IOS Services Géoscientifiques Inc.

THE LAC DORÉ PROJECT
AN INTEGRATED VANADIUM PROJECT IN THE LAC DORÉ COMPLEX
CHIBOUGAMAU, QUÉBEC, CANADA
NI-43-101 TECHNICAL REPORT

Presented to

VANADIUMCORP RESOURCE INC.

VANADIUMCORP
STRENGTH AND POWER FOR THE FUTURE

By

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Project: 991

Ville de Saguenay

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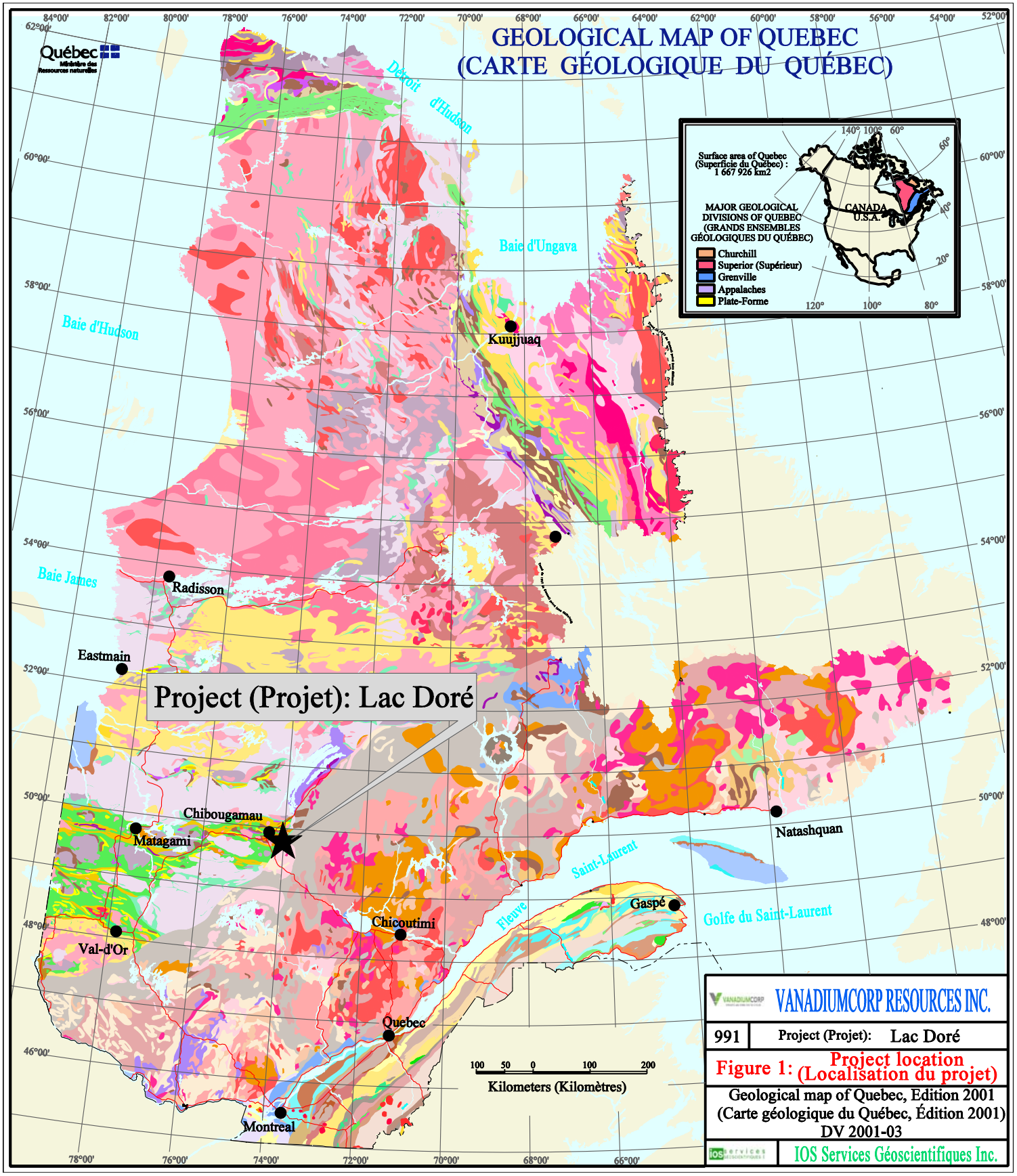
ITEM 1: SUMMARY

The **Lac Doré** project is a vanadium, titanium and iron exploration project covering a group of mineral properties held 100% by VanadiumCorp Resource Inc. in the Chibougamau area, Province of Quebec (***figure 1***). In 2007, Novawest Resources, the former name of VanadiumCorp Resource Inc., acquired the property through conventional field staking, after they were accidentally allowed to lapse by the former owner of the deposit, Lac Doré Mining Ltd., a fully owned subsidiary of McKenzie Bay International Ltd. The following report was prepared in support of VanadiumCorp Resource Inc. for its advancement and financing. It was prepared in compliance with form F-1 of National Instrument 43-101 ("NI 43-101") of the Canadian Securities Administrators to the best of the author's knowledge. The author is considered a Qualified Person independent of VanadiumCorp according to NI-43-101 definitions.

The current report draws upon a former report written by the author on behalf of BlackRock Metals in 2008, itself drawing upon a former "qualification report" written by the author in 1997 on behalf of McKenzie Bay Resources Ltd. The author, who supervised most of the work carried-out under McKenzie Bay, has reviewed all geological data related to the deposit conducted by former management of VanadiumCorp, as well as the related feasibility study carried out for McKenzie Bay in 2002 by SNC-Lavalin, plus all contracts and agreements made by VanadiumCorp relating to this property.

A bankable feasibility study has been completed on the deposit in 2002 by SNC-Lavalin on behalf of the former owner, which has to be now considered as non-current. This study included a mineral resource estimate, also to be considered as non-current. For this very reason, a new mineral resources shall be calculated, and the project can not be considered as being in advance stage until this is completed, despite the thoroughness of the former studies.

The author has long been involved with the **Lac Doré** project, having worked on it intermittently since 1997 and possessing an intimate knowledge on most of the technical aspects related to geology, metallurgy, environment and industrial applications. He was involved as independent Qualified Person on this project since its beginning with McKenzie Bay, supervising the field work, being client advisor in the course of the preparation of the feasibility study, was a technical consultant for BlackRock Metals for a short period, and now involved as technical consultant for VanadiumCorp.


GEOLOGICAL MAP OF QUEBEC
(CARTE GÉOLOGIQUE DU QUÉBEC)
Québec
Ministère des Ressources naturelles
Surface area of Quebec (Superficie du Québec) : 1 667 926 km2
MAJOR GEOLOGICAL DIVISIONS OF QUEBEC (GRANDS ENSEMBLES GÉOLOGIQUES DU QUÉBEC)
Churchill
Superior (Supérieur)
Grenville
Appalaches
Plate-Forme
CANADA
U.S.A.
Détroit d'Hudson
Baie d'Ungava
Baie d'Hudson
Baie James
Kuujjuaq
Radisson
Eastmain
Project (Projet): Lac Doré
Chibougamau
Matagami
Val-d'Or
Chicoutimi
Quebec
Montreal
Natashquan
Gaspé
Saint-Laurent
Fleuve
Golfe du Saint-Laurent
Kilometers (Kilomètres)
VANADIUMCORP RESOURCES INC.
991
Project (Projet): Lac Doré
Figure 1: Project location (Localisation du projet)
Geological map of Quebec, Edition 2001 (Carte géologique du Québec, Édition 2001)
DV 2001-03
IOS Services Géoscientifiques Inc.

The **Lac Doré** vanadium project is located 30 km southeast of the town of Chibougamau, central Québec. The property covers an area of 68 km^2 and consists of 71 posted claims, 16 hectares each, plus one map designated cell of 55 hectares.
Since its acquisition by Novawest Resources in 2007, only a limited amount of exploration work was conducted on the project, including:

- Three ground magnetometric surveys, encompassing almost completely the actual properties.
- Stripping and surface sampling on **Lac Doré North** property in 2008, the data of which is not available.
- A 10 hole exploration drilling program on **Lac Doré North** in 2009.
- A brief channel sampling program in 2012 aiming to duplicate former McKenzie Bay samples on **Lac Doré**, the results of which are not available.
- A four holes confirmation drilling program in 2013 on **Lac Doré**, aiming to duplicate historical drill holes.

The **Lac Doré** vanadium deposit has a protracted exploration history, spanning more than 60 years. It was evaluated by drilling or trenching on numerous occasions through time, by the various past owners. These results are of variable quality, but sufficient to be incorporated into a resource calculation, assuming diligent validation. A total of 54 holes are available on the property, for 15,006 metres[1], of which 5 shall be considered as not usable:

- 1958: Jalore Mining, 5 holes for 773.38 metres
- 1970: MRN, 1 holes for 183.49 metres
- 1973: MRN,9 holes for 914.99 metres
- 1979: SOQUEM, 19 holes for 3425.85 metres
- 1997: McKenzie Bay Resources, 27 trenches for 7225.21 metres
- 2001: McKenzie Bay Resources, 3 holes for 438 metres
- 2002: McKenzie Bay Resources, 3 holes for 450 metres
- 2009: Apella Resources, 10 holes for 995.65 metres
- 2013: PacificOre Mining, 4 holes for 600 metres

The current VanadiumCorp **Lac Doré** property encompasses the former Eastern and Western deposit previously focused on by SOQUEM and subsequently McKenzie Bay, while the **Lac Doré North** encompasses part of the Northeast Extension. Through time, historical resource estimates were calculated on the Eastern and Western deposit, successively by the Québec department of Natural Resources, LMD-Sidam on behalf of SOQUEM, IOS on behalf of McKenzie Bay Resources and finally Cambior which are all

[1] Including some segments traversing onto adjacent properties.

considered as not current and obsolete. A mining reserve was calculated by SNC-Lavalin in 2002 on behalf of McKenzie Bay Resources, which is also considered as historical and non-current by the author. It is in the author's opinion that CIM-Guideline and NI-43-101 compliant resource can be recalculated on behalf of VanadiumCorp, which shall share some similarities with SNC's or Cambior's estimates.

A significant amount of metallurgical testing was conducted on the Lac Doré mineralization. These included both bench scale and pilot plant testing of the grindability and energy consumption, magnetite concentration by magnetic separation or floatation, as well as pelletization. Vanadium production was tested through two different processes, intensive fusion and alkali roasting. Intensive fusion, or intensive reduction, require the smelting of the ore in an arc furnace to produce steel or pig iron and a vanadium-titanium slag, in a process similar to Highveld in South Africa, Pangang in China or RTIT in Québec. A full scale smelting test was successfully conducted at RTIT. The slag was then successfully processed for the production of vanadium pentoxide and titanium dioxide. The second route involves the production of vanadium chemicals as the only product. It involves roasting of the magnetite in presence of soda ash in order to produce a leachable sodium vanadate, which can be refined by conventional hydrometallurgy. Successful tests were made for the production of pure vanadium chemicals for the production of electrolyte.

Alkali roasting capacity is dictated by the size of the rotary kiln, and the maximum size available on the market is currently capable to process about 85 tonnes of magnetite per hour. This would represent a maximum mining rate of 3 million tonnes per year.

VanadiumCorp's intent is to complete a preliminary economic assessment, capitalizing on the the former and non-current SNC-Lavalin feasibility study, focusing on the Eastern deposit. In the author's opinion, this will first require reassessment of the resources. A detailed work program will be proposed once resources are recalculated and details of incorporating applicable data become clear.

ITEM 2: INTRODUCTION

AUTHORSHIP

The report was written by Mr. Girard, professional geologist, assisted by his company's clerical and technical support staff charged with specific tasks. The report is based on publicly available information, including scientific reports, government databases and exploration assessment files, as well as the client's proprietary datasets and on the author's personal knowledge of the deposit.

MANDATE

The author, Réjean Girard, a professional geologist from IOS Services Géoscientifiques Inc. ("IOS"), was instructed by Mr. Adriaan Bakker, President & CEO of VanadiumCorp Resource Inc., to prepare an independent Technical Report ("the report") in compliance with NI 43-101, form F-1, for their **Lac Doré** project ***(figure 1)***. The report is a partial requirement for VanadiumCorp to raise equity financing. The initial discussions between VanadiumCorp and IOS with respect to this mandate began on September 3rd, 2013, and the mandate letter is dated as of November 11th, 2013.

The author authorizes VanadiumCorp to file the report with the *Autorité des marchés financiers du Québec*, the Ontario Securities Commission, the British Columbia Securities Commission, the Toronto Stock Exchange and SEDAR. The report shall present the current status of and all available information on the property for the purposes of making unbiased information available to shareholder's or potential investor's.

VanadiumCorp hold various other mineral exploration properties in the Chibougamau and Matagami areas, which are not considered in the current report.

SOURCE OF INFORMATION

The geoscientific information used in the preparation of this report was extracted from various government reports, predominantly the *Ministère des Ressources Naturelles du Québec (MRNQ)*, internal and consultant reports, corporate documents, from former SOQUEM archives, SNC-Lavalin Inc. feasibility study produced on behalf of McKenzie Bay Resources, and from reports and data produced by IOS under the author's supervision on behalf of McKenzie Bay Resources. All geological data available to VanadiumCorp were provided to the author, in various formats. All of the available data was reviewed by the author. All information released in the present report is publically available. Confidential reports available to the author are mentioned, without being discussed or their contents disclosed.

The author did not conduct an in-depth review of the government information, but he is quite familiar with the regional geology. Historic information was obtained from the archive of SOQUEM in 1997, while the author was acting on behalf of McKenzie Bay Resources. All geological information from McKenzie Bay Resources was collected by the author's team, and is considered as reliable. Information obtained from VanadiumCorp and its precursor was checked in detail from original documents and core, if available.

All agreements and contracts related to the project were provided by VanadiumCorp. Agreements relating to former ownership of the deposits were provided to the author by McKenzie Bay Resources and BlackRock Metals representatives in the course of previous mandates. The good standing of claims was verified with the *"Service des titres miniers"* from *"Ministère des Ressources Naturelles du Québec"* on March 24, 2014, including partial access to the documentation relating to the former SOQUEM-Apella claim dispute relating to the deposit. Various documents relating to the dispute were also provided by VanadiumCorp.

The underlying data supporting the statements made in this report have been verified for accuracy and completeness by the author. No meaningful errors or omissions were noted or are to be expected. The author has personally evaluated the validity of the available sources of information, including those archived and/or listed under the References section, as well as unpublished information acquired by IOS.

The author and his firm have been recurrently involved with this property on behalf of previous owners since 1997.

CONFIDENTIALITY ISSUES

Due to his past involvement in the project with previous owners, the author is bound to some confidentiality issues in regards to information which is still undisclosed by these previous owners pertaining to content of the non-current feasibility study completed by SNC-Lavalin on behalf of McKenzie Bay Resources, parts of which have been kept strictly confidential by the various parties.

Consequently, for the purpose of this technical report, any sensitive information from the SNC-Lavalin feasibility study, which has not been disclosed otherwise, will not be disclosed. Parts of this feasibility study have been disclosed by McKenzie Bay, such as the executive summary[2], and part to the environmental impact study done by Services-Conseils Entraco Inc.[3]

PREVIOUS TECHNICAL REPORTS

The current technical report draws upon a previous version written by the author on behalf of BlackRock Metals in 2008 (Girard, 2008). This report, which has never been made publically available[4], deals with BlackRock's project, which encompasses the South-Western and Armitage deposits, in continuity with VanadiumCorp's deposits. Historically, the deposits owned by VanadiumCorp and BlackRock were all owned by McKenzie Bay Resources and previous owners, and thus share a common history, geology and metallurgy.

The 2008 version of the report itself draw upon a pre-NI-43-101 "Qualification report" written by the author's in 1998 (Girard, 1998), and updated on four occasions (Girard, 2001).

No previous technical report was issued by VanadiumCorp or its former management.

