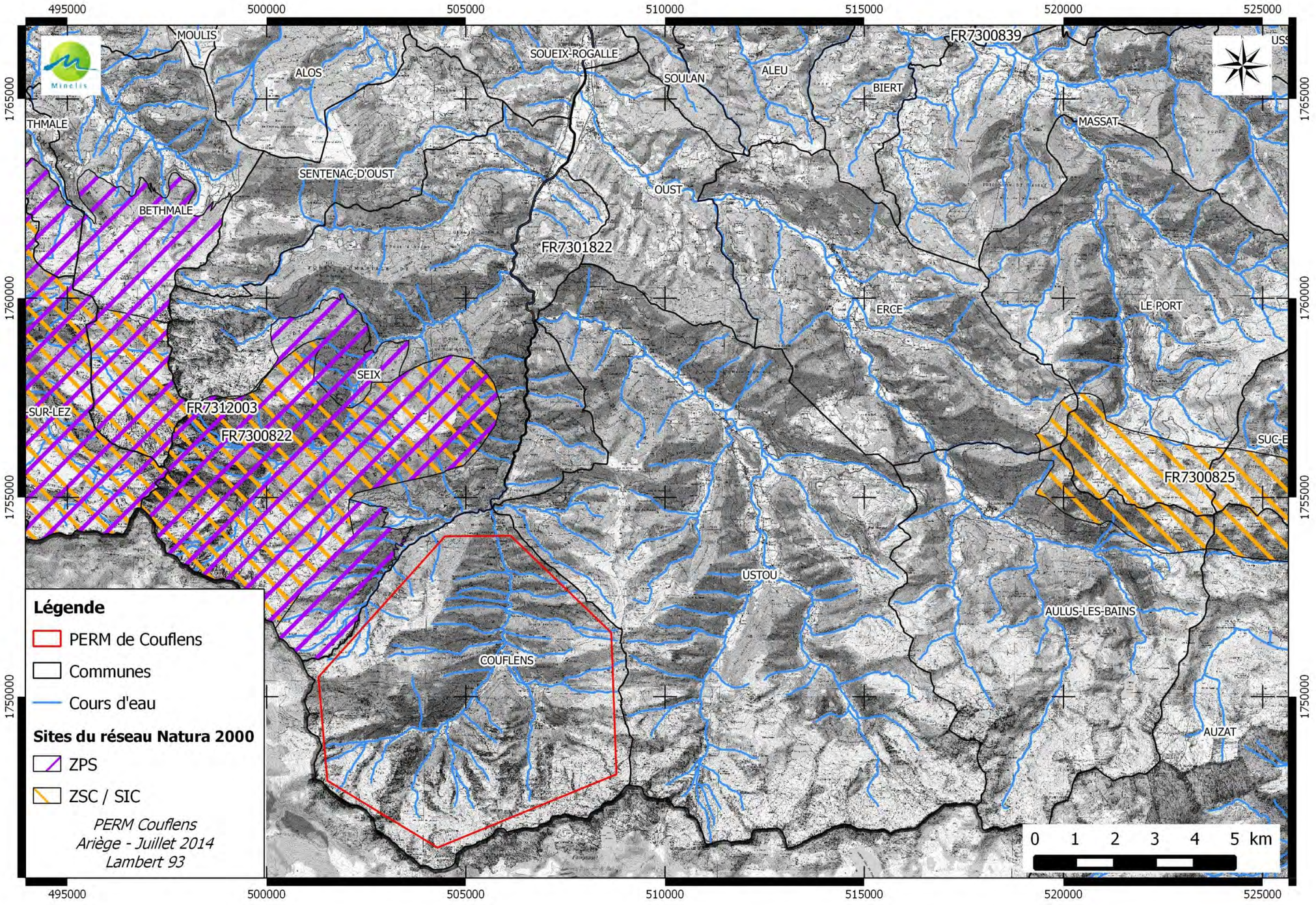
Méthodologie de l'évaluation des incidences sur des sites Natura 2000
http://www.developpement-durable.gouv.fr/L-evaluation-des-incidences-Natura.html
http://www.developpement-durable.gouv.fr/Que-doit-comporter-un-dossier-d.html

Inventaire national du patrimoine naturel (fiches, informations, données SIG)
http://inpn.mnhn.fr/accueil/index

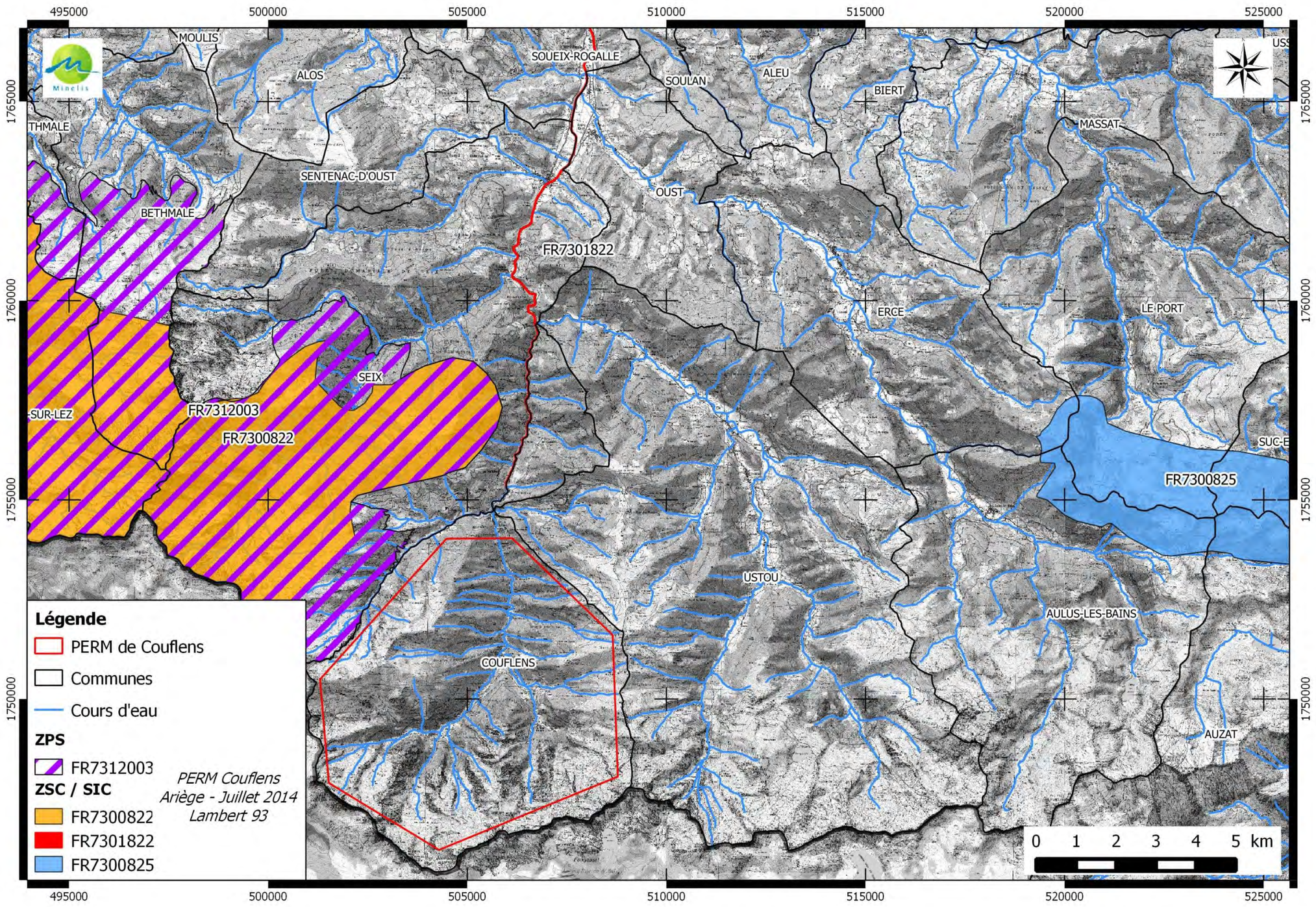
ANNEXES

Annexe 1 : Cartes des sites du réseau Natura 2000 ..... - 2 -
Annexe 2 : Zone Natura 2000 FR7301822 ..... - 6 -
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Annexe 1 : Cartes des sites du réseau Natura 2000



Répartition des sites Natura 2000 par types



Localisation et extension des différents sites Natura 2000

Annexe 2 : Zone Natura 2000 FR7301822

NATURA 2000 - FORMULAIRE STANDARD DE DONNEES
Pour les zones de protection spéciale (ZPS), les propositions de sites d'importance communautaire (pSIC), les sites d'importance communautaire (SIC) et les zones spéciales de conservation (ZSC)

FR7301822 - Garonne, Ariège, Hers, Salat, Pique et Neste

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1. IDENTIFICATION DU SITE

1.1 Type
B (pSIC/SIC/ZSC)

1.2 Code du site
FR7301822

1.3 Appellation du site
Garonne, Ariège, Hers, Salat, Pique et Neste

1.4 Date de compilation
31/01/1996

1.5 Date d'actualisation
31/10/2005

1.6 Responsables

Responsable national et européen	Responsable du site	Responsable technique et scientifique national
Ministère en charge de l'écologie	DREAL Midi-Pyrénées	MNHN - Service du Patrimoine Naturel
www.developpement-durable.gouv.fr	www.midi-pyrenees.developpement-durable.gouv.fr	www.mnhn.fr www.spn.mnhn.fr
en3.en.deb.dgaln@developpement-durable.gouv.fr		natura2000@mnhn.fr

1.7 Dates de proposition et de désignation / classement du site
Date de transmission à la Commission Européenne : 31/12/1998

(Proposition de classement du site comme SIC)

Dernière date de parution au JO UE : 16/11/2012
(Confirmation de classement du site comme SIC)

ZSC : date de signature du dernier arrêté (JO RF) : 27/05/2009

Texte juridique national de référence pour la désignation comme ZSC : http://www.legifrance.gouv.fr/jo_pdf.do?cidTexte=JORFTEXT000020763778

2. LOCALISATION DU SITE

2.1 Coordonnées du centre du site [en degrés décimaux]

Longitude : 1,83139°

Latitude : 43,08389°

2.2 Superficie totale

9602 ha

2.3 Pourcentage de superficie marine

Non concerné

2.4 Code et dénomination de la région administrative

Code INSEE	Région
73	Midi-Pyrénées

2.5 Code et dénomination des départements

Code INSEE	Département	Couverture (%)
09	Ariège	16 %
82	Tarn-et-Garonne	27 %
65	Hautes-Pyrénées	2 %
31	Haute-Garonne	55 %

2.6 Code et dénomination des communes

Code INSEE	Communes
09003	AIGUILLON (L')
09004	ALBIES
65006	ANCIZAN
65009	ANERES
31010	ANTIGNAC
31015	ARGUT-DESSOUS
09015	ARIGNAC
31017	ARLOS
31018	ARNAUD-GUILHEM
65031	ARREAU
09022	ARVIGNA

09028	AULOS
31031	AUSSON
31033	AUTERIVE
82008	AUVILLAR
65051	AVENTIGNAN
31040	BACHOS
31041	BAGIRY
31042	BAGNERES-DE-LUCHON
31045	BARBAZAN
65069	BARTHE-DE-NESTE (LA)
09040	BASTIDE-DE-LORDAT (LA)
09041	BASTIDE-DU-SALAT (LA)
09043	BASTIDE-SUR-L'HERS (LA)
65075	BAZUS-AURE
65076	BAZUS-NESTE
31050	BEAUCHALOT
31056	BEAUZELLE
09047	BELESTA
11033	BELPECH
09050	BENAGUES
65087	BERTREN
09052	BESSET
65092	BEYREDE-JUMET
09056	BEZAC
65094	BIZOUS
31069	BLAGNAC
09058	BOMPAS
09060	BONNAC
31076	BORDES-DE-RIVIERE
09064	BOUAN
82019	BOUDOU
82023	BOURRET
31084	BOUSSENS
31092	BURGALAYS
09070	CABANNES (LES)

65116	CADEAC
31100	CALMONT
09074	CAMON
65122	CAMOUS
31104	CAPENS
31107	CARBONNE
09081	CARLARET (LE)
31110	CASSAGNE
31112	CASTAGNEDE
82030	CASTELFERRUS
82031	CASTELMAYRAN
31118	CASTELNAU-D'ESTRETEFONDS
82033	CASTELSARRASIN
31124	CASTILLON-DE-SAINT-MARTORY
09086	CAUMONT
09089	CAZALS-DES-BAYLES
31132	CAZAUX-LAYRISSE
31135	CAZERES
11091	CHALABRE
31139	CHAUM
31142	CIER-DE-LUCHON
31144	CIERP-GAUD
31145	CINTEGABELLE
31147	CLARAC
31148	CLERMONT-LE-FORT
11096	COMUS
82045	CORDES-TOLOSANNES
09100	COUFLENS
31153	COULADERE
09102	COUTENS
09103	CRAMPAGNA
82049	DONZAC
09110	ENCOURTIECH
09114	ERP
65159	ESCALA

82052	ESCATALENS
82054	ESPALAIS
31175	ESTANCARBON
31176	ESTENOS
31177	EUP
09119	EYCHEIL
31181	FAUGA (LE)
31182	FENOUILLET
09121	FERRIERES-SUR-ARIEGE
31183	FIGAROL
82062	FINHAN
09122	FOIX
31190	FOS
09125	FOUGAX-ET-BARRINEUF
65180	FRECHET-AURE
31199	FRONSAC
31205	GAGNAC-SUR-GARONNE
09128	GAJAN
31207	GALIE
09131	GARANOU
09132	GAUDIES
31219	GENSAC-SUR-GARONNE
82072	GOLFECH
31224	GOURDAN-POLIGNAN
31227	GOYRANS
31232	GRENADE
31233	GREPIAC
65209	GREZIAN
82075	GRISOLLES
65211	GUCHAN
65212	GUCHEN
31235	GURAN
65218	HECHES
31237	HIS
31238	HUOS

65228	ILHET
09145	ISSARDS (LES)
65231	IZAUX
31244	JUZET-DE-LUCHON
31246	LABARTHE-INARD
31247	LABARTHE-RIVIERE
31248	LABARTHE-SUR-LEZE
31255	LABROQUERE
09148	LACAVE
09149	LACOURT
31259	LACROIX-FALGARDE
09150	LAGARDE
82089	LAMAGISTERE
09153	LAPENNE
09159	LASSUR
31290	LEGE
09165	LESPARROU
31296	LESTELLE-DE-SAINT-MARTORY
31298	LEZ
09289	LORP-SENTARAILLE
65279	LORTET
65287	LOURES-BAROUSSE
31308	LUSCAN
09176	LUZENAC
82101	MALAUSE
31314	MANCIOUX
31315	MANE
09180	MANSES
31316	MARIGNAC
31320	MARQUEFAVE
31324	MARTRES-TOLOSANE
82105	MAS-GRENIER
31327	MAURAN
31334	MAUZAC
09185	MAZERES

65307	MAZERES-DE-NESTE
31336	MAZERES-SUR-SALAT
31337	MELLES
09187	MERCENAC
09188	MERCUS-GARRABET
82109	MERLES
31341	MERVILLE
31344	MIRAMONT-DE-COMMINGES
31345	MIREMONT
09194	MIREPOIX
11236	MOLANDIER
82114	MONBEQUI
31360	MONTAUBAN-DE-LUCHON
31361	MONTAUT
09200	MONTBEL
82125	MONTECH
65319	MONTEGUT
31372	MONTESPAN
09207	MONTGAILLARD
09210	MONTOULIEU
65322	MONTOUSSE
31390	MONTREJEAU
31391	MONTSAUNES
09211	MONTSEGUR
09213	MOULIN-NEUF
31394	MOUSTAJON
31395	MURET
65327	NESTIER
31399	NOE
31403	ONDES
31405	ORE
09221	ORNOLAC-USSAT-LES-BAINS
09223	OUST
31406	PALAMINY
09225	PAMIERS

09229	PEYRAT (LE)
31420	PINSAGUEL
31421	PINS-JUSTARET
31426	POINTIS-DE-RIVIERE
31427	POINTIS-INARD
31430	PONLAT-TAILLEBOURG
31433	PORTET-SUR-GARONNE
09235	PRAT-BONREPAUX
09236	PRAYOLS
09238	PUJOLS (LES)
09244	RIEUCROS
31455	RIEUX
09245	RIEUX-DE-PELLEPORT
11316	RIVEL
31457	ROQUEFORT-SUR-GARONNE
31458	ROQUES
31460	ROQUETTES
09251	ROUMENGOUX
82152	SAINT-AIGNAN
09254	SAINT-AMADOU
31471	SAINT-BEAT
31472	SAINT-BERTRAND-DE-COMMINGES
31474	SAINT-CHRISTAUD
11336	SAINTE-COLOMBE-SUR-L'HERS
65391	SAINTE-MARIE
09259	SAINT-FELIX-DE-TOURNEGAT
31483	SAINT-GAUDENS
09261	SAINT-GIRONS
09264	SAINT-JEAN-DE-VERGES
09265	SAINT-JEAN-DU-FALGA
31490	SAINT-JORY
31492	SAINT-JULIEN-SUR-GARONNE
65389	SAINT-LAURENT-DE-NESTE
09268	SAINT-LIZIER
82165	SAINT-LOUP

31500	SAINT-MAMET
31503	SAINT-MARTORY
82166	SAINT-MICHEL
82169	SAINT-NICOLAS-DE-LA-GRAVE
65394	SAINT-PAUL
09272	SAINT-PAUL-DE-JARRAT
82171	SAINT-PORQUIER
65398	SALECHAN
31523	SALIES-DU-SALAT
31524	SALLES-ET-PRATVIEL
31525	SALLES-SUR-GARONNE
65408	SARRANCOLIN
31533	SAUBENS
09282	SAVERDUN
31541	SEILH
31542	SEILHAN
09285	SEIX
31548	SIGNAC
09296	SINSAT
11380	SONNAC-SUR-L'HERS
09299	SOUEIX-ROGALLE
09301	SOULAN
09303	SURBA
09306	TARASCON-SUR-ARIEGE
09307	TAURIGNAN-CASTET
09308	TAURIGNAN-VIEUX
09309	TEILHET
65444	TIBIRAN-JAUNAC
31554	TOUILLE
31555	TOULOUSE
09314	TOURTROL
09315	TREMOULET
11400	TREZIERS
65455	TUZAGUET
09318	UNAC

09320	URS
09321	USSAT
31564	VALCABRERE
82186	VALENCE
31565	VALENTINE
09323	VALS
09324	VARILHES
09326	VEBRE
31572	VENERQUE
09328	VERDUN
82190	VERDUN-SUR-GARONNE
09329	VERNAJOUL
31574	VERNET
09331	VERNET (LE)
31575	VIEILLE-TOULOUSE
65465	VIELLE-AURE
65471	VIGNEC
31585	VILLENEUVE-DE-RIVIERE

2.7 Région(s) biogéographique(s)

Alpine (3,76%)
Atlantique (92,86%)
Méditerranéenne (3,36%)

3. INFORMATIONS ÉCOLOGIQUES

3.1 Types d'habitats présents sur le site et évaluations

Types d'habitats inscrits à l'annexe I					Évaluation du site			
					A|B|C|D	A|B|C		
Code	PF	Superficie (ha) (% de couverture)	Grottes [nombre]	Qualité des données	Représent -ativité	Superficie relative	Conservation	Évaluation globale
3150 *Lacs eutrophes naturels avec végétation du Magnopotamion ou de l'Hydrocharition*		192,04 *(2 %)*			C	C	B	B
3260 *Rivières des étages planitiaire à montagnard avec végétation du Ranunculion fluitantis et du Callitricho-Batrachion*		96,02 *(1 %)*			B	C	B	B
3270 *Rivières avec berges vaseuses avec végétation du Chenopodion rubri p.p. et du Bidention p.p.*		96,02 *(1 %)*			C	B	B	B
6120 *Pelouses calcaires de sables xériques*	X	96,02 *(1 %)*			D			
6430 *Mégaphorbiaies hygrophiles d'ourlets planitiaires et des étages montagnard à alpin*		96,02 *(1 %)*			B	C	B	B
6510 *Prairies maigres de fauche de basse altitude (Alopecurus pratensis, Sanguisorba officinalis)*		96,02 *(1 %)*			C	C	B	B
7220 *Sources pétrifiantes avec formation de tuf (Cratoneurion)*	X	96,02 *(1 %)*			D			
91E0 *Forêts alluviales à Alnus glutinosa et Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)*	X	1824,38 *(19 %)*			B	C	B	B
91F0 *Forêts mixtes à Quercus robur, Ulmus laevis, Ulmus minor, Fraxinus excelsior ou Fraxinus angustifolia, riveraines des grands fleuves (Ulmenion minoris)*		576,12 *(6 %)*			B	C	B	B
9180 *Forêts de pentes, éboulis ou ravins du Tilio-Acerion*	X	96,02 *(1 %)*			C	C	B	C

- **PF :** Forme prioritaire de l'habitat.
- **Qualité des données :** G = «Bonne» (données reposant sur des enquêtes, par exemple); M = «Moyenne» (données partielles + extrapolations, par exemple); P = «Médiocre» (estimation approximative, par exemple).
- **Représentativité :** A = «Excellente» ; B = «Bonne» ; C = «Significative» ; D = «Présence non significative».
- **Superficie relative :** A = 100 $\geq$ p > 15 % ; B = 15 $\geq$ p > 2 % ; C = 2 $\geq$ p > 0 % .
- **Conservation :** A = «Excellente» ; B = «Bonne» ; C = «Moyenne / réduite».
- **Evaluation globale :** A = «Excellente» ; B = «Bonne» ; C = «Significative».

3.2 Espèces inscrites à l'annexe II de la directive 92/43/CEE et évaluation

Espèce			Population présente sur le site						Évaluation du site			
Groupe	Code	Nom scientifique	Type	Taille		Unité	Cat.	Qualité des données	A|B|C|D	A|B|C		
				Min	Max		C|R|V|P		Pop.	Cons.	Isol.	Glob.
I	1041	*Oxygastra curtisii*	p			i	P		C		C	
I	1083	*Lucanus cervus*	p			i	P		C		C	
I	1088	*Cerambyx cerdo*	p			i	P		C		C	
I	1092	*Austropotamobius pallipes*	p			i	P		C		C	
F	1095	*Petromyzon marinus*	p			i	P		C		C	
F	1096	*Lampetra planeri*	p			i	P		C		C	
F	1102	*Alosa alosa*	p			i	P		C		B	
F	1106	*Salmo salar*	p			i	P		C		C	
F	1138	*Barbus meridionalis*	p			i	P		C		B	
F	1163	*Cottus gobio*	p			i	P		D			
R	1220	*Emys orbicularis*	p			i	P		C		C	
M	1301	*Galemys pyrenaicus*	p			i	P		B		C	
M	1303	*Rhinolophus hipposideros*	c			i	P		D			
M	1304	*Rhinolophus ferrumequinum*	c			i	P		D			
M	1305	*Rhinolophus euryale*	c			i	P		D			
M	1307	*Myotis blythii*	p			i	P		C		C	
M	1308	*Barbastella barbastellus*	c			i	P		D			
M	1310	*Miniopterus schreibersii*	p			i	P		C		C	
M	1321	*Myotis emarginatus*	p			i	P		C		C	

M	1323	*Myotis bechsteinii*	c			i	P		D			
M	1324	*Myotis myotis*	p			i	P		C		C	
M	1355	*Lutra lutra*	p			i	P		C		C	
F	6150		p			i	P		C		C	
F	5339		p			i	P		C		B	

- **Groupe :** A = Amphibiens, B = Oiseaux, F = Poissons, I = Invertébrés, M = Mammifères, P = Plantes, R = Reptiles.
- **Type :** p = espèce résidente (sédentaire), r = reproduction (migratrice), c = concentration (migratrice), w = hivernage (migratrice).
- **Unité :** i = individus, p = couples , adults = Adultes matures , area = Superficie en m2 , bfemales = Femelles reproductrices , cmales = Mâles chanteurs , colonies = Colonies , fstems = Tiges florales , grids1x1 = Grille 1x1 km , grids10x10 = Grille 10x10 km , grids5x5 = Grille 5x5 km , length = Longueur en km , localities = Stations , logs = Nombre de branches , males = Mâles , shoots = Pousses , stones = Cavités rocheuses , subadults = Sub-adultes , trees = Nombre de troncs , tufts = Touffes.
- **Catégories du point de vue de l'abondance (Cat.) :** C = espèce commune, R = espèce rare, V = espèce très rare, P: espèce présente.
- **Qualité des données :**G = «Bonne» (données reposant sur des enquêtes, par exemple); M =«Moyenne» (données partielles + extrapolations, par exemple); P = «Médiocre» (estimation approximative, par exemple); DD = Données insuffisantes.
- **Population :** A = 100 $\geq$ p > 15 % ; B = 15 $\geq$ p > 2 % ; C = 2 $\geq$ p > 0 % ; D = Non significative.
- **Conservation :** A = «Excellente» ; B = «Bonne» ; C = «Moyenne / réduite».
- **Isolement :** A = population (presque) isolée ; B = population non isolée, mais en marge de son aire de répartition ; C = population non isolée dans son aire de répartition élargie.
- **Evaluation globale :** A = «Excellente» ; B = «Bonne» ; C = «Significative».

3.3 Autres espèces importantes de faune et de flore

Espèce			Population présente sur le site				Motivation					
Groupe	Code	Nom scientifique	Taille		Unité	Cat.	Annexe Dir. Hab.		Autres catégories			
			Min	Max		C|R|V|P	IV	V	A	B	C	D

- **Groupe :** A = Amphibiens, B = Oiseaux, F = Poissons, Fu = Champignons, I = Invertébrés, L = Lichens, M = Mammifères, P = Plantes, R = Reptiles.
- **Unité :** i = individus, p = couples , adults = Adultes matures , area = Superficie en m2 , bfemales = Femelles reproductrices , cmales = Mâles chanteurs , colonies = Colonies , fstems = Tiges florales , grids1x1 = Grille 1x1 km , grids10x10 = Grille 10x10 km , grids5x5 = Grille 5x5 km , length = Longueur en km , localities = Stations , logs = Nombre de branches , males = Mâles , shoots = Pousses , stones = Cavités rocheuses , subadults = Sub-adultes , trees = Nombre de troncs , tufts = Touffes.
- **Catégories du point de vue de l'abondance (Cat.) :** C = espèce commune, R = espèce rare, V = espèce très rare, P: espèce présente.
- **Motivation : IV, V :** annexe où est inscrite l'espèce (directive «Habitats») ; **A :** liste rouge nationale ; **B :** espèce endémique ; **C :** conventions internationales ; **D :** autres raisons.

4. DESCRIPTION DU SITE

4.1 Caractère général du site

Classe d'habitat	Pourcentage de couverture
N06 : Eaux douces intérieures (Eaux stagnantes, Eaux courantes)	41 %
N07 : Marais (vegetation de ceinture), Bas-marais, Tourbières,	4 %
N08 : Landes, Broussailles, Recrus, Maquis et Garrigues, Phrygana	4 %
N10 : Prairies semi-naturelles humides, Prairies mésophiles améliorées	5 %
N15 : Autres terres arables	8 %
N16 : Forêts caducifoliées	26 %
N20 : Forêt artificielle en monoculture (ex: Plantations de peupliers ou d'Arbres exotiques)	9 %
N21 : Zones de plantations d'arbres (incluant les Vergers, Vignes, Dehesas)	1 %
N22 : Rochers intérieurs, Eboulis rocheux, Dunes intérieures, Neige ou glace permanente	1 %
N23 : Autres terres (incluant les Zones urbanisées et industrielles, Routes, Décharges, Mines)	1 %

Autres caractéristiques du site

Cours de la Garonne et ses principaux affluents en Midi-Pyrénées : Ariège, Hers, Salat, Pique et Neste. Le site comprend des parties de nature et extensions différentes :

- cours de la Garonne écocomplexe (plaine alluviale) comprenant le lit mineur et une partie du lit majeur le mieux conservé entre les départements de la Haute-Garonne et du Tarn et Garonne.

- cours de l'Hers vif (entre Saint Amadou et Roumengoux - Moulin neuf) et bas Douctouyre : partie du site plus large comprenant, outre l'intérêt piscicole, des habitats de la Directive de type ripisylve et zones humides.

- cours de la Garonne amont et de la Pique, du Salat, de la Neste, de l'Ariège ainsi que cours de l'Hers vif en amont de Roumengoux - Moulin neuf et à l'aval de Saint Amadou (dans le département de l'Ariège) : le lit mineur est seul concerné pour les poissons résidents et le Desman, des mollusques ainsi que pour les poissons migrateurs en cours de restauration (zones de frayères potentielles)

Vulnérabilité : Vulnérable à l'extension des gravières ou des populicultures.
Veiller au maintien de quantités et d'une qualité d'eau suffisante au bon fonctionnement de l'écosystème.

4.2 Qualité et importance

Grand intérêt du réseau hydrographique pour les poissons migrateurs (zones de frayères potentielles importantes pour le Saumon en particulier qui fait l'objet d'allevinages réguliers et dont des adultes atteignent déjà Foix sur l'Ariège, Carbonne sur la Garonne, suite aux équipements en échelle à poissons des barrages sur le cours aval).

Intérêts particuliers de la partie large de la Garonne (écocomplexe comportant une diversité biologique remarquable) et de la moyenne vallée de l'Hers qui comporte encore des zones de ripisylves et autres zones humides liées au cours d'eau interessantes et abrite de petites populations relictuelles de Loutre et de Cistude d'Europe notamment.

4.3 Menaces, pressions et activités ayant une incidence sur le site

Il s'agit des principales incidences et activités ayant des répercussions notables sur le site

Incidences négatives				
Importance	Menaces et pressions [code]	Menaces et pressions [libellé]	Pollution [code]	Intérieur / Extérieur [i|o|b]
Incidences positives				
Importance	Menaces et pressions [code]	Menaces et pressions [libellé]	Pollution [code]	Intérieur / Extérieur [i|o|b]

- **Importance** : H = grande, M = moyenne, L = faible.
- **Pollution** : N = apport d'azote, P = apport de phosphore/phosphate, A = apport d'acide/acidification, T = substances chimiques inorganiques toxiques, O = substances chimiques organiques toxiques, X = pollutions mixtes.
- **Intérieur / Extérieur** : I = à l'intérieur du site, O = à l'extérieur du site, B = les deux.