MANDATORY FIELD VISIT

The author made his mandatory field visit on November 20, 2013. No material changes were noted from the 1997-2003 period when most of McKenzie Bay's work was conducted by the author's team. Most sites of work conducted by VanadiumCorp were visited, including stripping and drilling sites. The author also has extensive knowledge of

[2] Available on the internet.
[3] Provided to the author by VanadiumCorp, who obtained it from an undisclosed source.
[4] The author's 2008 report was used as a "frame" for a subsequent technical report issued by BlackRock Metals (O'Dowd, 2009), available as assessment document

the regional geology and logistics pertaining to the project. No significant field work was conducted since the author's inspection, else than an attempt to locate old drill collars with the use of a DGPS and geological mapping of a few old trenches outside the main deposit.

***Picture 1**: Picture of the author taken during his mandatory field visit, standing on the casing left by PacificOre on drill hole LD-13-04b.*

AUTHORSHIP

The current technical report, written in accordance to the instruction of National Instrument 43-101, forms F-1, and represents an opinion based on professional judgement and reasonable care. The conclusions are consistent with the level of details included in this study and based on the information available at the time of writing. The author takes complete responsibility for the content of this report.

The author was assisted by various employees for clerical or technical support. The report draws from previous reports prepared by the author and numerous references. Conclusions in this report are based on assumptions and conditions outlined herein, and are the sole responsibility of the author.

The author authorizes this report to be released into the public domain, and allows the use of excerpts by third parties so long as such excerpts do not alter the meaning of the content of this report.

INDEPENDENCE

The ***Lac Doré*** and ***Lac Doré North*** properties were acquired ("staked") in 2008 under the recommendation of Mr. Glen McCormick, a local prospector, on behalf of Novawest Resources[5], without any involvement by the author. The current mandate is the first the author received from VanadiumCorp or its former management, which he obtained without solicitation. The author was not involved in the acquisition process.

UNITS OF MEASUREMENT

Unless otherwise specified, all units of measurement (distance, area, etc.) are metric, and all monetary units are expressed in actual Canadian dollars. See ***table 1*** for abbreviations.

EM	electromagnetic
GPS	Global Positioning System
kg	kilogramme
m	metre
µm	micrometre
km^2	square kilometre
masl	metres above mean sea level
t	metric tonnes (1000 kg or 2200 pounds)
$	Canadian dollar
US$	American dollar
ppm	parts per million
% V_2O_5	percent vanadium pentoxide

Table 1*: Glossary of units of measurement and abbreviations.*

[5] Novawest Resources subsequently changed its name to Apella Resources, then to PacificOre Mining, and finally to VanadiumCorp Resource Inc, without changes in its structure or consolidation.

ITEM 3: RELIANCE ON OTHER EXPERTS

The author did not rely on other experts for the writing of the current report, and carries the full liability of the report. The author personally validated the information provided by the clients within the limits of its ability. Some contributions were made to Item 24 by Mr. Terry Perles[6], specifically in regards to the Chinese market. The author validated this contribution to the limit of his capability.

Claim status was obtained from *Gestim*, the on-line registry of the Quebec's Department of Natural Resources.

[6] Mr. Perles is a reputed vanadium market expert working for TTP Squared Inc, who is also an advisory board member of VanadiumCorp.

ITEM 4: PROPERTY LOCATION AND DESCRIPTION

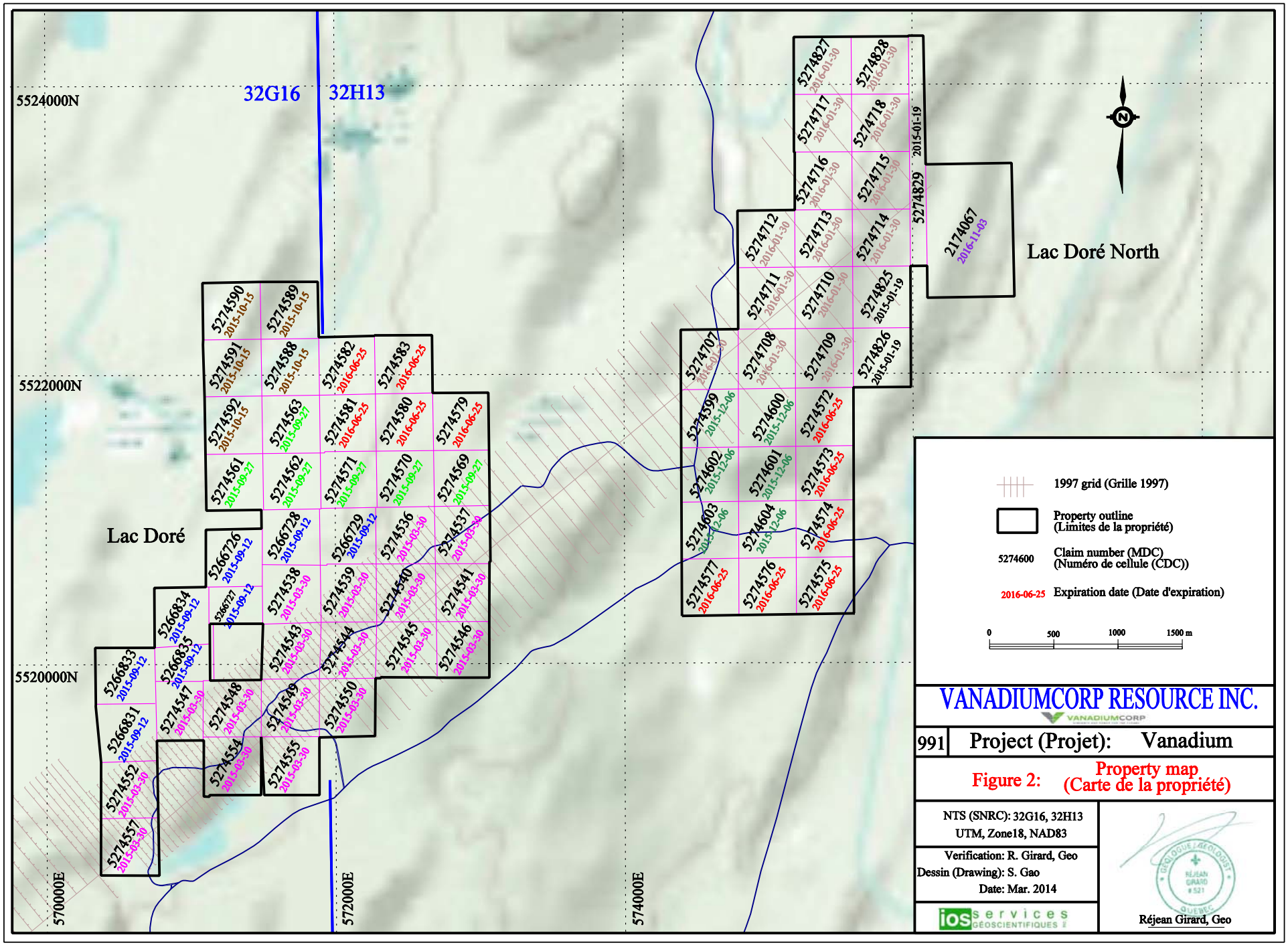
CLAIM LIST

The claim list was obtained from the *Ministère de l'Énergie et des Ressources naturelles du Québec* on-line registry, on March 10, 2014. This list is provided in ***appendix 1***, along with credits and obligations. All the titles are duly registered under the name of Apella Resources Inc. Transfer forms from Apella Resources to VanadiumCorp have been submitted to the Ministry and are pending processing. A claims map is provided in ***figure 2***. A few claims were recently stakes and are pending registration at the effective date.

AREA AND EXTENT

The property covers two discontinuous groups of claims, **Lac Doré** and **Lac Doré North**, separated by a one kilometre gap. They comprise a total of 71 posted (16 Ha) claims *(**pictures 2** and **3**)* plus one map designated cell, covering an overall area of 1161.84 hectares or 11.6 km^2. This property extends over 4.5 kilometres along a northeast-southwest axis, encompassing the former Western, Eastern and part of the North-Eastern deposits.

All claims except one (CDC2174067) are standard posted 400 m x 400 m claims, duly registered under the name of Apella Resources Inc at the *Services des titres miniers* of the *Ministère de l'Énergie et des Ressources Naturelles du Québec* (Intervenant #81845).


32G16
32H13
5524000N
5522000N
5520000N
570000E
572000E
574000E
Lac Doré
Lac Doré North
1997 grid (Grille 1997)
Property outline
(Limites de la propriété)
5274600 Claim number (MDC)
(Numéro de cellule (CDC))
2016-06-25 Expiration date (Date d'expiration)
0 500 1000 1500 m
VANADIUMCORP RESOURCE INC.
991 Project (Projet): Vanadium
Figure 2: Property map
(Carte de la propriété)
NTS (SNRC): 32G16, 32H13
UTM, Zone18, NAD83
Verification: R. Girard, Geo
Dessin (Drawing): S. Gao
Date: Mar. 2014
ios services géoscientifiques
Réjean Girard, Geo

***Picture 2**: View of a group of claim pickets, on the western boundary of Lac Doré property, in contact with BlackRock Metals claims. Picture taken by the author in the course of his mandatory field visit. Notice the marks left on the bark of the tree, which shows overgrowth upon wires, from the previous McKenzie Bay claims. Located on UTMX 570732, UTMY 5518965.*

***Picture 3**: Detailed view of claim plate 5279516, picket #4.Notice the trace of wire holding the former McKenzie Bay picket.*

LOCATION

The **Lac Doré** property is located in Lemoine and Rinfret unsurveyed townships, straddling NTS map-sheets 32G/16 (Chibougamau) and 32H/13 (Lac Mitshisso), about 30 km southeast of the town of Chibougamau, Quebec and 50 km by road (***figure 1***). Its boundaries are latitudes 49°48'54" and 49°51'58" North and longitudes 73°56'15" and 74°01'20" West WGS-84(UTMX: 570316 to 576674, UTMY: 5518516 to 5524285, NAD-83).

CLAIM STATUS

Claims are valid until their renewal anniversaries, the next group being on January 19th, 2015. ***Table 2*** provides the anniversary dates, required credits and renewal fees. A total of $267 601.01 in assessment credits are currently available, enough to secure the next four renewals. The required assessment credits are either $500 or $750 per claim per renewal, depending on the number of renewals they have had, while renewal fees are $28. No exploration work is currently pending registration for assessment.

Exploration titles in Québec are required to be renewed every two years, sixty days prior to their anniversary or up to their anniversary with a penalty. A renewal fee is needed at each renewal. Renewal also requires assessment credits accumulated from exploration expenditures. The management rules of assessment credits are complex. In the current project, assessment credits are rather evenly distributed among the titles and no credit deficiency is expected for the next renewal.

Property	Claims and CDC	Surface	Available Credit	Required Credit	Next renewal
Total	72	1161.84 ha	$267 601.01	$49 300	January 19, 2015
Lac Doré	42	643.69 ha	$178 840.64	$27 000	March 30, 2015
LD North	30	518.15 ha	$88 760.37	$22 300	January 19, 2015

Table 2*: Claim status and expenses.*

STAKING HISTORY

The first ***Lac Doré*** claims were staked in August 2007 by Novawest Resources Ltd. in order to cover the main Lac Doré deposits. Claims to the north and northeast were acquired in the following year.

The first ***Lac Doré North*** claims were acquired in October 2007, in order to cover the Northeastern Extension of the deposit. The rest of the claims were acquired in the following year, depending on when they were relinquished by McKenzie Bay.

Novawest Resources has been active in the Chibougamau area since approximately 2005, in the course of which they acquired a very large land position. VanadiumCorp (formerly Novawest Resources) now owns 221 active exploration titles, most of them picketed claims, scattered into 11 properties in the Chibougamau area (see *Item 23*).

CLAIM DISPUTE #32-1635

Staking of claims over the Western and Eastern deposit took place the morning of August 21st, 2007, at the moment the ground had been opened for staking once the formal delay after revocation of former McKenzie Bay claims was lapsed. Staking of the 21 claims took place simultaneously by representatives of Novawest Resources and GM Exploration, as well as Réjean Picard Exploration on Behalf of SOQUEM. A claims conflict was filed at the *Ministère de l'Énergie et des Ressources Naturelles*, which was brought to an administrative tribunal (*Tribunal des Mines de la Cours du Québec*). Judgment of this tribunal in 2010 attributed various claims to either parties, creating a checkered pattern of properties. Then, Apella Resources (formerly Novawest Resources) brought the case regarding the claims they lost to the Québec Court of Appeal (case #615-02-001687-103), and rendered decision in favor of Apella for most claims on February 23, 2011, executed on March 26, 2011. The actual property outline is based upon this judgement. The delays for SOQUEM to bring the case to the Supreme Court is currently expired, and the judgement is now irrevocable.

The procedure of the administrative tribunal included a field visit by government officials in order to describe the real status of the staking. The visit was conducted on June 8, 2008. The author discussed the issue with the technician who conducted the examination, who subsequently provided the author with a copy of the field report.

Although most of the claims were granted to Apella Resources, claims 5274422 and 5274425 were granted to SOQUEM, who subsequently sold them to BlackRock Metals.

CLAIM IRROVOCABILITY

Lac Doré and ***Lac Doré North*** properties are dominantly made of conventional posted claims, which are notorious for being prone to be put into conflict. However, one year after a posted claim is recorded at the Ministry, or one year after it is transferred, a posted claim cannot be challenged by third party, unless a major staking flaw (such as the absence of posts) is demonstrated. Claims of the ***Lac Doré*** project were audited by government officials in 2008, and are deemed properly staked, rendering them near to unchallengeable by third parties. Other claims were transferred under good faith from both parties, which render the transactions and the related claims irrevocable.

Inversely, once officially registered, map designated cells are near to irrevocable by law so long as the owner fulfills its renewal obligations.

SURVEYING

Claims of ***Lac Doré*** property were staked in the field and their limits were apparently surveyed in 2009. Claims of ***Lac Doré North*** were not surveyed, but posts were located with the use of handheld GPS device, allowing precision of a few metres. To the author's best knowledge; surrounding claims belonging to BlackRock were not surveyed, except for those to the west of ***Lac Doré***.

Map designated cells have by law a pre-established perimeter of 30 seconds of arc longitude by 30 seconds of arc latitude. Therefore no land surveying or claim patenting are needed and no border conflict can be raised on such. Unstaked areas between conventional posted claims and map designated cells, such as surrounding most of the current properties, are restricted as *"staking parks"*, which requires to be staked by conventional post up to the limits of the nearest pre-established map designated cell boundary.

EMBEDDED CLAIMS

An isolated claim (Cl5274422, expiring on March 30, 2015) belonging to BlackRock Metals is enclaved within ***Lac Doré*** property, close to its southwestern end.

An isolated claim[7] (CL5274560, expiring on 2016/02/25) belonging to VanadiumCorp lies between the claims belonging to BlackRock Metals and those belonging to Cogitore Resources, south of the Armitage extension of the deposit, midway to the former Lemoine Mine (Cogitore). This claim is located very close to BlackRock's Armitage deposit.[8]

CLAIM GAPS

Two vacant gaps between claims belonging to VanadiumCorp and BlackRock are discernible on *ministère de l'Énergie et des Ressources naturelles* maps. These gaps were recently verified in the field and staked by on behalf of VanadiumCorp. Their approval is currently pending at the *ministère*.

CLAIMS PENDING APPROVAL

Upon recommendation by the author, a group of 9 posted claims were recently staked and 15 map designated cells acquired to the north of **Lac Doré** and **Lac Doré North** in order to establish eventual tailing ponds and waste piles. Approvals are pending at the *ministère*.

RELATION TO ADJACENT BLACKROCK METALS PROPERTIES

The **Lac Doré** property is totally surrounded by BlackRock Metals claims. To the north and northwest, only one row (400 metres) of posted claims are present. To the southwest, the **Lac Doré** property limit is very close (100-120 metres)[9] to the outline of the mining lease currently applied for by BlackRock, covering the South-western deposit.

Three encroachments along the **Lac Doré** property west border exist from claims belonging to BlackRock. Claim 5279561 is a regular 16 Ha claim which protrude into the property, covering a 400 metres stretch of the Western deposit. Claim 5279517 (expire date of September 18, 2015), is a 0.40 hectare sliver wedged between claims 5274554

[7] Not included on the property's statistics.
[8] The author recommends that the two parties "swap" these two mutually hindering claims.
[9] The gap apparently corresponds to the irregular shaped claims 5277107.

and 5274555, which is not a serious hindrance. Third is claim 5256468, about 4.00 hectares, located north of the deposit, and which is not a hindrance.

BlackRock Metals owns a large continuous property, encompassing a long stretch of the magnetite bearing layers. The property extends for about 14 kilometres to the southwest of VanadiumCorp, including the Southwestern deposit, Armitage deposit, and a thin layer extending close to the Corner Bay mine. To the west, this property is almost adjacent to VanadiumCorp's **Cornerback** property[10]. Their property also includes a 2 kilometres long stretch of the Northeastern Deposit, separating the ***Lac Doré*** and ***Lac Doré North*** deposits.

HISTORY OF THE PAST AND PRESENT PROPERTIES

Claims over the Lac Doré vanadium deposit and its extensions have a long and protracted history spanning half a century, with numerous interwoven liens, involving 13 different companies, entities or individuals.

I. During the period 1955-60, claims were held by Jalore Mining Ltd., and Trepan Mining Ltd., over what is now the known deposit. These claims were allowed to lapse.
II. The Lac Doré vanadium deposit was discovered in 1966 by a Québec government geologist (Dr. Gilles O. Allard). The initial claims covering the deposit (K15501-1 to K15519-1, and K-66552-1 to K66553-1[11]) were staked on September 29th, 1966 on behalf of the Crown by the *Ministère des Richesses Naturelles du Québec*. Québec government completed some drilling and extensive metallurgical tests at government facilities on the deposit.
III. In 1977, the "K" claims were transferred from the *Ministère des Richesses Naturelles du Québec* (MRNQ) to SOQUEM, a Crown corporation with the mandate to explore and develop a mineral resource. The agreement between SOQUEM and MR^{NQ} was not made available to the author, *but no royalty or liability is apparently l*eft to the MRNQ. All relevant archives and reports were transferred to SOQUEM. A limited environmental liability was transferred to SOQUEM with respect to bulk sampling; trenching and waste SOQUEM ceased all activity on the project in 1981, but maintained the 21 "K" claims in good standing until 1997. All other claims transferred to SOQUEM by the Ministère over extensions of the deposits were allowed to lapse.

[10] The Cornerback property, held by VanadiumCorp surrounds the Corner Bay mine buffering claims. This property was not acquired for its vanadium potential, and will not be discussed herein, despite the fact it is partly covering the extension of the aeromagnetic anomaly associated with the magnetite layer.
[11] Claims with "K" in front of their registry number use to represent claims acquired by the Crown.

IV. From 1987 to 1996, claims over the Armitage and S*outhwest deposits were staked by various gro*ups. However, no assessment work was filed.

V. In 1996-1997, McKenzie Bay Resources Ltd. proceeded with a massive staking program in the vicinity of the Chibougamau mining district, including the Armitage extension and the ground surrounding the Lac Doré Vanadium deposit. The claims were staked by Exploration Glen McCormick Ltd. on behalf of McKenzie Bay, and no ties, royalties or liens were brought to the author's attention. The only claims still in good standing of this program are now part of BlackRock Metals property, outside their main deposits.

VI. On January 17th, 1997, McKenzie Bay Resources Ltd. entered into an agreement with SOQUEM over the "K-Claims". This agreement gives an option allowing McKenzie Bay to acquire 50% interest in the claims, free of royalties. McKenzie Bay fulfilled its $1.5 million expenditure obligation with respect to this agreement by October 1997.

VII. In June 1997, McKenzie Bay Resources Ltd. hired IOS as consultant on the project. All archives and reports pertaining to the project were transferred from SOQUEM to IOS on behalf of McKenzie Bay.

VIII. In October of 1997, McKenzie Bay signed a revised agreement with SOQUEM, whereby SOQUEM transferred 100% of its rights over the "K" property, in exchange of a participation (1,000,000 common shares) in McKenzie Bay Resources. No royalty or liability was retained by SOQUEM.

IX. In 1998, McKenzie Bay Resources became a wholly owned subsidiary of McKenzie Bay International Ltd., a United States company dedicated to the development of integrated energy storage systems. The property remained under the name of McKenzie Bay Resources Ltd.

X. In July 1999, Cambior Inc entered into an agreement with McKenzie Bay Resources, for the purpose of acquiring an interest in the project, with Cambior being the operator. The terms of this agreement were not disclosed to the author. In 2000, Cambior, facing financial difficulties, returned the project to McKenzie Bay Resources without completing their commitment and consequently without acquiring an interest. It is unknown to the author if any liens were kept by Cambior on this project.

XI. In 2001, following the recommendation of the author, new claims were acquired by McKenzie Bay Resources for the purpose of securing the ground for infrastructure ("MKBY-2001" claims).

XII. In 2001-2002, SNC-Lavalin Inc. completed a feasibility study on the ***Lac Doré*** deposit with the objective of producing a high purity vanadium based reactant expected to be used for battery electrolyte. A proprietary hydrometallurgical process was developed.

XIII. In July 2003, McKenzie Bay Resources changed its named to Lac Doré Mining Inc, a wholly owned subsidiary of McKenzie Bay International dedicated to the

development of the ***Lac Doré*** deposit. The author does not have access to documents related to the internal transfer and partition within the McKenzie Bay conglomerate. McKenzie Bay International then changed its emphasis and its financial resources towards the development and commercialization of their *WindStor* energy storage system.

XIV. A movable and immovable hypothec over the claims was registered on the May 5th, 2004 by McKenzie Bay International Ltd, the purpose of which is unknown to the author. A full and final quittance on this hypothec has been obtained without restriction on April 10th, 2008.

XV. On October 17th, 2006, claims over the Armitage extension were accidently allowed to lapse by Lac Doré Mining. Hypothec and other liens over this group of claims then became obsole*te.*

XVI. At McKenzie Bay Resources request, IOS arranged the staking of the Armitage extension, which was completed in late autumn 2006. The property was registered on March 26th, 2007 at the *Ministère des Ressources Naturelles et de la Faune du Québec* under the name of Docusciences Inc. Claims were not transferred to McKenzie Bay due to lack of payment and held by Docusciences[12]. No historical liens encumbered these claims.

XVII. In early 2007, a group of mining industry professionals led by Mr. Dave Caldwell, which subsequently became BlackRock Metals Inc., initiated negotiations with Lac Doré Mining Inc. in order to acquire the project.

XVIII. On July 21st, 2007, the "K" claims over the Lac Doré East and West deposits were accidently allowed to lapse without being noticed by Lac Doré Mining. Lac Doré Mining Inc and McKenzie Bay International Ltd however retained ownership of the feasibility study, along with intellectual properties over the metallurgical process, both of which are currently confidential.

XIX. On August 16th, 2007, a seizure brief over all Lac Doré claims was filed at the *Ministère des Ressources Naturelles et de la Faune du Québec* by Groupe-Conseil Entraco Inc. for non-payment of various services. After this seizure, IOS notified Entraco and Lac Doré Mining that the "K" claims had lapsed. This seizure covers the remaining MBKY-1997 and MBKY-2001 groups. All liens on "K" claims were then obsolete. A full and final quittance on this seizure was obtained on June 10th, 2008 from Groupe-Conseil Entraco Inc.

XX. On August 20th, 2007, Novawest Exploration Inc., through its local service provider Exploration Glenn McCormick Ltd., proceeded to stake the Lac Doré East and West deposits, mimicking the former "K" claims. All lines and posts were surveyed. Starting on August 3rd, 2007, Novawest also staked claims adjacent to the north and the northeast of the deposit.

[12]Docuscience Inc. is a corporation owned by the author, which used to be used for staking on behalf of IOS clients.

XXI. Simultaneously, SOQUEM Inc. proceeded with the staking of the same property and challenged Novawest. This dispute, #32-1635, registered on September 5th, 2007, has been pending at the *Ministère des Ressources Naturelles et de la Faune du Québec* for years. SOQUEM and Novawest failed to conclude an agreement in order to resolve the dispute.

XXII. On April 1st, 2008, Novawest Resources changed its name to Apella Resources Inc.

XXIII. On April 25th, 2008, 6945295 Canada Inc., that subsequently became BlackRock Metals Inc., made an agreement with Lac Doré Mining Inc. for the purchase of the remaining 131 claims (MKBY-1997, MKBY-2001) and all intellectual property related to the development of the Lac Doré deposit, including the feasibility study and the proprietary metallurgical process. The vendor certified that all previous encumbrances were clear and obsolete and that no other payments or obligations were related to the claims.

XXIV. On June 16th, 2008, Docusciences Inc. was requested to transfer the Armitage claims to 6945295 Canada Inc., which claims were held in trust as collateral against debt owed by Lac Doré Mining to IOS, the debt eventually was paid in full by what became BlackRock. Consequently, the signed transfer forms were forwarded to 6945295 Canada Inc. The transfer was subsequently completed at the *Ministère des Ressources Naturelles Québec*. No encumbrances are attached to these claims.

XXV. On August 7, 2009, following an out of court agreement between IOS and BlackRock Metals relating to unpaid expenses, IOS agreed to maintain confidential all issues and data relating to Lac Doré for a period of 3 years, ending August 6 2012. Whether IOS was then entitled to use the technical information relating to the Lac Doré project for its own convenience is currently being reviewed by attorneys.

XXVI. On March 26th, 2011, the *Cours d'Appel du Québec* officially and irrevocably granted the claims covering the *"K claims"* to Apella Resources Inc.

XXVII. On May 25th, 2012, Apella Resources changed its name to PacificOre Mining Corporation.

XXVIII. On February 10th, 2012, PacificOre Mining sold the ***Lac Doré*** group of claims to its wholly owned subsidiary, Prestige Mining Corporation.

XXIX. On August 30th, 2013, Prestige Mining's ownership was forfeited and the properties returned to direct ownership of PacificOre Mining Corporation.

XXX. On November 21st, 2013, PacificOre Mining changed its name to VanadiumCorp Resource Inc. with a new trading symbol of "VRB"[13] on the "TSX-V.

[13] *"VRB"* is also the acronym for *"Vanadium Redox Battery"*, an emerging technology which may become an important market for vanadium chemicals.

STATUS OF EXPLORATION EXPENDITURES

Up to the present time, with the exception of the acquisition cost and claim management cost, total exploration expenditures incurred on the property by VanadiumCorp is estimated by the author to be less than $1,000,000.

REMAINING ENCUMBRANCES

To the author's best knowledge, all encumbrances accrued from Lac Doré Mining and previous owners are currently obsolete, due to the expiry of the claims and legitimate restaking by VanadiumCorp. No liens or royalties are reported by VanadiumCorp administration, and no hypothec was recorded at *Régistre des hypothèques du Québec*.

To the author's best knowledge, there are still unpaid amounts by Lac Doré Mining to SNC-Lavalin and SGS-Lakefield. However, since the K-claims were allowed to lapse and that no agreement was ever made between VanadiumCorp and these former, contracted parties, VanadiumCorp is not likely to be held liable for such payments. Negotiations between McKenzie Bay and VanadiumCorp in regards to accessing non-public data pertaining to SNC-Lavalin failed[14].

RIGHT OF ACCESS

The property straddles territories of the Chibougamau municipality, the James Bay municipality (MBJ) and the Domaine-du-Roy regional municipality (MRC). This partition implies that these various jurisdictions will need to be addressed regarding the issuance of permits, according to their respective regulations.

The deposit stands within the limits of the Chibougamau municipality and the James Bay municipality. Any infrastructure construction, such as camps, sewage, and roads, needs to be permitted by the respective municipal authorities in Chibougamau-Chapais, Matagami or St-Félicien. This area is included in the James Bay and Northern Québec Agreement *("Convention de la Baie James et du Nord Québecois")* as well as the subsequent *"Paix des Braves"* treaty between the Québec Government and the Cree nation. It is indicated as "*Terres de Catégories III"*, and shall be therefore free of any encumbrances relating to exploration activities. The deposit lies within traditional trap line #O59, belonging to Mr. Matthew Wapache Sr. from Ouje-Bougoumou, except for its northeastern limit which is within trap line #O57, belonging to Mr. James B. Wapache

[14] Despite the public announcement by McKenzie Bay of such discussions on December 30, 2013, an agreement was never concluded. Legal counsel consulted by the author strongly suggests that McKenzie Bay International relinquished all their rights, including intellectual rights, to BlackRock.

from Ouje-Bougoumou. According to the "*Paix des Braves"* agreement, any intervention affecting traditional trapping, such as logging, needs approval from the trap line tallymans.

About half the claims of the **Lac Doré North** property are located to the south of the watercrest dividing the James Bay and St-Laurent watershed. The area southeast of the watercrest is located in non-organized territories (*"Territoires non-organisés"*) managed by the Domaine-du-Roy regional municipality (*"MRC Domaine-du-Roy"*) in St-Félicien. This area is not included in the James Bay and Northern Québec agreements, and therefore falls under the general regulation of the *Ministère de l'Énergie des Ressources Naturelles Québec* relating to forestry and mining, and under the general regulations of the *Ministère de l'environnement et du développement durable du Québec* pertaining to environmental issues. The area lies within the Nitassinan, the traditional Innu (*"Montagnais"*) territory. A treaty, named the "*Approche commune"* is currently under negotiation between the Innus, the Québec and the Canadian governments.

There is nothing preventing a claim owner accessing his properties. The only permitting required relates to regulations regarding logging activity and access to wet lands. Notice that different permits, and slightly different permitting procedures, are required for intervention in *James Bay* or *Domaine-du-Roy* jurisdictions.

It is required to inform and consult with the First Nation communiry as well as with the local tallyman (ie. Mr. Wapache) concerning any planned exploration work, in order to minimize interference with hunting and fishing activities.

As mineral right owner, VanadiumCorp does not hold any surface rights. However, the claims grant a right of first refusal to obtain such surface rights within the property. In addition, the owner does not hold any rights to water, forest, hunting, trapping or fishing resources.

The property is straddling hunting and fishing zones 17 and 28. Exclusivity is not granted to outfitters or to the First Nations. No outfitters' camp is known to the author in the vicinity, and no hunting or fishing cabins were noted in the vicinity.

VanadiumCorp does not retain any rights to hydraulic, forestry, cynegetic or halieuthic resources. There are no rivers with hydraulic potential in excess of 225 kW within or near the property, to which restrictions could apply.

SURFACE LEASE

The land where McKenzie Bay built its exploration camp in 1997, located at the western end of Lac Laugon, was leased from the *Ministère de l'Énergie des Ressources Naturelles du Québec*. This lease for industrial purpose, #212545, was maintained by McKenzie Bay Resources and its successors, and was transferred to BlackRock Metals in 2008. The drill core, which was stored on this side, was recovered by BlackRock Metals and apparently secured, and the site cleaned except for the removal of the septic tank *(**picture 4**)*. The current status of this lease needs to be verified.

***Picture 4**: View of the former Lac Laugon camp and industrial land lease #212524, as rehabilitated by BlackRock Metals in 2008.*

LEASE AND BAUX

No "*bail non-exclusif sur les ressources de surface"*, or lease for earth and gravel, is currently valid within the property, although gravel pits are present. No mining lease or any other lease in regards to mineral resources was ever active within the property. No evidence of any undeclared mineral exploitation was noted by the author.