4.4 Régime de propriété

Type	Pourcentage de couverture
Propriété privée (personne physique)	%
Propriété d'une association, groupement ou société	%
Collectivité territoriale	%
Domaine régional	%
Domaine public de l'état	%

4.5 Documentation

Lien(s) :

5.1 Types de désignation aux niveaux national et régional

Code	Désignation	Pourcentage de couverture
38	Arrêté de protection de biotope, d#habitat naturel ou de site d#intérêt géologique	50 %

5.2 Relation du site considéré avec d'autres sites

Désignés aux niveaux national et régional :

Code	Appellation du site	Type	Pourcentage de couverture
38	Verdun Saint Pierre	+	1%
38	Tronçon du cours de l'Ariège	*	1%

38	Saulaie de Saint-Caprais	+	1%
38	Ramier de Bigorre	+	1%
38	Palayre	+	0%
38	La Garonne, l'Ariège, l'Hers vif et le Salat	*	16%
38	Iles de Verdun-Pescay	+	0%
38	Iles de Saint-Julien	+	0%
38	Iles de Saint Cassian	+	1%
38	Ile Saint Michel	+	0%
38	Ile de Pessette	+	0%
38	Ile de Merles Montardou	+	0%
38	Cours inférieur de la Garonne	+	3%
38	Cours de l'Ariège	*	1%
38	Cours de la Garonne, de l'Aveyron, du Viaur et du Tarn	*	6%
38	Confluent du Volp	+	0%
38	Bras mort de Grisolles	+	0%
38	Bras mort de Fenouillet	+	1%
38	Bras mort de Cordes-Tolosannes	+	1%

Désignés au niveau international :

Type	Appellation du site	Type	Pourcentage de couverture

5.3 Désignation du site

6. GESTION DU SITE

6.1 Organisme(s) responsable(s) de la gestion du site

Organisation : DDE de l'Ariège, de la Haute-Garonne, des Hautes-Pyrénées et du Tarn-et-Garonne pour le Domaine Public Fluvial. DDAF des 4 départements pour les Réserves de Chasse et de Pêche du DPF.

Adresse :

Courriel :

6.2 Plan(s) de gestion

Existe-il un plan de gestion en cours de validité ?

☐ Oui

☐ Non, mais un plan de gestion est en préparation.

[X] Non

6.3 Mesures de conservation

Un conseil de gestion départemental est en place pour gèrer l'ensemble des APB en Haute-Garonne et en Ariège, d'autres conseils de gestion APB par APB existent dans le Tarn et Garonne.

Annexe 3 : Zone Natura 2000 FR7300822

NATURA 2000 - FORMULAIRE STANDARD DE DONNEES
Pour les zones de protection spéciale (ZPS), les propositions de sites d'importance communautaire (pSIC), les sites d'importance communautaire (SIC) et les zones spéciales de conservation (ZSC)

FR7300822 - Vallée du Riberot et massif du Mont Valier

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3. INFORMATIONS ECOLOGIQUES 3
4. DESCRIPTION DU SITE 6
5. STATUT DE PROTECTION DU SITE 7
6. GESTION DU SITE 7

1. IDENTIFICATION DU SITE

1.1 Type
B (pSIC/SIC/ZSC)

1.2 Code du site
FR7300822

1.3 Appellation du site
Vallée du Riberot et massif du Mont Valier

1.4 Date de compilation
31/01/1996

1.5 Date d'actualisation
30/06/2005

1.6 Responsables

Responsable national et européen	Responsable du site	Responsable technique et scientifique national
Ministère en charge de l'écologie	DREAL Midi-Pyrénées	MNHN - Service du Patrimoine Naturel
www.developpement-durable.gouv.fr	www.midi-pyrenees.developpement-durable.gouv.fr	www.mnhn.fr www.spn.mnhn.fr
en3.en.deb.dgaln@developpement-durable.gouv.fr		natura2000@mnhn.fr

1.7 Dates de proposition et de désignation / classement du site
Date de transmission à la Commission Européenne : 31/05/2002

(Proposition de classement du site comme SIC)

Dernière date de parution au JO UE : 16/11/2012
(Confirmation de classement du site comme SIC)

ZSC : date de signature du dernier arrêté (JO RF) : 22/08/2006

Texte juridique national de référence pour la désignation comme ZSC : http://www.legifrance.gouv.fr/jo_pdf.do?cidTexte=JORFTEXT000000644061

2. LOCALISATION DU SITE

2.1 Coordonnées du centre du site [en degrés décimaux]

Longitude : 1,06333°

Latitude : 42,81167°

2.2 Superficie totale

7745 ha

2.3 Pourcentage de superficie marine

Non concerné

2.4 Code et dénomination de la région administrative

Code INSEE	Région
73	Midi-Pyrénées

2.5 Code et dénomination des départements

Code INSEE	Département	Couverture (%)
09	Ariège	100 %

2.6 Code et dénomination des communes

Code INSEE	Communes
09055	BETHMALE
09062	BORDES-SUR-LEZ (LES)
09285	SEIX

2.7 Région(s) biogéographique(s)

Alpine (100%)

3. INFORMATIONS ÉCOLOGIQUES

3.1 Types d'habitats présents sur le site et évaluations

Types d'habitats inscrits à l'annexe I					Évaluation du site			
					A|B|C|D	A|B|C		
Code	PF	Superficie (ha) (% de couverture)	Grottes [nombre]	Qualité des données	Représent -ativité	Superficie relative	Conservation	Évaluation globale
4030 *Landes sèches européennes*		619,6 *(8 %)*			A	C	B	B
4060 *Landes alpines et boréales*		1084,3 *(14 %)*			A	C	A	A
5130 *Formations à Juniperus communis sur landes ou pelouses calcaires*		0 *(0 %)*			B	C	B	B
6140 *Pelouses pyrénéennes siliceuses à Festuca eskia*		309,8 *(4 %)*			A	B	A	B
6170 *Pelouses calcaires alpines et subalpines*		309,8 *(4 %)*			A	C	C	C
6210 *Pelouses sèches semi-naturelles et faciès d'embuissonnement sur calcaires (Festuco-Brometalia) (* sites d'orchidées remarquables)*		309,8 *(4 %)*			A	C	C	C
6230 *Formations herbeuses à Nardus, riches en espèces, sur substrats siliceux des zones montagnardes (et des zones submontagnardes de l'Europe continentale)*	X	0 *(0 %)*			C	C	B	B
6410 *Prairies à Molinia sur sols calcaires, tourbeux ou argilo-limoneux (Molinion caeruleae)*		0 *(0 %)*			C	C	B	B
6430 *Mégaphorbiaies hygrophiles d'ourlets planitiaires et des étages montagnard à alpin*		0 *(0 %)*			A	C	B	B
6520 *Prairies de fauche de montagne*		0 *(0 %)*			B	C	C	C
8110 *Eboulis siliceux de l'étage montagnard à nival (Androsacetalia alpinae et Galeopsietalia ladani)*		232,35 *(3 %)*			A	C	A	B
8130 *Eboulis ouest-méditerranéens et thermophiles*		154,9 *(2 %)*			A	C	A	B

8210 *Pentes rocheuses calcaires avec végétation chasmophytique*		154,9 *(2 %)*			A	C	A	B
8220 *Pentes rocheuses siliceuses avec végétation chasmophytique*		464,7 *(6 %)*			A	C	A	A
8310 *Grottes non exploitées par le tourisme*		77,45 *(1 %)*			A	C	B	A
9120 *Hêtraies acidophiles atlantiques à sous-bois à Ilex et parfois à Taxus (Quercion robori-petraeae ou Ilici-Fagenion)*		387,25 *(5 %)*			A	C	B	B
9150 *Hêtraies calcicoles médio-européennes du Cephalanthero-Fagion*		154,9 *(2 %)*			A	C	B	B
9430 *Forêts montagnardes et subalpines à Pinus uncinata (* si sur substrat gypseux ou calcaire)*		77,45 *(1 %)*			B	B	B	B

- **PF :** Forme prioritaire de l'habitat.
- **Qualité des données :** G = «Bonne» (données reposant sur des enquêtes, par exemple); M = «Moyenne» (données partielles + extrapolations, par exemple); P = «Médiocre» (estimation approximative, par exemple).
- **Représentativité :** A = «Excellente» ; B = «Bonne» ; C = «Significative» ; D = «Présence non significative».
- **Superficie relative :** A = 100 $\geq$ p > 15 % ; B = 15 $\geq$ p > 2 % ; C = 2 $\geq$ p > 0 % .
- **Conservation :** A = «Excellente» ; B = «Bonne» ; C = «Moyenne / réduite».
- **Evaluation globale :** A = «Excellente» ; B = «Bonne» ; C = «Significative».

3.2 Espèces inscrites à l'annexe II de la directive 92/43/CEE et évaluation

Espèce			Population présente sur le site					Évaluation du site			
Groupe	Code	Nom scientifique	Type	Taille		Unité	Cat.	Qualité des données	A|B|C|D	A|B|C		
				Min	Max		C|R|V|P		Pop.	Cons.	Isol.	Glob.
I	1087	*Rosalia alpina*	p			i	P		C	A	C	A
M	1301	*Galemys pyrenaicus*	p			i	P		B	A	C	A
M	1308	*Barbastella barbastellus*	p			i	P		C	A	C	A
M	1354	*Ursus arctos*	p			i	P		A	C	A	A
R	5259		p			i	P		B	A	C	A

- **Groupe :** A = Amphibiens, B = Oiseaux, F = Poissons, I = Invertébrés, M = Mammifères, P = Plantes, R = Reptiles.
- **Type :** p = espèce résidente (sédentaire), r = reproduction (migratrice), c = concentration (migratrice), w = hivernage (migratrice).
- **Unité :** i = individus, p = couples , adults = Adultes matures , area = Superficie en m2 , bfemales = Femelles reproductrices , cmales = Mâles chanteurs , colonies = Colonies , fstems = Tiges florales , grids1x1 = Grille 1x1 km , grids10x10 = Grille 10x10 km , grids5x5 = Grille 5x5 km , length = Longueur en km , localities = Stations , logs = Nombre de branches , males = Mâles , shoots = Pousses , stones = Cavités rocheuses , subadults = Sub-adultes , trees = Nombre de troncs , tufts = Touffes.
- **Catégories du point de vue de l'abondance (Cat.) :** C = espèce commune, R = espèce rare, V = espèce très rare, P: espèce présente.

- **Qualité des données :**G = «Bonne» (données reposant sur des enquêtes, par exemple); M =«Moyenne» (données partielles + extrapolations, par exemple); P = «Médiocre» (estimation approximative, par exemple); DD = Données insuffisantes.
- **Population :** A = 100 ≥ p > 15 % ; B = 15 ≥ p > 2 % ; C = 2 ≥ p > 0 % ; D = Non significative.
- **Conservation :** A = «Excellente» ; B = «Bonne» ; C = «Moyenne / réduite».
- **Isolement :** A = population (presque) isolée ; B = population non isolée, mais en marge de son aire de répartition ; C = population non isolée dans son aire de répartition élargie.
- **Evaluation globale :** A = «Excellente» ; B = «Bonne» ; C = «Significative».

3.3 Autres espèces importantes de faune et de flore

Espèce			Population présente sur le site				Motivation					
Groupe	Code	Nom scientifique	Taille		Unité	Cat.	Annexe Dir. Hab.		Autres catégories			
			Min	Max		C|R|V|P	IV	V	A	B	C	D
A		*Euproctus asper*			i	P	X					X
I		*Aphoenops mariaerosae*			i	P				X		

- **Groupe :** A = Amphibiens, B = Oiseaux, F = Poissons, Fu = Champignons, I = Invertébrés, L = Lichens, M = Mammifères, P = Plantes, R = Reptiles.
- **Unité :** i = individus, p = couples , adults = Adultes matures , area = Superficie en m2 , bfemales = Femelles reproductrices , cmales = Mâles chanteurs , colonies = Colonies , fstems = Tiges florales , grids1x1 = Grille 1x1 km , grids10x10 = Grille 10x10 km , grids5x5 = Grille 5x5 km , length = Longueur en km , localities = Stations , logs = Nombre de branches , males = Mâles , shoots = Pousses , stones = Cavités rocheuses , subadults = Sub-adultes , trees = Nombre de troncs , tufts = Touffes.
- **Catégories du point de vue de l'abondance (Cat.) :** C = espèce commune, R = espèce rare, V = espèce très rare, P: espèce présente.
- **Motivation : IV, V :** annexe où est inscrite l'espèce (directive «Habitats») ; **A :** liste rouge nationale ; **B :** espèce endémique ; **C :** conventions internationales ; **D :** autres raisons.

4. DESCRIPTION DU SITE

4.1 Caractère général du site

Classe d'habitat	Pourcentage de couverture
N06 : Eaux douces intérieures (Eaux stagnantes, Eaux courantes)	0 %
N07 : Marais (vegetation de ceinture), Bas-marais, Tourbières,	1 %
N08 : Landes, Broussailles, Recrus, Maquis et Garrigues, Phrygana	23 %
N10 : Prairies semi-naturelles humides, Prairies mésophiles améliorées	1 %
N11 : Pelouses alpine et sub-alpine	28 %
N16 : Forêts caducifoliées	27 %
N17 : Forêts de résineux	4 %
N22 : Rochers intérieurs, Eboulis rocheux, Dunes intérieures, Neige ou glace permanente	16 %

Autres caractéristiques du site

Ecocomplexe des étages montagnards à nival.
Bassin du Ribérot et massif du Valier à relief et géologie complexe (mosaïque silice/calcaire)

Vulnérabilité : Forte à la rupture de l'équilibre sylvo-pastoral.

4.2 Qualité et importance

Fort endémisme (y compris un genre de coléoptère souterrain) végétal et animal (invertébrés) et limites d'aires occidentales et/ou orientales.
Faune et flore des pyrénées trés représentatives et populations importantes.

L'habitat potentiel du Chabot (Cottus gobio) est représenté sur le site, sans que l'on puisse attester de la présence actuelle de l'espèce (présence ancienne avérée).

4.3 Menaces, pressions et activités ayant une incidence sur le site

Il s'agit des principales incidences et activités ayant des répercussions notables sur le site

Incidences négatives				
Importance	Menaces et pressions [code]	Menaces et pressions [libellé]	Pollution [code]	Intérieur / Extérieur [i|o|b]
L	A05.01	Elevage		I
L	E04.01	Bâtiments agricoles, constructions dans le paysage		I
Incidences positives				
Importance	Menaces et pressions [code]	Menaces et pressions [libellé]	Pollution [code]	Intérieur / Extérieur [i|o|b]
H	A04	Pâturage		I
L	B	Sylviculture et opérations forestières		I

- **Importance** : H = grande, M = moyenne, L = faible.

- **Pollution** : N = apport d'azote, P = apport de phosphore/phosphate, A = apport d'acide/acidification, T = substances chimiques inorganiques toxiques, O = substances chimiques organiques toxiques, X = pollutions mixtes.
- **Intérieur / Extérieur** : I = à l'intérieur du site, O = à l'extérieur du site, B = les deux.

4.4 Régime de propriété

Type	Pourcentage de couverture
Domaine privé de l'état	%

4.5 Documentation

Lien(s) :

5.1 Types de désignation aux niveaux national et régional

Code	Désignation	Pourcentage de couverture
21	Forêt domaniale	95 %

5.2 Relation du site considéré avec d'autres sites

Désignés aux niveaux national et régional :

Code	Appellation du site	Type	Pourcentage de couverture

Désignés au niveau international :

Type	Appellation du site	Type	Pourcentage de couverture

5.3 Désignation du site

6. GESTION DU SITE

6.1 Organisme(s) responsable(s) de la gestion du site

Organisation : OFFICE NATIONAL DES FORETS (Service départemental de l'Ariège) pour les terrains domaniaux et soumis aux régime forestier (la quasi totalité du site).

Adresse :

Courriel :

6.2 Plan(s) de gestion

Existe-il un plan de gestion en cours de validité ?

☐ Oui

[ ] Non, mais un plan de gestion est en préparation.

[X] Non

6.3 Mesures de conservation

Aménagements forestiers.
Document d'objectifs, réalisé par l'ONF 09, a été validé en juin 2005. Mise à jour du FSD suite au document d'objectifs réalisé par ONF 09.

Annexe 4 : Zone Natura 2000 FR7312003

NATURA 2000 - FORMULAIRE STANDARD DE DONNEES
Pour les zones de protection spéciale (ZPS), les propositions de sites d'importance communautaire (pSIC), les sites d'importance communautaire (SIC) et les zones spéciales de conservation (ZSC)

FR7312003 - Massif du Mont Valier

1. IDENTIFICATION DU SITE 1
2. LOCALISATION DU SITE 2
3. INFORMATIONS ECOLOGIQUES 3
4. DESCRIPTION DU SITE 5
5. STATUT DE PROTECTION DU SITE 6
6. GESTION DU SITE 6

1. IDENTIFICATION DU SITE

1.1 Type

A (ZPS)

1.2 Code du site

FR7312003

1.3 Appellation du site

Massif du Mont Valier

1.4 Date de compilation

31/01/2005

1.5 Date d'actualisation

31/01/2005

1.6 Responsables

Responsable national et européen	Responsable du site	Responsable technique et scientifique national
Ministère en charge de l'écologie	DREAL Midi-Pyrénées	MNHN - Service du Patrimoine Naturel
www.developpement-durable.gouv.fr	www.midi-pyrenees.developpement-durable.gouv.fr	www.mnhn.fr www.spn.mnhn.fr
en3.en.deb.dgaln@developpement-durable.gouv.fr		natura2000@mnhn.fr

1.7 Dates de proposition et de désignation / classement du site

ZPS : date de signature du dernier arrêté (JO RF) : 05/07/2005

Texte juridique national de référence pour la désignation comme ZPS : http://www.legifrance.gouv.fr/jo_pdf.do?cidTexte=JORFTEXT000000447159

2. LOCALISATION DU SITE

2.1 Coordonnées du centre du site [en degrés décimaux]

Longitude : 1,08917°

Latitude : 42,81278°

2.2 Superficie totale

10619 ha

2.3 Pourcentage de superficie marine

Non concerné

2.4 Code et dénomination de la région administrative

Code INSEE	Région
73	Midi-Pyrénées

2.5 Code et dénomination des départements

Code INSEE	Département	Couverture (%)
09	Ariège	100 %

2.6 Code et dénomination des communes

Code INSEE	Communes
09017	ARRIEN-EN-BETHMALE
09055	BETHMALE
09059	BONAC-IRAZEIN
09062	BORDES-SUR-LEZ (LES)
09285	SEIX

2.7 Région(s) biogéographique(s)

Alpine (100%)

3. INFORMATIONS ÉCOLOGIQUES

3.1 Types d'habitats présents sur le site et évaluations

Types d'habitats inscrits à l'annexe I					Évaluation du site			
Code	PF	Superficie (ha) (% de couverture)	Grottes [nombre]	Qualité des données	A|B|C|D	A|B|C		
					Représent -ativité	Superficie relative	Conservation	Évaluation globale

- **PF :** Forme prioritaire de l'habitat.
- **Qualité des données :** G = «Bonne» (données reposant sur des enquêtes, par exemple); M = «Moyenne» (données partielles + extrapolations, par exemple); P = «Médiocre» (estimation approximative, par exemple).
- **Représentativité :** A = «Excellente» ; B = «Bonne» ; C = «Significative» ; D = «Présence non significative».
- **Superficie relative :** A = 100 $\geq$ p > 15 % ; B = 15 $\geq$ p > 2 % ; C = 2 $\geq$ p > 0 % .
- **Conservation :** A = «Excellente» ; B = «Bonne» ; C = «Moyenne / réduite».
- **Evaluation globale :** A = «Excellente» ; B = «Bonne» ; C = «Significative».

3.2 Espèces visées à l'article 4 de la directive 2009/147/CE et évaluation

Espèce			Population présente sur le site					Évaluation du site			
Groupe	Code	Nom scientifique	Type	Taille		Unité	Cat.	Qualité des données	A|B|C|D	A|B|C		
				Min	Max		C|R|V|P		Pop.	Cons.	Isol.	Glob.
B	A072	*Pernis apivorus*	r			i	P		D			
B	A074	*Milvus milvus*	r			i	P					
B	A076	*Gypaetus barbatus*	p	1	1	p	P		B	B	C	A
B	A078	*Gyps fulvus*	p			i	P					
B	A080	*Circaetus gallicus*	r	1	1	p	P		D			
B	A091	*Aquila chrysaetos*	p	3	3	p	P		C	A	C	A
B	A103	*Falco peregrinus*	p	3	3	p	P		C	B	C	B
B	A108	*Tetrao urogallus*	p	20	20	males	P		C	C	C	B
B	A215	*Bubo bubo*	p			i	P					

B	A236	*Dryocopus martius*	p			i	P		D			
B	A280	*Monticola saxatilis*	r			i	P					
B	A282	*Turdus torquatus*	r			i	P					
B	A407	*Lagopus mutus pyrenaicus*	p	30	30	p	P		C	B	C	A
B	A415	*Perdix perdix hispaniensis*	p	25	25	p	P		C	B	C	B

- **Groupe :** A = Amphibiens, B = Oiseaux, F = Poissons, I = Invertébrés, M = Mammifères, P = Plantes, R = Reptiles.
- **Type :** p = espèce résidente (sédentaire), r = reproduction (migratrice), c = concentration (migratrice), w = hivernage (migratrice).
- **Unité :** i = individus, p = couples , adults = Adultes matures , area = Superficie en m2 , bfemales = Femelles reproductrices , cmales = Mâles chanteurs , colonies = Colonies , fstems = Tiges florales , grids1x1 = Grille 1x1 km , grids10x10 = Grille 10x10 km , grids5x5 = Grille 5x5 km , length = Longueur en km , localities = Stations , logs = Nombre de branches , males = Mâles , shoots = Pousses , stones = Cavités rocheuses , subadults = Sub-adultes , trees = Nombre de troncs , tufts = Touffes.
- **Catégories du point de vue de l'abondance (Cat.) :** C = espèce commune, R = espèce rare, V = espèce très rare, P: espèce présente.
- **Qualité des données :**G = «Bonne» (données reposant sur des enquêtes, par exemple); M =«Moyenne» (données partielles + extrapolations, par exemple); P = «Médiocre» (estimation approximative, par exemple); DD = Données insuffisantes.
- **Population :** A = 100 $\geq$ p > 15 % ; B = 15 $\geq$ p > 2 % ; C = 2 $\geq$ p > 0 % ; D = Non significative.
- **Conservation :** A = «Excellente» ; B = «Bonne» ; C = «Moyenne / réduite».
- **Isolement :** A = population (presque) isolée ; B = population non isolée, mais en marge de son aire de répartition ; C = population non isolée dans son aire de répartition élargie.
- **Evaluation globale :** A = «Excellente» ; B = «Bonne» ; C = «Significative».

3.3 Autres espèces importantes de faune et de flore

Espèce			Population présente sur le site				Motivation					
Groupe	Code	Nom scientifique	Taille		Unité	Cat.	Annexe Dir. Hab.		Autres catégories			
			Min	Max		C|R|V|P	IV	V	A	B	C	D
B		*Tichodroma muraria*			i	P			X		X	

- **Groupe :** A = Amphibiens, B = Oiseaux, F = Poissons, Fu = Champignons, I = Invertébrés, L = Lichens, M = Mammifères, P = Plantes, R = Reptiles.
- **Unité :** i = individus, p = couples , adults = Adultes matures , area = Superficie en m2 , bfemales = Femelles reproductrices , cmales = Mâles chanteurs , colonies = Colonies , fstems = Tiges florales , grids1x1 = Grille 1x1 km , grids10x10 = Grille 10x10 km , grids5x5 = Grille 5x5 km , length = Longueur en km , localities = Stations , logs = Nombre de branches , males = Mâles , shoots = Pousses , stones = Cavités rocheuses , subadults = Sub-adultes , trees = Nombre de troncs , tufts = Touffes.
- **Catégories du point de vue de l'abondance (Cat.) :** C = espèce commune, R = espèce rare, V = espèce très rare, P: espèce présente.
- **Motivation : IV, V :** annexe où est inscrite l'espèce (directive «Habitats») ; **A :** liste rouge nationale ; **B :** espèce endémique ; **C :** conventions internationales ; **D :** autres raisons.

4. DESCRIPTION DU SITE

4.1 Caractère général du site

Classe d'habitat	Pourcentage de couverture
N06 : Eaux douces intérieures (Eaux stagnantes, Eaux courantes)	3 %
N07 : Marais (vegetation de ceinture), Bas-marais, Tourbières,	2 %
N08 : Landes, Broussailles, Recrus, Maquis et Garrigues, Phrygana	25 %
N10 : Prairies semi-naturelles humides, Prairies mésophiles améliorées	1 %
N11 : Pelouses alpine et sub-alpine	29 %
N16 : Forêts caducifoliées	15 %
N17 : Forêts de résineux	10 %
N19 : Forêts mixtes	5 %
N22 : Rochers intérieurs, Eboulis rocheux, Dunes intérieures, Neige ou glace permanente	10 %

Autres caractéristiques du site

Ecocomplexe des étages montagnard à nival. Bassin du Ribérot et Massif du Valier à relief et géologie complexe (mosaïque silice / calcaire)

Vulnérabilité : Ce site, de part son statut de forêt domaniale et de réserve de chasse et de faune sauvage, présente une faible vulnérabilité.

Néanmoins, le risque de déprise pastorale pourrait à moyen terme constituer un facteur de vulnérabilité. Il en serait de même en cas de développement touristique non respectueux des équilibres écologiques.

4.2 Qualité et importance

L'avifaune de montagne est bien représentée, avec, parmi les passereaux le Merle à plastron, le Tichodrome échelette et le Monticole de roche. Neuf espèces de l'annexe I sont données nicheuses dans la ZPS, parmi lesquelles : Gypaète barbu, Aigle royal, Faucon pélerin, Grand Tétras, Lagopède alpin, Perdrix grise sous-espèce hispaniensis. Trois autres espèces visées à l'annexe I fréquentent le site pour s'y alimenter : Vautour fauve, Milan royal et Hibou Grand Duc.

Faune et flore des Pyrénées très représentatives et populations importantes. Fort endémisme.

4.3 Menaces, pressions et activités ayant une incidence sur le site

Il s'agit des principales incidences et activités ayant des répercussions notables sur le site

Incidences négatives				
Importance	Menaces et pressions [code]	Menaces et pressions [libellé]	Pollution [code]	Intérieur / Extérieur [i|o|b]
Incidences positives				
Importance	Menaces et pressions [code]	Menaces et pressions [libellé]	Pollution [code]	Intérieur / Extérieur [i|o|b]

N	A04	Pâturage		I

- **Importance** : H = grande, M = moyenne, L = faible.
- **Pollution** : N = apport d'azote, P = apport de phosphore/phosphate, A = apport d'acide/acidification, T = substances chimiques inorganiques toxiques, O = substances chimiques organiques toxiques, X = pollutions mixtes.
- **Intérieur / Extérieur** : I = à l'intérieur du site, O = à l'extérieur du site, B = les deux.

4.4 Régime de propriété

Type	Pourcentage de couverture
Domaine privé de l'état	%

4.5 Documentation

Lien(s) :

5.1 Types de désignation aux niveaux national et régional

Code	Désignation	Pourcentage de couverture
52	Réserve de chasse et de faune sauvage d'ACCA	90 %
21	Forêt domaniale	98 %

5.2 Relation du site considéré avec d'autres sites

Désignés aux niveaux national et régional :

Code	Appellation du site	Type	Pourcentage de couverture
21	Réserve de chasse et de faune sauvage du Mont Valier		%

Désignés au niveau international :

Type	Appellation du site	Type	Pourcentage de couverture

5.3 Désignation du site

6. GESTION DU SITE

6.1 Organisme(s) responsable(s) de la gestion du site

Organisation : OFFICE NATIONAL DES FORETS (service départemental de l'Ariège) pour les terrains domaniaux et soumis au régime forestier (la quasi totalité du site).

Adresse :

Courriel :

6.2 Plan(s) de gestion

Existe-il un plan de gestion en cours de validité ?

[ ] Oui

[ ] Non, mais un plan de gestion est en préparation.

[X] Non

6.3 Mesures de conservation

Aménagements forestiers

Un document d'objectif est en cours de réalisation sur le site d'intérêt communautaire "vallée du Riberot et massif du mont valier". Ce document d'objectif concerne également la ZPS.