PERMITTING

With respect to the exploration work, permitting is required for:

- Setting-up a temporary or permanent camp. The permits are available at Chibougamau or James Bay municipality without difficulty.
- Logging required in order to access drill site and clear drill pads, which needs to be requested from the forestry department of the *Ministère de l'Énergie et des Ressources Naturelles du Québec*. For such, the Ministre must obtain approval from the Tallyman, according to the "*Paix des Braves"* and if one considers that less than 90% of the trap line was harvested, no difficulty is expected.
- Trenching in excess of 50 square metres requires a special permit from the Environment ministry (*MDDEFP*), and a rehabilitation plan may be requested.
- Extraction of more than 50 tonnes of ore from a claim requires a special permit from the Natural Resources Department. Although no difficulty is expected, there may be a request for a restoration plan.
- Drilling on lakes, to be requested from Environment Canada. No difficulty is expected.
- Establishing a temporary camp requires a construction permit from the James Bay Municipality and must be compliant with the MDDEFP regulations, CSST regulations and MAPAQ regulations.

ENVIRONMENTAL LIABILITIES

To the author's best knowledge, there are two known environmental liabilities left by McKenzie Bay Resources. These liabilities are not legally transferable to VanadiumCorp, although a proactive attitude is expected. The first one is the reclamation plan in regard of stripping done in 1997. A set of 36 trenches, for a total length of 8538 metres, of which 32 are located on the actual ***Lac Doré*** property, were dug on the deposit. Since this stripping exceeded the 10,000 cubic metres limit, McKenzie Bay was requested to file a reclamation plan in order to obtain its permit. According to this plan, McKenzie Bay has to fill back any digging in excess of 1 metre depth, and to replace top soil upon it. Second, McKenzie Bay had the liability in regard of the surface lease, thus to clean the

site, remove sceptic tanks and reclaim any soil contaminated by hydrocarbons. This reclamation was done by BlackRock Metals, with the exception of the septic tank removal. The cost of the trenches rehabilitation was estimated in 1997 at $18,510, or $35,000 in today's dollars.

ENVIRONMENTAL RESTRICTIONS

There are no sensitive breeding or spawning habitats known to the author or reported in the former McKenzie Bay environmental assessment study. There is no area where mining activity is restricted in the vicinity of the project, the nearest ones being the urbanized part of the town of Chibougamau and the *"Catégorie I"* land from Ouje-Bougoumou and Mistassini.

The Ashuapmushuan wildlife reserve (*"Réserve Faunique de l'Ashuapmushuan"*) is located about 20 kilometres to the south of the property, while the Assinica, Albanel, Mistassini and Waconichi Lakes wildlife reserve (*"Réserve faunique d'Assinica et des lacs Albanel, Mistassini et Waconichi"*) is located about 40 kilometres to the north. There is no severe restriction with respect of exploration activity within these reserves. A series of small preservation areas (*"Refuges biologiques"*) are withdrawn from mineral exploration about 11 kilometres to the northwest, which shall not be considered as a hindrance.

Any mining or industrial activities conducted near a direct tributary to Chibougamau Lake, such as near the Armitage Lake, may face opposition from native communities or environmentalist.

HISTORIC ENVIRONMENTAL IMPACT STUDY

In 2002, McKenzie Bay International commissioned Groupe-Conseil ENTRACO Inc. ("ENTRACO") to perform an environmental assessment as part of the feasibility study (Archambault et *al*, 2002). This assessment included numerous aspects, among which a social and economic assessment, ecotoxicity, and baseline survey, with respect to surface water quality, biological sensitivity, and more for the area covering the main deposit as well as the surrounding area affected by infrastructure. No natural contamination by vanadium was detected. This element is considered to be practically insoluble in water, does not significantly bioaccumulate and is only moderately toxic. It was clearly stated in this study that "*Le procédé d'extraction et de raffinage du minerai ne montre pas de problèmes environnementaux qui pourront compromettre son développement" (Dressing and refining process of the ore does not carry any environmental issues that can be a hindrance to the project development)*.

It is considered by the author that most of elements contained in this environment impact study are still valid. Some aspects, especially those related to the access corridor, were included in BlackRock Metals environmental study, and covered by their authorization certificated granted by the *Ministère du Développement durable, de l'Environnement et des Parcs.*

There are no exceptional environmental restrictions attached to the territory of the **Lac Doré** project. Only the usual *Ministère du Développement durable, de l'Environnement et des Parcs du Québec* rules and items included in the James Bay and Northern Québec Agreement apply.

The author has not noted any exceptional ecosystems within the property, such as a full-grown ancestral forest.

ADEQUACY OF SIZE

The property of the ***Lac Doré*** Project is marginally vast to secure the space required for any eventual mining operation. Additional ground shall be acquired to the north in this respect.

ITEM 5: ACCESSIBILITY AND PHYSIOGRAPHY

PHYSIOGRAPHY

The ***Lac Doré*** deposit is located on a northeasterly trending hill culminating at a 530 metres elevation, limiting the Lac Doré lowlands to the north which have an elevation of 410 metres. A relief, reaching 120 metres, is therefore present at the site. The mineralized zone extends parallel to the stratigraphy, as expressed by the crest of the elongated hill *(**picture 5**)*.

The property is located along the line of height of land between the St-Lawrence River to the South and James Bay to the North. Drainage to the north of the watercrest flows toward Chibougamau Lake, via Villefagnan and Armitage rivers. Drainage to the south of watershed flows toward Lac St-Jean, by way of the Boisvert River. No large lake is present on the property, the largest being Laugon Lake to the Southwest. The property is well drained, with limited bogs and swamps on its southern limit.

***Picture 5**: View from the East deposit looking north. In the far ground we can see hills behind the town of Chibougamau, with the Chibougamau Lake just in front. Campbell mine shaft used to be visible from this location.*

***Picture 6**: View of logging road along the crest where the East and West deposits are located. Outcrops of anorthosite are visible on both side. The area was logged about 30 years ago.*

VEGETATION

The property is covered by second growth commercial taiga forest, dominated by black spruce (*Picea mariana*) and poplar (*Poplar Trembuloides)*. Vast strands of alders (*Alnus incana)*, white willows (*salix sp.)* and birches (*Betula paperyfera)* cover an area with poor drainage, such as southeast of the deposit. Ericaceae are diverse and locally abundant. Most of the property was logged and reforested in the last 3 decades ***(picture 6)*** and very little commercial mature forest are left for logging.

FAUNA

Large mammals are limited to moose and occasional wolf and black bear. Reindeer *(caribou forestier, a threatened species)* or white-tail deers *(chevreuil)* are not reported. Hares, ptarmigans, grouses, foxes and beavers are commons. Fishes are dominated by trout, bass and pikes. A detail inventory is available in Entraco's report.

CLIMATE

A cold continental climate prevails in the Chibougamau area. It is characterized by warm summers (15^{o} July average) and cold winters (-20^{o} January average). Average annual

precipitations are in the order 919 mm of water, with prevailing winds from the West. Snow is present typically from late October to early May.

ACCESS

The property is accessible from the paved highway number 167 between Chibougamau and St-Félicien (Lac St-Jean). At kilometre 197, access is provided by the forestry road number #210 (known as "*Chemin de la mine Lemoine"* or *"Chemin Gagnon Frères"*). A network of poorly maintained forestry road access the property at different locations from the Lemoine road. Some upgrading or maintenance will be needed on these roads for proper regular access. A distance of about 85 kilometres separates the centre of the property from the town of Chibougamau. The property can also be reached from the north by way of another gravel road (locally known as Cigam road).

The former Lac Audet railroad siding of Canadian National Railways' Chibougamau-St.-Félicien line is located about 40 kilometres from the property, following the forestry road. A seaport is available at La Baie (Port-Alfred), 400 kilometres southeast along the railroad. A commercial airport is located between the towns of Chibougamau and Chapais, about 60 kilometres from the property.

Most of the property is within the range of cellular phone towers.

SERVICES

The cities of Chibougamau and Chapais, a copper and gold mining center, have a combined population of 11,000 residents, plus the Cree community of Mistassini and Ouje-Bougoumou with a population of about 3,000 residents each. Besides mining, the local economy is based on lumbering and sawmills and is currently healthy. Social, educational, commercial, medical and industrial services, as well as a helicopter base, airport and seaplane base are available at the town site, as well as forestry and mining offices of the *Ministère de l'Énergie et des Ressources Naturelles du Québec*.

Chibougamau being a mining community, abundant and skilled manpower as well as equipment is available, and is well served by heavy equipment service and maintenance providers.

INFRASTRUCTURE

No infrastructure except for the poorly maintained logging roads are present within the property. No infrastructure was left on Lemoine mine site after its reclamation. No infrastructure was left at the Gagnon Frères sawmill, at Audet Lake siding.

The property lies about 40 kilometres along a maintained gravel road, locally refered as *"Chemin Gagnon-Frères"*, connecting to paved highway number 167 at KM-198. Daily buses and road carrier trucking are available in Chibougamau. The Canadian National Railway line (*CFILNQ)* and the Hydro-Québec 161kV power line are located along Highway Q-170. Bi-weekly railroad freight service is currently available, linking the North American rail network, although the traffic density is low and track not well maintained. Loading facilities are available in Chibougamau. Water is plentiful.

There is no mining infrastructure currently available within the **Lac Doré** property. Infrastructures were announced to be built on the adjacent BlackRock Metals project, including a rail spur[15], a power transmission line and a road[16], which might become available for sharing to VanadiumCorp.

[15] Since the BlackRock spur line will be connected to the Canadian National network, it will automatically have a Federal charter, and be a *General Carrier*.

[16] The access road to the BlackRock project is to be built on Crown lands, and therefore access cannot be declined to any third party.

ITEM 6: EXPLORATION HISTORY

The ***Lac Doré*** vanadium deposit has sustained a protracted exploration history, spanning almost 70 years. The amount of data available to the author is immense. Over 200 studies and reports, filling a complete bookshelf cabinet, both confidential and available to public, dealing with geology, assaying, metallurgy, market and technico-economical issues are available to the author. Therefore, the review of historical work will freely encompass both the main deposit and its extension as covered by the current project and all references will not be necessarily described in detail.

According to tradition, each of the succeeding owners or operators started their work with geological mapping and ground magnetometry. The largest effort in this regard was conducted by McKenzie Bay Resources in 1997 on the main deposit, and subsequent years for its extensions. The details available from this effort supersede the work by previous owners, which will be here considered as obsolete and of little use. These previous campaigns will not be here described in detail here.

ASSESSMENT AND GOVERNMENT WORK

The property being located in the vicinity of a historic mining district, abundant government and academic literature is available. More than 400 government and university reports and maps are available for NTS 32-G-16 and 32-H-13 map-sheet, as well as more than 2000 assessment files submitted by exploration companies. A thorough review of all literature is not considered relevant to the current report. The most relevant governmental work is considered to be those of Allard (RP-567 1967; RP-566, 1969; RP-589, 1970; and DPV-759, 1981) who mapped and described the magnetite series of the Lac Doré anorthositic complex, and from which Dr. Allard predicted the vanadium occurrence. A regional compilation of the complex was prepared by Daigneault and Allard (1990, MM-89-03).

EARLY EXPLORATION WORK

In 1948, Dominion Gulf discovered the magnetite deposit after an aeromagnetic survey (GM 1028, 3640, 3873). It is reported (GM 8571) that they conducted field work from 1954 to 1956, including geological mapping, trenching, sampling and some geophysics.
From 1957 to 1959, Trepan Mining Corporation Ltd. explored the aeromagnetic anomaly for its potential as iron ore. Trepan conducted geological mapping, a ground magnetometer survey and three diamond drill holes. Drill hole locations are not available, although they are suspected to be near the former forestry road leading to Armitage Lake, and vanadium was not assayed (GM 06047, GM 06482, and GM

10012). These drill holes being located outside the current property, will not be discussed.

Subsequent exploration work by Jalore Mining (a subsidiary of Jones and Laughlin Steel from Pittsburgh) and Continental Ore Corporation included a "dip-needle" (ground magnetic) survey, six diamond drill holes and some metallurgical testing form a 1,000 tonnes bulk sample (GM 27165, GM 07301, GM 8571, GM 08572, GM 03640, GM 11061, GM 04411, GM 04653). The property was dropped because of the high titanium content rendering it unsuitable as iron ore. The core from the six holes is considered as lost[17] and the accurate coordinates of each drill hole is unknown. The core was not assayed for vanadium by Jalore, but subsequently was by the *Ministère des Richesses Naturelles* in 1970. This work is considered as of little use.

WORK CONDUCTED BY THE "MINISTÈRE DES RICHESSES NATURELLES DU QUÉBEC"[18]

The vanadium content of the titanium rich magnetite layers was indicated by Dr. Gilles O. Allard (1967, 1967b), at that time working for the Quebec Department of Natural Resources. The deposit was then staked on behalf of the Crown. From 1966 to 1975, the following work was completed:

- Geological mapping (Gobeil, 1976; Assad, 1968).
- Line cutting and surveying (Gobeil, 1976).
- Ground magnetometric survey.
- Bulk sampling.
- 13 exploratory diamond drill holes (Avramtchev, 1975, Assad, 1968), of which two are on the Southwest deposit (BlackRock project).
- Numerous metallurgical tests, both for alkali roasting and steel-slag smelting.
    - Cloutier *et al*. 1971;
    - Castonguay, 1975a, 1975b;
    - Boulay and Rubenicek, 1969;
    - Assad, 1967, 1968;
    - Canmet, 1976;
    - CRM, 1979;
    - QIT, 1978;

[17] The author did search for this core extensively without being capable to locate it. However, there is a mention in Cambior's report of vanadium assays on this core, suggesting that Cambior was capable of locating it. However, the Cambior technical team was dismantled since, and new searches to locate the core by the author were not successful.

[18] *Ministère des Richesses naturelles* is the denomination used in 1970' for the current *Ministère de l'Énergie et des Ressources Naturelles.*

  - CRIQ, Union Carbide, IRSID (France), Ontario Research Foundation, 1975.
- Preliminary resource estimates (Kish, 1971, Cloutier, 1971, Avramtchev, 1975).

Geological mapping and ground magnetic surveys conducted by the MRNQ are considered as being superseded by the more detailed McKenzie Bay Resources surveys, as part of the drilling and metallurgical work discussed in the following sections.

Resource calculations (***table 3***) were initially done fist by Assad (1968) and then by Kish (1971) and Avramtchev (1975), using section models, by geologists not specialized in resource estimations. ***These predate the National Instrument 43-101, and are thus not compliant with CIM guidelines, and are provided only because they were mentioned repeatedly in the literature. These resource calculations are now considered as obsolete, and should not be relied upon. They were not verified or updated by a qualified person, are not considered as current by the author and shall not be so by the issuer.*** These resources aimed co-production of iron, titanium and vanadium and thus encompass the magnetite rich P2 zone. Resources on the South-West deposits are based on 3 holes only and extrapolated to a depth of 160 metres (500 feet) on the basis of the ground magnetometer survey (area extend over 35 000 γ). These resource estimations are provided as historic reference only.

Author/Deposit	Tonnage	% V_2O_5	Category
Assad 1968	70 Mt	0.50%	Inferred
Kish 1971; Total	72.3 Mt	0.50 %, 40 %	Indicated
Kish: Eastern Deposit	28.2 Mt	0.52%[19]	Indicated
Kish: Western Deposit	21.6 Mt	0.48%	Inferred
Kish: Southwestern Deposit	22.5 Mt	0.48%	Inferred[20]
Avramtchev 1975 Total	72 Mt		
Avramtchev: Eastern deposit	22.7 Mt	0.63%	"Minable"

Table 3*: Historic MRNQ resource estimate,* ***non-current nor compliant*** *to CIM guidelines.*

The dollar value of geological and metallurgical work carried out by the government has not been accurately assessed, but can be estimated at more than 5 million in 2014 adjusted dollar value.

[19] Grade calculated from CRM assays are comparable to actual assays.
[20] Under the current standard of disclosure, it is in the author's opinion that these shall not been considered as resources at all.

WORK CONDUCTED BY SOQUEM

The ***Lac Doré*** vanadium project was transferred to SOQUEM, a Québec crown corporation, in 1977. This corporation did some geological work until 1979 until a resource was recalculated, SOQUEM then carried out additional metallurgical testing until 1980. In 1981, SOQUEM abandoned the development program due to a weakening vanadium market.

- Exploration work:
  - Geological mapping: 1.1 km^2
  - Line cutting: 39.1 km
  - Magnetometer survey: 34.3 km GM 36034
  - Gravity survey: 17.5 km GM 36034
  - 19 diamond drill holes; 3325 m. GM 36918
  - Resource calculations GM 36918
  - Pit design, LMBDS-Sidam 1981

- Metallurgical tests:
  - Pellet testing: GM-33840
  - Ti-V recovery: Hatch, 1980, Rautaruukki, 1980, CRM, 1981

SOQUEM's expenditures on the project have not been revealed, but its replacement value is evaluated to be at least 2 million dollars.

A first resource estimate was done by SOQUEM in 1980 for the Eastern deposit, based on their drilling (Dion, 1980). ***SOQUEM estimation predates the NI-43-101 regulation, and therefore do not fully comply with the CIM guidelines and are by no means considered as current. They were not verified or updated by a qualified person, are not considered as current by the author and shall not be so by the issuer.*** The calculation were made manually and rigorously with most details revealed. Estimates were made by calculating volumes of blocks surrounding each holes with average grades. Block geometry took account of the faulting and other stratigraphic discontinuity. Density variation was considered. Resources were considered as "indicated" only, located between sections 36+00 and 43+50 of the East deposit only. These resources are provided as historic reference only (***table 4***).

Line	Tonnage	% V_2O_5	Category
36+00 to 43+50E	46.4 Mt	0.53%	Indicated
		34.59% Magnetite at 1.39% V_2O_5	

***Table 4**: Historic SOQUEM (1980) resource estimate on the East deposit, **non-current and non compliant** to CIM guidelines.*

Resource calculation and pit design were made by LMBDS-Sidam (1981[21]), a Montreal based engineering firm specialized in mining *(**table 5**)*. **These predate the NI-43-101 regulation, and therefore do not fully comply with the CIM guidelines**, although they were conducted by an independent firm and were considered at the time as robust and reliable. ***LMBDS estimates were not verified or updated by a qualified person, are not considered as current by the author and shall not be so by the issuer.*** The aim of this study was to assess the economic potential of a co-production of iron, titanium and vanadium, and thus calculation encompasses mainly the magnetite rich P2 and P3 units, but only from the Eastern deposit. The bulk of the resources lies within sections 36+00 and 43+50 of the East deposit only. These resources are presented as historic reference only. It is to be mentioned that LMBDS-Sidam recommended supplementary in-fill drilling, for 21 holes or 2,385 metres, which drilling was never conducted by subsequent owners, despite the subsequent production of bankable feasibility studies.

Line	Tonnage	% V_2O_5	Description
33+50 to 36+00E	*6.3 Mt*		*Indicated (2 ddh)*
36+00 to 43+50E	*32.2 Mt*		*Measured*
43+50 to 46+50E	*8.5 Mt*		*Indicated (4 ddh)*
Total	*47.0 Mt*	*0.57%*[22]	*70% Measured*

***Table 5**: Historic LMBDS-SIDAM (1981) resource estimate on the East deposit, **non-current and non-compliant** to CIM guidelines.*

From 1983 to 1989, the project was reviewed and evaluated by various groups on behalf of SOQUEM:

- 1983: CRM (Malensky and Castonguay, 1983).
- 1989: Hydro-Québec (Unsigned, 1989).
- 1989: Société Générale de Financement (Vallée, 1989).
- 1989: Hatch and Associates (Lachapelle, 1989).

[21] No author indicated and no signature on the report.
[22] Grade calculated using Chimitec analysis, 13% relative lower than actual analysis. See subsequent items for a thorough discussion.

WORK CONDUCTED BY McKENZIE BAY RESOURCES LTD.

IOS, on behalf of McKenzie Bay Resources Ltd., conducted a large stripping and sampling program in 1997 over the Southwest, West and East deposits (Tremblay et *al*, 1998). This campaign included the following:

- Line cutting, a ground magnetometer survey and detailed geological mapping over 70 km.
- Stripping and detailed mapping of 36 trenches for a cumulative length of 8,650 metres *(**pictures 7** and **8**)*
- Sampling and assaying of 1,734 samples (3 metres long) for a total of 4,486.7 metre of diamond-saw cut channels.
- Structural mapping and analysis (Lamontagne, 1997 in Tremblay et *al*.)
- Analytical QCQA (Girard, 1997; Bédard and Girard, 1998)
- Ore microscopy and microprobe analysis (Lamontagne, 1997; Lamontagne et Lavoie, 1997; Bédard, 1998 in Tremblay et *al*., 1998).
- Various markets, processing and economic review (Girard, 1997).
- No metallurgical testing was carried on behalf of McKenzie Bay within this program.

The 1997 work program, done on the behalf of McKenzie Bay Resources, cost 1.5 millions dollars.

Using assays from the trenching, a simplistic resource calculation was then attempted by the author (Girard 1997)***. This non-compliant resource calculation predated NI-43-101, and shall thus be considered as obsolete and not current. They were not verified or updated by a qualified person, are not considered as current by the author and shall not be so by the issuer.*** It was reported by stratigraphic units and expressed as tonnes per vertical metre, extrapolating downward the results obtained at surface (***table 6***). Resources were categorized based on spacing of the trenches, and no validation with results from drill holes was made. **This estimation method would not be acceptable under current NI-43-101 regulations and CIM Guidelines.** However, it is reported here and there in literature and press releases disclosing such, and is provided here only for the purpose to document the history of the deposit. A mining life was calculated, using a mining rate of 8000 tonnes per day.

Unit	V_2O_5 head grade	Tonnes per vertical metre
P0	0.194% V_2O_5	240,000 tonnes per vertical metre
P1	0.34% V_2O_5	430,000 tonnes per vertical metre
P2	0.486% V_2O_5	952,000 tonnes per vertical metre
P4	0.163% V_2O_5	331,900 tonnes per vertical metre

***Table 6**: Historic superficial resource estimated by stratigraphic unit (Girard 1997). These estimates are **not current and not compliant** to CIM guidelines.*

Resources extrapolated down to a depth of 100 metres are presented in ***table 7***.

Class	Tonnage	V_2O_5 Grade Mining live
Measured resources:	32.2 Mt	0.65% 13 years
Indicated resources:	67.8 Mt	0.486% 27 years
Measured + indicated:	100 Mt	0.486% 40 years
Inferred resources:	374 Mt	0.45%

***Table 7**: Historic resource extrapolated from McKenzie Bay surface work (Girard 1997). These estimates are **not current and not compliant** to CIM guidelines.*

So-called *"inferred resources"* were extrapolated from geophysical data plus only a few trenches over the Armitage and Northeast deposits and shall be considered as meaningless.

***Picture 7**: Mechanized stripping done by McKenzie Bay in 1997.*

***Picture 8**: Trench 19+00E on the West deposit, which was cleared and cleaned very wide to provide an impressive view of the mineralization. See the pick-up truck for scale.*

During the period from 1998 to 2001, various brief field programs were carried by IOS on the behalf of Mckenzie Bay over the Armitage and Northeast extensions, for the purpose of assessment credits. This work is mostly included in the extension of the historical deposits, the Armitage extension toward the Southwest. Scattered in numerous partial reports, it includes:

- 1998: Line cutting (14.8 km), ground magnetometer survey and geological mapping over the Armitage extension (Lamontagne, 1998).
- 1999: Stripping of two trenches on the Armitage extension (Boudreault, 2000).
- 1999: Line cutting (23.1 km), ground magnetometry, and geological mapping over the northeast extension. This campaign also included detailed mapping of 5 trenches dug in 1997 (14+00w to 24+00w) over the Eastern deposit (Villeneuve, 1999).
- 2000: Line cutting (21.2 km), geological mapping and ground magnetometer survey over the south-western extremity of the Armitage extension (Boudreault, 2000). This campaign also included mapping, channel sampling (116.2 m.) with diamond saw and assaying (59 samples) of the two trenches excavated in 1999.
- From 1997 to 1999, IOS Services Geoscientifiques Inc made a series of ground magnetometer surveys covering the whole strike of the deposit *(**figure 3**)*. These surveys, made with analogical flux-gate magnetometer,

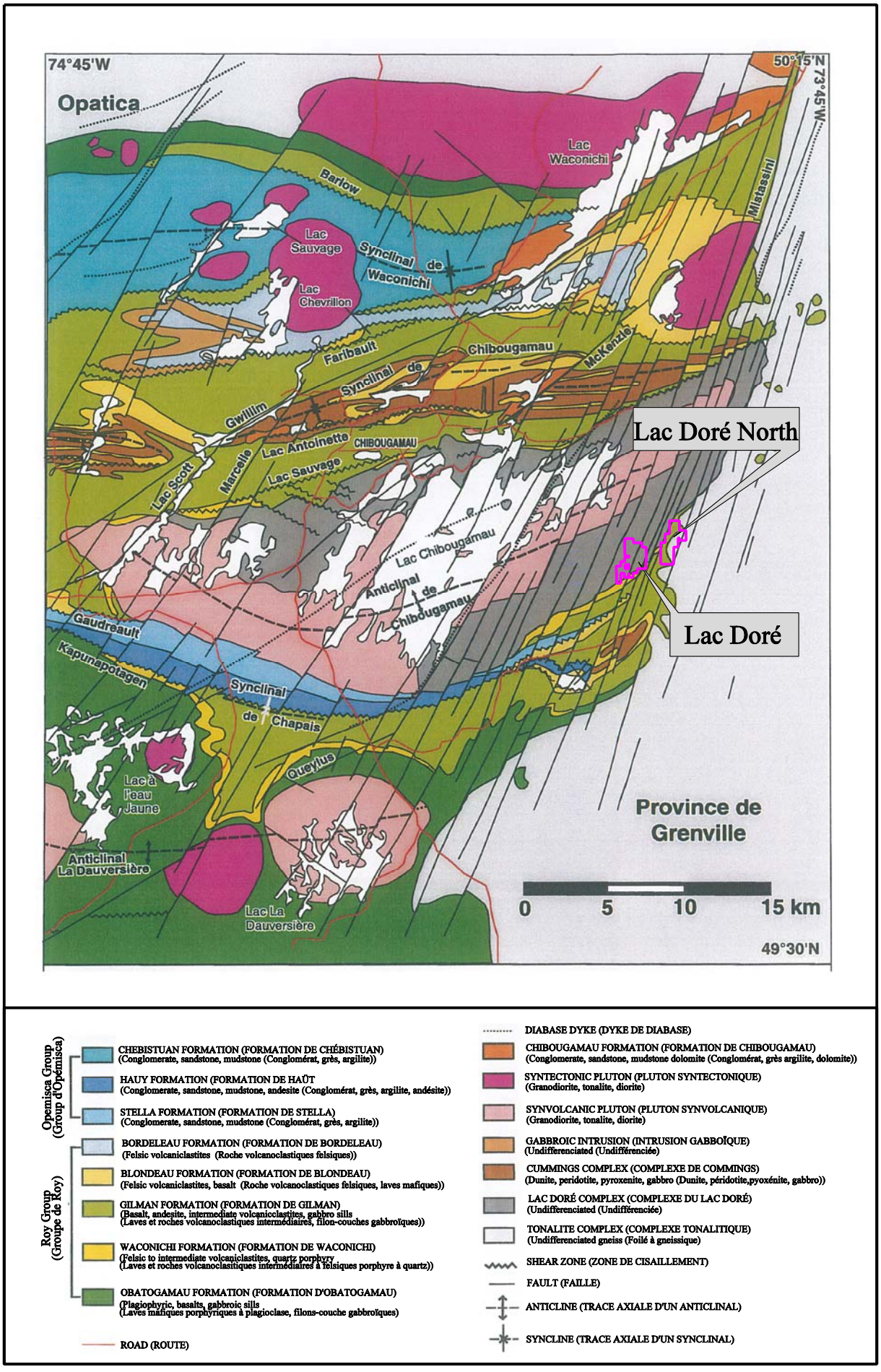


Figure 3: Geology of Chibougamau region, Quebec (after Daigneault et Allard 1996)

are not properly levelled and must be used with care. They were helpful in selecting trenching and drilling sites. However, they are not reliable enough to make comparisons between the various parts of the deposit or to allow a reliable structural interpretation. The poor quality of these surveys spurred the commissioning of the high resolution airborne survey by BlackRock Metals.

From 1998 to 2000, the following metallurgical tests were carried out for McKenzie Bay Resources by the author:

- Review of the historical metallurgical tests (Girard, 1998).
- Crushing, work index and liberation of magnetite (Lamontagne, 2000).
- Design of an optimum magnetite recovery process with Davis tube for a routine separation protocol. (Girard, 2000).
- Distribution of vanadium among oxide and silicates minerals (Girard, 2000).

In 2001, a drilling campaign was carried out by IOS on the behalf of McKenzie Bay, aside of the then ongoing feasibility by SNC-Lavalin conducted at the same time (Huss, 2003). This campaign included 14 holes for a total 2,187 metres of drilling, distributed as follow:

- Northeast extension: 7 holes 1,016.7 metres
- Southwest deposit: 1 hole 153 metres
- Armitage extension: 6 holes 1,017 metres

A total of 166 samples were split and submitted for Davis tube tests and magnetite concentrates were assayed. This drilling program was organized jointly with the Mistissini School Board and Chibougamau Diamond Drilling Inc as part of a training program for natives to become drillers.

Of these holes, one is collared within the current ***Lac Doré North*** property, and two on ***Lac*** Doré property, for a total of 438 metres and 34 Davis Tube tests.

The value of the work conducted by McKenzie Bay Resources, excluding the SNC-Lavalin feasibility study as well as the work conducted on the Armitage, Southwest and Northeast deposits is evaluated at 2 million dollars.

WORK CONDUCTED BY CAMBIOR INC.

Within their option agreement, Cambior[23] completed a pre-feasibility study. The author was impressed by the quality and thoroughness of this work, which included:

- Preliminary resource calculations and pit design.
- Market study for vanadium pentoxide and ferrovanadium (Taylor, 1998).
- Financial analysis (Services Techniques, unsigned, 1999).

Subsequently, the following work was carried out, until financial difficulties forced Cambior to withdraw from the project:

- Detailed geological re-mapping of all trenches and re-logging of the core, including a due diligence and liability assessment (Magnan, 1999).
- Davis tube testing (contracted to IOS, Villeneuve, 1999) and magnetite concentrate assaying, as well as magnetite content measurement using a *"Satmagan".*
- Preliminary environmental assessment, contracted to *Entraco Groupe-conseil* (Unsigned, 1999).
- Very thorough analytical testing to corroborate accuracy of assays and grade assessment (Crépeau, 2000). This verification confirmed the extent of the quality and robustness of available analyses.

Cambior calculated a resources estimate on the East and West deposits *(**table 8**)*. ***Although predating the implementation of NI-43-101 regulations, Cambior's resource estimate is almost, although not fully, compliant with NI-43-101 requirements, and cannot be considered as current. They were not verified or updated by a qualified person, are not considered as current by the author and shall not be so by the issuer***.

Cambior's estimation was carried-out by an experienced engineer. Computation was made using 10 metres blocks and inverse square interpolation, Whittle-4D pit model, which yielded resources for the East and West deposits. Notice the conservative classification used by Cambior, all resources being quoted as "inferred". It seems that Cambior used only the McKenzie Bay Resources channel sampling for the calculation of their resources, declining to use the historic drilling for an unknown reason. Details of calculations are not available to the author, although geostatistical analysis has been used for the first time on the deposit.

[23] Currently IAMGOLD Corporation.