ANNEXE 8

PLANCHES HORS TEXTE

Annexe 8a : carte à 1/25 000 des limites administratives du PERM (5 exemplaires)

Annexe 8b : carte à 1/25 000 des anciens titres miniers

Annexe 8c : carte à 1/25 000 de la géologie, des indices minéralisés et des anomalies géochimiques

Annexe 8d : carte à 1/25 000 de localisation du PERM

Annexe 8e : carte à 1/25 000 de l'occupation des sols

Annexe 8f : carte à 1/25 000 des contraintes environnementales

Annexe 8g : carte à 1/25 000 des rivières et plans d'eau

Annexe 8h : carte à 1/25 000 des sites archéologiques et des monuments historiques

VARISCAN MINES

Annexe 8a

Carte des limites administratives
du PERM "Couflens"

Echelle 1:25 000

1:25 000 Carte des limites administratives du PERM de Couflens

Légende

- Emprise du PERM de Couflens
- Sommets du PERM

Limites administratives

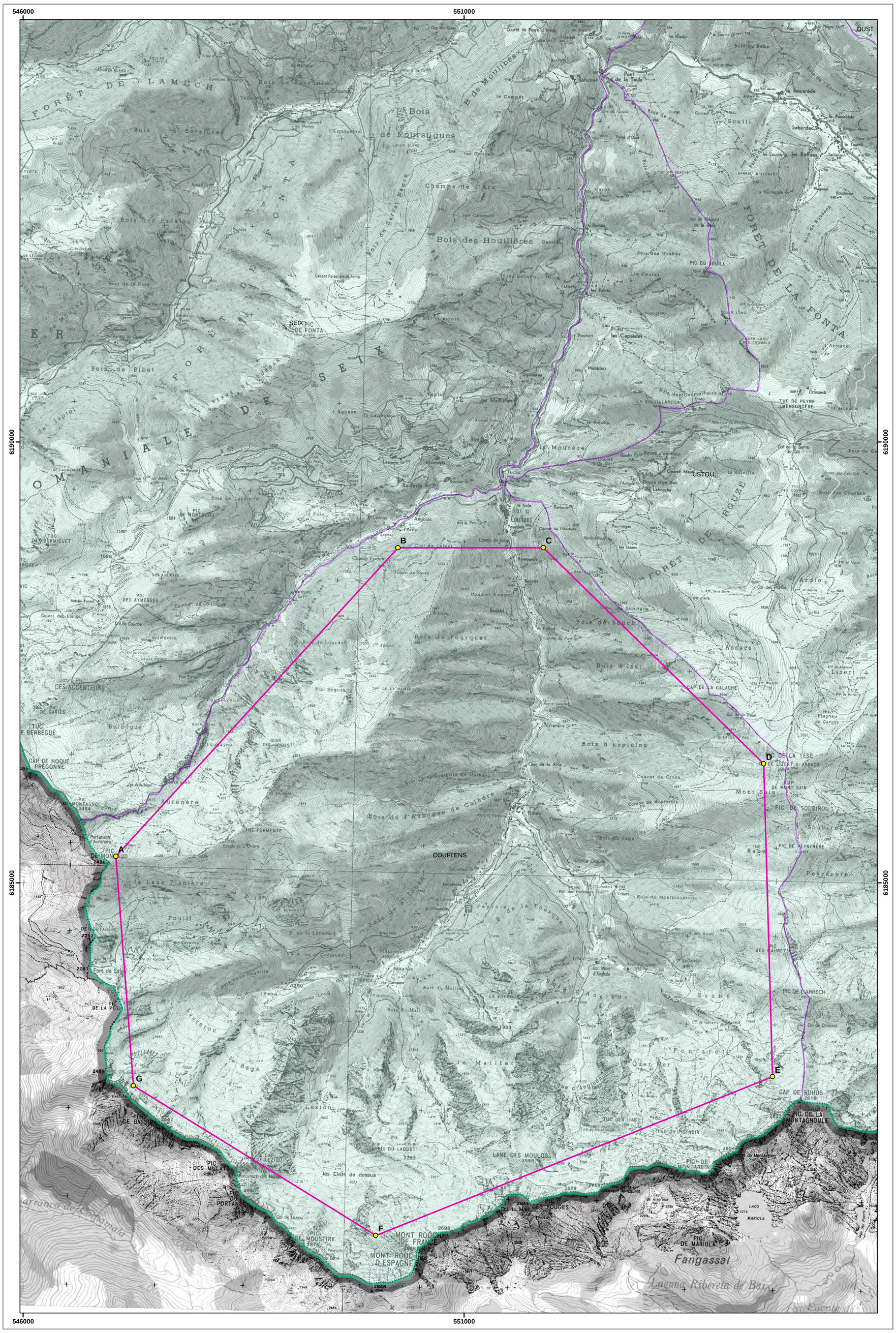
Nature

- Limite d'arrondissement
- Limite de commune
- Limite de canton
- Limite de département
- Limite de région
- Frontière internationale

Coordonnées des Sommets du PERM

	Lambert 93	
	X	Y
A	547050	6185300
B	550250	6188800
C	551900	6188800
D	554400	6186350
E	554500	6182800
F	550000	6181000
G	547250	6182700

	RGF - 93 (Degrés)	
	X	Y
A	1.133775	42.75099
B	1.171817	42.78312
C	1.191953	42.78346
D	1.223137	42.76195
E	1.22533	42.73006
F	1.170971	42.71296
G	1.136962	42.72766



Système de projection : "Lambert 93"

VARISCAN MINES

1:25 000

Carte des anciens titres miniers et des gîtes minéraux du PERM de Couflens

Annexe 8b

Carte des anciens titres miniers
et des gîtes minéraux du PERM "Couflens"

Echelle 1:25 000

Légende

- Emprise du PERM de Couflens
- Sommets du PERM

Anciens titres miniers aux environs de "Salau"

TYPE

- Concession
- Permis Exclusif d'Exploitation (PEX)
- Permis Exclusif de Recherche (PER)
- Anciens titres miniers

Gîtes minéraux et gisements

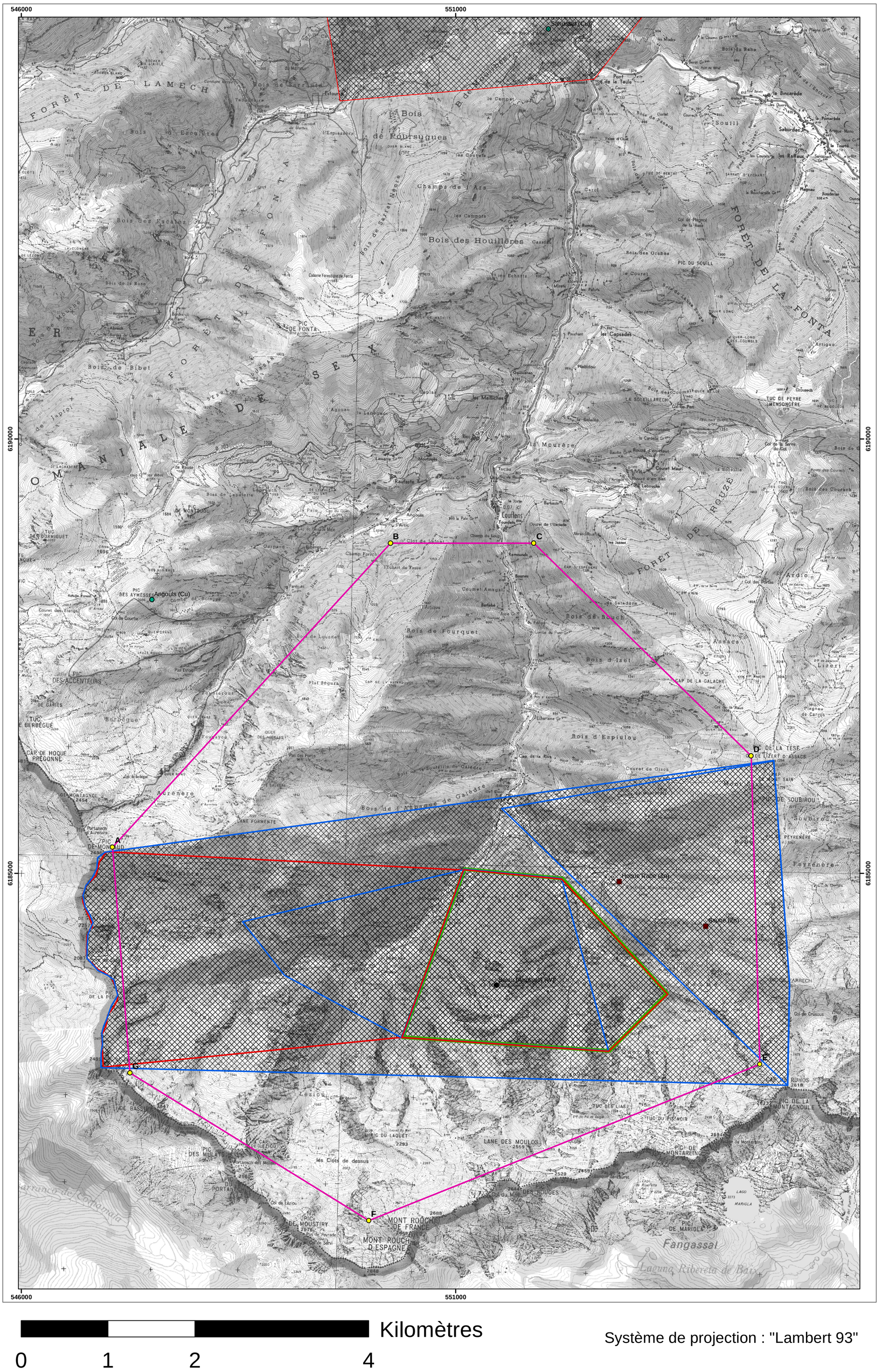
Métaux

- As
- Au
- Cu
- Pb
- PbZn
- Sb
- Sn
- W
- Autres susbstances

Coordonnées des Sommets du PERM

	Lambert 93	
	X	Y
A	547050	6185300
B	550250	6188800
C	551900	6188800
D	554400	6186350
E	554500	6182800
F	550000	6181000
G	547250	6182700

	RGF - 93 (Degrés)	
	X	Y
A	1.133775	42.75099
B	1.171817	42.78312
C	1.191953	42.78346
D	1.223137	42.76195
E	1.22533	42.73006
F	1.170971	42.71296
G	1.136962	42.72766


546000
551000
6190000
6185000
6188000
6183000
6180000
Salouse (Cu)
Angouls (Cu)
Roque Rabe (Zn)
Soulcem (Zn)
Bois de Rabé (Zn)
A
B
C
D
E
F
G
FORÊT DE LAMECH
FORÊT DE FONTA
FORÊT DE SEIX
FORÊT DE ROUZE
Bois de Foursugues
Champs de l'Ars
Bois des Houillères
Bois de Bibet
Bois de Couflens
Bois d'Espiulou
Bois de Bouch
Bois d'Iset
Bois de Fourquet
Bois de Lourdet
Bois de Laparette
Bois de Lamech
Bois des Escalas
Bois de la Rase
Bois du Rabe
Bois des Grabas
Bois des Coumels
Bois des Courech
Bois de Rouzech
Bois de Roudech
Bois de Rouzes
Bois de Soubirou
Bois de Peyrenère
Bois de Lauzet
Bois de Lauzet Rouge
Bois de Lauzet Noir
Bois de Lauzet Blanc
Bois de Lauzet Vert
Bois de Lauzet Jaune
Bois de Lauzet Bleu
Bois de Lauzet Gris
Bois de Lauzet Marron
Bois de Lauzet Violet
Bois de Lauzet Orange
Bois de Lauzet Rose

VARISCAN MINES

1:25 000

Carte de la géologie et des anomalies géochimiques Cu, Pb, Zn, W, As du PERM de Couflens

Annexe 8c

Carte géologique et Anomalies géochimiques du PERM "Couflens"

Echelle 1:25 000

Légende

Emprise du PERM de Couflens

Sommets du PERM

Gîtes minéraux et gisements

Métaux

- As
- Au
- Cu
- Pb
- PbZn
- Sb
- Sn
- W
- Autres susbstances

Légende géologique en annexe

Inventaire géochimique du BRGM

W

- 1 - 10
- 11 - 25
- 26 - 50
- 51 - 100
- 101 - 150

AS

- 50 - 100
- 101 - 250
- 251 - 500
- 501 - 1000
- 1001 - 7000

CU

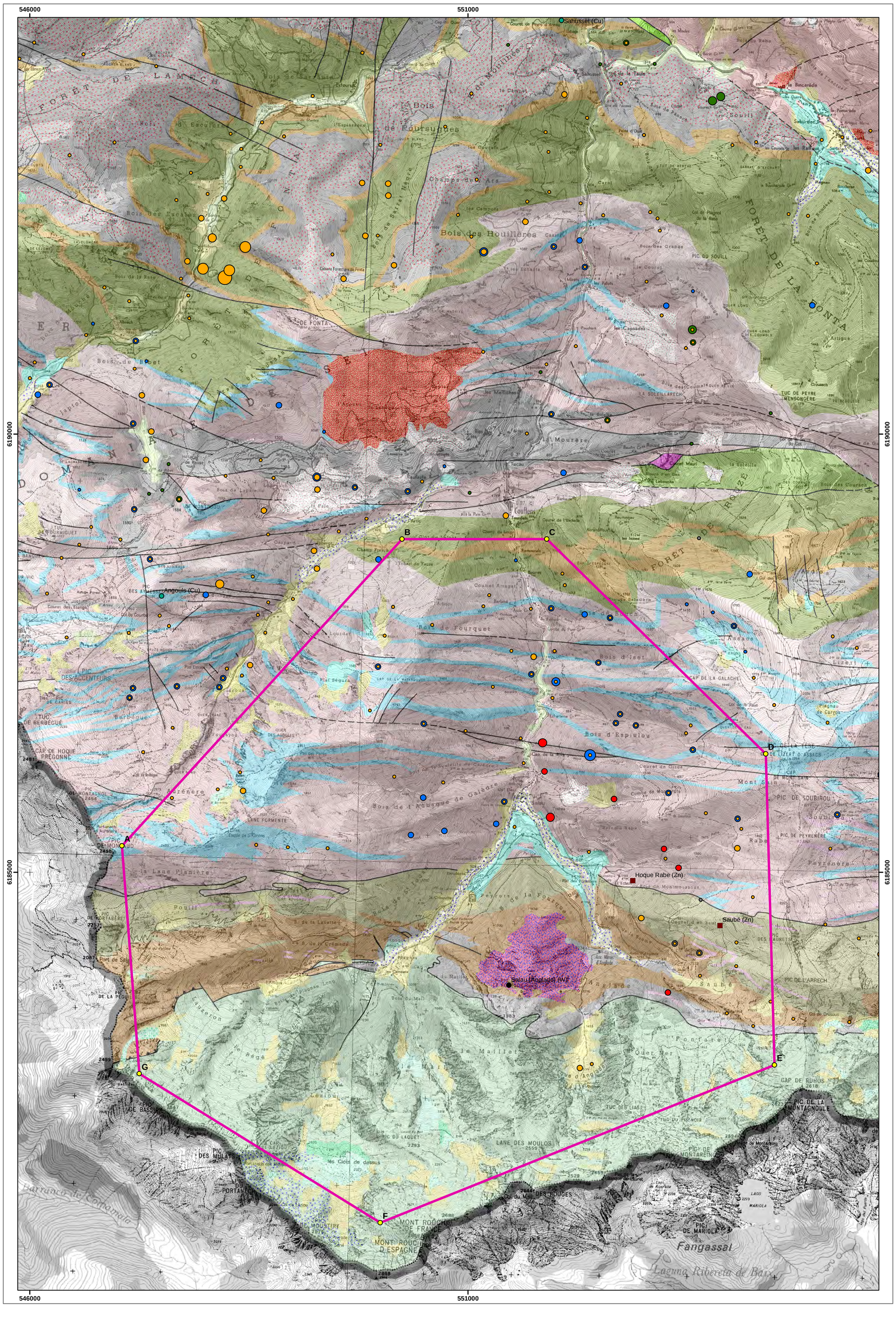
- 100 - 200
- 201 - 300
- 301 - 500
- 501 - 800
- 801 - 1200

PB

- 100 - 250
- 251 - 500
- 501 - 1000
- 1001 - 2500
- 2501 - 5000

ZN

- 400 - 500
- 501 - 1000
- 1001 - 2000
- 2001 - 5000
- 5001 - 8000



Système de projection : "Lambert 93"

VARISCAN MINES

1:25 000

Carte de localisation géographique du PERM de Couflens

Annexe 8d

Carte de localisation géographique du PERM "Couflens"

Echelle 1:25 000

Légende

- Emprise du PERM de Couflens
- Sommets du PERM

Limites administratives

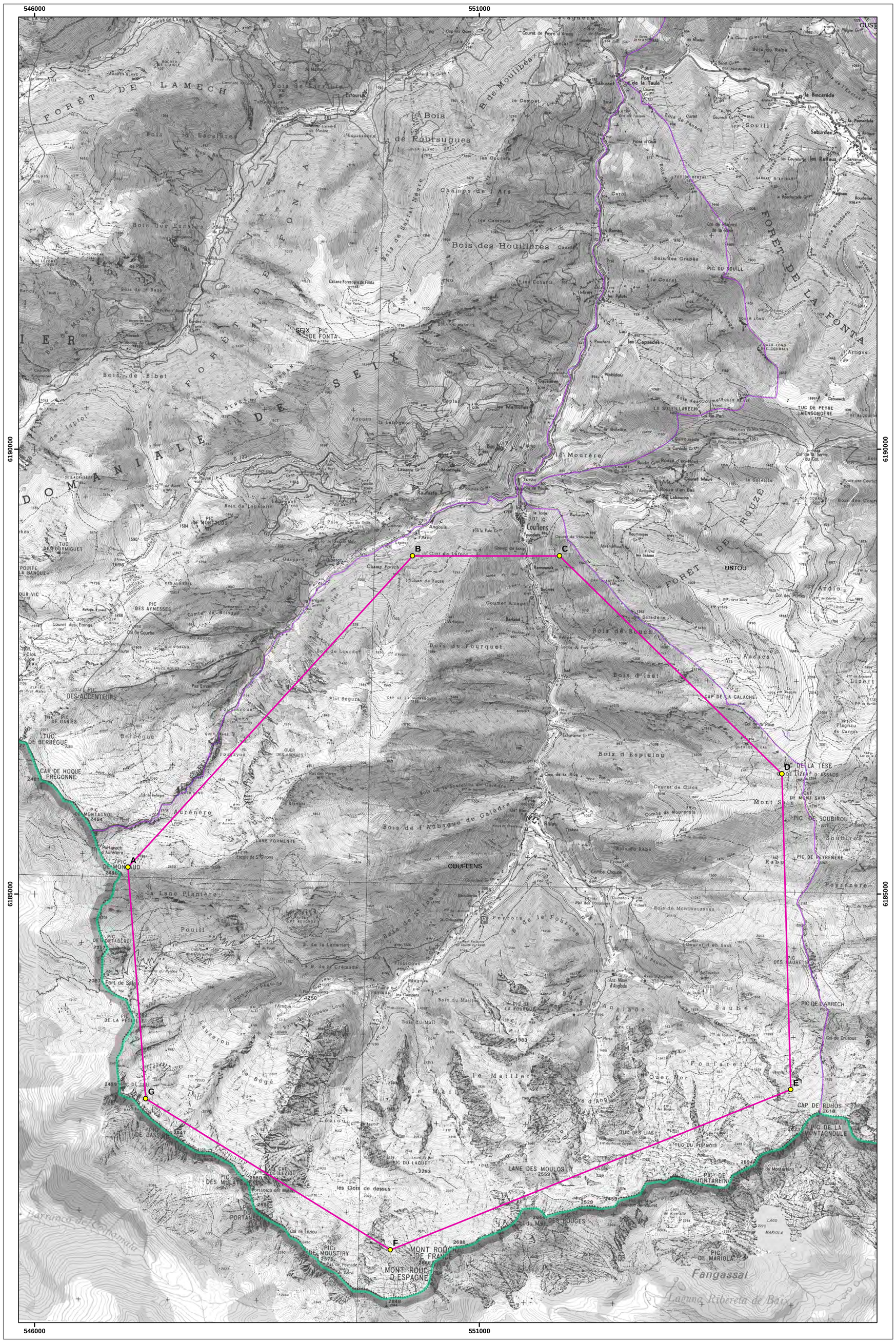
NATURE

- Limite d'arrondissement
- Limite de commune
- Limite de canton
- Limite de département
- Limite de région
- Frontière internationale

Coordonnées des sommets

	Lambert 93	
	X	Y
A	547050	6185300
B	550250	6188800
C	551900	6188800
D	554400	6186350
E	554500	6182800
F	550000	6181000
G	547250	6182700

	RGF - 93 (Degrés)	
	X	Y
A	1.133775	42.75099
B	1.171817	42.78312
C	1.191953	42.78346
D	1.223137	42.76195
E	1.22533	42.73006
F	1.170971	42.71296
G	1.136962	42.72766



0 1 2 4 Kilomètres

Système de projection : "Lambert 93"

VARISCAN MINES

1:25 000

Carte d'occupation des sols du PERM de Couflens

Annexe 8e

Carte d'occupation des sols
du PERM "Couflens"

Echelle 1:25 000

Légende

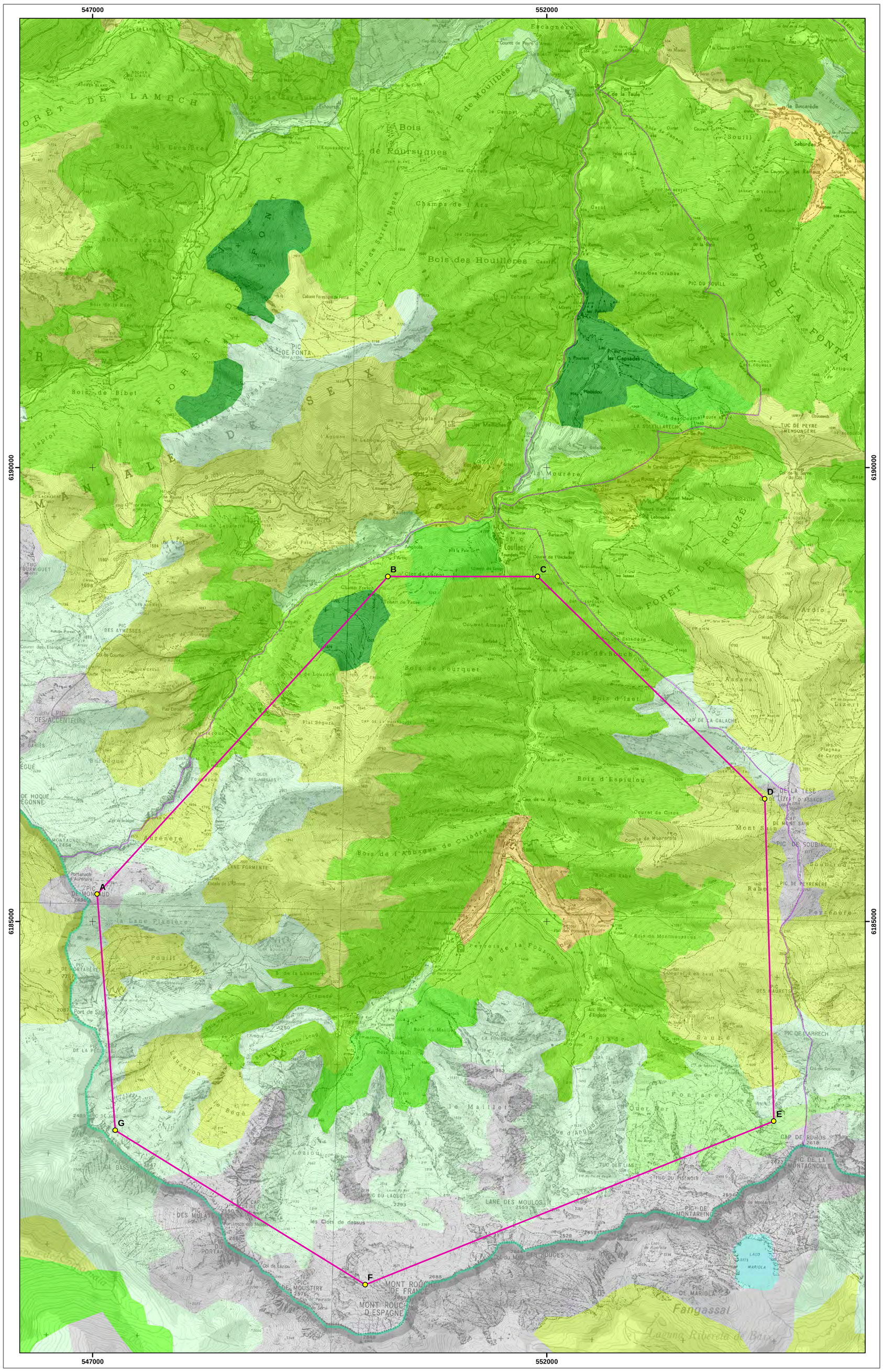
Emprise du PERM de Couflens

Sommets du PERM

Corine Land Cover

Occupation des sols

- 111 : Tissu urbain continu
- 112 : Tissu urbain discontinu
- 121 : Zones industrielles et commerciales
- 122 : Réseaux routier et ferroviaire et espaces associés
- 123 : Zones portuaires
- 124 : Aéroports
- 131 : Extraction de matériaux
- 132 : Décharges
- 133 : Chantiers
- 141 : Espaces verts urbains
- 142 : Equipements sportifs et de loisirs
- 211: Terres arables hors périmètres d'irrigation
- 212 : Périmètres irrigués en permanence
- 213 : Rizières
- 221 : Vignobles
- 222 : Vergers et petits fruits
- 223 : Oliveraies
- 231: Prairies
- 241 : Cultures annuelles associées aux cultures permanentes
- 242 : Systèmes culturaux et parcellaires complexes
- 243 : Surfaces essentiellement agricoles, interrompues par des espaces naturels importants
- 244 : Territoires agro-forestiers
- 311 : Forêts de feuillus
- 312 : Forêts de conifères
- 313 : Forêts mélangées
- 321 : Pelouses et pâturages naturels
- 322 : Landes et broussailles
- 323 : Végétation sclérophylle
- 324 : Forêt et végétation arbustive en mutation
- 331 : Plages, dunes et sable
- 332 : Roches nues
- 333 : Végétation clairsemée
- 334 : Zones incendiées
- 335 : Glaciers et neiges éternelles
- 411 : Marais intérieurs
- 412 : Tourbières
- 421 : Marais maritimes
- 422 : Marais salants
- 423 : Zones intertidales
- 511 : Cours et voies d'eau
- 512 : Plans d'eau
- 521 : Lagunes littorales
- 522 : Estuaires
- 523 : Mers et océans



Système de projection : "Lambert 93"

VARISCAN MINES

1:25 000 **Carte des contraintes environnementales du PERM de Couflens**

Annexe 8f

Carte des contraintes environnementales du PERM "Couflens"

Echelle 1:25 000

Légende

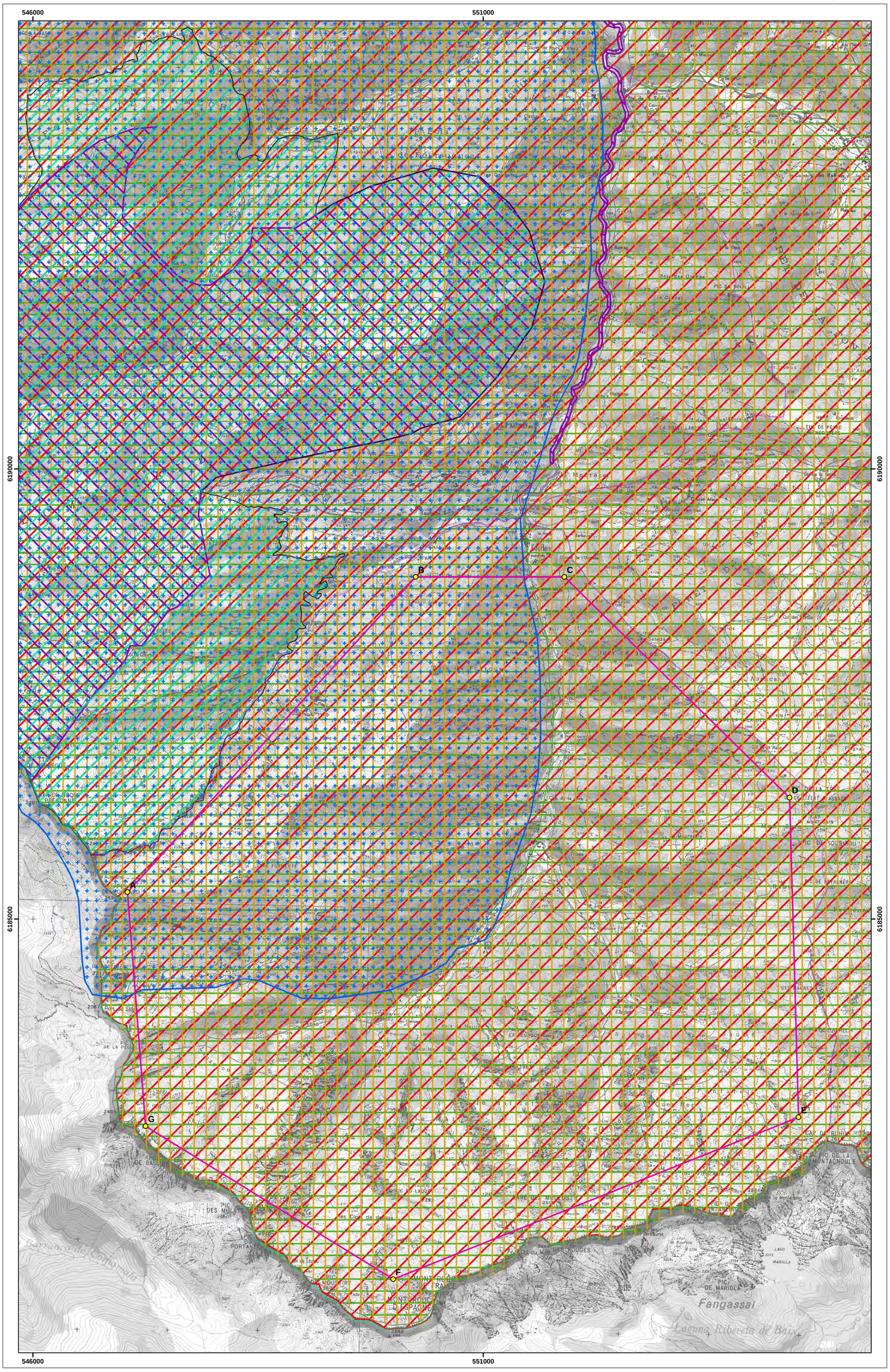
- Sommets du PERM
- Emprise du PERM de Couflens

Limites administratives

- Limite d'arrondissement
- Limite de commune
- Limite de canton
- Limite de département
- Limite de région
- Frontière internationale

Liste des Espaces Protégés

- Zone intéret conservation des oiseaux
- Zone de protection spéciale
- Sites d'importance communautaire
- Znieff 1
- Znieff 2
- Parcs naturels Régionnaux