Inferred resources:	*224 million tonnes at 0.47% V_2O_5*
"Mineable[24]" resources:	*205 million tonnes at 0.476% V_2O_5.*
"Mineable" resources:	*36 Mt at 0.581% V_2O_5, 20 years mining*

***Table 8**: Historic resource estimate calculated by Cambior. These estimates are **not current and not compliant** to CIM guidelines.*

Cambior invested about $340,000 in the project.

SNC-LAVALIN FEASIBILITY STUDY

On April 11th, 2001, McKenzie Bay Resources Ltd., in collaboration with SOQUEM, commissioned a full-scale bankable feasibility study to the mining group of SNC-Lavalin Inc[25]. This contract was in excess of $4.5 million and was co-directed by Mr. Serge Nantel from SOQUEM and Mr. Michel Grégoire from SNC-Lavalin as project managers. The author was involved as a client representative on the advisory board until April 2002. This study included:

- Diligent review of geological data and grade assessment (conducted by Jean Lafleur, freelance engineer but formerly from Système Géostats International).
- Three confirmation drill holes (450 metres in total) plus a small bulk sample, under IOS supervision (Boudreault, 2002).
- Reserve calculation using Whittle's block model, pit design and mining plan.
- Detailed ore petrography and mineral analysis, carried out by both IOS (Girard, 2002) and Lakefield Research.
- Ore beneficiation process design (A.R. MacPherson Consultants Ltd.) bench scale and pilot plant testing in Lakefield Research facilities (McKen, Bigg and Williams, 2002).
- Pilot plan scale alkali roasting in Krupp Polysius facilities (Grund, Maier, Adlder, 2002), followed by calcine leaching in Lakefield Research facilities.
- Hydrometallurgical process design with the objective of producing high purity (99.999%) electrolytes for vanadium re-dox batteries, and bench scale testing of the process in Lakefield Research facilities (Verbaan, Seidler, Molnar, 2002).

[24] *"Mineable resources*" is not a NI-43-101 compliant resource class, and here represents the resources available for mining using the *"Whittle-4d"* pit design software within the aforementioned inferred resources.
[25] Former Kilborn Engineering group, bought by SNC the year before.

- Infrastructure design, including utilities, tailing and calcine ponds, communication systems, automation, buildings, etc.
- Market study for the production of vanadium re-dox battery electrolyte by Secor Inc. (Waldron, 2002).
- Operating and construction cost estimate and financial analysis.
- Environmental study, compliant with COMEX-COMEV regulations by Entraco Groupe Conseil Inc. (Archambault et *al.*, 2002).
- Preliminary pit scope design by Golder and Associates Ltd. (Chabot et *al.*, 2002).
- Geotechnical investigation by Golder and Associates Ltd. (Ostiguy et *al.*, 2002).

The author expresses some concerns about some aspects of this feasibility:

- Resources are categorized as *"indicated and measured*[26] *"* without differentiating them, and quoted these as *"mineable"*. Such broad categorization is not in accordance with CIM Guidelines and is therefore not NI-43-101 compliant[27]. Criterions for categorization are not indicated.
- Quality of analysis and comparability between historic drill holes grades and trench samples grades are not sufficiently tested, according to author's opinion.
- SNC-Lavalin declined to carry out systematic drilling of the deposit in order to obtain a regular pattern for resource assessment. The actual spacing is not rigorously regular and exceeds in most instances the required spacing suggested by variogram analysis. Reserve calculation is based upon historical drilling, which was not surveyed, with many of the holes not accurately located. Moreover, the drill core assays were not subjected to rigorous and timely QCQA except post-processing. The three confirmation holes drilled in the course of the feasibility are not sufficient in the eyes of the author. No twins of historic holes were made. SNC-Lavalin has indicated to the author they are comfortable with the level of certainty and they take full responsibility in this issue.
- SNC-Lavalin and McKenzie Bay rejected the scenario of metallurgical grade vanadium production, and all process design was oriented toward electrolyte production. In doing so, the author considers that McKenzie Bay had hindered its own entry into the vanadium market.

[26] As the sum of the two categories. Indicated and measured are not separately disclosed as required by CIM Guidelines.

[27] McKenzie Bay Resources was by then a fully owned subsidiary of McKenzie Bay International, a Michigan based corporation traded on OTC pink sheet of Nasdaq, and thus not ruled by the NI-43-101 regulations.

- The author does not have the expertise to provide a sound opinion on the engineering aspect of this study.

The resource calculation included the same data used in previous estimations by Cambior, plus the three confirmation holes *(**table 9**)*. ***Again, it must be stated that resources calculated by SNC-Lavalin, although stated by them as compliant to NI-43-101 regulation and CIM guidelines, are not to be considered as current for the sake of VanadiumCorp's project. They were not verified or updated by a qualified person, are not considered as current by the author and shall not be so by the issuer.*** As for Cambior, the project aimed only at vanadium production, and thus reserve calculation targeted dominantly the P2 units. SNC-Lavalin did a review of the data quality. They did not use the magnetite concentrates from Davis tube testing for the resource calculation, using instead computation of magnetite content from headgrade analysis [28]. Variogram analysis indicates that grades can be extrapolated up to 125 metres laterally and 30 metres across strike. The resource calculations were used for the Whittle-4D mining plan.

Resources, all categories and deposit included, were calculated by stratigraphic units at:

Unit	Volume	Tonnage	Magnetite	Ilmenite	$\%V_2O_5$
P1	13,702,000 m^3	43,388 Kt	21.5%	7.2%	0.32%
P2	46,882,000 m^3	161,095 Kt	28.8%	14.3%	0.40%
P3	11,404,000 m^3	38,846 Kt	27.3%	12.6%	0.18%
Total	71,988,000 m^3	243,329 Kt	19.0%[29]	8.8%	0.24%

***Table 9**: Historic resource[30] calculation by stratigraphic units issued by SNC-Lavalin in 2002. Although **non-current for the sake of VanadiumCorp**, these resources were stated by SNC as being then compliant with NI-43-101 standards.*

[28] The author expresses some concerns about numerous assumptions made on the vanadium distribution which, in his opinion, might have been misrepresentative. All resources are based on modeled magnetite and ilmenite content, assuming all iron and titanium partitioned into oxides. This last assumption can be misrepresentative, since iron silicates are present, if not abundant, into which iron, titanium and vanadium are partitioned. This partitioning is known as the main cause of the low overall vanadium recovery. Thus, it is in the author's opinion that such misassumption in this model can lead to a false estimate of resources in the magnetite and ilmenite content as well as unitary vanadium grade. A thorough review of this calculation would be needed in the future, but is not within this actual mandate. It is uncertain if calculation procedures were thoroughly disclosed.

[29] The reader shall note that the total indicated resources, as well as for ilmenite and $\%V_2O_5$, as taken from SNC-Lavalin, does not correspond to their weighted average of P1, P2 and P3. The cause of the discrepancy is not known to the author, discrepancy which has been reported here exactly as stated in their report. These numbers are also discrepant compared to what is stated in their executive summary.

[30]. Indicated plus measured.

Mineable resources, all categories and using a cut-off grade of 0.29% V_2O_5, stand at *(**table 10**)*:

Deposit	Ore tonnage	%V_2O_5Grade	Waste tonnage	Pit Ratio
East	100,568,700	0.42%	56,785,900	0.56
Southwest	40,106,900	0.48%	16,744,600	0.41
West	29,448,100	0.38%	13,390,400	0.45
Total	170,123,700	0.43%	86,920,900	0.51

***Table 10**: Historic "mineable" resource calculated by SNC-Lavalin in 2002. Although **non-current for the sake of VanadiumCorp**, these resources were stated by SNC as being then compliant with NI-43-101 standards.*

The report states that:

> "*Given the predictable nature of the deposit, the fact that most of the historical work basically gave similar results, and the current resource model, SNC-Lavalin is of the opinion that the resource estimation presented in table 3.12.2 (102 Mt at 35% magnetite, 17.4 % ilmenite and 0.50% V_2O_5) can be classified as "measured and indicated" resources."*

These results are comparable to previous estimates. However, SNC-Lavalin did not discriminate between *"measured"* and *"indicated"* resources[31], and the status of these same resources contrasts with Cambior's opinion who classified them as *"inferred"*[32]. In the author's opinion, the resources calculated for the South-West deposit, based on 4 trenches and 3 historic drills holes, do not even qualify as *"indicated"* as categorized by SNC.

The reader shall remember that VanadiumCorp does not hold the Western deposit in its entirety, meaning the resources held by VanadiumCorp are expected to be slightly smaller than SNC's estimations. **It is right away obvious that SNC-Lavalin's resource estimates are not current and that VanadiumCorp requires a calculation of these resources to render them current and compliant.**

WORK CONDUCTED BY LAC DORÉ MINING

Since completion of the feasibility study by SNC-Lavalin and until the agreement with BlackRock Metals, very limited work was conducted on the property by McKenzie Bay

[31] This is not compliant to CIM guidelines.
[32] With the same set of data!

Resources and subsequently Lac Doré Mining[33]. The author was informed that hydrometallurgical process were tested further at SGS-Lakefield, the results of which he is partly aware of, but no report is available. Mr. Jan Mracek, who was in charge of designing the process, worked for SGS-Lakefield and subsequently for Lac Doré Mining, in order to continue his research. Mr. Mracek passed away in 2005. No cohesive report was apparently issued and very little of his work should be considered available.

WORK CONDUCTED BY BLACKROCK METALS

BlackRock Metals, who acquired the remaining assets from Lac Doré Mining in 2008 conducted the following work over the VanadiumCorp's Lac Doré project, which was either conducted or supervised by IOS:

- Secure the historic core and clean the former McKenzie Bay Resources camp site at Laugon Lake (located on current VanadiumCorp's property). The core included the one from East and West deposits currently owned by VanadiumCorp.
- High resolution airborne magnetometer and topographic survey over the entire length of the deposit (Largeault et *al*., 2008). The survey did encompass the East and West deposits, currently belonging to VanadiumCorp, although data from this portion was never handed to BlackRock. However, this part of the survey was then made available by the contractor to the author, who was supervising the work, and will be presented in subsequent sections. This survey replicates with better accuracy the former ground magnetometer survey.

OTHER KNOWN MINERAL OCCURENCE

No other mineral occurrence of economic significance is known within the property boundaries. Some apatite concentration are reported in the upper stratigraphic unit "P4" of the magnetite sequence, which are not volumetrically significant.

A small occurrence of gem quality vanadiferous titanite is reported within (or very near) the property, in the valley between Laugon and Coco lakes. The value of this has not been addressed, the occurrence never been properly located, and it shall be considered for the purpose of this report only as a mere curiosity.

[33] A fully owned subsidiary of McKenzie Bay International.

VALIDITY OF THE VARIOUS SURVEYS AND INDEPENDENCE OF THE CONTRACTORS

The *Ministère des Richesses Naturelles* carried out all the work over the deposit using its own staff. There is no reason to doubt the integrity and independence of these authors, although some of them might not have been sufficiently trained for the work they conducted.

SOQUEM carried out their various surveys using its own staff, which work was conducted according to the industry standard of the time. Resource calculation was conducted by Sidam-LMB, a fully independent group and conducted according to the standard of the time.

The work carried out on behalf of McKenzie Bay Resources was carried out by the author's crews. The geologists in charge of the various programs were properly experienced and the work conducted according to rather stringent quality procedures. An exception is the set of ground magnetometric surveys which was not conducted by properly trained staff, and thus is of undertermined quality. IOS is a thoroughly independent firm from McKenzie Bay.

Part of the work conducted for McKenzie Bay was conducted by Glen McCormick Exploration Ltd., who was paid in shares of the company. This contractor is therefore not considered as independent, and any work not conducted directly under the supervision of IOS, such as claim staking, can be of dubious quality.

The work conducted by Cambior was of the highest standards of quality, with the exception of the geological re-mapping of the trenches. Despite being conducted by Cambior's technical staff, the author has no reason to suspect any bias of execution.

The work conducted by SNC-Lavalin seems of acceptable quality, with the noted exception of the resource calculations regarding which the author has cautionary opinions. SNC-Lavalin is expected to be independent from SOQUEM and McKenzie Bay Resources.

DETAILS ON HISTORICAL DRILLING

The historical drilling is the most valuable set of information, far more valuable from its mere abundance than drilling and sampling done by VanadiumCorp. This information will likely be the basis for the calculation of a current resource estimate. Therefore, a thorough review of this data is needed, which will be presented in ***Item 10*** for the drilling,

Item 11 for the sampling procedure, and ***Item 12*** for the assaying procedure and quality controls. This historical data will be presented along with VanadiumCorp's drilling.

ITEM 7: GEOLOGICAL SETTING AND MINERALIZATION

REGIONAL GEOLOGY

The **Lac Doré** project is hosted in the Lac Doré Anorthositic Complex, aged at 2.728 Ga. This Archean complex is at the core of the Eastern end of the Northern domain of the Abitibi Greenstone Belt, Abitibi sub-Province, and Superior Province in the Canadian Shield. The regional stratigraphy is dominantly East-West trending, South or North verging depending on the side of the anticline, with a metamorphic facies grading southward from greenschist to amphibolite, ages of the rocks lying between 2.759 and 2.728 Ga (Chown et *al*., 1992, Gouthier et *al*., 1992).

The volcanosedimentary sequence in the Chibougamau area is shaped like an East-West trending anticlinorium, both flanks of which have mirror stratigraphy ***(figure 3)***. The core of the anticlinorium is occupied by the Chibougamau pluton, the emplacement of which has resulted in tilting the enclosing volcanics into an uprighted position symmetrically on both sides. The stratigraphy is comprised of the volcanic Roy Group, and overlying volcanosedimentary Opemisca Group. The Roy Group consists of two volcanic cycles, with the basaltic Obatogamau Formation and felsic volcanoclastic Waconichi Formation (2.728 Ga) in the lower part, and the basaltic Gilman Formation and felsic volcanoclastic Blondeau Formation in the upper cycle, capped by the volcanosedimentary Bordeleau Formation. The Opemica Group is known to occur only on the south limb of the anticlinorium, including the epiclastite dominated Chebistuan, Stella and Haüy formations.

The lower cycle Waconichi Formation is truncated by the near conformable Lac Doré Anorthositic Complex, itself truncated by the Chibougamau tonalitic pluton (2.718 Ga). Some other minor late intrusions are reported.

The rocks are affected by multiple deformation events, including regional dome-and-basin type folding and associated shearing. A dense network of late faults dissects the area, dominantly northeast trending. These faults are either associated with or reactivated by the Grenvillian event, the main expression of which being the Grenville Front to the Southeast.

Most of the mines from the Chibougamau camp are shear hosted within the Lac Doré anorthosite, typically associated with fault intersections. Over 44 million tonnes of gold-copper ore have been extracted to date. The only significant exception is the small base metals bearing volcanogenic massive sulfides, such as the Lemoine Mine, hosted by the Waconichi Formation.

LOCAL GEOLOGY

The Lac Doré Complex is a lopolith, a sub-tabular intrusive body of mafic to anorthositic composition, strongly differentiated near its summit. The lopolith is emplaced within the Waconichi Formation, a felsic volcanic and sedimentary pile, and folded along by the regional anticlinorium. The deposit is hosted in a homoclinal sequence of magnetite bearing layers within the South flank of the Lac Doré Anorthositic Complex. Top of stratigraphy is to the south.

According to Allard (1967), the Lac Doré Complex is divided in four major units. From top to bottom they are:

- The border zone (top, South-East);
- The granophyre;
- The layered zone;
- The Anorthositic zone (base, North-West).

The layered zone hosts the vanadium deposit, while the anorthosite and the granophyre host most of copper-gold mineralization of the mining camp (outside of the **Lac Doré** property).

The anorthosite zone (approximately 3660 m in observed thickness) is composed of anorthosite, gabbro and magnetite-bearing gabbro. The magnetite as well as the vanadium content increase in the upper 150 metres of the unit, toward the layered zone.