Kilomètres

0 1 2 4

Système de projection : "Lambert 93"

1:25 000

Carte des rivières et des plans d'eau du PERM de Couflens

Annexe 8g

Carte des rivières et des plans d'eau
du PERM "Couflens"

Echelle 1:25 000

Légende

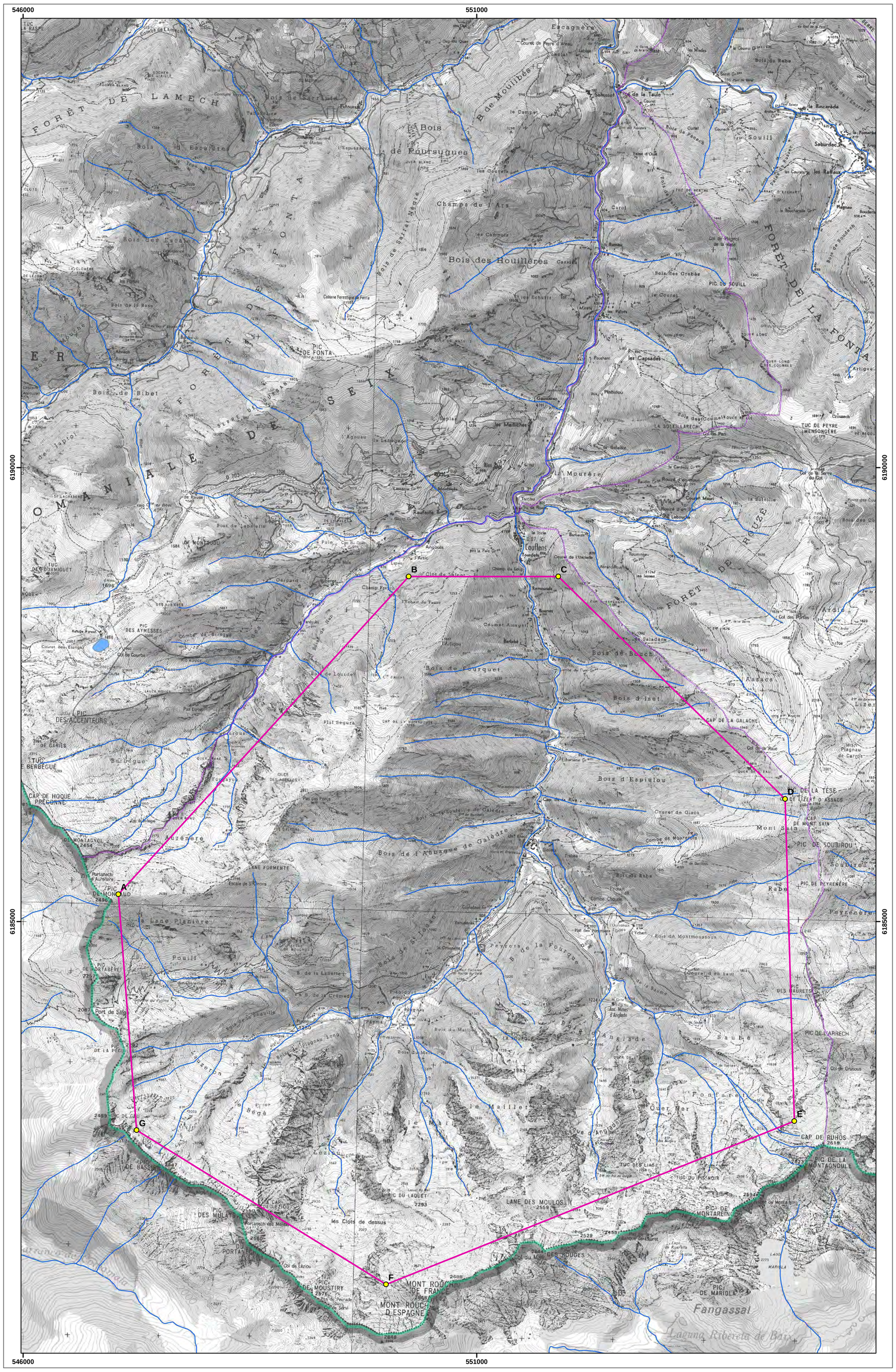
Emprise du PERM de Couflens

Sommets du PERM

Hydrographie

Plans d'eau

Rivières


546000
551000
6190000
6185000
A
B
C
D
E
F
G
Couflens
Angouls
Le Bois de Foursugues
Champs de l'Ars
Bois des Houillères
Bois de Bouch
Bois d'Iset
Bois d'Espiulou
Bois de l'Auberge de Galèdre
Bois de Sarrat Negre
Bois de Mouillères
Bois de Rouges
Bois de Rabe
Bois de Roudeou
Bois de Bibet
Bois de Lamech
Bois de Pourquet
Bois des Crabes
Bois de Montmoussous
Bois de Rouze
Bois de Sauvage
Bois de Sauvagnas
Bois de Maillet
Bois de Mauran
Bois de Lauzet
Bois de Lourdet
Bois de Bilingue
Bois de Sauvagnas
Bois de Paouille
Bois de Lapadelle
Bois de Lavalette
Bois de Lanet
Bois de Lanes
Bois de Lanet
Bois de Lanes
Bois de Lanet
Bois de Lanes

VARISCAN MINES

1:25 000

Carte des sites archéologiques et des monuments historiques (Sites classés / inscrits) du PERM de Couflens

Annexe 8h

Carte des sites archéologiques
et des monuments historiques
(Sites classés / inscrits)
du PERM de Couflens

Echelle 1:25 000

Légende

Emprise du PERM de Couflens

Sommets du PERM

Monuments - Sites protégés

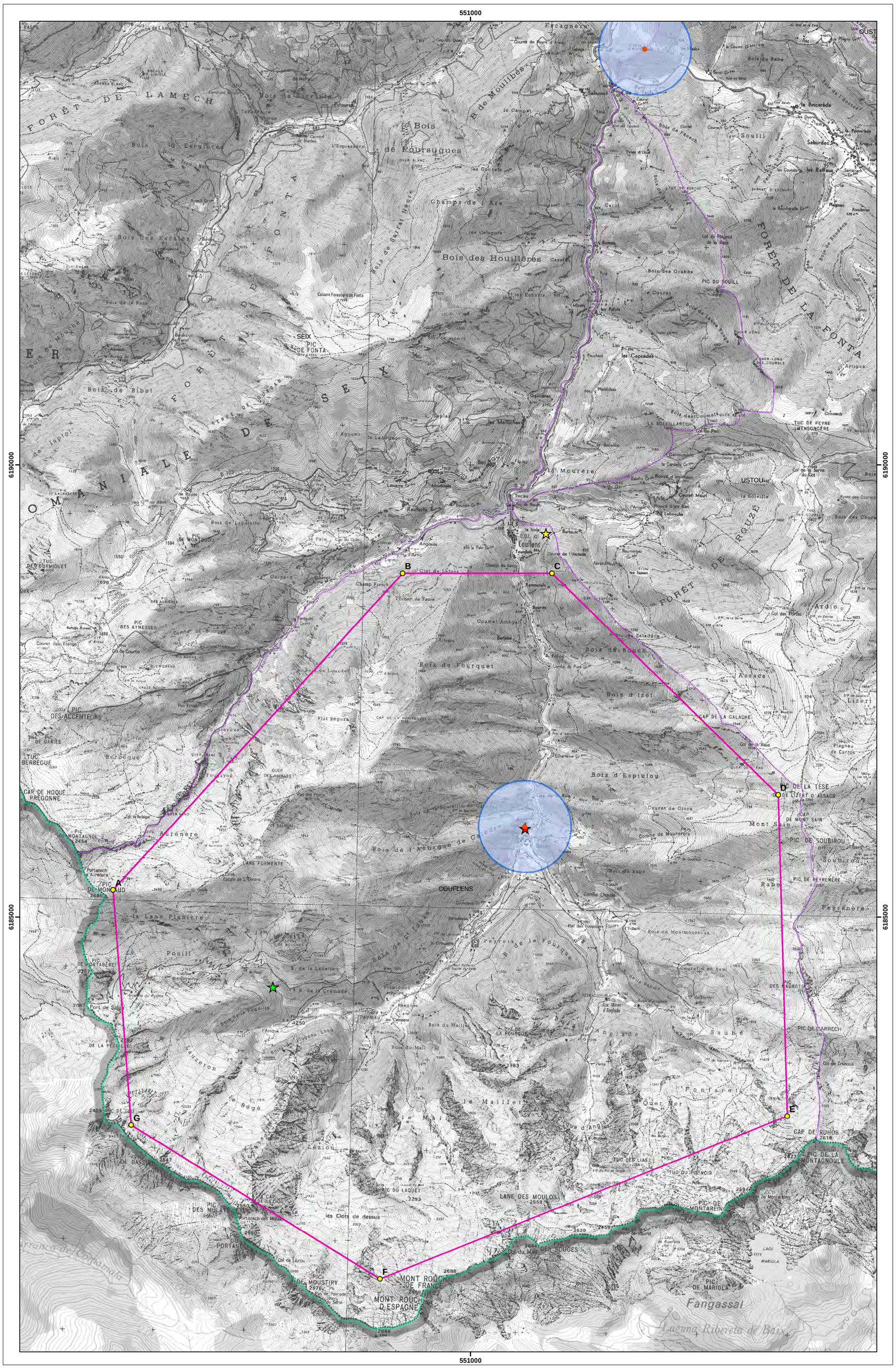
Périmètre de protection

Monuments - Sites classés / Inscrits

Sites archéologiques

- Chapelle de Salau
- Enceinte du Jorle
- La Gleisette

Numéro site	Nom du site	Lieu IGN	Vestiges	Chronologie
09 100 001	Enceinte du Jorle	Le Jorle	Enceinte	Indéterminé
09 100 002	Chapelle de Salau	Salau	Chapelle	Moyen Age
09 100 004	La Gleisette	Bois de la Crémade	Chapelle	Moyen Age


551000
6190000
6185000
A
B
C
D
E
F
G
SEIX
PIC DE FONTA
COUFLENS
Couflens
FORÊT DE LAMECH
FORÊT DE FONTA
FORÊT DE LA FONTA
FORÊT DE ROUZE
Bois de Pourtugues
Champs de Ars
Bois des Houillères
Bois de Bibet
Bois de Fourquet
Bois d'Espiulou
Bois d'Iset
Bois de Bouch
Bois de Saladère
Bois de Lespinette
Bois de la Crémade
Bois du Mail
Bois de l'Arbagne de Gesse
Bois de Montmoussou
Bois de la Rabe
Bois des Grabès
Bois de la Rose
Bois de Lauzeton
Bois de Lézou
Bois de Saraillé
Bois de Serrat Nègre
Bois de Mouillères
Bois de Lasseube
Bois de Lanes Rouges
Bois de Houdes
Bois de Lanes Longues
Bois de Lanes Courtes
Bois de Lanes Rouges

Dossier d'application d'un Permis Exclusif de Recherche de Mines « COUFLENS »

ANNEXE 9

Stratégie de Variscan Mines

L'analyse du potentiel minier de la France, de l'Espagne, du Portugal et du Maroc a conduit Variscan Mines à élaborer une stratégie pour l'exploration et l'exploitation de ressources minières en France. Dans la période 2011 – 2013, Variscan Mines a déposé 8 demandes de Permis Exclusif de Recherche de Mines, pour métaux de base, métaux précieux et métaux critiques. Le permis de Couflens est la neuvième demande. Variscan Mines souhaite devenir ainsi un acteur majeur pour le renouveau d'une activité minière française, novatrice et écoresponsable.

Cette annexe 9 comporte :

- Annexe 9a : éléments ayant conduit au choix de la France comme zone prioritaire pour l'exploration minière

- Annexe 9b : annonce officielle aux actionnaires de la stratégie de Variscan Mines Limited (anciennement, Platsearch NL.) incluant le financement de Variscan Mines à partir du cash disponible et de nouveaux appels sur le marché boursier de Sydney

- Annexe 9c : stratégie d'exploration minière de Variscan Mines. Il sera effectué une recherche exhaustive des cibles minières du PERM jusqu'à de l'ordre de 500 mètres de profondeur si nécessaire avant de lancer l'étude de faisabilité d'un projet

- Annexe 9d : stratégie d'exploitation minière de Variscan Mines. Le modèle minier privilégié est la production souterraine profonde. Ce concept reste toutefois dépendant du type de gisement qui sera identité lors des phases d'exploration. En intégrant les concepts de l'après-mine dans le schéma d'exploitation, Variscan Mines ambitionne de servir de modèle pour une production de métaux écoresponsable.

ANNEXE 9a

Choix de la France comme zone prioritaire pour l'exploration minière

Le choix de Variscan Mines Ltd de créer une filiale française (Variscan Mines) a été motivé par des aspects géologiques, techniques, économiques, sociaux et environnementaux.
Nous estimons que la France métropolitaine, par ses formations hercyniennes, possède un fort potentiel en métaux précieux (or, argent), métaux de base (cuivre, zinc, plomb,…), métaux critiques (germanium, indium, tungstène, antimoine, niobium, tantale, terres rares…).

Depuis plus de 25 ans, et la fin de l'inventaire minier métropolitain, peu de travaux modernes ont été réalisés. En particulier, il reste à intégrer aux résultats de cet inventaire, les nouveaux modèles de gisements, les nouveaux outils de prospection et d'exploration minière et surtout les nouveaux concepts de développement durable.

La pression concurrentielle est faible en France sur ce secteur car ce pays a été oublié par les industries minières classiques et les acteurs nationaux ont été poussés à rechercher sur des territoires étrangers. Dans le même temps se mettait en place la gestion de l'après-mine liée à la disparition des grands opérateurs miniers de l'Etat dans le fer, le charbon et la potasse.

Au moment où la tension internationale pousse la France et l'Europe à sécuriser leurs approvisionnements en matières premières minérales, Variscan Mines se propose, en relation avec les acteurs nationaux, de rechercher des gisements économiquement viables, créant une activité durable et non délocalisable dans des zones économiquement déprimées. Ses projets seront bâtis pour que les conditions sociales et environnementales soient exemplaires et qu'elles puissent servir de modèles aux mines du futur.

Le dossier ci-après développe ces éléments qui constituent la base de la stratégie et la volonté de Variscan Mines.

Pourquoi la France ?

Une géologie favorable

Bien qu'oubliée par l'industrie minière depuis plus de 25 ans, la France possède un sous-sol particulièrement favorable pour l'or, les métaux de base et de nombreuses substances considérées aujourd'hui comme critiques. La possibilité de rechercher avec une forte probabilité de succès des gisements pour toutes les substances jugées comme stratégiques par Variscan Mines Limited (anciennement PlatSearch NL) fut une des raisons majeures pour la constitution de la société Variscan Mines en France.

Importance du socle hercynien

Le socle paléozoïque affleure sur plus des 2/5 de la surface de la France, qui occupe à ce titre une situation privilégiée en Europe. Avec le Massif central et le Massif armoricain, notre pays dispose de terrains particulièrement fertiles pour la recherche des métaux ; le seul autre massif hercynien d'importance en Europe étant le massif de Bohème, en République Tchèque. Ce potentiel métallifère s'exprime surtout pour les substances retenues comme prioritaires par Variscan Mines (métaux précieux, métaux de base et métaux critiques).

Les indices de minéralisations et les anciennes exploitations sont très nombreux et restent largement sous-explorés. Par ailleurs, les modèles gîtologiques auxquels ils se rapportent, correspondent pour l'essentiel à une catégorie de gisements de petites à moyennes dimensions suivant les critères internationaux. Ainsi, leur exploitation devra être envisagée par des techniques qui excluent a priori les mines géantes à ciel ouvert (dont l'impact environnemental serait probablement inacceptable) et qui correspondent plus particulièrement à la stratégie minière de Variscan Mines.

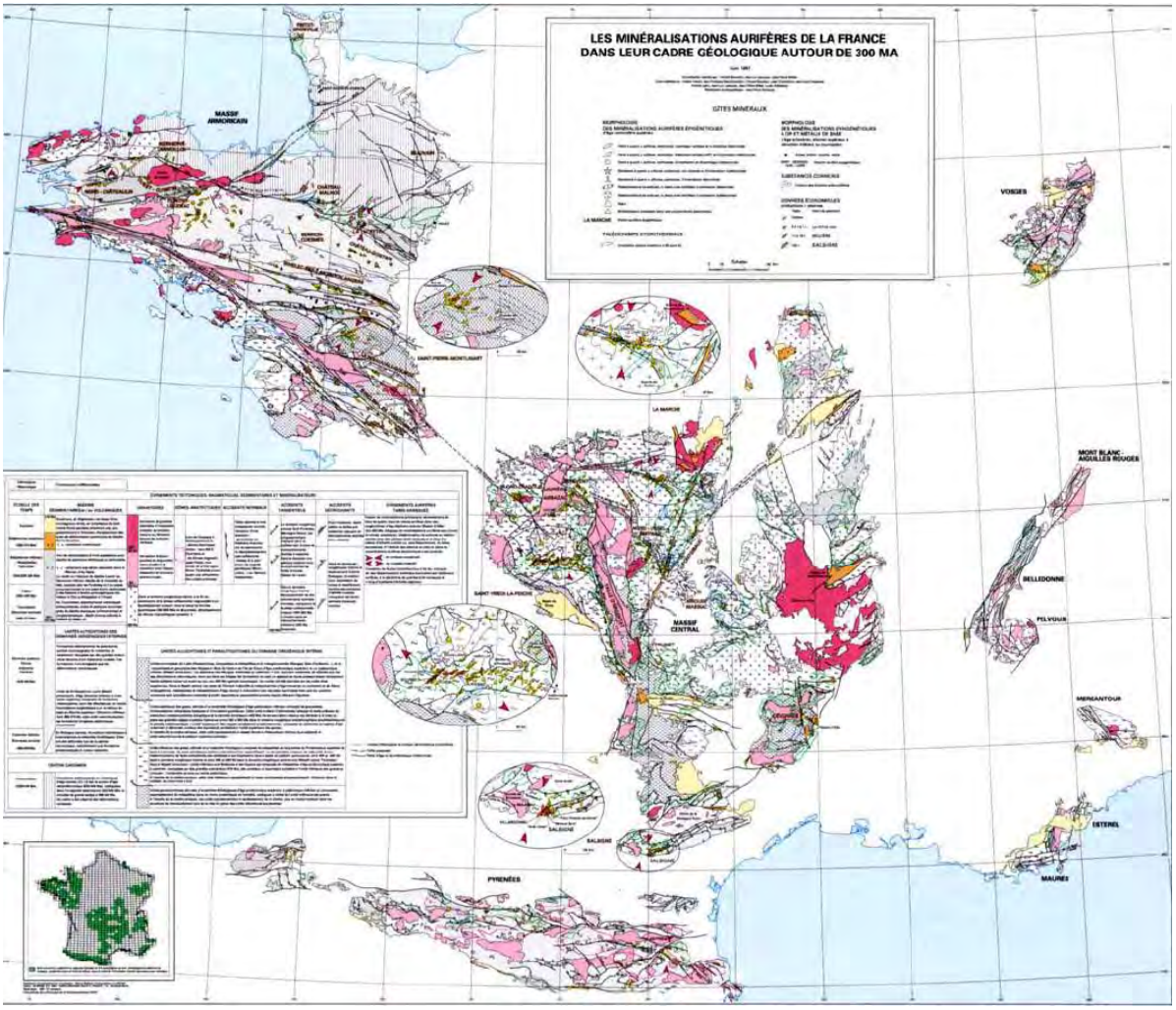
Potentiel Or

En 1997, en prolongement scientifique des travaux de l'inventaire minier de la France, une excellente synthèse de l'état des connaissances sur le potentiel aurifère de la France a été réalisée par le BRGM et a permis de clarifier la métallogénie de l'or : l'analyse des minéralisations aurifères du socle hercynien français montre qu'il existe quatre « événements aurifères » distincts, calés aux environs de 550 Ma., 400 Ma., 360 Ma. et 300 Ma. La très grande majorité des concentrations d'or primaire en France est liée au dernier de ces événements, phénomène hydrothermal majeur, synchrone de la surrection rapide de la chaîne varisque et associé à des modèles de type « shear-zone aurifère ».

Ce type de gîte est aujourd'hui bien connu dans le monde et il constitue une source importante de l'or produit. Il se caractérise par un développement vertical important des minéralisations qui ne fut jamais réellement pris en compte dans les travaux d'exploration ou d'exploitation antérieurs.

C'est cette constatation qui est à l'origine de la sélection de ce métal par Variscan Mines, qui estime comme très élevées les possibilités de découvertes de gîtes profonds dans le socle hercynien.

Variscan Mines espère démontrer prochainement un potentiel de l'ordre de 100 tonnes d'or sur le PERM de Saint-Pierre, attribué en mars 2014 dans le Maine-et-Loire, sur ce type de gisement.



Potentiel en métaux de base

Les travaux de l'Inventaire minier de la France ont conduit à la découverte dans le Massif Armoricain de deux provinces à amas sulfurés volcanogènes (VMS) dans le Briovérien et le Bassin de Châteaulin.

Les gisements évalués à la suite de ces découvertes se sont avérés décevants suivant les critères économiques en vigueur à l'époque, et les travaux ne sont pas allés au-delà des travaux miniers de reconnaissance dans une tranche plutôt superficielle. Par exemple, le tonnage exploitable du gisement de la Porte-aux-Moines fut ainsi évalué comme marginal à l'issue de l'étude de préfaisabilité (1,86 Mt à 7,83% Zn, 1,60% Pb, 0,76% Cu et 96,6 g/t Ag) ; la taille réduite et l'intense tectonisation des corps minéralisés faisant que les panneaux n'ont que quelques dizaines de mètres d'extension, l'exploitation ne pourrait se faire que par chantiers sélectifs. Toutefois, ce gisement ne présente pas que des éléments défavorables si une exploitation future devait être envisagée ; il est bien groupé, les terrains ont une tenue acceptable, l'exhaure est modérée, l'environnement industriel est favorable et la nature de son

minerai laisse ouverte la possibilité, non testée jusqu'à présent, d'une valorisation de métaux critiques comme sous-produits (In, Ge, …).

Par ailleurs, ce type de gîte se présente en essaims, et il est souvent nécessaire d'identifier plusieurs sites d'extraction avant d'envisager la mise en construction d'une unité de traitement des minerais. Cette phase d'exploration ne fut pas entreprise à l'époque par manque d'une technologie d'exploration adéquate, alors que de nombreux indices de chapeau de fer (Fe sur la carte ci-dessous) pouvant correspondre pour certains à des affleurements de sulfures massifs étaient connus dans leur environnement immédiat.



Un deuxième type de gisement est présent sur le territoire. Ce sont les filons plombo-zincifères. Ces filons, se mettant en place dans des contextes de roches épaisse (souvent à proximité de granite) présente de fortes teneurs en plomb et en zinc, ainsi que l'ensemble des éléments associés à ces minéralisations (cuivre, argent, étain, indium, germanium, cadmium…). Ces filons présentent des caractéristiques communes avec les VMS à savoir la verticalité des structures. On peut donc très aisément envisager, dans ce cas aussi, une exploitation en profondeur.

Variscan Mines considère que l'emploi systématique des dernières technologies en exploration électromagnétique héliportée (VTEM, HELITEM, ZTEM, MegaTEM, …) pourraient être employées avec succès pour déceler de nouvelles cibles, qui ont démontré par ailleurs des concentrations en métaux de base tout à fait compatibles avec les critères économiques actuels.

Variscan Mines a obtenu en juin 2013 le PERM de Tennie dans la Sarthe et celui de Merléac en novembre 2014 dans les Côtes-d'Armor; ce dernier renfermant le gîte connu de Porte-aux-Moines. La société travaille activement ces permis et espère les premiers résultats favorables dans le courant de 2015.

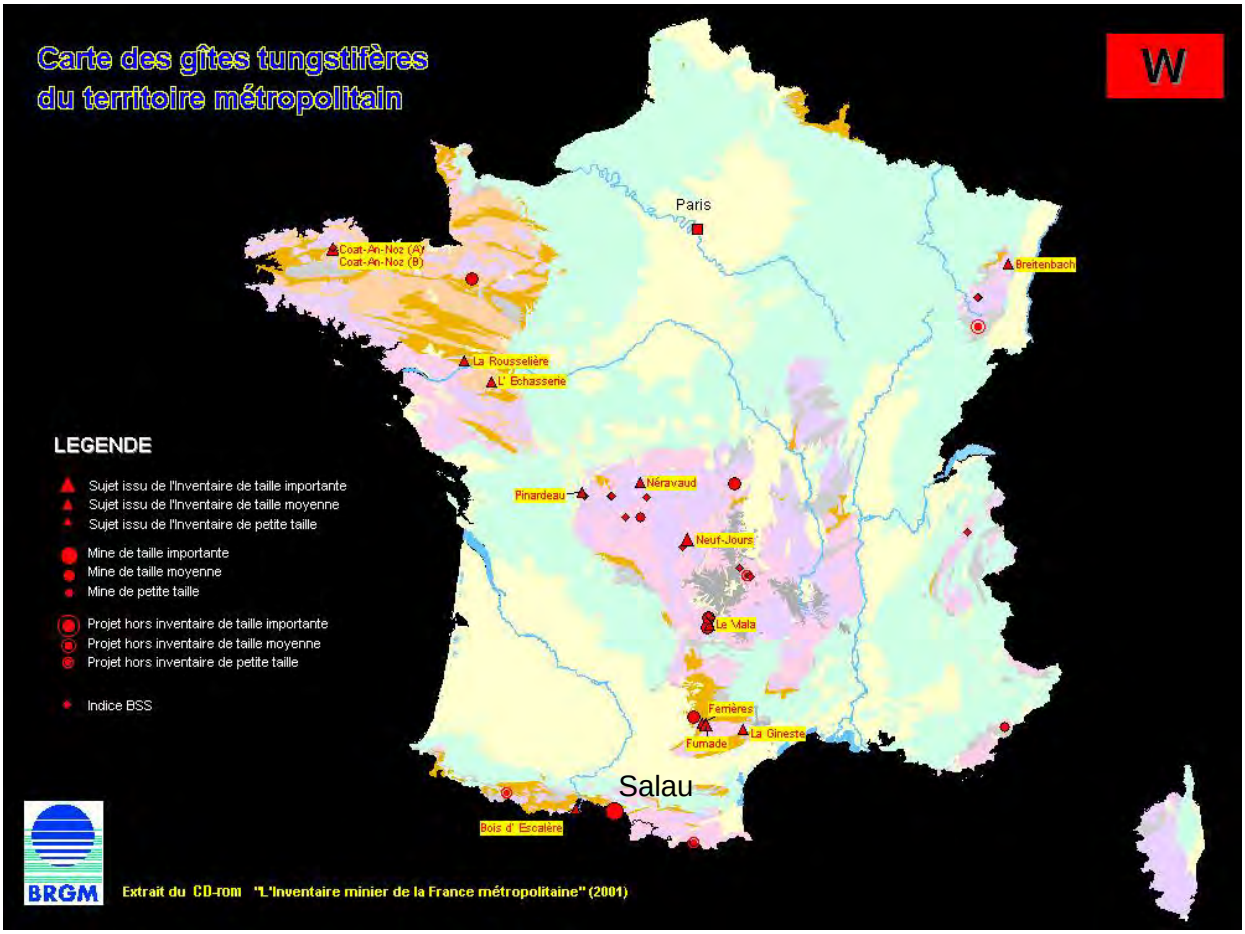
Potentiel en métaux critiques

Le tungstène

Le socle hercynien français est largement constitué par la zone centrale de la cordillère varisque. Cette zone se manifeste par des déformations tectoniques intenses qui ont généré les gîtes de type shear-zone aurifère, et des intrusions de roches acides différenciées associées à des minéralisations de type « départ acide », principalement à étain et tungstène, sous forme de coupoles leucogranitiques (greisens), de champs de filons et stockwerks, ou de skarns.

La France a été un important producteur de tungstène en Europe jusqu'en 1986 (troisième rang après l'Autriche et le Portugal). Entre 1812 et 1986, elle a produit environ 26 000 t de WO_3 contenu, avec une production record de 1400 t WO_3 en 1986. Il n'y a plus de production minière métropolitaine depuis 1986, date de fermeture de la mine de Salau dans les Pyrénées.

Comme dans les autres pays du monde occidental, la crise de la mine de tungstène française a été provoquée par les exportations massives à bas prix de concentrés, puis de produits plus élaborés en provenance de Chine, qui détient à elle seule près de la moitié des réserves mondiales. L'offre chinoise a été fortement réduite à partir de 2001, et le tungstène est aujourd'hui classé par l'Europe dans les métaux critiques.



Salau (09), principal gisement français a fourni entre 1971 et 1986 12 400 t de WO_3 à partir d'un minerai à scheelite contenant autour de 1,5 % WO_3. Ses ressources en minerai riche sont encore jugées aujourd'hui comme importantes (3 400 t WO_3) par le BRGM.

Une étude de synthèse, incluant un modèle 3D actualisé du gisement a permis de sélectionner ce gisement comme une cible d'intérêt prioritaire pour le renouveau minier en France. Cette étude a motivé la présente demande de PERM.

Deux anciennes mines fermées respectivement en 1957 et 1962 : Puy-les-Vignes (87) et la zone d'Echassières (03) ont fourni chacune environ 4 000 t de WO_3, à partir de wolframite.

Quatre autres mines ont produit chacune de l'ordre de 1 000 à 2 000 t WO_3 à partir de wolframite: Leucamp (15) 1 700 t ; Enguialès (12) 1 300 t ; Montredon (81) 1 085 t, ou de scheelite dans le cas de La Favière (83) qui a produit 850 t WO_3.

Hors travaux inventaire, les principales ressources identifiées sont situées à Montredon (81) avec environ 10 000 t WO_3 exploitables à ciel ouvert, à Leucamp (15) : 7 000 t WO_3 possibles, Montbelleux (35) : 11 200 t (WO_3 + Sn) contenant environ 5 000 t WO3, Costabonne (66) (5 000 t WO_3, scheelite), Enguialès (5 000 t WO_3 possibles) et Auxelles-Haut (90) (estimation de 5 000 à 12 000 t WO_3 à basse teneur). Hormis Salau, les anciens gisements de Puy-les-Vignes (wolframite) et La Favière (scheelite) contiennent encore des ressources de l'ordre de quelques centaines à un millier de tonnes WO_3. Les ressources identifiées et hypothétiques d'Echassières (03) sont estimées à 5 000 – 6 000 t WO_3 à basse teneur.

L'Inventaire a par ailleurs permis d'augmenter significativement les ressources nationales en démontrant l'existence de deux nouveaux sujets potentiels (skarns à scheelite) d'environ 10 000 t WO_3 chacun :

- à **Fumade** (81) : 10 à 14 000 t WO_3 à environ 1 % WO_3 ;
- à **Coat-An-Noz** (22) : 11 000 t WO_3 à environ 1 % WO_3.

L'étain

La majorité de la production française d'étain provient du Massif armoricain avec les gisements alluvionnaires du district de Saint-Renan (29), exploités jusqu'en 1972 (3 860 t Sn métal) et les filons stannifères du district d'Abbaretz (44), avec 2 800 t Sn. Le troisième gisement notable par sa production est le secteur d'Echassières (03), où l'on estime qu'environ 2 000 t Sn ont été produites à partir d'éluvions, filons et en sous-produit d'une exploitation de kaolin résiduel. D'autres productions plus réduites proviennent des gîtes intra ou périgranitiques de Montebras (23) (300 t Sn), La Villeder (56) (160 t Sn) et de l'amas sulfuré cupro-stannifère de Charrier dans l'Allier (760 t Sn).

Les ressources françaises, quasi exclusivement associées à des gîtes primaires, sont estimées à environ 45 à 50 000 t Sn. Ces ressources sont renfermées pour l'essentiel dans le gros gîte potentiel d'Echassières (03), développé avant l'Inventaire (1962 – 1974), où une minéralisation disséminée associée à une coupole granitique différenciée, contient une ressource estimée à 20 000 t Sn à basse teneur, associée à des ressources significatives en W, Li, Ta et Nb.

Variscan Mines considère que le réexamen des sujets étain et tungstène de l'inventaire minier métropolitain sur des bases économiques actualisées offre une forte probabilité de découverte d'un gisement exploitable. En effet, les potentiels montrés se situent aujourd'hui dans les normes communément admises au plan international, et ce généralement sans prendre en compte la valorisation des métaux critiques souvent associés aux minéralisations de départ acide (Li, Nb, Ta, TR, Ge, In, …).

Des terrains vierges de travaux depuis plus de 25 ans

Les travaux de l'inventaire minier de la France

L'inventaire minier de la métropole a été lancé par le gouvernement après le premier choc pétrolier, à un moment où les problèmes d'approvisionnement en matières premières de notre économie se présentaient sous une forme aiguë.

Un conseil interministériel restreint décidait le 21 janvier 1975 de financer un plan quinquennal d'inventaire des ressources minérales non énergétiques du sous-sol français. Cette opération visait à une relance de l'activité minière, via la meilleure connaissance possible du sous-sol français, à partir d'une double orientation :

- approfondir la connaissance des provinces minérales déjà connues pour y rechercher des gisements cachés grâce à de nouvelles méthodes de prospection indirectes ;
- entreprendre une prospection systématique du territoire, surtout à base de géochimie multiéléments, de façon à mettre en évidence de nouvelles répartitions anomales indicatrices de concentrations originales.

Les travaux furent confiés quasi uniquement au BRGM dans le cadre de sa mission de service public, sous le contrôle d'un comité permanent donnant son avis au ministre de l'Industrie sur les programmes, la diffusion des résultats, les règles régissant les relations de l'Inventaire et les titulaires de titres miniers, et enfin le développement aval des recherches suscitées par cet effort de l'Etat.

Un second plan quinquennal a suivi en 1980, puis à partir de 1985, l'inventaire s'est poursuivi par reconduction annuelle jusqu'en 1992, année marquant la fin des opérations et la fermeture programmée des trois divisions minières du BRGM qui eurent lieu en 1993. Les moyens alloués à l'inventaire, progressivement augmentés de 1975 à 1982 et maintenus à un niveau élevé jusqu'en 1985, ont été en diminution depuis cette date jusqu'en 1992, année des derniers travaux de terrain.

Après les deux premiers programmes quinquennaux (1975-79 et 1980-85) qui ont vu quarante-six sujets nouveaux présentés à la profession minière, à partir de 1985 un freinage, dû aux économies budgétaires et au manque d'attrait pour les matières premières dont les cours s'étaient effondrés, a amené une décroissance brutale des crédits de l'inventaire qui ne s'est plus poursuivi désormais que par reconduction annuelle. Plusieurs opérateurs miniers importants avaient d'autre part mis en sommeil leurs activités de recherche minière.

Les recherches se sont donc fortement réduites et peu à peu focalisées sur l'or, seul métal ayant conservé des cours attrayants.

Le comité décidait alors pour gagner du temps de présenter aux opérateurs miniers les sujets or à un stade de maturité moindre que celui primitivement retenu : dix-neuf fiches de sujets or allant de prospects bien délimités à des regroupements d'anomalies de la dimension d'un

district ont ainsi été rendues publiques. Cinquante-sept autres sujets nouveaux ont été présentés entre 1985 et 1991.

Au total, cent trois sujets nouveaux ont été ainsi proposés à la profession minière entre 1975 et 1991 (incluant les 19 fiches or). Soixante et un ont fait par la suite l'objet d'attribution de permis exclusifs de recherche (PER), permis accordés à une douzaine d'opérateurs miniers.

On retiendra principalement :

- en Cévennes et Montagne Noire : les grandes zones broyées tardi-hercyniennes à minéralisations filoniennes Zn-Pb-Ag (type Saint-Salvy), les structures alpines à fluorine (type Montroc), les minéralisations stratiformes de couverture à Zn-Pb-Ba (type Largentière ou Les Malines), les minéralisations W-Sn de « départ acide », en relation avec des coupoles granitiques (Montredon) ;

- dans les Pyrénées : les minéralisations stratiformes exhalatives – sédimentaires (Sedex) Zn-Pb-Ba liées au paléozoïque, les skarns à tungstène périgranitiques (Salau) ;

- dans le Massif Central : les minéralisations aurifères discordantes (Saint-Yrieix), les minéralisations filoniennes à plomb-zinc (Corrèze, Haute-Loire, Lot), la barytine filonienne dans le socle ou stratiforme dans la couverture (Morvan, Marche), la fluorine filonienne (Morvan, Nord-Forez, Combrailles, Haute-Loire), les minéralisations à étain – tungstène associées à des granitoïdes (Châtaigneraie, Monts de Blond), les minéralisations associées à des coupoles granitiques spécialisées type Echassières (Sn, Li, Ta-Nb), les amas sulfurés liés aux ceintures volcano-sédimentaires dévono-dinantiennes (Sain-Bel) ;

- dans le Massif Armoricain : les minéralisations aurifères et/ou antimonifères discordantes (Vendée), les minéralisations filoniennes à Zn-Pb-Ag, les métaux de base des amas sulfurés de la province nouvellement découverte du Bassin de Châteaulin, etc.

Par ailleurs, l'inventaire minier métropolitain fournit également des données brutes, archivées au BRGM, et qu'il est possible de réexaminer aujourd'hui à la lumière de nouveaux modèles de gisements.

L'effort de prospection régionale réalisé porte sur la collecte de 321 000 prélèvements géochimiques ("stream-sediments"), 153 000 prélèvements alluvionnaires et 105 000 prélèvements hydrogéochimiques. Leur traitement ayant généré près de 1 500 anomalies significatives inédites, mono ou polymétalliques.

En phase tactique, 283 000 échantillons complémentaires ont été prélevés sur ces 1 500 anomalies. Ces travaux tactiques ont comporté la réalisation de 25 000 m de tranchées et terrassements, 443 000 m de sondages percutants, 121 000 m de sondages carottés et plus de 1 000 m de galeries.

Cet énorme volume d'informations minières, très largement sous-exploité, est également l'un des critères majeurs ayant présidé au choix de la création de Variscan Mines en France.

La nouvelle « donne » économique

Dans le cadre de l'Inventaire minier métropolitain, une vingtaine de gîtes et de gisements ont été découverts et/ou valorisés par des exploitations pilotes (Les Brouzils - Sb), des travaux miniers (La-Porte-aux-Moines, Bodennec, Lopérec) ou des évaluations préliminaires. On retiendra en particulier :

- Pour l'or, le gisement de Lopérec (29), représentant 4 t de métal contenu à près de 8 g/t Au. À un stade plus amont, on citera la découverte d'un véritable district aurifère associé à la faille d'Argentat (Grand Fraud, La Planchette, Les Angles, etc.) et de plusieurs districts à minéralisations mésothermales dans le Massif armoricain.

- Pour les métaux de base, les amas sulfurés de : La-Porte-aux-Moines (22) - 1.9 Mt à 7,8 % Zn et 1,7 % Pb et de Bodennec (29) - 2,1 Mt à 2,9 % Zn et 1,1 % Cu ; les gîtes exhalatifs sédimentaires pyrénéens d' Arrens (65) - 130 000 t Zn, 30 000 t Pb et 3 Mt BaSO4) et Banciole (Zn, Pb) ; les minéralisations à métaux de base et précieux de la province volcano-sédimentaire de Saint-Georges-sur-Loire (La Haie-Claire et Le Plessis, 44).

- Pour l'antimoine, le gisement des Brouzils (85), qui a fait l'objet de travaux miniers et d'une exploitation pilote de 1988 à 1992 (895 t Sb produites, ressources de 9 250 t Sb à 6,7 %) ; toujours en Vendée, on peut également citer les prospects de La Baussonnière et de Mesnard-la-Barotière, ou l'antimoine est accompagné d'or.

- Pour le tungstène, les skarns de Fumade (81), représentant un potentiel de 10 à 14000 t de WO_3 à teneur de 1% et de Coat-An-Noz (22), avec 11 000 t WO_3 à 1%, ainsi que la coupole de Neuf- Jours (19).

- Pour l'étain (+ /- W), et les métaux critiques (Li, Ta-Nb, Be), le gîte de Tréguennec (29) de caractéristiques voisines du gîte d'Echassières (03), représentant un potentiel de 5 400 t Sn, 1 600 t Ta, 1 300 t Nb, 66 000 t Li_2O et 2 800 t Be. On peut ajouter le gîte de Lanmeur (29), avec 5 000 à 6 000 t Sn, accompagné de cuivre assez semblable aux gisements Sn + Cu des Cornouailles anglaises.

Tous ces gisements ont été évalués suivant les critères économiques prévalant dans les années 80, lorsque le cours des métaux était à son plus bas. À cette époque, la délimitation d'un gisement se focalisait donc généralement sur ses parties « riches ». En délaissant les minéralisations plus « pauvres », cette définition imposait une géométrie complexe et souvent discontinue, peu compatible avec une exploitation souterraine rentable.

Par ailleurs, vers le milieu des années 80, l'Inventaire minier de la France devait faire face à la nécessité d'estimer un grand nombre de sujets alors que ses budgets allaient en diminuant et que les phases d'estimation des ressources sont en général beaucoup plus onéreuses que celles d'exploration amont. Cette situation imposa plusieurs restrictions, en particulier :

- L'usage parcimonieux des sondages carottés ; vu le grand nombre de sujets à évaluer, ceux-ci peuvent être considérés comme largement sous-sondés par rapports aux critères en vigueur dans l'exploration minière aujourd'hui

- D'une manière générale, tous les sondages effectués dans le cadre de l'Inventaire furent peu profonds ; les cibles visées se situant juste au-dessous de la zone d'oxydation afin de pouvoir estimer le minerai primaire. En cas de succès, c'est-à-dire en cas de recoupe d'un minerai « riche », les cibles étaient exceptionnellement évaluées en-deçà de 200 m, jamais au-delà de 300 m de profondeur

- La sélection drastique des cibles à évaluer ; en général, seules les cibles montrant des évidences de minéralisations riches et affleurantes étaient retenues.

Variscan Mines considère que bon nombre de ces sujets, aujourd'hui libres de droits et considérés comme marginaux lors de leur estimation dans les années 80, pourraient être ré-estimés favorablement aujourd'hui en prenant en compte :

- *le prix des métaux ;*

- *les avancées technologiques dans l'extraction et le traitement des minerais ;*

- *l'estimation des ressources profondes, établies sur des teneurs de coupures compatibles avec les cours actuels des métaux.*

et en intégrant une nouvelle gouvernance telle que prône Variscan Mines. Cette situation juridique de projets potentiellement prometteurs est aujourd'hui exceptionnelle au niveau international ; elle fut un élément de décision majeur pour la constitution de Variscan Mines.

Les nouveaux modèles de gisement

Est-ce la nature du gisement qui définit le type d'exploitation, ou bien ne privilégions-nous pas une approche qui ne peut qu'aboutir à un schéma d'exploitation prédéfini ?

La délimitation d'un gisement, qui définira par la suite le modèle d'exploitation à employer, est un exercice complexe qui mêle intimement des critères très différents comme :

- La nature des minerais ; ceux-ci pourront être très différents suivant les compositions et les teneurs de coupure qui seront retenues. La notion de minerai est étroitement liée aux technologies du traitement envisagé pour sa valorisation ; toute avancée technologique dans le traitement est donc susceptible de faire basculer une roche qualifiée anciennement de « minéralisée » (anomalie géologique) dans la catégorie « minerai » (potentiellement exploitable).

  Le lecteur pourra apprécier l'impact d'une teneur de coupure à 0.3% WO_3 sur le gisement de Salau, préalablement exploité à une teneur de coupure de 0.9% WO_3, qui

fait aujourd'hui basculer le potentiel de ce gisement de la catégorie « petit mais riche » à celle de « de classe mondiale »

- La géométrie et la taille des objets géologiques contenant les minerais et leurs relations mutuelles. En général, cette géométrie se simplifie grandement lorsqu'on s'intéresse à de faibles concentrations métalliques et les modèles d'exploitation subordonnés présentent alors des coûts opératoires beaucoup plus faibles

- La profondeur du minerai qui aura un impact direct sur le modèle d'exploitation. Traditionnellement, à la fin du XXe siècle, une minéralisation de gros volume et de basse teneur n'était prenable qu'en mine à ciel ouvert. Cette technique d'exploitation s'est généralisée, au point d'écarter toute autre approche. Elle fut promue par les progrès réalisés au niveau des équipements miniers (camions de 300 t de chargement, pelles hydrauliques de 80 t, gestion automatisée des carrières, etc.) qui en jouant l'effet d'échelle rendaient possible des exploitations présentant un très faible ratio minerai/stérile

  Il est important de noter que l'image négative de la mine est souvent associée à ce type d'exploitation dont l'impact environnemental est maximum en raison des volumes de roche mis en jeu. Cette vision de l'exploitation, qui imposait un « trou » d'autant plus grand que la minéralisation était profonde, écarta des stratégies minières toute cible profonde de dimension petite ou moyenne ne pouvant pas justifier d'un tel grand trou.

Ainsi, on peut constater que les dernières mines d'or ouvertes dans le Limousin ou le sud du Massif Central n'ont pas cherché à privilégier une exploitation tournée vers la profondeur. Les techniques minières utilisées (carrière + descenderie) ne permettant pas une exploitation au-delà de 300 m de profondeur, les travaux d'exploration sont donc restés localisés dans une tranche relativement superficielle alors que le modèle gîtologique des minéralisations (shear-zones aurifères ou filons « mésothermaux ») est justement caractérisé par l'approfondissement des minéralisations sur parfois plusieurs milliers de mètres.

Variscan Mines a attentivement réexaminé les divers projets présentés par l'Inventaire. Les gisements présentés appartiennent à des modèles bien connus, pour lesquels on dispose aujourd'hui d'une connaissance bien meilleure que celle en vigueur dans les années 80. Qu'il s'agisse des sujets or appartenant au modèle shear zone aurifère, des sujets métaux de base de type VMS (Volcanogenic Massive Sulfides) ou SEDEX (Exhalatifs Sédimentaires), des skarns ou coupoles leucogranitiques à étain-tungstène, tous ces projets présentent un potentiel compatible avec des exploitations de classe moyenne au niveau international pour peu que l'on prenne en compte les développements possibles en profondeur et que l'on soit donc disposé à mettre en œuvre les techniques d'extraction les plus appropriées.

Certains de ces gisements présentés par l'Inventaire sont aujourd'hui considérés comme prioritaires par Variscan Mines ; ils ont fait et feront l'objet de demandes de PERM afin de pouvoir les apprécier dans leur globalité.

Les nouveaux outils de l'exploration minière

L'Inventaire Minier de la France avait privilégié l'outil géochimique dans son approche, le BRGM ayant développé un savoir-faire d'avant-garde pour cette technologie. Les résultats obtenus furent particulièrement satisfaisants à l'échelle stratégique (stream sediments) dans le Massif Central et le Massif Armoricain. À l'échelle tactique (analyse des sols), les résultats furent remarquables dans le Massif Central, mais plus nuancés dans le Massif Armoricain en raison de fréquents recouvrements de lœss, par définition allochtones.

L'efficacité de l'approche géochimique avait toutefois confiné l'usage de l'outil géophysique aux contrôles de terrain. En effet, les capteurs embarqués ne disposaient pas à l'époque des résolutions actuelles, et la géophysique aéroportée qui se cantonnait généralement aux infrastructures géologiques régionales n'était pas particulièrement adaptée pour la recherche de cibles minières de petite ou moyenne dimension.

Ainsi, la recherche de VMS, difficiles à détecter par géochimie sol lorsque la minéralisation n'est pas affleurante ou recouverte par des lœss, fut quelque peu handicapée, alors que celle des shear zones aurifères, particulièrement bien « tracées » par l'arsenic, était singulièrement aisée.

L'or restant pratiquement le seul métal susceptible de présenter un intérêt dans les années 80, ce handicap ne fut pas un frein aux travaux de l'Inventaire Minier de la France. Le développement de l'exploration dans la toute nouvelle province minière à VMS découverte dans le Finistère fut focalisé sur les gîtes affleurants de Bodennec et de la Porte-aux-Moines et le potentiel minier de cette province métallogénique probablement largement sous-estimé.

Aujourd'hui, l'exploration de l'or par la géochimie sol multi-élémentaire est devenue une technologie banale, mais particulièrement efficace. Les améliorations dans sa mise en œuvre résident principalement dans le coût de prélèvement, car le positionnement des échantillons par GPS facilite grandement cette tâche, et le rapport qualité/coût des analyses effectuées à partir d'ICP simultanés ou XRF présentant d'excellents seuils de détection. La mise en œuvre de cet outil est envisagée à grande échelle par Variscan Mines pour analyser le potentiel aurifère du socle hercynien. Les connaissances acquises sur ce type de gisement et sur les signatures géochimiques qui le caractérise laissent supposer un fort potentiel de nouvelles découvertes.

Au cours de la dernière décennie, les progrès les plus remarquables ont concerné les techniques d'exploration électromagnétiques héliportées telles que le VTEM (image ci-après), l'HELITEM ou le ZTEM. Ces techniques, qui permettent de déceler des sulfures massifs ou disséminés jusqu'à plusieurs centaines de mètres de profondeur n'ont jamais été utilisées en France jusqu'à présent. Employées dans des zones jugées comme favorables par les travaux de l'Inventaire Minier de la France, elles sont susceptibles de détecter de nouveaux gisements en profondeur.

Cette possibilité fut également un des critères retenus par Variscan Mines pour sélectionner la France comme zone prioritaire.



Emploi du VTEM au Canada ; vue du capteur (boucle) héliporté à une altitude de 50 m.

Pression concurrentielle faible à absente

La France : un territoire « oublié » de l'industrie minière

L'Institut Fraser (www.institutfraser.org) est un organisme canadien indépendant[1] de recherche en politique publique et d'éducation qui possède des bureaux à Vancouver, Calgary, Toronto et Montréal, et collabore avec 80 centres d'études et de recherches dans le monde.

Étude de l'Institut Fraser (2010 – 2011)

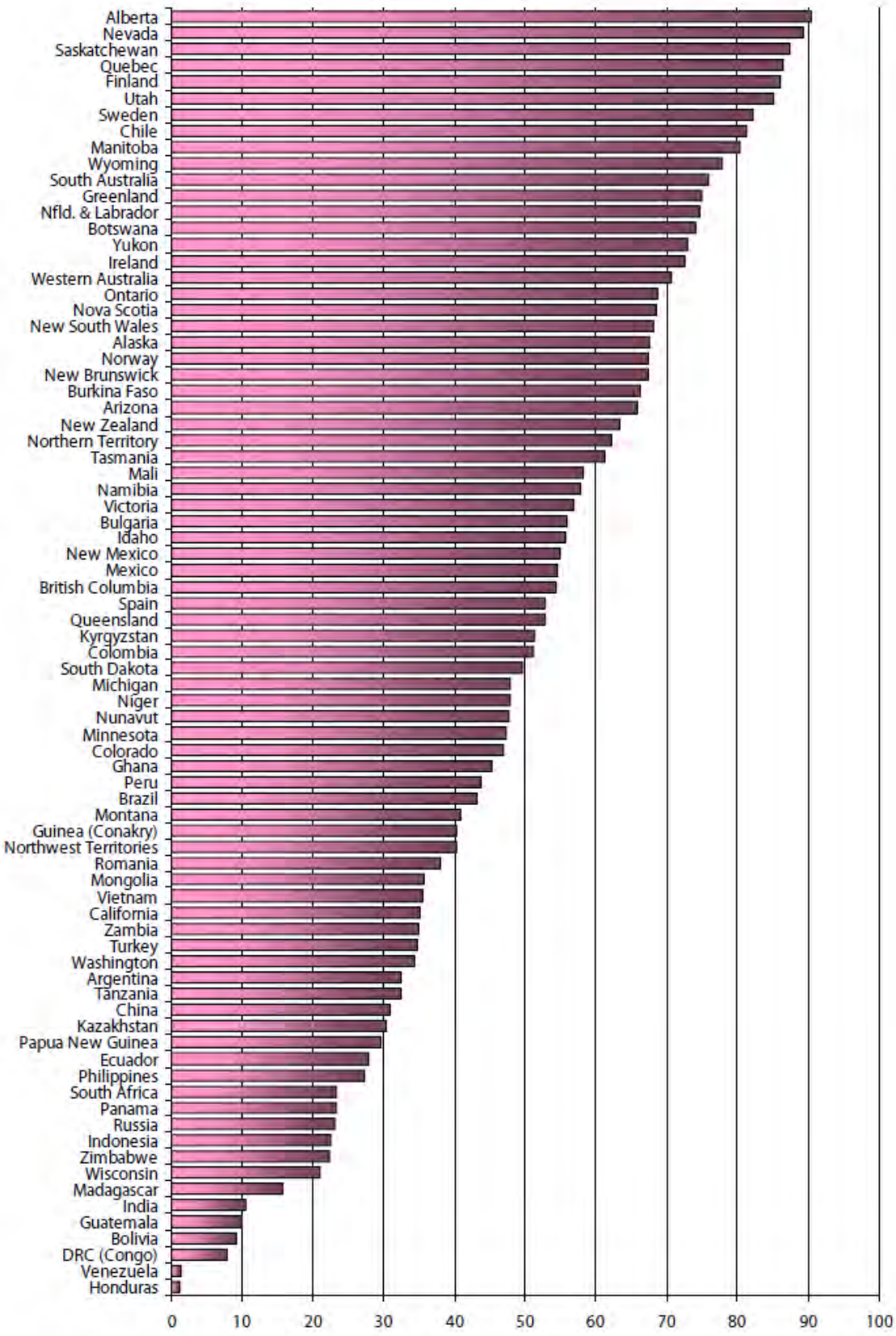
Dans le cadre de son enquête sur les sociétés minières 2010-2011, l'Institut Fraser a interrogé les dirigeants de 494 sociétés d'exploration et de développement miniers sur le climat d'investissement de 79 territoires dans le monde. Les sociétés participant à l'enquête ont déclaré des dépenses d'exploration de 2,43 milliards de dollars américains en 2010 et de 1,86 milliards de dollars américains en 2009.

La France n'apparaît pas dans le diagramme résumant cette enquête, alors que d'autres pays européens y figurent en bonne place (Finlande, Suède, Irlande, Norvège …).

Il est par ailleurs intéressant de noter que les pays figurant dans les premières places sont très souvent promoteurs d'une politique environnementale très stricte et se classent dans les pays industrialisés avec un fort développement économique et social. Les contraintes environnementales ne sont donc pas considérées comme un critère négatif par les entreprises minières. Contrairement à bien des idées reçues, cet « oubli » de la France dans le tableau de l'Institut Fraser n'est donc pas à rechercher dans les conséquences d'une politique environnementale, mais plutôt par un manque d'attractivité de son potentiel géologique.

On note dans le classement Fraser un positionnement très favorable pour l'Irlande, qui offre comme caractéristique géologique principale de présenter une forte proportion de terrains hercyniens, situation qui se reproduit en France avec beaucoup plus d'ampleur. Pourquoi ces divergences ?

[1] *Afin de préserver son indépendance, l'Institut refuse toute subvention et tout contrat de recherche des Administrations publiques*

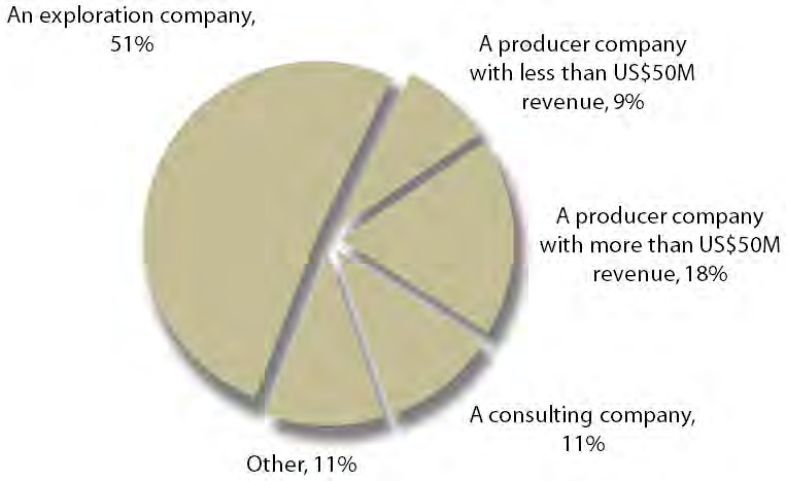


Classement des pays selon l'indice d'attractivité minière d'après l'Institut Fraser (2011)

Étude de l'institut Fraser (2013)

Dans le cadre de son enquête sur les sociétés minières 2013, l'Institut Fraser a interrogé les dirigeants de 690 sociétés d'exploration et de développement miniers sur le climat d'investissement de 112 territoires dans le monde. Les sociétés participant à l'enquête ont déclaré des dépenses d'exploration de 4,6 milliards de dollars américains en 2012 et de 3,4 milliards de dollars américains en 2013.

On notera dans cette enquête, le nombre de réponses et la forte proportion des sociétés d'exploration minières dites « juniors » qui ont répondu à cette étude. Le panel de réponses se découpe comme le montre la figure ci-dessous :



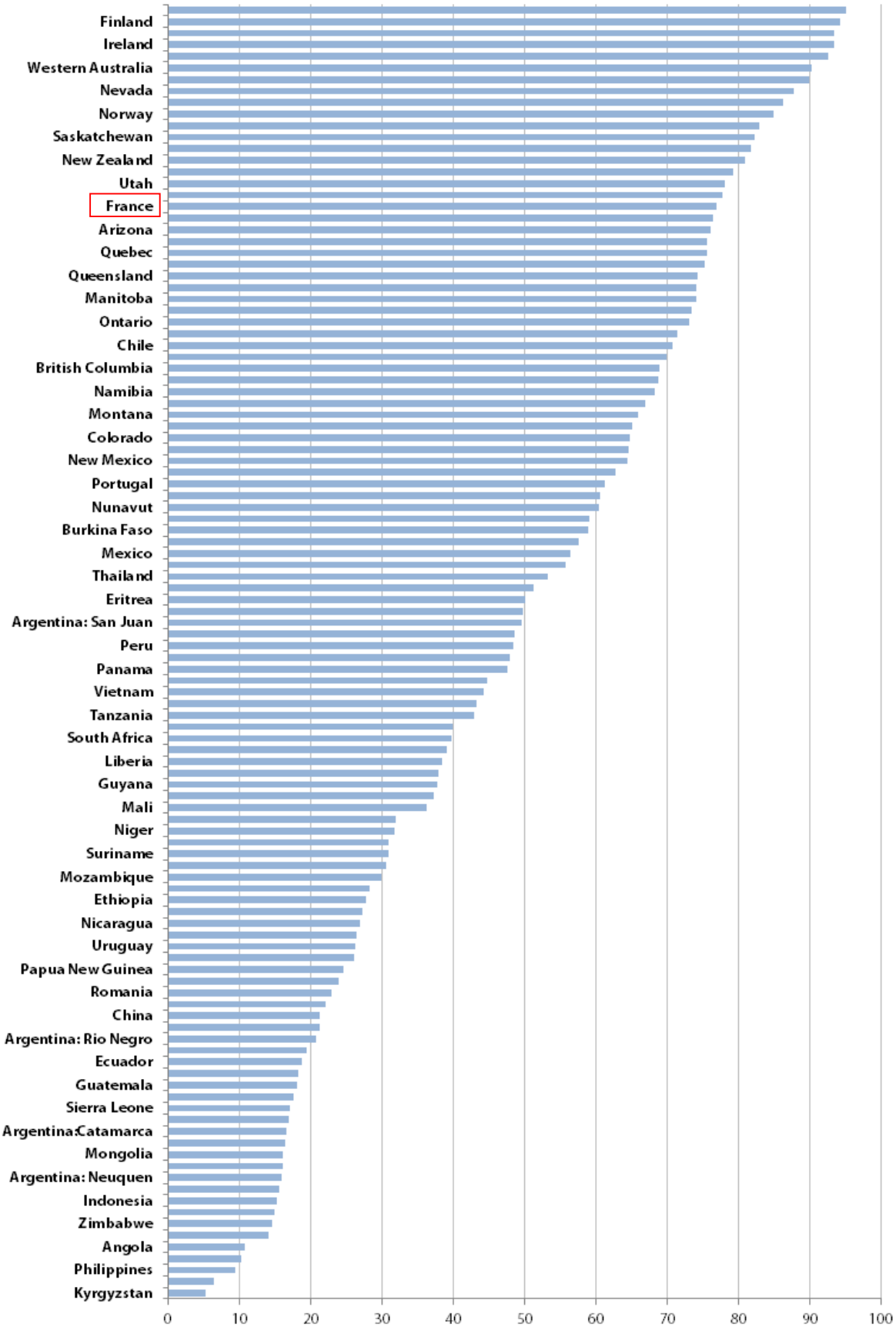
Malgré une réduction budgétaire de la plupart des sociétés minières, près de 26% en un an, les investissements sur le secteur des matières premières sont encore très largement supérieurs à ceux qui furent engagés en 2009 (environ 180% de budget en plus).