The layered zone, which hosts the vanadium deposit, consists up of 450 to 900 metres of rhythmically layered beds rich in pyroxene, magnetite or ilmenite, intercalated with layers of anorthositic gabbro. The vanadium deposit is located in the lowermost part, namely the P1, P2 and P3 units. Vanadium strongly partitions into magnetite, and thus into the first magnetite layers. Its content in magnetite decrease upward (Allard, 1967).

The vanadium-bearing magnetite deposit is described by Allard (1967) as:

> *"(…) an alternation of layers of solid titaniferous magnetite, magnetite rich gabbro, magnetite rich pyroxenite, gabbro and anorthositic gabbro. The solid magnetite layers range from a fraction of an inch to four feet. The magnetite band is everywhere at the same stratigraphic horizon, but each magnetite layer is discontinuous and exhibits marked changes in thickness and character along strike (…)"*

The layered series do not include vanadium-bearing magnetite layers on the north flank of the complex.

GEOLOGY OF THE DEPOSIT

The deposit was mapped both by MRNQ and SOQUEM geologists. It was at that time covered by forest and overburden with only about 1% outcrop. Since McKenzie Bay Resources stripping program and the recent logging activity, outcrops are more abundant and allow for a better understanding of the geology as presented at ***figures 4A*** and ***B***.

Dr. Allard's stratigraphy (P1-A1-P2-A2-P3) was partly revised by the author based on this mapping (Tremblay, 1998). Local stratigraphy is presently defined as follow, from bottom (North) to top (South):

- Footwall anorthosite, free of magnetite.
- P0: Anorthosite with small scattered beds of magnetite *(**picture 13**)*.
- P1: Anorthosite with abundant and thick beds of magnetite *(**picture 12**).*
- P2: Magnetitite and layered gabbros, main ore body *(**pictures 9** and **10**).*
- P3: Magnetite-ilmenite bearing pyroxenite *(**picture 11**).*
- Hanging wall, mainly gabbro and pyroxenite.

Lenses of anorthosite, metres to tens of metres in thickness, are intercalated within the above units, which were considered as stratigraphic units by Allard (1967).

Picture 9*: View of the layered magnetite series from P2 unit. Notice the small anorthosite dyke in the lower left.*

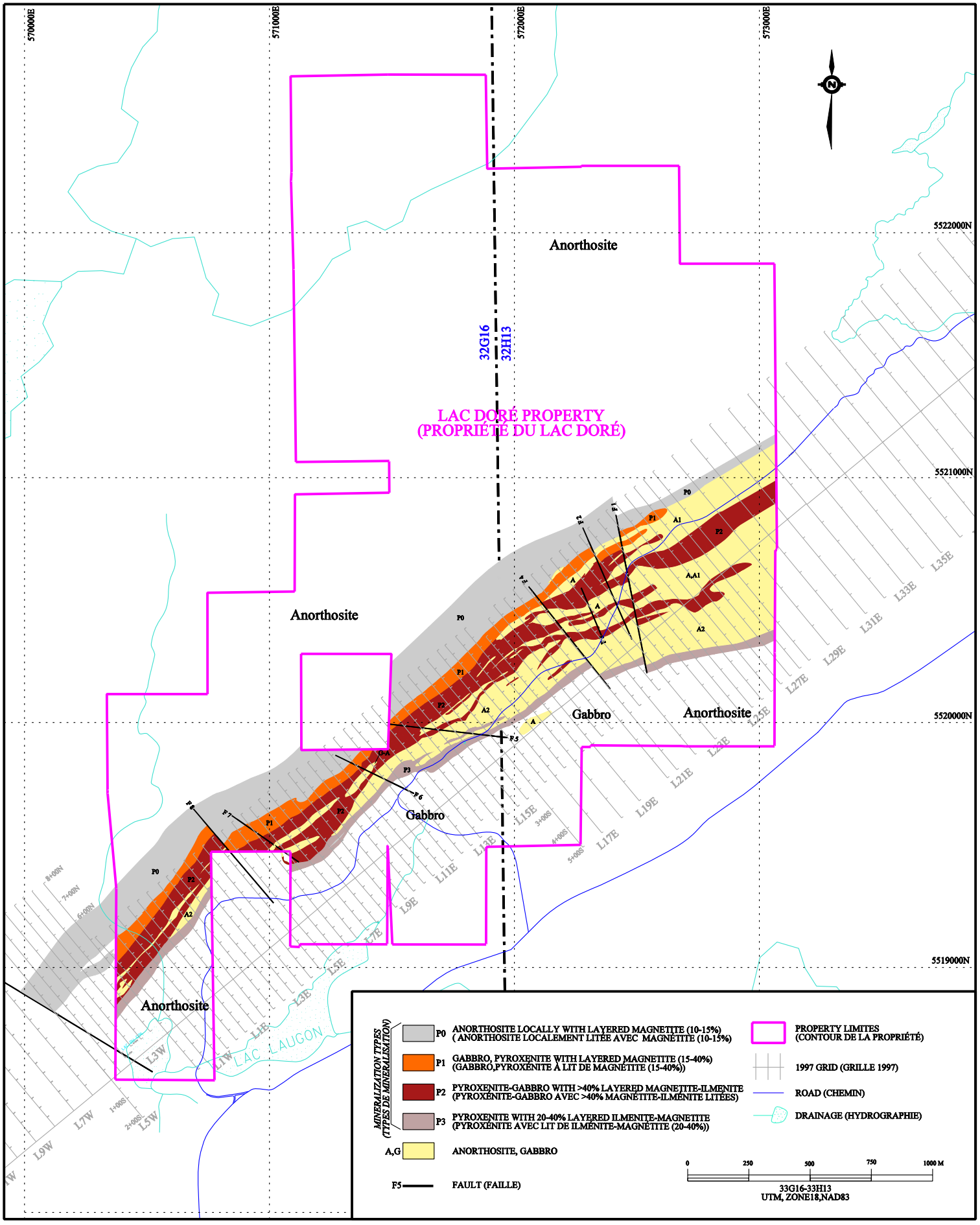


Figure 4a: Geology of LAC Doré property (Géologie de la propriété du Lac Doré)

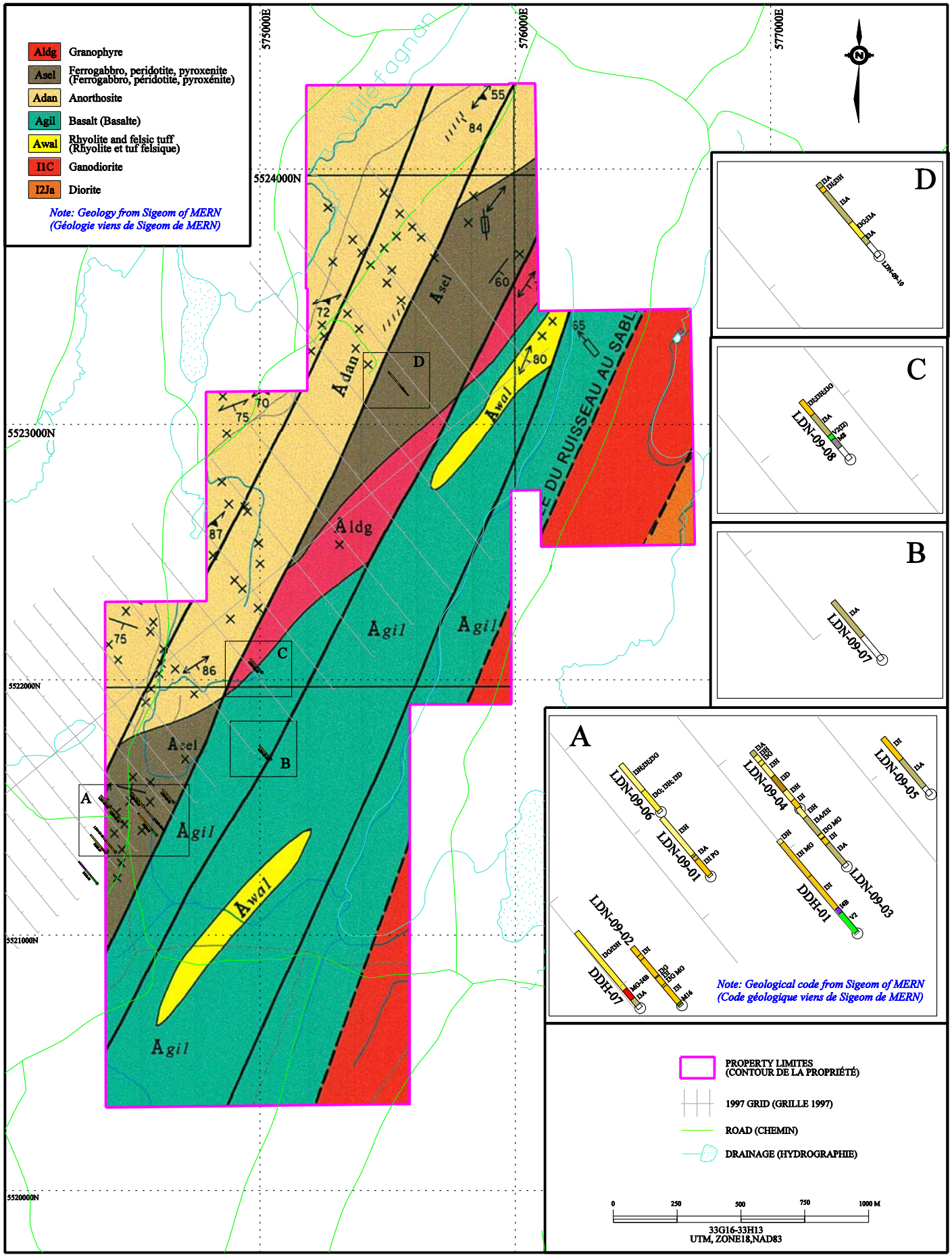


Figure 4b: Geology, Lac Doré North Property (Géologie, propriété Lac Doré North)

***Picture 10**: View of the layered magnetite bearing anorthositic gabbro from P2 unit. Notice the cross-bedding, indicative of sedimentary processes in the magma chamber.*

***Picture 11**: View of the layered gabbro with a magnetite band from P3 unit.*

***Picture 12**: View of a magnetite band in the layered anorthosite from P1 unit.*

***Picture 13**: View of thin magnetite layers within anorthosite, typical of P0 unit. Picture taken on Lac Doré North stripping.*

The stratigraphy is more or less continuous along strike for the whole deposit, from the south-western tip of the Armitage extension to the North-eastern end where it is

truncated by the Mistassini Fault (Grenville Front). However, thicknesses are variable and complexities locally abundant.

The East and West deposits were reported as a bulge on P2, distinctly visible on the aeromagnetic survey. The presence of this prominent magnetic anomaly attracted exploration activity. Explorationists basically neglected the extensions of the deposit except for the limited work by McKenzie Bay Resources in the 1998-2000 periods.

All the various mineralized bodies, from Armitage to Northeast, correspond to a package of horizons steeply dipping toward the southeast. These horizons extend, almost continuously, for 17 kilometres in length, as expressed by the ground magnetometer survey and the BlackRock's aeromagnetic survey. The various mineralized bodies, or extensions, were named on historical basis, being separated by late faults, topographic features or claim boundaries. **However, the overall mineralized body is uninterrupted**. For example, the East and West deposits are separated by a valley related to a small cross-fault with minimal displacement. The West and Southwest deposits are offset by the Coil Lake cross-fault corresponding to a second valley, and are separated by a narrow stretch of lower grade material. The East and West bodies bulge to a thickness of 100 to 150 metres, reaching locally up to 200 metres. The Southeast body is narrower at 100 metres in thickness, locally injected of abundant anorthosite sills devoid of magnetite. The Armitage extension is continuous over more than 12 kilometres with 50-100 metres in width. Toward the Northeast, the geology and stratigraphy is more difficult to decipher, being offset by late faulting related to the Grenville Front. But its width, grade and continuity seem comparable to the rest of the system.

The vanadium grade decreases sharply towards the stratigraphic top of the layered series as one proceeds southeastward. This is related to the early partition of vanadium in the magnetite which progressively depleted the magma during magmatic differentiation. Also, in the gabbroic and pyroxenititic layers top layers, the remaining vanadium is scavenged by ferromagnesian minerals, and not amenable for metallurgical recovery. Therefore, layers above P3 are not considered as part of the deposit. Nelsonite horizons, made of ilmenite and apatite, are reported in the upper series and the over incumbent granophyre, which shall be just considered as curiosities.

Inversely, as one proceeds toward the base of the layers, northwestward, the grade of vanadium in the magnetite increases to a level which may be sufficient to justify mining of isolated magnetite bands within the anorthosite, such as P0. Only very preliminary results are available.

GEOCHEMISTRY

The vanadium hosted in magnetite and ilmenite is relatively refractory. It is not expected to be liberated from the host minerals and to yield any geochemical anomaly in the secondary environment. Furthermore, vanadium is a ubiquitous element, present in trace amount in any type or rock, thus having little contrast with the deposit. Exploration geochemistry is therefore not considered as relevant.

A regional lake bottom sediment geochemical survey, conducted by the MRNQ in 2007 and 2011, covers the area, which is of little use for the project.

GEOPHYSICS

As the vanadium is contained in the magnetite, the mineralization is readily visible on aeromagnetic survey. The 17 kilometres long anomaly associated with the deposit is outstanding on the regional map. Ground magnetic surveys were carried out by the Gulf Mineral, Trepan Mining and Jalore in the 1950's, using a dip-needle compass. These surveys are obsolete and currently useless. Ground magnetic surveys were also conducted by *Ministères des Richesses Naturelles* (Kish, 1971), SOQUEM (Nolet, 1980), as well as a series of distinct surveys encompassing the complete 17 kilometres of mineralization by McKenzie Bay Resources (Tremblay et *al*., 1998; Boudreault, 2000; Girard, 2001; Villeneuve, 1999). These surveys were carried out with an analog flux-gate instrument, which measure only the vertical component of the total field. Flux-gate was the standard instrument in the time of MRN and SOQUEM, and was chosen by IOS for the McKenzie Bay survey for being less sensitive to lateral gradient and saturation than neutron precession units. The various surveys conducted for McKenzie Bay are noisy, with numerous levelling discrepancies. For these reasons, the author recommended to BlackRock Metals in 2007 to commission a low-altitude high density airborne magnetic survey covering the entire area. This last airborne survey encompassed, for logistical reasons, a large part of VanadiumCorp's **Lac Doré** and **Lac Doré North** properties *(**figures 5, 6A** and **6B**)*. It can be noted right away from this survey that the Eastern deposit has a significantly larger magnetic signature than the others.

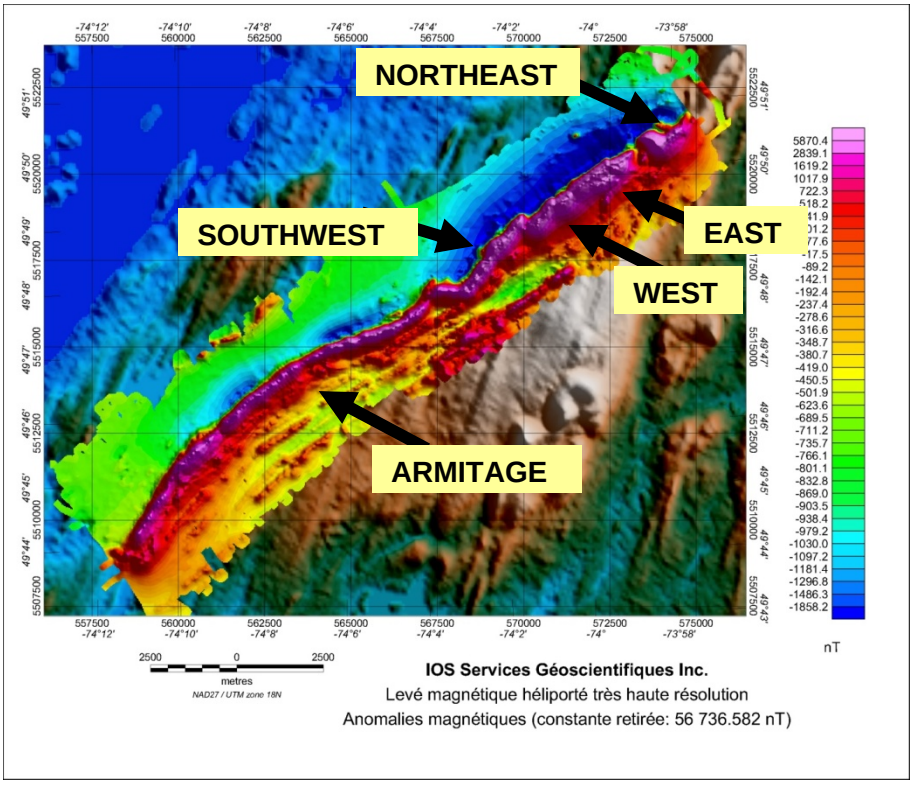


***Figure 5**: Preliminary results (bright colors) from the high density aeromagnetic survey over the entire length of the deposit, as provided by NovaTEM Inc. Dull colors in background are topography.*

No geophysical method allows detection or measurement of the vanadium itself.