La grande nouveauté dans cette étude 2013, est l'apparition de la France dans le classement mondial, qui était la grande absente depuis de nombreuses années. Elle arrive à se hisser à la 18ème place sur 112 d'après l'indice de perception politique (PPI).

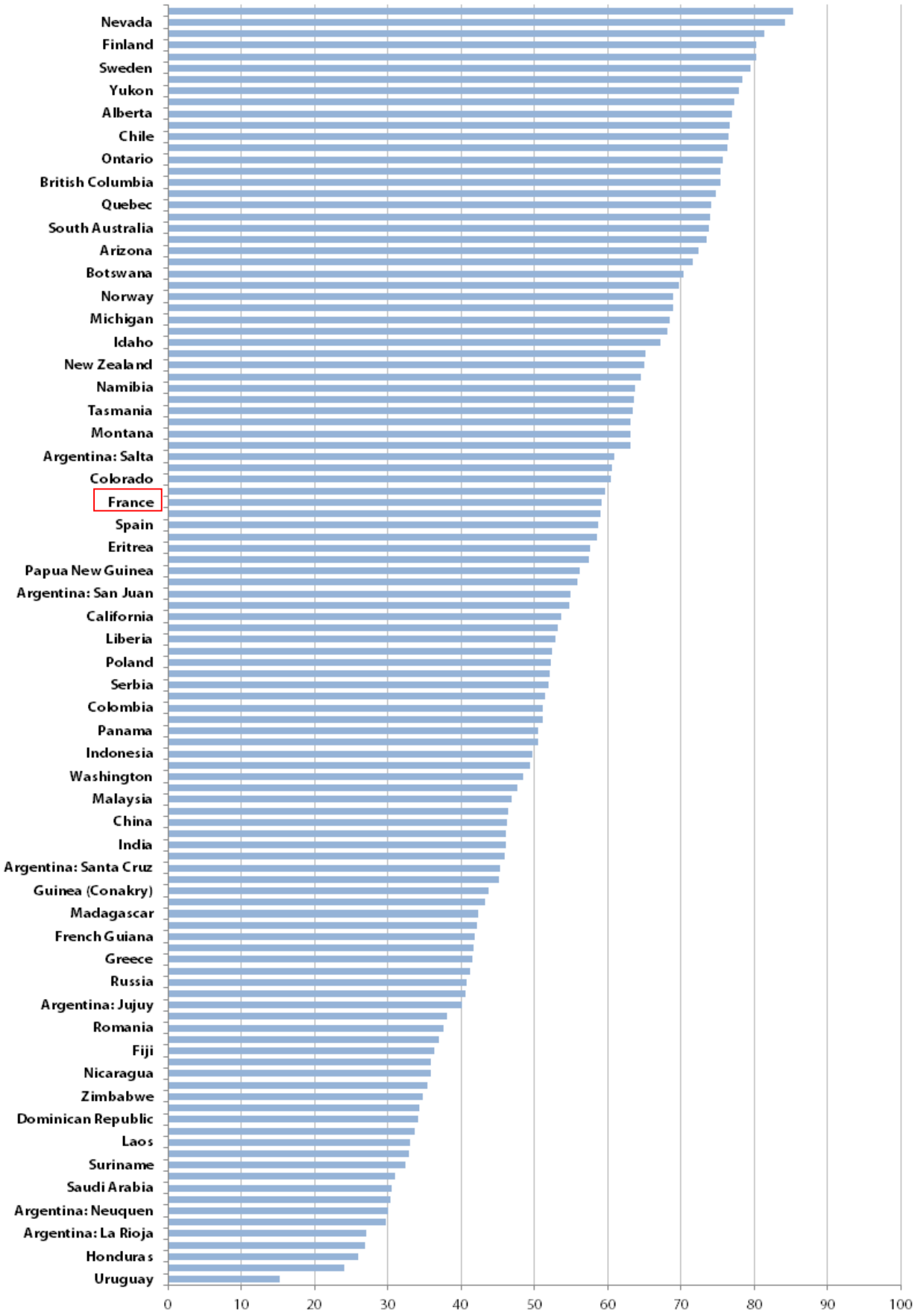
Cet indice prend en compte plusieurs paramètres : l'incertitude relative à l'administration vis-à-vis de la réglementation en vigueur, la réglementation environnementales, le chevauchement des réglementations, le système juridique et le régime fiscal, mais aussi l'incertitude concernant les zones protégées et les titres miniers demandés, les infrastructures, les conditions socio-économiques et de développement communautaire, ou encore les entraves commerciales, la stabilité politique, la législation du travail , la qualité de la base de données géologique, la sécurité nationale, la disponibilité du travail est des compétences.

En revanche, la France ne se place qu'à la 57ème position sur le classement de l'attractivité des capitaux.

Le bilan est donc encourageant, preuve que la politique de développement menée par l'Etat Français avec les premières autorisations de prospecter sur le sous-sol français commence à porter ces fruits, mais qu'il reste incontestablement des efforts à faire.



Classement des pays selon l'indice de perception politique d'après l'Institut Fraser (2013)



Classement des pays selon l'indice d'attractivité minière d'après l'Institut Fraser (2013)

Pas d'activité de la part des acteurs nationaux historiques

La dernière mine métallique française, qui fut aussi l'une des plus anciennes, est la mine d'or de Salsigne dans l'Aude. Cette dernière a définitivement fermé en 2004 en laissant un site extrêmement contaminé par ¾ de siècle d'exploitation d'un minerai extrêmement riche en arsenic sans les précautions spécifiques nécessaires.

Lors de sa fermeture, il y avait déjà plus de 15 ans que la société exploitante n'effectuait plus d'exploration minière.

De fait, les derniers travaux d'exploration minière effectués avec ampleur furent ceux réalisés par le BRGM dans le cadre de l'Inventaire Minier de la France, il y a environ 25 ans ; les deux sociétés nationales, ERAMET (spécialisée dans le nickel et le manganèse) et AREVA (spécialisée dans l'uranium) ne voyant aucun intérêt à développer ce type d'activité sur un territoire a priori peu intéressant pour elles.

Avec la fermeture des dernières mines et l'absence de relais, il fut communément admis dans la profession que le potentiel minier de la France était « épuisé » et que la reprise des travaux d'exploration ne présentait donc plus d'intérêt.

Cette opinion prévalut pendant longtemps, et persiste encore parfois dans de nombreux cercles (conservateurs) de spécialistes. Il aura fallu la pression exercée par le marché des matières premières minérales et la venue récente de sociétés d'exploration minière pour provoquer le réexamen de ce postulat.

Les sociétés Variscan Mines et Cominor se sont vues attribuer respectivement 3 PER pour Métaux de base et Au (Tennie, Saint-Pierre et Merléac) et 1 PER pour Au (Villeranges). Cette reprise de l'exploration minière des métaux en France métropolitaine a motivé le reclassement de la France dans la grille d'évaluation du Fraser Institute, toutefois, seule une nouvelle découverte minière d'importance sera susceptible d'attirer réellement l'attention internationale.

Variscan Mines estime que le gisement de tungstène du pic de la Fourque présente toutes les caractéristiques techniques et environnementales pour induire le déclic attendu.

Intérêt de cette situation pour Variscan Mines

Variscan Mines considère la situation actuelle comme particulièrement favorable pour exercer sa spécialité de découvreur de gisements. En effet, le choix des zones jugées comme prioritaires pour pouvoir réaliser des découvertes peut aujourd'hui être effectué sur des critères géologiques et gîtologiques, alors que dans la majorité des pays listés par l'Institut Fraser, ce choix est effectué par défaut, en fonction des zones restées libres de titres miniers.

Cette latitude dans le choix des zones d'intérêt, et donc dans la définition des Permis Exclusifs de Recherches de Mines, offre l'avantage de pouvoir optimiser l'usage des outils d'exploration

(surtout géophysique héliportée), souvent difficiles à mettre en œuvre sur des aires « mitées » par les titres de compagnies minières déjà présentes.

Ainsi, il est important de considérer qu'un plan de travaux tels que proposés sur le PERM « COUFLENS » serait extrêmement complexe à mettre en œuvre dans de nombreuses provinces minières en activité, ce plan tirant son efficacité sur sa capacité à cibler un ou plusieurs gisements profonds à partir de l'examen homogène d'une aire de grande taille centrée sur les objets géologiques favorables.

Contextes politique, économique et social favorables

Produire des métaux en France et en Europe

La France et l'Europe importent pratiquement tous les métaux nécessaires à leur industrie. Elles sont donc particulièrement vulnérables dans leur approvisionnement, et plus particulièrement en métaux critiques.

Variscan Mines considère que le sous-sol français constitue une source potentiellement importante pour ces métaux et que les nouvelles technologies de l'exploitation minière profonde sont aujourd'hui compatibles avec le respect le plus strict de l'environnement.

Variscan Mines souhaite produire ces métaux en France en privilégiant des accords de partenariat avec les sociétés minières nationales et en destinant leur usage aux industries nationales et européennes.

Une activité durable et non délocalisable

Variscan Mines, en privilégiant le modèle d'exploitation de la mine souterraine profonde, envisage un type d'exploitation dont la durée de vie peut atteindre plusieurs dizaines d'années. Par définition, ce type d'activité génère un nombre important de postes de travail hautement qualifiés, bien plus que dans les mines de surface, où l'extrême mécanisation réduit au maximum le personnel.

Par ailleurs, ce modèle d'exploitation prévoit une gestion intégrée de l'après-mine qui inclura l'aménagement de l'espace souterrain pour un recyclage total de l'eau d'exhaure et une exploitation de l'énergie géothermique susceptible de perdurer à l'exploitation métallifère elle-même.

Impact favorable sur des zones économiquement déprimées

Les régions retenues comme prioritaires par Variscan Mines, comme le PERM «Couflens», correspondent pour l'essentiel à des zones agricoles développées sur les formations géologiques des socles hercyniens et économiquement déprimées.

En introduisant dans ces régions une activité industrielle correspondant à plusieurs centaines de postes de travail direct et environ trois fois plus en postes induits, ce type d'activité ne peut que contribuer au développement économique régional, y compris dans les techniques les plus modernes de la géothermie de moyenne enthalpie.

Contexte environnemental en phase avec la stratégie de Variscan Mines

Variscan Mines conçoit comme un atout la possibilité de produire en France un métal disposant d'un « label vert ». En effet, la stratégie commerciale envisagée est celle de proposer sur un marché local des métaux produits dans le plus strict respect des normes environnementales européennes.

En particulier, Variscan Mines et ses partenaires chercheront à produire et livrer les métaux avec un « bilan carbone » le plus faible possible, afin de faciliter la stratégie de communication des principaux acteurs européens de l'industrie automobile, aéronautique ou électronique.

Pour cela une attention spéciale sera portée au niveau :

- des techniques d'extraction et de traitement les plus économiques en énergie
- du transport des produits élaborés entre le site d'extraction et l'utilisateur final ;
- du transport du minerai et du stérile sur le site de l'extraction ;
- du remblayage en continu (backfilling) des chantiers ;
- du recyclage intégral de l'eau profonde ;
- de la récupération de l'énergie géothermique.

ANNEXE 9b

Annonce officielle de la stratégie de Variscan Mines Limited (Anciennement Platsearch NL)

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VARISCAN MINES AND FRENCH BUSINESS STRATEGY

INTRODUCTION TO PLATSEARCH

PlatSearch is a mineral exploration company that listed onto the Australian Securities Exchange (ASX) in 1987. The Company targets its search effort for large, world-class deposits of base metals (such as copper, zinc, lead and nickel), precious metals (such as gold and silver), and iron ore. PlatSearch has built up a substantial portfolio of high quality exploration tenements (currently approximately 12,000 km^2) targeting these commodities within the key mineralised districts of central and eastern Australia.

During the last few years, PlatSearch has also built up a valuable portfolio of investments in other mineral resources exploration companies which are also listed on the ASX. Those companies include WPG Resources, Aguia Resources, Eastern Iron, Thomson Resources and Silver City Minerals.

The PlatSearch objective is to explore, develop and operate mineral mines to the highest standards of safety, environmental protection and community involvement. The Company has recently committed to expanding its search efforts overseas into regions where it considers unrecognised opportunities may exist. This has led it to establish an office in France and the hiring of an experienced team of French nationals to pursue projects in Europe and North Africa.

The Company's core competencies lie in its strong technical capabilities and experience in public company, exploration and operating mine management. PlatSearch currently employs 11 geologists, with a core contingent of key specialist contractors and support staff.

As of December 2011, the Company held $13.3 million in cash and was debt free. Its other liquid assets are valued at approximately $9 million.

The Company currently has 175 million ordinary shares in issue as well as 16.7 million shares held as a convertible note. Its main shareholders are from Australia, New Zealand and Singapore.

For further details on PlatSearch, please refer to its website, platsearch.com.au.

THE DEVELOPMENT OF VARISCAN MINES SAS IN FRANCE

In July 2010 the Company initiated a review of a previously mined mineral deposit (Rouez) in

western France. An initial visit to the BRGM in Orléans revealed the extent of exploration and discovery by the BRGM in Metropolitan France, and the good potential for further exploration and mine development for strategic and critical metals.

A surprising outcome of the July visit was the realisation that mineral exploration in France virtually ceased in the mid-1980s. Hence, France has not benefited from the substantial advances in exploration science and technology since that time, or the recent boom in the resources industry that has so well served countries like Australia over the last few years. Despite the obvious good mineral endowment of the country, the mineral industry of France has essentially remained dormant for more than two decades.

PlatSearch subsequently engaged the BRGM in Orléans to complete a country wide review of key mineral provinces and potential mineral projects in France. This study identified a number of targets of interest and in September 2010 PlatSearch committed to establishing a new office in France focussing significant funding into developing a new exploration hub in that country.

In late 2010, PlatSearch successfully registered its wholly owned French subsidiary company, VARISCAN MINES (Variscan), and employed two senior ex-BRGM employees, Dr Jack Testard as President and Dr Michel Bonnemaison as Chief Executive Officer.

Dr Jack Testard was formerly the Director of the Mineral Resources Division of the BRGM based in Orléans where he was employed continuously for 35 years. Dr Testard was responsible for the successful management of exploration and mining operations in France Guyana, Saudi Arabia, Turkey and Russia on behalf of the BRGM. Dr Testard is Chevalier de l'Ordre National du Mérite and holds the Médaille de la section Exploitation de la Société de l'Industrie Minérale 2009 and is Conseiller du Commerce Extérieur de la France and Président de la chambre syndicale des industries minières, administrateur de la FEDEM (trésorier, fédération des minerais et métaux), membre de la SIM (société de l'Industrie minérale), membre de la SGF (société géologique de France) et de l'UFG (Union Française des géologues).

Dr Michel Bonnemaison was formerly the Deputy Director of the Mineral Resources Division of the BRGM and was employed by the BRGM for 30 years following his graduation from Paul Sabatier University with a Doctor Sciences (Thèse d'Etat) in mining exploration. Dr Bonnemaison has operated as Project Manager in Argentina and was from 1991 to 1998 the President and CEO of SEIESMA responsible for the exploration of the giant "La Zarza" copper – gold project in Spain for Normandy – la Source Limited.

Variscan has now established and fully equipped its French registered office in Orléans. In addition to Dr Testard and Dr Bonnemaison, the Company has also employed two junior geologists, one of them studying at the BRGM's ENAG postgraduate mineral exploration and development course in Orléans, and plans to hire another senior geologist within the next three months. Variscan has also forged strong links with the Department of Applied Geology at the University of Orléans through Professor Eric Marcoux.

PLATSEARCH'S BUSINESS STRATEGY IN FRANCE

Variscan's key objectives are to explore and develop strategic (base metal with associated precious metals) and critical metals (such as tungsten with associated tin, niobium – columbium and tantalum) and molybdenum deposits.

To assist in future mine development, Variscan has forged links with ERAMET, a major European nickel and manganese miner with large European metals processing and refining capabilities and substantial advanced research and development laboratories in France. This relationship commenced with the recent signing of a Memorandum of Understanding between ERAMET and Variscan to develop, mine and refine critical metals in France, especially tungsten, molybdenum, niobium, tantalum and the rare earth metals.

In July 2011, Variscan successfully lodged its applications for three PER's in Metropolitan France with the French Administration to explore for strategic base metals and associated precious metals, as follows (see Figure 1):

- PER "Tennie" (205 km^2) covering the Rouez massive sulphide deposit 30 km NE of Le Mans;
- PER "Merléac" (411 km^2) covering the Port – aux – Moines copper – lead – zinc – silver deposit and the enclosing Châteaulin Basin immediately to the east of Brest, Brittany;
- PER "Cressy" (225 km^2) covering the former Rhône Poulenc massive sulphide mine at Chizeuil to explore for copper – lead – zinc – silver and gold, located to the north east of Clermont Ferrand.

Recently the Company applied for a further two PERs as follows -

- PER "Beaulieu" (278 km^2) covering both the old Alberretz open pit tin mining operations (which were the largest in Metropolitan France) and the along geologic strike potential located 50 km SSW of the City of Rennes;
- PER "St Pierre" (386 km^2) covering the abandoned "La Belliére" gold mine at Saint Pierre Montlimart located some 50 km ENE of the City of Nantes.

The Company intends on applying for perhaps two further PERs covering tungsten and gold in the next few months.

Should the PER applications be successful, PlatSearch will be committed to large financial investments into France. For example, within the first three lodged PER submissions (as listed above) Variscan has committed to the expenditure of approximately € 30 million over a 5 year period should exploration discover economic mineral deposits, with the objective of bringing prospects to Definitive Feasibility Study (DFS) stage required to obtain financing to develop an operating mine within each PER.

Project capital expenditure required to construct and commission each project according to design established in the DFS will, of course, be project specific, but could range between €75 to €300 million depending on the size and complexity of an operation. This capital would be raised through either debt or equity, or a combination of both.

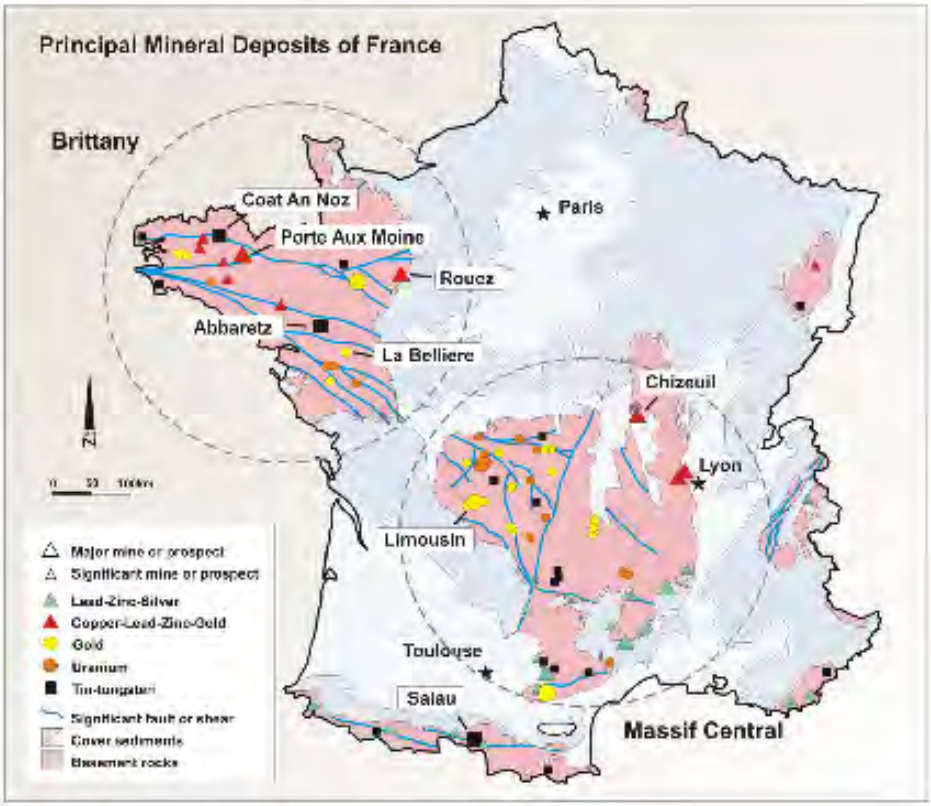


Figure 1: Variscan's PER's both lodged and planned

SAFETY, HEALTH, ENVIRONMENT AND COMMUNITY

To engage in exploration and potential mining activities in Metropolitan France, PlatSearch understands that it must meet the strict French and EEC environmental and Health and Safety Laws, and gain social and political acceptance in France. Hence, PlatSearch will maintain the highest International standards in meeting these requirements for both exploration and mining and in adhering to French and EU requirements in respect of sustainable development.

Furthermore, at the local level of each project, PlatSearch will work closely with local Government, industry and community groups to ensure that any mining development is undertaken with full Governmental, commercial and community support, and full awareness of each stage of the exploration, mine development and post commissioning mining operations. This is considered an essential element in the successful exploration, development and operation of a mine.

Equal opportunity employment will be preferentially offered to local communities where skill levels are appropriate, and "on the job training" will be available in accordance with French labour laws to bring local skill levels up to those required to sustain a technically efficient and work safe operation. Variscan's policy will be to employ only French personnel in all its operations in Metropolitan France, unless it is unable to attract candidates with sufficient experience to meet critical mining roles. Furthermore, PlatSearch is currently working on

provision of additional training of Variscan's French professional personnel in Australia and / or Canada once Variscan commences field exploration operations in France. This training will be expanded as the projects approach successful completion of DFS work bringing Variscan's French personnel to the highest international standards in the global mining industry.

ANNEXE 9c

Stratégie d'exploration de Variscan Mines

En France, Variscan Mines a déposé 9 demandes de PERM pour les métaux qu'elle estime prioritaires dans sa stratégie. Cette sélection s'effectue en fonction de plusieurs critères :

- Choix de la substance : métaux de base, métaux précieux et métaux critiques ; toutes ces substances étant potentiellement bien représentées en France
- Choix du modèle gîtologique : VMS, shear-zones ou **gîtes magmatiques**
- Possibilité de développer une production souterraine pour satisfaire au plus strict respect de l'environnement
- Probabilité de découverte élevée : présence d'anciennes mines, de gisements connus ou d'indices minéralisés prometteurs
- Possibilité d'explorer une aire suffisamment importante en mettant en œuvre les dernières technologies d'exploration par géophysique héliportée, afin de découvrir suffisamment de minerai pour satisfaire au développement durable de l'exploitation.

Stratégie de l'Exploration

Sélection des zones à explorer

Sélection sur modèle gîtologique

Le modèle gîtologique est déterminant pour fixer a priori les hypothèses relatives à la taille et à la composition des gisements, ainsi que celles liées à l'emploi des techniques à mettre en œuvre pour leur découverte. On retiendra les zones présentant les caractéristiques suivantes :

- Présence sur le PERM d'un gisement correspondant à ce modèle, même de petite taille ou jugé comme épuisé. La présence d'indices minéralisés correspondant aux métaux présents dans le modèle recherché ou liés génétiquement sera un plus décisionnel

- Possibilité de sélectionner une aire géologiquement favorable suffisamment grande pour renfermer d'autres gisements, affleurants ou cachés, du même modèle.

Les modèles retenus par Variscan Mines sont :

- Les amas sulfurés au sens large, que ce soient des VMS (amas sulfurés volcanogéniques) ou des SEDEX (exhalatifs sédimentaires) ; ces gisements renferment habituellement des métaux de base (Cu, Pb, Zn), des métaux précieux (Au, Ag) et des métaux critiques (In, Ge, Cd) et parfois de l'étain. Ils offrent comme caractéristique principale de se grouper en essaims et sont donc rarement isolés

- Les shear zones aurifères ; ces gisements caractérisés par d'importantes anomalies en As, renferment principalement de l'or et de l'argent et sont souvent spatialement associés à des filons d'antimoine, parfois exploitables, qui correspondent aux stades ultimes de l'évolution métallogénique de ces structures

- Les filons à plomb-zinc ; ces gisements sont typiquement très riches en Pb, Zn et argent mais ils renferment également de grandes quantités de métaux critiques (In, Ge, Cd, Ga, Sn …)

- Les skarns, coupoles granitiques, greisens et manifestations filoniennes associées aux intrusions ; ces gisements sont typiques des minéralisations en W et/ou Sn et souvent associées à des métaux critiques (Nb, Ta, TR)

Le PERM « COUFLENS » correspond à ce choix

Sélection d'une surface compatible avec le modèle gîtologique

Les gisements se forment dans des environnements géodynamiques dont l'extension est souvent régionale. Toutefois, sur un site de dépôt particulier, on peut considérer que plusieurs gisements peuvent se former dans une aire relativement restreinte, correspondant à des variations locales des paramètres du dépôt.

Pour les amas sulfurés, on se guidera principalement sur une lithologie ou une formation qui caractérise un milieu de dépôt particulier (on parle alors de contexte géotectonique). La forme du PERM sera donc directement liée à la structure géologique régionale. On sera particulièrement attentif aux manifestations hydrothermales ou volcaniques qui accompagnent presque toujours ces dépôts : sédiments chimiques, présence de niveaux quartzeux, indices de métaux de base, de métaux précieux, de manganèse, de fer ou de baryum.

Pour les shear zones aurifères, il s'agira de lentilles ou de colonnes minéralisées disposées dans des branches anastomosées tout au long d'une structure tectonique pluridécakilométrique ; les demandes de PERM porteront donc sur des surfaces allongées pouvant atteindre 20 ou 30 km pour une largeur plus faible, généralement de quelques km, pouvant englober les différentes branches tectoniques, ramifiées à partir de la structure principale soulignée par une anomalie régionale en As.

Pour les skarns et/ou les coupoles granitiques (champs filoniens et stockwerks), l'aire sélectionnée cherchera à intégrer des pointements de roches magmatiques post-intrusives, souvent alignés suivant des structures tectoniques d'ampleur régionale. Ainsi, la forme des PERM sera guidée par une structure tectonique dominante, souvent linéaire (axe de pli, faille, ...).

A priori, les conditions de dépôt de ces types de gisements sont susceptibles de se maintenir sur de grandes surfaces, souvent plusieurs centaines de km². Lors de la pose de permis, on sélectionnera des zones centrées sur une manifestation d'importance, par exemple l'ancienne mine d'Anglade au centre du PERM « COUFLENS », ou délimitées par des ensembles cohérents d'indices minéralisés, ces indices pouvant être distribuées sur des surfaces de plusieurs dizaines de km².

Sélection d'une surface compatible avec le modèle minier

Variscan Mines considère que pour réduire au maximum son impact environnemental, la mine du futur doit réaliser un maximum d'opérations en profondeur, si possible sans contact direct ou indirect avec la biosphère. Cette approche cible prioritairement des gisements profonds qui pourront être découverts jusqu'à 500 m sous la surface, et dont l'éventuelle exploitation pourra se poursuivre jusqu'à plus de 2000 m de profondeur si nécessaire.

La surface d'un PERM ne doit donc pas s'établir sur les seuls critères de favorabilité des terrains affleurants, mais doit également prendre en compte la nature possible des terrains à 1000 m sous la surface. Ainsi, les critères structuraux associés à la carte géologique seront également considérés comme un élément déterminant dans la pose d'un PERM, qui ne sera pas seulement induite par la géologie observée en surface.

Approche globale du PERM

La grande majorité des découvertes minières de la fin du XX^{e} siècle s'est effectuée dans l'environnement immédiat d'une mine connue, souvent de dimensions modestes en regard de la découverte elle-même. Ces nouvelles découvertes sont généralement le fait de sociétés différentes de celles qui avaient exploité la mine historique.

La principale raison à cet apparent paradoxe est à rechercher dans la stratégie d'exploration : la première cible d'intérêt ayant capté l'intégralité des efforts de recherche et d'évaluation, l'exploration des terrains autour de la cible retenue passe au deuxième plan et les efforts d'exploration « greenfields » renvoyés à un futur hypothétique.

Les plans d'exploration de Variscan Mines prévoiront un contrôle systématique des cibles d'intérêt potentiel d'un PERM avant l'arrêt des opérations « greenfields ». Au besoin, ces opérations seront réalisées parallèlement aux opérations d'estimation des ressources ou des réserves de cibles plus avancées, dont les caractéristiques serviront alors pour calibrer au mieux les phases amont de recherche minière.

Cette stratégie permettra à Variscan Mines d'examiner la faisabilité de projets pouvant impliquer l'ouverture simultanée de plusieurs sites de production.

Pour rechercher des cibles de taille moyenne jusqu'à une profondeur de 500 m, Variscan Mines devra mettre en œuvre des techniques d'exploration particulièrement performantes qui associent une très haute définition et une grande pénétrabilité dans le sol ; elles seront discutées plus en détail dans les programmes de travaux.

Ces techniques, coûteuses, seront employées sur des surfaces importantes pouvant atteindre plusieurs centaines de km². Elles aboutissent habituellement à la définition de plusieurs dizaines d'anomalies, dont certaines, voire une majorité, profondes, qu'il serait très difficile de sonder systématiquement de manière exhaustive.

Une hiérarchisation de ces cibles s'imposant, on tâchera de développer les modèles les plus performants pour interpréter les données. À chaque fois que cela sera réalisable, Variscan effectuera donc des sondages de reconnaissance géologique sur les objets minéralisés déjà connus dans le PERM. Ces sondages seront utilisés pour établir avec précision les caractéristiques physiques, pétrographiques, minéralogiques et minéralurgiques de la minéralisation et de son encaissant immédiat. Les résultats obtenus serviront d'étalonnage aux modèles numériques utilisés pour la modélisation des anomalies et leur hiérarchisation ultérieure.

Recherche de cibles profondes

Les terrains explorés par Variscan Mines correspondent à la zone interne de la chaine varisque repris lors de la surrection des Pyrénées, à l'Eocène. Ces terrains sont fortement affectés par une tectonique de serrage et se trouvent donc aujourd'hui fortement redressés.

Ainsi, quels que soient les modèles gîtologiques envisagés, amas sulfuré, shear-zones aurifères ou skarns, structures filoniennes des coupoles granitiques, les gisements correspondants seront donc à fort pendage, ce qui imposera dans tous les cas la réalisation de sondages profonds.

Pour les cibles proches de la surface, lors des phases amont de l'exploration, Variscan Mines privilégiera les sondages carottés de diamètre HQ.

Pour les cibles plus profondes, on privilégiera les sondages destructifs RC de gros diamètre (140 à 150 mm) dont le contrôle des déviations est plus aisé. Ces sondages seront complétés par des sondages carottés HQ à l'approche et à la traversée de la minéralisation.

ANNEXE 9d

Stratégie d'exploitation de Variscan Mines

Applications à l'exemple du PERM « COUFLENS »

Bien qu'il soit prématuré, à ce stade du projet, de parler d'exploitation du gisement du pic de la Fourque, il est toutefois possible de préciser ici les objectifs prioritaires poursuivis par Variscan Mines. En effet, la stratégie de l'exploration dépendra en grande partie du choix de ces objectifs, eux-mêmes induits par la métallogénie régionale :

- Si l'on envisageait en priorité la recherche de gisements de très gros volume et à faible ou très faible teneur, on supposerait a priori un modèle minier orienté sur une exploitation de grande dimension à ciel ouvert. L'exploration se focaliserait donc dans la tranche superficielle, et les techniques employées utiliseraient un filtre « large », adapté à la recherche des cibles de grande dimension.

  La géologie du PERM « COUFLENS » invalide la recherche de gisements de type « disséminé en surface», et il est donc improbable d'avoir à recourir à ce type d'exploitation à fort impact environnemental dans le modèle minier.

- Si l'on envisage de rechercher des gisements de dimensions moyennes (le terme de dimension étant restreint à la géométrie et non pas à l'intérêt économique), l'économie du projet ne peut s'envisager que si les teneurs sont situées dans la tranche moyenne à forte des gisements. Ce type de gisement autorise des techniques d'exploitation plus coûteuses (coûts opératoires) que les opérations à ciel ouvert jouant sur l'effet d'échelle. Par ailleurs, les volumes minimum requis pour l'exploitation ne peuvent plus s'abstraire d'une recherche de réserves en profondeur, ce qui suppose a priori la réalisation d'une mine souterraine. Dans cette hypothèse, les techniques d'exploration devront s'adapter à la recherche et l'estimation de cibles pouvant être profondes.

  Les minéralisations recherchées dans le PERM « COUFLENS » correspondent au modèle « système filonien W – Sn associé aux coupoles » et sont typiquement exploitées par mine souterraine, dont l'impact environnemental peut être extrêmement réduit

Le programme d'exploration présenté par Variscan Mines envisagera donc l'emploi de techniques permettant la recherche de cibles petites à moyennes dans la tranche des 500 premiers mètres. Du fait du modèle d'exploitation envisagé, l'estimation des ressources et des réserves des cibles identifiées s'effectuera jusqu'à des profondeurs pouvant atteindre ou dépasser 1000 m.

Stratégie pour l'exploitation

1 Caractéristiques minières des gisements de W recherchés

Les minerais constituant les skarns à scheelite du PERM « Couflens » appartiennent à la catégorie des gisements de coupole associés à une montée magmatique acide polyphasée. Des modèles identiques sont applicables aux autres projets W en France.

Le « modèle » utilisé pour la PERM « Couflens » est celui de Cantung dans les territoires du Nord-Ouest canadien qui présente des caractéristiques géologiques et métallogéniques identiques (quoique d'un âge différent) et qui exploita entre 1962 et 2009, 6.21 Mt à 1.56% WO_3. Fondamentalement, on utilisera l'expérience acquise sur ce gisement pour établir les prospectives d'une éventuelle exploitation du gisement du pic de la Fourque.

1.1 Types de minerai

Le minerai, sous la forme de lentilles sulfurées et de skarn, est constitué d'oxydes, (scheelite, wolframite – cassitérite) avec la présence de sulfures subordonnés (pyrite, pyrrhotite, sphalérite, chalcopyrite, galène, molybdénite) dans un encaissant de calcaire schistes et de granite. La séparation stérile / minerai est donc particulièrement aisée, aussi bien à l'échelle du chantier qu'à celle du minerai concassé, et la structure des chantiers d'exploitation sera directement fonction de la continuité géologique et de la puissance des corps de minerais.

Le traitement du minerai sera très probablement orienté vers la fabrication de concentrés, suivant des lignes spécifiques pour chaque métal principal. Les métaux précieux et/ou critiques éventuellement associés au minerai seront soit intégrés aux concentrés (et associés à la formule de vente de ces derniers) ou pourront faire l'objet de lignes de traitement spécifiques.

Variscan Mines examinera l'opportunité de valoriser les concentrés pour produire du tungstène métal, initiant ainsi une filière industrielle complète du tungstène. Le potentiel attendu du gisement du pic de la Fourque permettrait à lui seul de justifier cet investissement ; en outre, il faut également envisager la possibilité d'un approvisionnement de cette industrie par d'autres sources nationales, Variscan Mines ayant déjà déposé d'autres PERM (Loc-Envel, Dompierre) et envisageant de poursuivre une stratégie tungstène volontariste.

Dans tous les cas, il est hautement prévisible que les rejets du traitement seront majoritairement constitués par de la pyrite et/ou de la pyrrhotite et du mispickel. Variscan Mines attachera une attention particulière au stockage de ces rejets sous une forme respectueuse de l'environnement. Le stockage souterrain sur le site même de leur extraction (back filling) semblant a priori la technologie la plus appropriée pour préserver le milieu naturel.

1.2 Géométrie du gisement

Le fort pendage des structures connues laisse supposer qu'une majorité des corps minéralisés présenteront ces mêmes pendages élevés. Cette caractéristique géométrique représente un atout important dans la planification d'une mine souterraine en autorisant des techniques d'exploitation classiques relativement bon marché.

Le dépôt des minéralisations des coupoles, correspond à l'imprégnation sous forme de skarns, des filons verticaux ou de filons plats des terrains immédiatement au contact des apex d'intrusions granitiques. Ce phénomène présente généralement une amplitude kilométrique sur chaque site ; il peut parfois s'étendre sur plusieurs kilomètres comme on le suppose à « Couflens » en raison d'une forte auréole de métamorphisme de contact.

Ainsi, il est prévisible que des corps minéralisés non affleurants (tels que recherchés sur le PERM « Couflens » dans l'environnement du pic de la Fourque) et redressés peuvent présenter une continuité sur plus de 1000 m de profondeur, imposant la mine souterraine profonde comme modèle d'exploitation le plus probable.

1.3 Zonalité et continuité du gisement

L'ancienne exploitation d'Anglade s'est concentrée sur des structures a priori assez homogènes, toutefois les morphologies sont très variables dans ce type de gisement et elles peuvent présenter des stockwerks et/ou des structures filoniennes « à plat » comme dans la coupole de Panasqueira au Portugal. Une exploitation globale de ces diverses morphologies est donc envisageable, et les volumes minimums permettant l'économie du projet seront recherchés dans l'ensemble du (des) corps minéralisés, jusqu'à une profondeur pouvant atteindre ou dépasser les 1000 mètres sous le niveau.

L'économie du gisement ne peut donc pas s'envisager sans une première évaluation des ressources totales des corps minéralisés, et ceci dans une tranche de profondeur compatible avec les techniques modernes d'exploitation souterraine, possibles aujourd'hui jusqu'à plusieurs milliers de mètres de profondeur.

Ainsi, dès la troisième année, les programmes d'exploration de Variscan Mines prévoient des sondages profonds sur les cibles détectées par les techniques mises en œuvre au cours de la première année et testées dans la tranche des 500 premiers mètres au cours de la deuxième année.

1.4 Sites d'extraction

Les dépôts de type coupoles W-Sn sont rarement des objets isolés, le phénomène magmatique à l'origine de leur dépôt pouvant avoir une ampleur régionale et se répéter sur les nombreuses apophyses qui jalonnent les parties sommitales des intrusions granitiques. Ils sont donc souvent groupés en essaims, plus ou moins nombreux et plus ou moins proches les uns des autres. Au sein de ces groupements, d'importantes variations dans la taille et dans la teneur en métaux de chacun d'eux peuvent s'opérer, les gisements pouvant présenter une « spécialisation » (soit W, soit Sn) en dehors des phénomènes internes de zonalité.

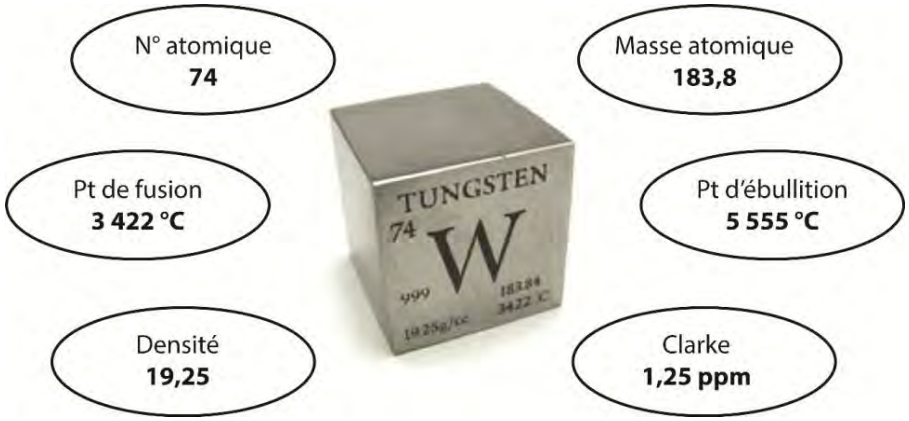
Ainsi, l'économie d'un projet peut être assurée par l'exploitation simultanée de plusieurs sites. Il est donc particulièrement important d'explorer des aires étendues afin de pouvoir intégrer plusieurs amas sulfurés dans un même schéma d'exploitation / traitement. L'aire choisie pour le PERM « Couflens » s'étend donc sur 42 km² autour de l'ancienne mine d'Anglade, qui vu les caractéristiques géologiques du PERM ne représente probablement pas un cas isolé au sein d'une coupole granitique de plus de 3 km de diamètre.

2 Stratégie

2.1 Propriétés et usages du tungstène

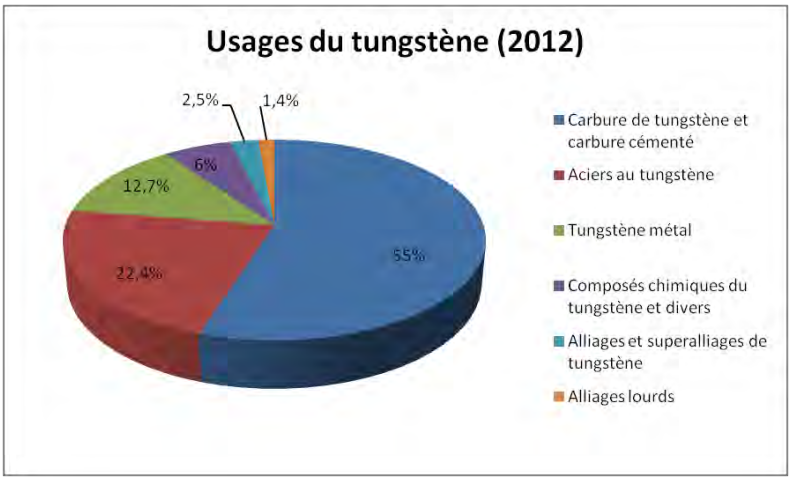
Le tungstène (W) est le 74ème élément du tableau périodique de Mendeleïev. Son Clarke de 1,25 ppm en fait un élément peu abondant dans la croûte terrestre. Ses principales propriétés lui sont conférées par :

- sa dureté (7,5 sur l'échelle de Mohs) ;
- sa réfractarité (la plus élevée de tous les métaux avec une température de fusion de 3422 °C) ;
- sa forte densité (19,25) ;
- sa résistance à la traction (même à température élevée) ;
- son très faible coefficient de dilatation thermique.



Le tungstène métal est résistant à la corrosion aux acides et à l'oxydation jusqu'à 400 °C. Il n'a pas de rôle biologique connu, n'est pas allergisant et n'a pas de toxicité aux doses d'exposition usuelles (Audion et Labbé., 2012).

L'utilisation la plus courante du tungstène consiste à le combiner au carbone pour former du carbure de tungstène (WC) possédant une dureté très élevée (9 sur l'échelle de Mohs). On l'utilise également dans divers autres domaines :



Principaux usages du tungstène en 2012 (Audion et Labbé, 2012)

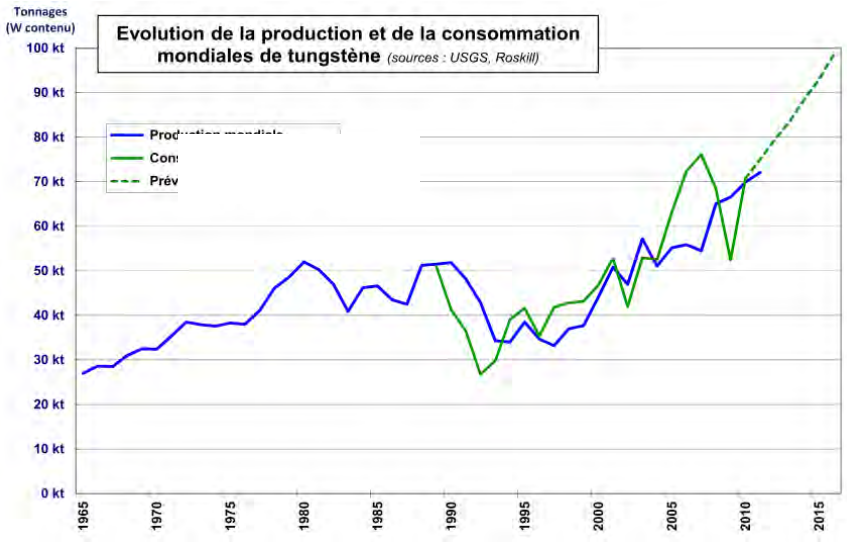
Ces produits sont utilisés pour leur dureté et leur résistance à la chaleur qui sont les 2 principales propriétés du tungstène. Leurs applications sont omniprésentes dans notre quotidien :

- Les carbures cémentés sont transformés en outils d'usinage et de coupe (scies, forets, fraises, poinçons…), dans le tréfilage, les revêtements de protection d'usure, les outils pour travaux publics (trépans de forages, tunneliers), les billes de stylos, les munitions, la bijouterie…
- Les aciers au tungstène sont utilisés dans les outils pour travail à chaud ou à froid et certains aciers inoxydables au tungstène
- Les alliages et superalliages au tungstène sont transformés en matériaux devant résister à des environnements de haute température (turbines d'avion, centrales à gaz, fours métallurgiques). On utilise les alliages lourds (90 à 98 % W) pour leur densité (contrepoids, munitions) ou la radioprotection
- Le tungstène métal est utilisé pour l'éclairage (filaments des ampoules à incandescence et halogènes, électrodes des tubes et ampoules à décharge basse et haute pression), des contacteurs électroniques, des résistances chauffantes de fours industriels et pour les appareils à rayons X
- Les composés chimiques du tungstène sont utilisés en catalyse, pour des pigments, des luminophores et dans les lasers.

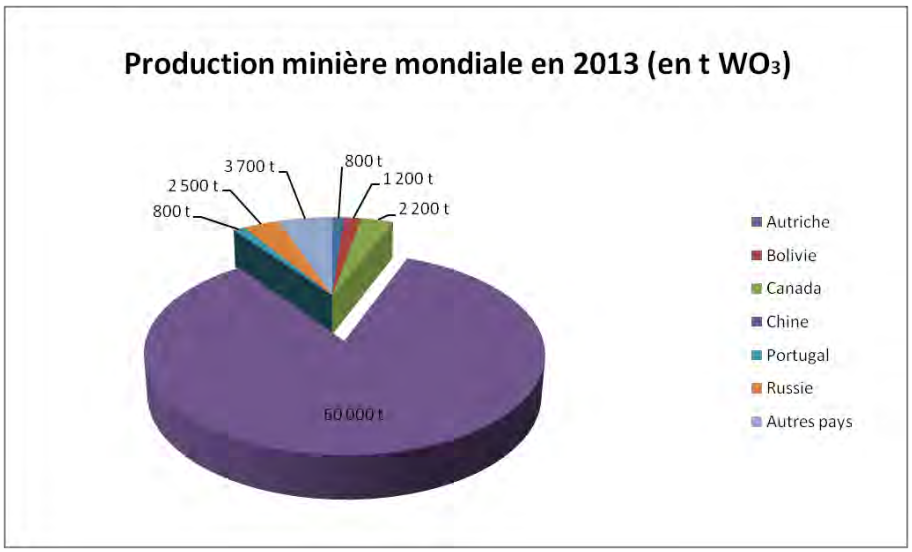
Le tungstène peut être substitué dans certaines applications par des carbures de molybdène ou de titane, des composites céramique-métal ou certains aciers. Dans les applications de haute densité, il peut être remplacé par de l'uranium appauvri. Cependant, de tels remplacements entrainent des pertes de performances et des prix plus élevés (Audion et Labbé, 2012).

2.2 Économie

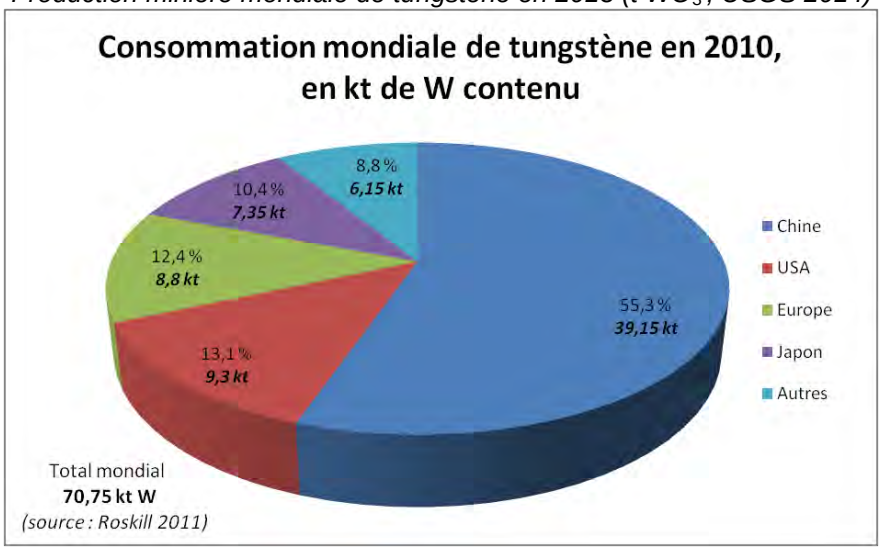
L'évolution de la consommation mondiale de tungstène montre une croissance continue depuis 1992 (27 kt) jusqu'à 2007 (76 kt). Entre fin 2008 et 2009, elle marque une chute importante (52 kt en 2009). Elle s'est redressée depuis 2010 (70 kt) et dépasse 75 kt de tungstène primaire en 2011.



Actuellement, la Chine est le plus important producteur (60 000 t WO_3 en 2013) et consommateur mondial de tungstène (55 % en 2010). En 2010, l'Europe se plaçait au troisième rang des régions consommatrices.



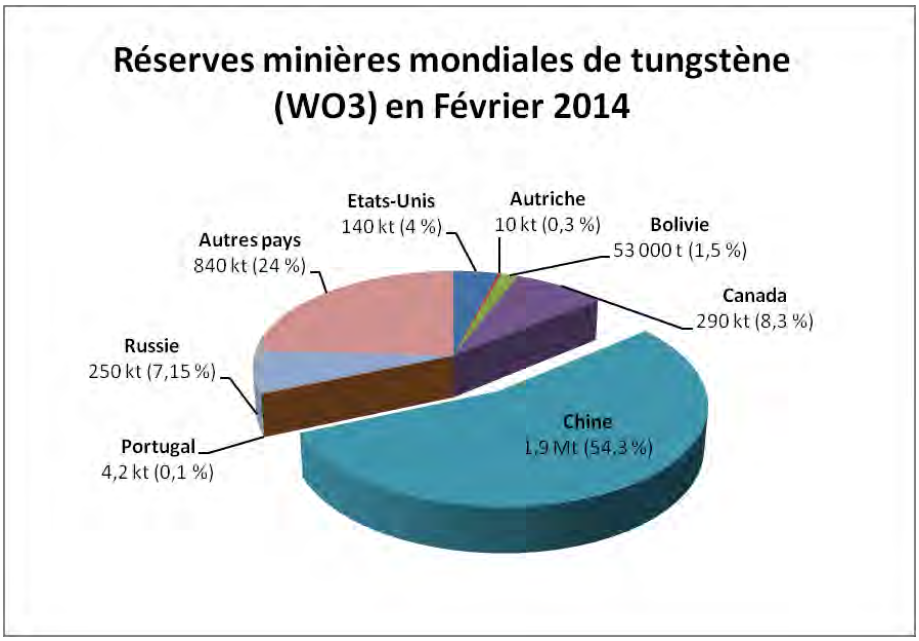
Production minière mondiale de tungstène en 2013 (t WO_3 ; USGS 2014)



Consommation mondiale de tungstène en 2010 (Roskill 2011)

Dans les produits en fin de vie, le recyclage s'élève à un quart du tungstène contenu. Plus globalement, le W issu du recyclage représente environ un quart de l'approvisionnement mondial.

Selon l'USGS, les réserves mondiales sont évaluées à 3,5 Mt WO_3 en février 2014. Le premier producteur, consommateur et exportateur mondial est la Chine qui possède actuellement les plus importants gisements en exploitation. Les experts de l'USGS prévoient une diversification de la production du tungstène dans les années à venir en raison du nombre croissant de compagnies prospectant en Europe, en Australie, en Amérique du Nord et en Asie.

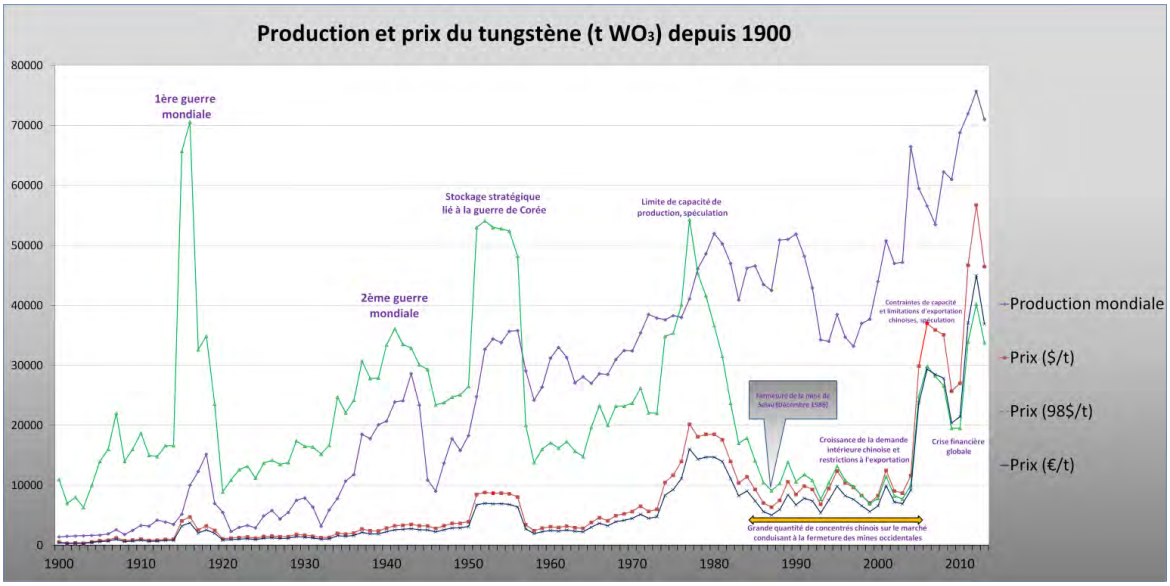


Réserves minières mondiales de tungstène en février 2014 (en t WO_3) (USGS)

Les principaux acteurs industriels miniers du tungstène sont (Audion et Labbé, 2012) :

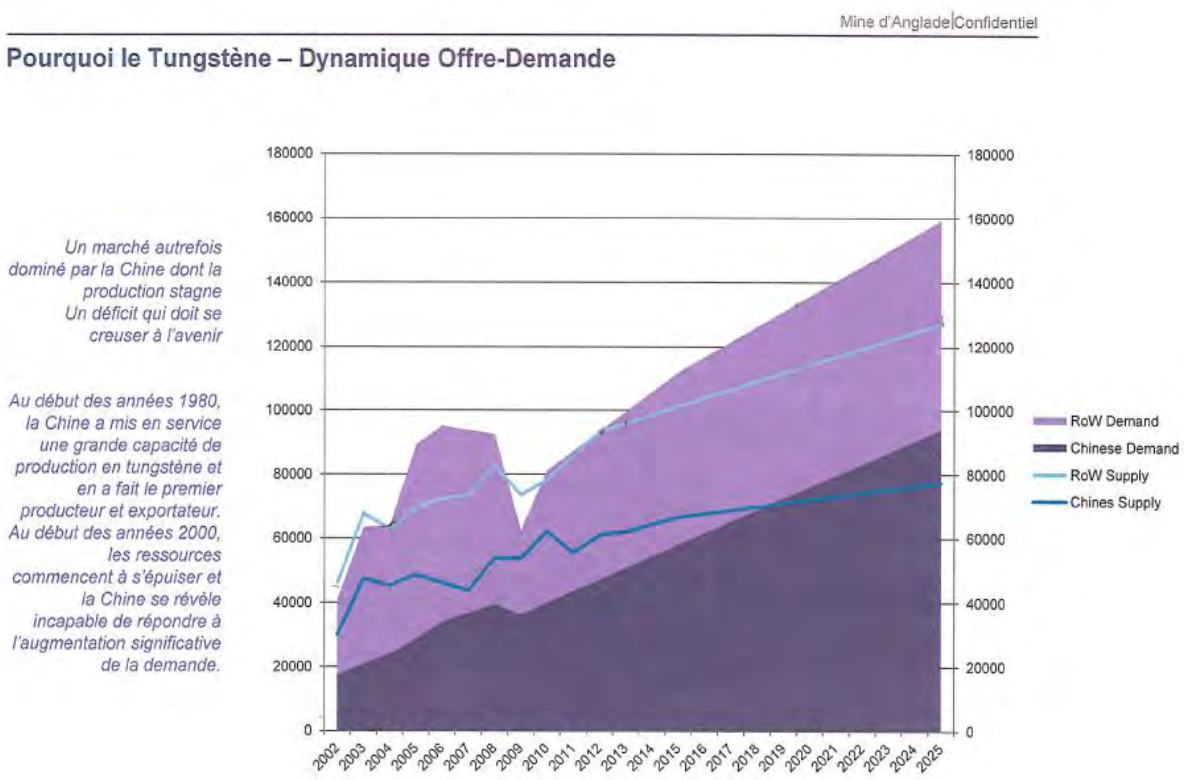
- En Chine : China Minmetals (8 mines exploitées), Jiangsi Xianglushan Tungsten (plus grosse mine de scheelite du monde) avec 3 autres sociétés majeures
- En Russie : JSC Primorsky GOK – A&IR Mining (mine de Primorsky).
- Au Canada : North American Tungsten (mine de Cantung, Territoires du Nord-Ouest avec 2985 t WO_3 produites en 2012 et Mactung, Yukon avec 33 Mt @ 0,88 % WO_3 de ressources indiquées)
- En Autriche : Wolfram Bergbau und Hütte (WBH), filiale du groupe suédois Sandvik (mine de Mittersill avec 1800 t WO_3 produites en 2012)
- Au Portugal : la société japonaise Sojitz (mine de Panasqueira avec une production de 1300 t WO_3 en 2013)
- En Espagne : la société canadienne Almonty Industries (projet de Los Santos avec 10 000 t WO_3 de réserves et 22 000 t WO_3 de ressources)
- En Angleterre : la société Wolf Minerals Limited (projet Hermerdon dans le Devon, avec entrée en production prévue pour 2015).

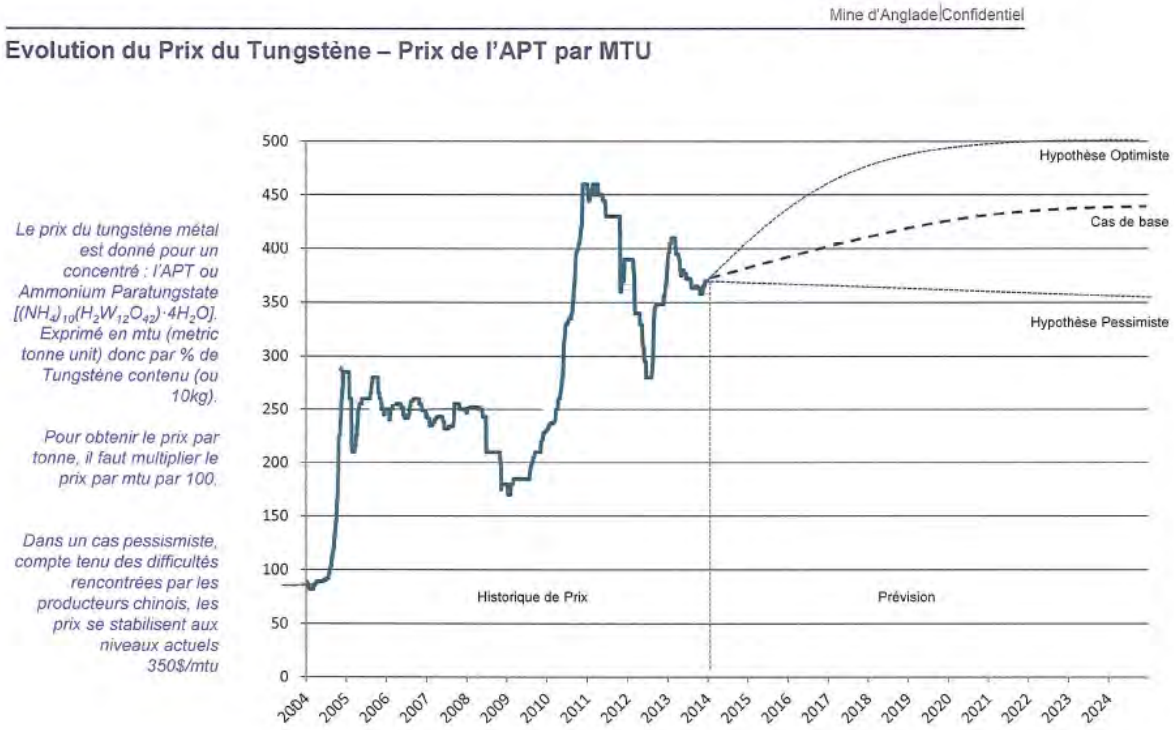
Le tungstène est un métal critique pour l'union européenne et incontournable dans de nombreuses applications industrielles. Son prix est en hausse depuis 2003 (12 000 $/t) jusqu'à l'heure actuelle (40 750 $/t). Les besoins croissants en métaux dans le monde font prédire aux experts que les cours continueront à augmenter dans les années à venir (Audion et Labbé, 2012).



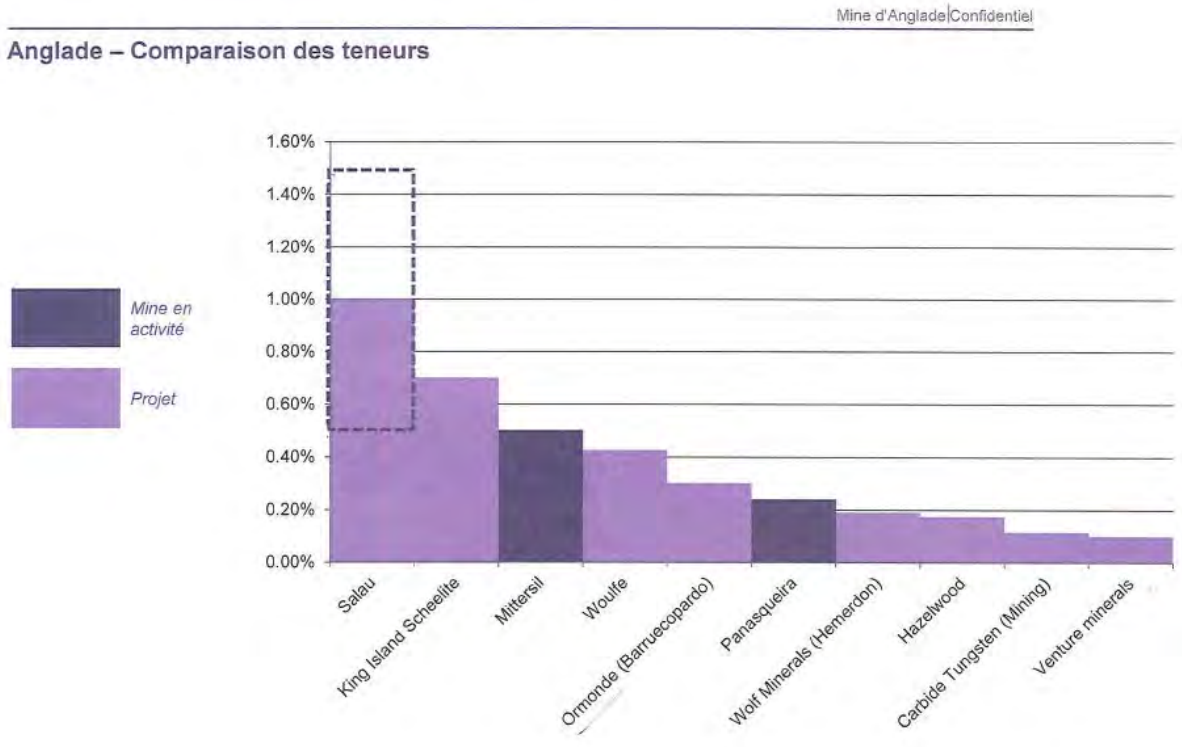
Production et prix du tungstène (t WO_3) depuis 1900 (USGS)

Une approche économique confidentielle réalisée par Natixis en 2014 montre que l'offre sera largement inférieure à la demande pour les prochaines années ; en particulier la Chine sera dans l'incapacité de subvenir à ces propres besoins à partir de 2018.





Prospective sur l'influence de la Chine sur le marché. La tension attendue sur l'offre permet d'envisager un maintien des cours élevés sur la prochaine décennie.



Cette étude a également permis de situer le projet tungstène de Couflens dans le contexte mondial des projets d'exploitation du tungstène. Les teneurs et volumes espérés permettent de classer le gisement du Pic de la Fourque au premier rang mondial (Natixis, 2014)

2.3 Produire pour l'industrie nationale et européenne

L'industrie européenne est très fortement dépendante de ses importations en métaux, du tungstène en particulier. La production d'étain et de tungstène à partir des coupoles et skarns français est susceptible de fournir une source importante d'approvisionnement sécurisée pour de nombreuses années. Un approvisionnement de cette nature offre par ailleurs de nombreux avantages :

- Traçabilité du métal, produit avec des normes environnementales contrôlées et dans le respect des lois européennes sur le travail, fondamentalement différentes de celles en vigueur en Chine ou en Russie
- Bilan carbone amélioré pour les utilisateurs finaux des métaux, par élimination d'un transport important depuis des sites de production souvent très lointains (Chine, Russie, Canada …)
- Possibilité de créer une filière industrielle complète sur une substance stratégique
- Création de plusieurs centaines de postes de travail directs et de plusieurs milliers de postes induits. En effet, la mise en exploitation d'une ou plusieurs mines dans une même région, créerait dans un premiers temps de nombreux emplois sur le site, dans l'exploitation et le traitement des minerais, l'exploration géologique. À l'échelle régionale, de nombreux emplois induits se créeraient également dans les industries d'appui et d'approvisionnement nécessaires au fonctionnement de l'exploitation
- Le besoin en cadres diplômés en de nombreuses spécialités, aurait un impact positif sur le contexte régional et national de formation.

Par ailleurs, comme c'est souvent le cas pour ce type de gisement, les minéralisations susceptibles d'être découvertes pourraient également contenir des métaux critiques tels que l'indium ou le molybdène, métaux dont la recherche pour une sécurisation des approvisionnements des industries de haute technologie est aujourd'hui jugée stratégique et dont l'économie dans le projet peut être fort importante.

Variscan Mines entreprendra l'exploration pour ces métaux critiques en France et en Europe avec pour objectif de définir des ressources économiques pour ces métaux, soit comme produits principaux, soit plus probablement comme sous-produits d'exploitations de métaux de base, d'étain ou de tungstène, en association ou en partenariat avec des spécialistes en métallurgie et en affinage européens comme ERAMET.

Variscan Mines recherchera donc prioritairement en France et en Europe les partenaires pour l'extraction, la valorisation et la commercialisation des métaux produits par les gisements découverts.

2.4 Produire « propre »

Variscan Mines est particulièrement sensibilisée aux problèmes environnementaux et sociaux associés à l'exploitation minière. Cette sensibilisation est renforcée grâce à son président, Jack Testard, qui fut également le premier président de Géodéris, GIP chargé d'étudier les problèmes de réhabilitation minière et d'après-mine en France.

On peut considérer que jusque vers la fin du XX^{e} siècle, la seule préoccupation des compagnies minières fut leur rentabilité au profit des actionnaires ou des propriétaires. La gestion des espaces souterrains et des déchets remontés à la surface était pensée *ad minima* et focalisée sur la réduction des coûts durant la vie de l'exploitation. Les évolutions technologiques dans le domaine de l'extraction et du traitement du minerai permettent aujourd'hui d'intégrer la restauration du milieu souterrain dans le schéma de l'exploitation et de réduire ainsi au minimum l'impact environnemental des opérations minières et de traitement. Cette évolution considérable permet aujourd'hui d'entreprendre des exploitations minières responsables jusqu'au sein des villes.

Variscan Mines envisage l'emploi de ces techniques afin de bénéficier et de faire bénéficier ses partenaires et clients d'un label d'écoresponsabilité sur les métaux produits.

2.4.1 Stratégie de développement minier

Variscan Mines développera toute opération d'exploitation minière et de traitement basée, a priori, sur une combinaison optimale des contraintes économiques, environnementales et sociales. Toute opération sera entreprise sur la base des plus hauts standards internationaux, en usage dans les industries minières du Canada, d'Australie, de Suède et de Finlande, dans le respect des législations française et européenne relatives au développement minier, à la gestion des déchets, à la protection environnementale, et prendra en compte les contraintes sociales locales. Néanmoins, devant le large choix d'options minières et de traitement offert à Variscan Mines, la compagnie développera les options les plus raisonnables et les plus pérennes sur le plan économique, dans le cadre des législations française et européenne en vigueur. Variscan Mines entreprendra tous les travaux de surface requis pour installer la mine, l'usine de traitement, les installations de soutien et de sécurité, ainsi que tous les travaux nécessaires au développement de toutes les opérations minières appropriées.

2.4.2 Gérer l'énergie et le transport

Dans un schéma d'exploitation classique, l'ensemble des produits extraits, minerai et stérile, sont remontés à la surface pour y subir le traitement minéralurgique. La remontée à la surface de ces matériaux constitue une part importante de la consommation d'énergie de la mine, consommation d'autant plus grande que le ratio minerai/stérile est faible et que la mine est profonde.

Par la suite, la plus grande partie possible de ces matériaux doit être à nouveau ramenée au fond de la mine pour servir de remblai, alourdissant à nouveau la consommation d'énergie.

En installant une ou plusieurs unités de traitement souterraines et en ne remontant au jour que le produit valorisé (concentrés), la facture énergétique se trouve réduite dans de grandes proportions (les minéraux utiles ne pouvant constituer que quelques pourcents du minerai tout venant), en même temps qu'une des principales limites dans la capacité de production de la mine se trouve repoussée (voir exemple de CRG).

Cette réduction induit également un bilan carbone tout à fait favorable qui autorise la mise sur le marché d'un métal offrant une qualité environnementale bien meilleure qu'un équivalent produit par une extraction géante à ciel ouvert ou une mine souterraine classique.

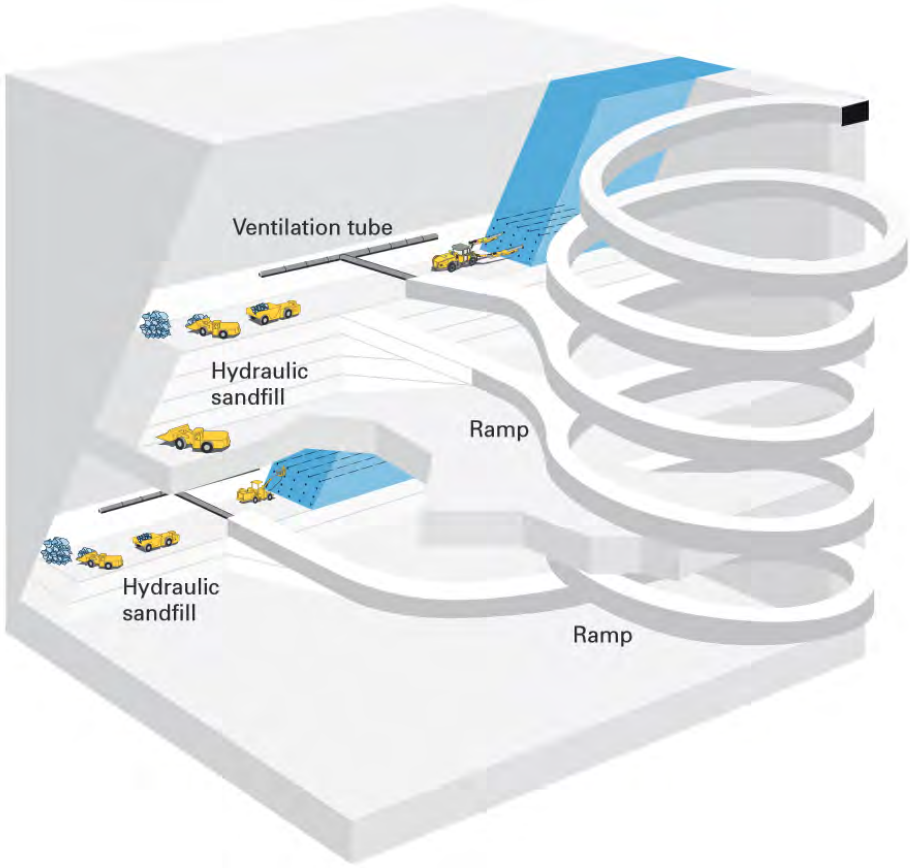
2.4.3 Gérer les déchets

Avec les problèmes de stabilité liés à l'effondrement des chantiers souterrains mal (ou pas) remblayés, les déchets miniers sont la première cause de problèmes environnementaux : eaux acides, pollutions par métaux lourds, etc.

En limitant au strict minimum le volume de matériaux remontés au jour, le problème lié aux déchets miniers est réduit d'autant, voire supprimé. D'autant plus que les « déchets » ne sont pas laissés en l'état au fond mais sont traités pour remblayer les cavités dont ils ont été extraits et rester sous une forme semblable à leur composition d'origine.

Méthode "Cut-and-Fill" ou "Extraction-Remplissage"

La méthode d'extraction et de remplissage consiste à creuser dans le minerai des tranches horizontales en commençant par le fond du chantier et progresser vers le haut.



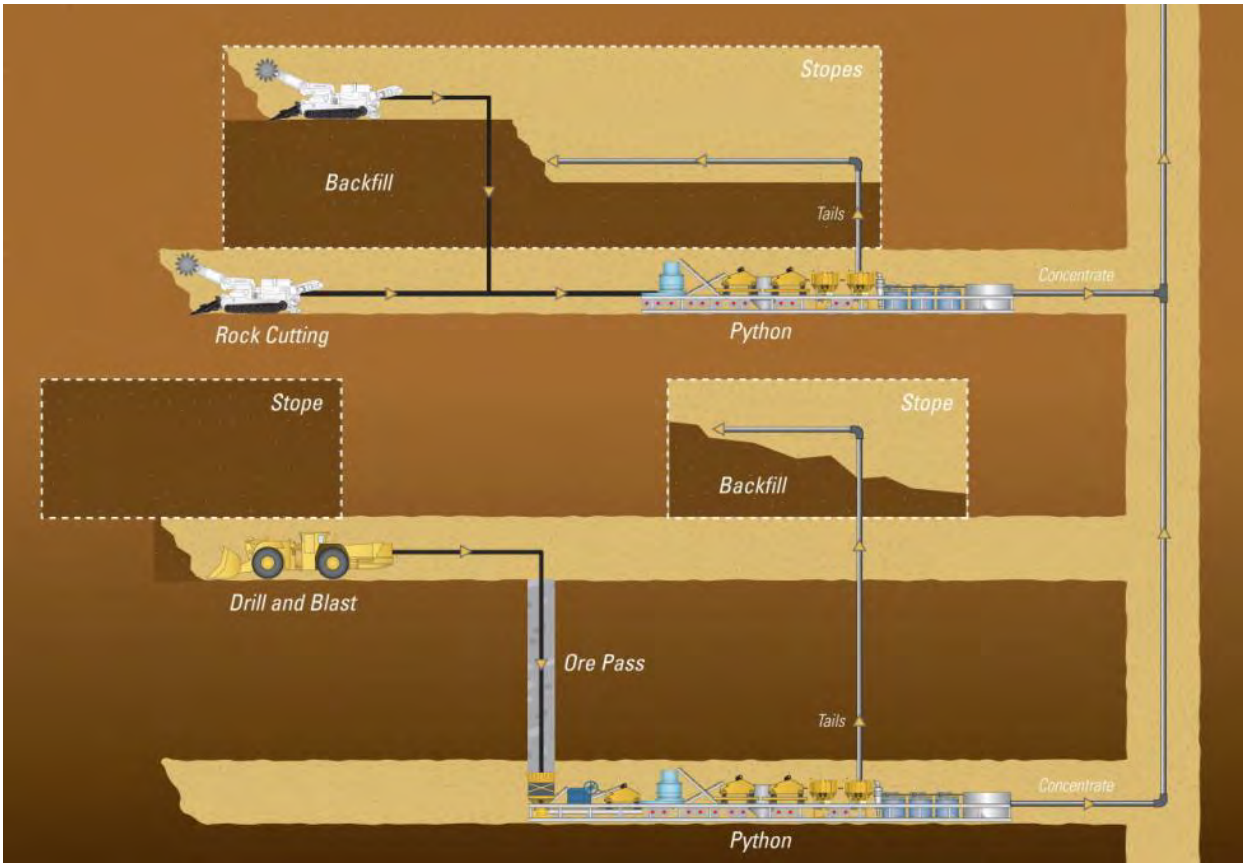
Méthode « cut-and-fill » (Source AtlasCopco)

Le minerai en tas est chargé, puis complètement retiré du chantier. Quand une tranche complète a été excavée, le volume libéré est rempli de stérile (non-économique), ce dernier prend en charge la pression exercé par les roches du dessus, et fournit une plate-forme de travail pour l'extraction de la prochaine tranche.

Le remplissage, constitué principalement de stérile peut être distribué mécaniquement sur la zone de stockage. Cependant dans les opérations modernes de « Cut-and-fill », le remplissage est réalisé par des moyens hydrauliques. Normalement, le matériau de remplissage est un mélange constitué de résidus à grain fin provenant de l'usine et de l'eau circulant dans la mine.

Lorsque l'eau s'est évacuée, un remplissage compétent avec une surface lisse est alors ainsi produit. Du ciment est parfois ajouté au mélange pour fournir des caractéristiques de soutien plus importantes et plus durables. Cette méthode d'exploitation minière peut être appliquée dans des gisements où le pendage de la minéralisation est assez fort. *Elle serait parfaitement adaptée à l'exploitation du gisement du pic de la Fourque.*

Le schéma ci-dessous, décrit la technique de backfilling associée à un traitement « fond » du minerai par une unité mobile de type Gekko Python.



Le remblayage des chantiers s'effectue au fur et à mesure de l'avancée des travaux par le stockage in situ du stérile et des rejets de flottation. Les concentrés sont remontés par pipe vers la surface.

Les chantiers ainsi remblayés offrent toutes les garanties de stabilité des terrains en fin d'exploitation.

Appliquée aux minéralisations en étain ou tungstène, cette technologie éviterait le stockage des tailings sous tranche d'eau dans des bassins en surface. Les risques environnementaux seraient ainsi réduits au maximum, aucun produit « contaminant » n'ayant été remonté, à l'exception des concentrés destinés à la vente.

2.4.4 Gérer l'eau

Localisée dans les formations géologiques du Paléozoïque et donc en dehors de tout aquifère, l'exploitation profonde de skarns dans le PERM « COUFLENS » ne devrait pas rencontrer de problèmes de venue d'eau particuliers ; cette hypothèse serait confirmée par l'historique de l'ancienne mine.

Le traitement au fond permettrait une gestion rigoureuse de l'eau par son recyclage souterrain. La seule source d'eau contaminée possible serait alors parfaitement maitrisable car liée au drainage de la mine. Par ailleurs, la présence des formations carbonatées qui entourent l'intrusion granitique offre toutes les garanties de pouvoir réaliser un tamponnage naturel d'éventuelles eaux acides dans d'excellentes conditions de coûts et de qualité.

Les émissions d'eaux acides, plus ou moins contaminées par des métaux lourds, habituellement liées à l'altération supergène des déblais miniers seraient éliminées par le remblayage continu des travaux.

2.4.5 Gérer le bruit, les poussières, les vibrations, la pollution lumineuse et l'impact visuel.

En réalisant un maximum d'opérations souterraines, les nuisances liées à leur fonctionnement sont par définition supprimées. Ne resteraient en surface que les installations administratives, les laboratoires et le minimum d'installations industrielles : puits d'accès aux chantiers, expédition des produits, maintenance ...

Les mouvements d'engins, habituellement attachés à l'image de la mine sont absents. Les opérations bruyantes et génératrices de poussières et de vibrations comme le transport du minerai et son broyage n'ont plus alors aucun impact sur l'environnement. Par ailleurs, l'usage des additifs chimiques dans l'usine de traitement s'effectuant loin sous la surface, le risque de contamination par libération accidentelle dans l'environnement est éliminé.

Pour autant une politique volontariste de prévention et de surveillance des employés sera mise en œuvre parallèlement à ce fonctionnement pour les protéger de tout risque sanitaire lié aux travaux du fond.

2.5 Produire longtemps

2.5.1 Gérer la ressource à l'échelle du gisement

Gérer de manière optimum la ressource consiste généralement à ne pas opter pour un type d'exploitation sitôt montré le minimum de réserves compatible avec un modèle économique viable ; cette approche aboutissant généralement à ne développer que des exploitations de taille modeste, à durée de vie limitée dans le temps, et susceptibles de « stériliser » des gisements plus importants par extraction sélective de leur partie superficielle.

En optant pour l'extraction optimisée des ressources du gisement, la durée de vie de l'exploitation peut être étendue à de longues périodes, compatibles avec des investissements initiaux importants, la mise en place de la gestion sociale du développement économique induit et celle des plans de reconversion qui accompagneront la fin de l'opération.

La stratégie d'exploration et de certification des réserves de Variscan Mines a donc été pensée dans ce sens.

2.5.2 Gérer la ressource à l'échelle du district minier

Les minéralisations sont en lien direct avec le sommet d'intrusions granitiques. La zone choisie pour ce PERM prend en compte d'autres pointements dans l'environnement géologique local. Dans ce contexte géologique, il faut également s'attendre à rencontrer des filons périgranitiques associés, dont la paragenèse plus froide peut être enrichie en Pb-Zn-Cu-Ag.

C’est pour la probabilité réelle de trouver ce genre de minéralisation que ces substances apparaissent dans la demande du PERM.

Comme l’ont montré les campagnes d’explorations dans de nombreux districts à coupoles granitiques de la planète, ces découvertes peuvent induire de nouvelles cibles :

- Ces nouvelles cibles peuvent avoir des caractéristiques meilleures que le premier gîte découvert
- Elles peuvent permettre de gérer et d’intégrer sur le plus long terme l’activité extractive dans la région
- L’exploitation simultanée avec d’autres cibles peut optimiser les coûts de production, augmenter la durée de vie de la mine dans le district et générer des économies globales.

Variscan Mines entreprendra donc dès les premières phases de l’exploration une étude exhaustive des cibles minières contenues dans le PERM afin d’optimiser son plan d’exploitation.

2.6 Gérer l’espace souterrain

Produire et livrer ses clients avec un minimum d’équivalent CO_2 est un objectif prioritaire poursuivi par Variscan Mines.

Au développement d’une mine profonde peuvent également s’associer d’autres concepts liés à l’intégration de l’après-mine dès la conception du projet minier.

En effet, une mine souterraine profonde présente les caractéristiques suivantes :

- En considérant un degré géothermique moyen de 3 degrés Celsius pour 100 m d’approfondissement, une mine localisée à 1000 m de profondeur présente une variation de 30 degrés Celsius par rapport à la surface
- Une mine souterraine se compose généralement de plusieurs centaines, voire milliers, de kilomètres de galeries et de travaux développés pour l’exploitation. Une surface souterraine exprimée en km² est ainsi creusée et remblayée, soit partiellement en fin d’exploitation (après-mine classique), soit totalement en cas d’usage de backfilling

- Le remblayage par backfilling se compose de roches et de tailings contenant un fort pourcentage d’humidité qui implique une forte conductivité thermique.

Variscan Mines étudiera la possibilité de « préparer » les chantiers avant leur remblayage par la mise en place d’échangeurs thermiques qui seront « noyés » dans l’opération de backfilling. Les chantiers exploités seraient ainsi convertis en unités de production d’énergie géothermique. Cet apport énergétique contribuerait à améliorer le bilan carbone de l’exploitation durant son activité, et perdurerait à l’exploitation minérale qui se convertirait alors en installation de production d’énergie géothermique.

Variscan Mines envisage de réaliser la totalité des travaux d’extraction et de traitement par recyclage des eaux d’exhaure. L’objectif est de ne renvoyer comme eaux de surface que

l’excédent des eaux de traitement, et cela après les avoir retraitées suivant les normes environnementales en vigueur.

Si l’on envisage l’essentiel du traitement du minerai au fond de la mine, les besoins en eaux de surface de l’exploitation seront réduits au maximum, voire nuls si les venues d’eau liées aux ouvertures de chantiers sont suffisantes.

L’exhaure liée aux chantiers d’exploitation sera quant à elle réduite au maximum. En effet, le backfilling envisagé scelle hermétiquement les chantiers au fur et à mesure de leur avancée et supprime ainsi la quasi-totalité des venues d’eau constatée dans les anciennes mines, qui effectuent souvent un drainage permanent du sous-sol.

Dans tous les cas, ce circuit d’exhaure associé à l’après-mine sera intégré au projet de valorisation géothermique des zones travaillées.

3 Type d'exploitation prévisible : la production souterraine

Le dimensionnement du projet minier ayant pris en compte l'ensemble des ressources du gisement dès les premiers stades de l'estimation, et ces dernières pouvant présenter a priori un développement vertical très important, le modèle d'exploitation à ciel ouvert est alors à écarter.

Au cours du XX^{e} siècle, le principal handicap de la mine souterraine fut les limitations imposées dans la remontée au jour du minerai. Lorsque la profondeur d'exploitation atteignait 500 m et que la seule technique envisageable pour remonter le minerai était le puits d'extraction, la capacité de production de la mine était alors imposée par la capacité de ce puits d'extraction. C'est en réponse à cette limitation que se développèrent les exploitations géantes à ciel ouvert, qui jouant l'effet d'échelle, réussirent à baisser les coûts d'extraction de manière drastique mais au prix d'un impact environnemental colossal, inacceptable dans un contexte social et économique européen.

Dès le début du XXI^{e} siècle, motivée par les contraintes environnementales, une nouvelle approche de l'exploitation souterraine vit le jour : le traitement souterrain du minerai.

Les essais récents réalisés dans ce domaine, montrèrent que loin de diminuer les profits, cette technique pouvait permettre au contraire de diminuer les coûts opératoires d'environ 20 à 25%, et donc d'augmenter les réserves par diminution de la teneur de coupure, tout en réduisant au maximum l'impact environnemental.

L'intégration, dès la conception de la mine, de la réduction maximale de l'impact environnemental et les enseignements tirés d'une expérience de plusieurs années dans le domaine de l'après mine, orientent Variscan Mines vers ce modèle d'exploitation. C'est en effet dans le contrôle de l'impact environnemental que les avantages de cette technique sont les plus évidents. La grande majorité (totalité) de l'opération minière sensu-stricto s'effectue en profondeur, en dehors de la biosphère et avec très peu d'échanges avec la surface. Les opérations prévues dans le pic de la Fourque et ses abords sont en domaine tectonique de socle métamorphisé et fortement plissé. Les seuls aquifère possible dans le massif grano-dioritique et ses abords (métamorphisme de contact) sont imperméables. Seuls des aquifères fissuraux très localisés sont possibles.

4 Le projet CRG (Johannesbourg) : un exemple de production souterraine

Il n'entre pas dans le cadre de ce travail de développer exhaustivement les avantages d'une exploitation minière profonde. Nous nous contenterons donc d'en résumer les principaux atouts en prenant comme exemple le projet développé par Central Rand Gold Limited (CRG) en Afrique du Sud, pour rouvrir d'anciennes mines d'or localisées dans la banlieue sud de Johannesbourg et abandonnées depuis les années 1970 car jugées comme non économiques du fait de leur trop grande profondeur (plus de 2500 m).

Ce projet, qui envisage une capacité de production de 750 000 tonnes de minerai par mois à partir de 2013, montre bien que la production souterraine permet de s'abstraire des contraintes de production classiquement attachées à la mine souterraine. La durée minimum de l'exploitation est prévue sur 15 ans, et les principaux paramètres ayant orienté le choix de ce type d'exploitation sont :

- Suppression du transport de minerai en surface, imposé par la situation de la mine dans un environnement urbain
- Environnement minier superficiel affecté par les anciennes exploitations
- Impossibilité de stocker les résidus du traitement en surface (zone urbaine)
- Coûts induits par les mesures de sécurité en surface et une réhabilitation minière en cas d'installation traditionnelle
- Drainages miniers acides réduits au maximum
- Possibilité de backfilling des chantiers nouveaux et des chantiers historiques (réhabilitation du passé minier)
- Mise en sécurité des anciennes exploitations
- Coûts de transport réduits.

Le projet utilise plusieurs unités de traitement mobiles (Python) construites par la société Gekko Systems Pty Limited. La photo ci-dessous illustre le montage en surface d'une unité de production avant son installation au fond de la mine.



Schéma de l’installation industrielle mobile de type Gekko Python 500 (50 tonnes/heure de capacité).