Electromagnetic and gravimetric (Nolet, 1980) surveys were carried-out by the *Ministère des Richesses Naturelles* and SOQUEM, without providing conclusive results. It is in the author's opinion there is no need for testing other geophysical methods.

GLACIAL GEOLOGY

Glacial geology of Chibougamau area is dominantly covered by the Chibougamau Till (Martineau et Bouchard, 1994). This extensive till blanket is Winconsinian in age, and is reported to flow toward the Southwest in the area. The crest where the deposit is located is covered by a thin veneer of till, while periglacial sandy material dominates the plains to the North toward Lake Chibouagamau. Fluvioglacial material is rare in the vicinity of the deposit.

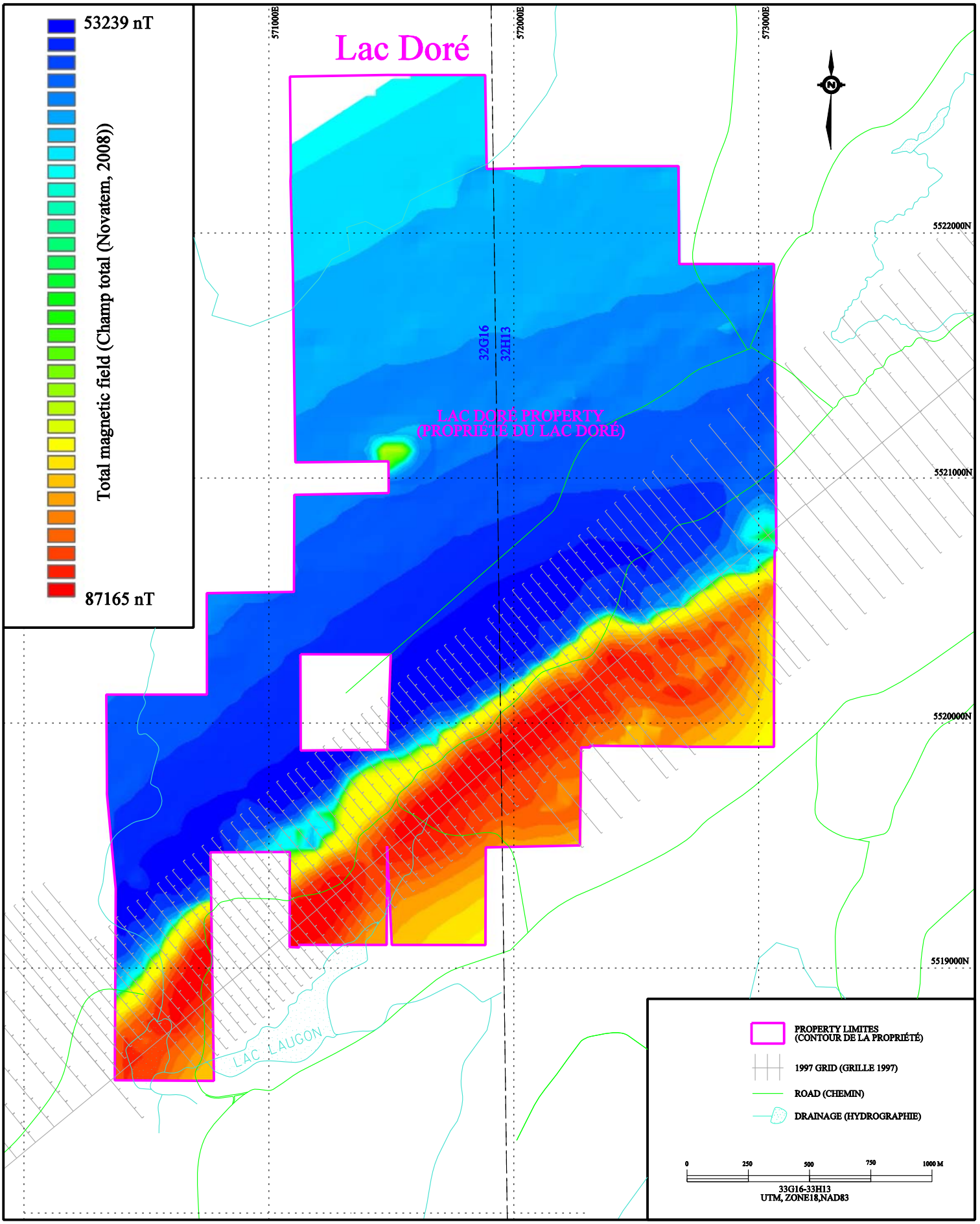


Figure 6a: Aeromagnetic survey, Lac Doré property (Levé aéromagnétique, propriété Lac Doré)

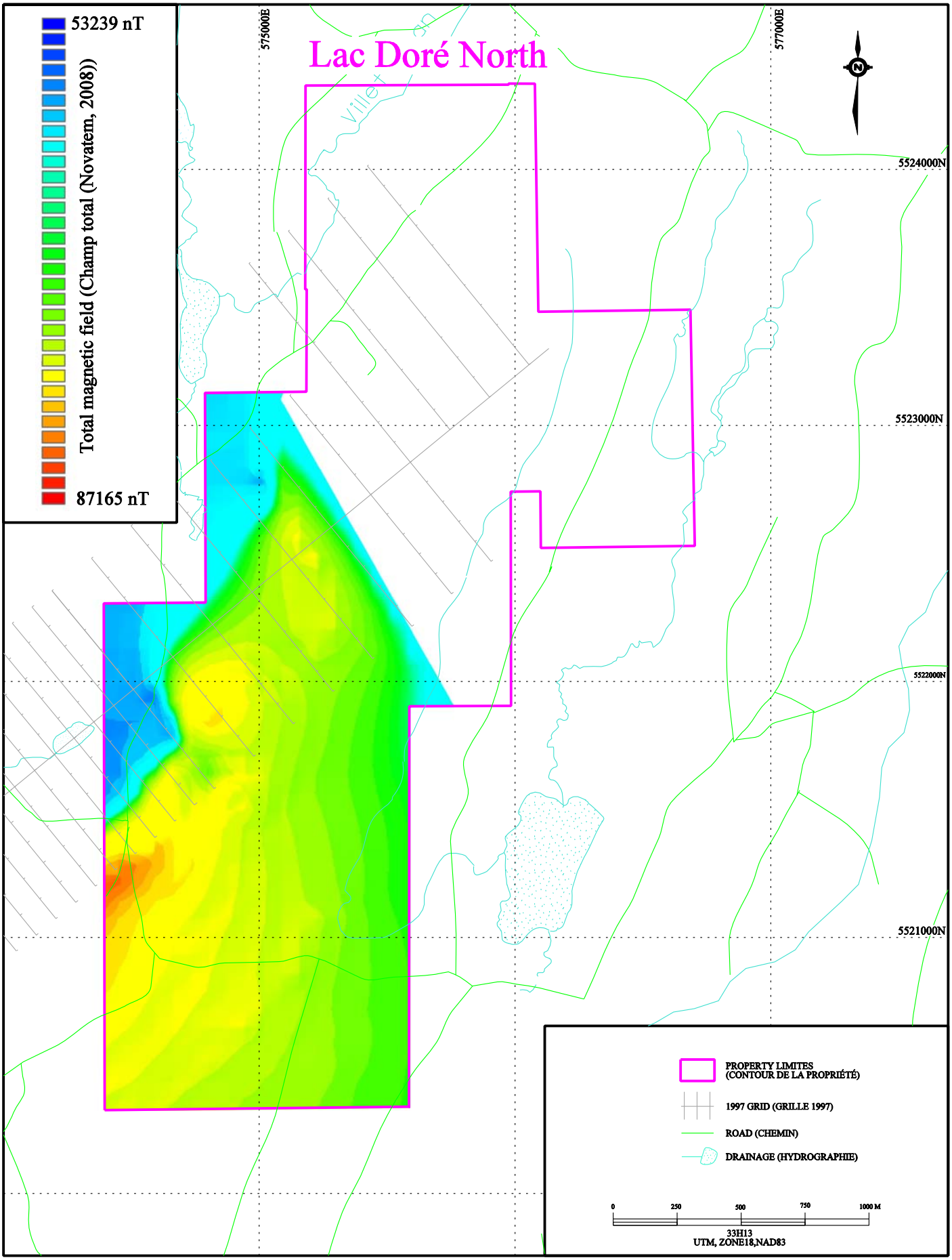


Figure 6b: Aeromagnetic survey, Lac Doré North property (Levé aéromagnétique, propriété Lac Doré North)

MINERALIZATION

Vanadiferous mineralization at Lac Doré is composed of titaniferous magnetite and ilmenite, hosted in anorthosite, anorthositic gabbros and gabbros, within the layered series of the Lac Doré Complex. Magnetite and ilmenite, associated in various proportions depending on stratigraphy, are found either as massive beds, decimeters to metres in thickness, or as dissemination within anorthosite and gabbros. Overall, the deposit contains about 30% magnetite, the main vanadium hosting mineral, plus 10% ilmenite. Oxides are best described as orthocumulate phase in the massive beds, or intercumulate while disseminated in host rock. Typical abundances and vanadium grades for the various units as estimated from McKenzie Bay channel samples (Tremblay et *al*., 1998) are provided in ***table 11*****.**

	Thickness[34]	**V_2O_5**	**Fe_2O_3**	**TiO_2**	**% Mgt**[35]
P0	32 m	0.194%	20.1%	174%	10%
P1	49 m.	0.340%	41.5%	4.27%	15-30%
P2	97 m.	0.486%	64.3%	9.20%	>40%
P3	38 m.	0.163%	48.6%	6.43%	20-30%
Total	216 m.	0.353%	49.8%	6.49%	

Table 11*: Vanadium, iron and titanium grades in differents faciès.*

The magnetite bearinglayers form a definite horizon which can be traced from the Grenville Front to the northeast, to the Lac Caché to the Southwest, for a total stretch of 17 kilometres. This continuous horizon has been divided into various deposits for historical reasons, without real discontinuity other than a narrowing in the aeromagnetic signature. Cross faults, with short displacement, are separating the Eastern from the Western deposits, as well as the Western and Southwestern deposits. Magnetite beds are reported all along this horizon, with diverse abundance and thickness. The overall thickness of the sequence typically ranges between 60 to 100 metres, but swells to more than 200 metres in the Eastern deposit. The aeromagnetic signature is very linear over the 17 kilometres, suggesting a near perfect homoclinal sequence dipping steeply to the Southeast. Although the overall mineralized envelope is fairly regular, internal stratigraphy is very complex, injected by dismembering anorthosite sills. Local tight folds and truncation of the stratigraphy are noted, interpreted as representing magmatic slumps.

[34] Average thickness as calculated from sampling.
[35] Visual estimation, since Davis tube testing was not available at the time.

ORE PETROGRAPHY

Vanadium is hosted at 70-80% in magnetite ($FeO\text{-}Fe_2O_3$) and 10-15% in ilmenite ($FeO\text{-}TiO_2$). These two minerals are associated in a complex manner. Titanium is partitioned into hemo-ilmenite, ulvöspinel or titaniferous magnetite, which are co-precipitated from the magma, with granular relationship. Proportion of hemoilmenite and ulvöspinel is controlled by oxygen fugacity of the magma: more oxygen being available, more hemoilmenite being formed. The primary magmatic oxides typically have grain sizes of a fraction of a millimetre to a few millimetres. Titaniferous magnetite is a ferrous-ferric spinel ($FeO\text{-}Fe_2O_3$) which makes a discontinuous solid solution with ulvöspinel ($2FeO\text{-}TiO_2$) through a diadochic substitution at high temperature. No solid solution exists between ilmenite and titaniferous spinels. However, a complete solid solution exists between ilmenite and hematite at high temperature. At lower temperatures, ulvöspinel is not stable and exsolves as ilmenite intergrowth in titaniferous magnetite. Similarly, ilmenite ($FeTiO_3$) makes a complete solid solution with hematite (Fe_2O_3) at high temperature, and hemo-ilmenite exsolves as ilmenite-hematite intergrowth at lower temperature. Finally, these various iron and titanium oxides react with iron-bearing silicates (pyroxene, etc.) during the course of metamorphism, making complete panoply of secondary magnetite, with or without titanium, with or without vanadium. These secondary oxides are mainly developed in P3, considering the original abundance of ferromagnesian minerals. Hematite is of very limited importance in Lac Doré ore, typically restricted to secondary minerals of metamorphic or alteration origin. Vanadium only feebly substitutes in hematite.

Headgrade in vanadium is at its maximum in P2, in the middle of the layered series. However, vanadium grades in magnetite decrease systematically upward, while titanium headgrade increases upward. Thus, the best vanadium grades in magnetite concentrates are found in P0 and P1, while the bulk of the vanadium resources in P2. This is reflected in every former obsolete resource assessment.

The Lac Doré mineralization typically consists of 80% magnetite and 20% granular ilmenite *(**figure 7**)*. The magnetite itself consists of 80% titaniferous magnetite with 20% very minute intergrowths of ilmenite exsolutions. The presence of these ilmenite exsolutions is what renders this mineralization unsuitable for iron production from blast furnace without by-product. Titano-magnetite typically grades about 1.8% V_2O_5[36], while the ilmenite typically grades 0.3% V_2O_5. The abundance of these ilmenite exsolutions causes dilution of the vanadium grade in the magnetite. Vanadium grades in magnetite and ilmenite are rather constant in PO, P1 and P2, and drop drastically in P3. The

[36] Notice that vanadium is in sesquioxide V_2O_3 species in the ore, while grade is typically reported as pentoxide V_2O_5. The V_2O_3: V_2O_5 conversion factor is 1:1.21

difference in vanadium grade of the concentrates produced from P0, P1 and P2 reflects the abundance of ilmenite exsolutions within the magnetite. For a typical sample from P2, it is calculated that 86% of the vanadium is hosted in magnetite, 8% of vanadium is in ilmenite (exsolutions plus granular grains) and 5% is hosted in ferromagnesian minerals *(**table 12**)*. It is technically possible, although not economical, to process ilmenite along with magnetite to recover its vanadium. However, processing ferromagnesian silicates is not technically feasible. Not processing ilmenite and ferromagnesian silicate explains the reported low vanadium recovery, tested at about 78-80%.

V_2O_5	P0	P1	P2	P3
Magnetite	1.78%	1.84%	1.74%	1.04%
Ilmenite	0.41%	0.41%	0.27%	0.15%
Magn. Conc.	1.6%	1.5%	1.3%	0.8%
Chlorite	-	-	0.1%	N/A
Amphibole	-	-	0.1%	N/A

***Table 12**: Vanadium grade in differents minerals species.*

Chromium is almost entirely partitioned into the titano-magnetite as chromite end-member. Inversely, manganese is partitionned into ilmenite as pyrophanite end-member. These are the only two contaminants detected in these oxides.

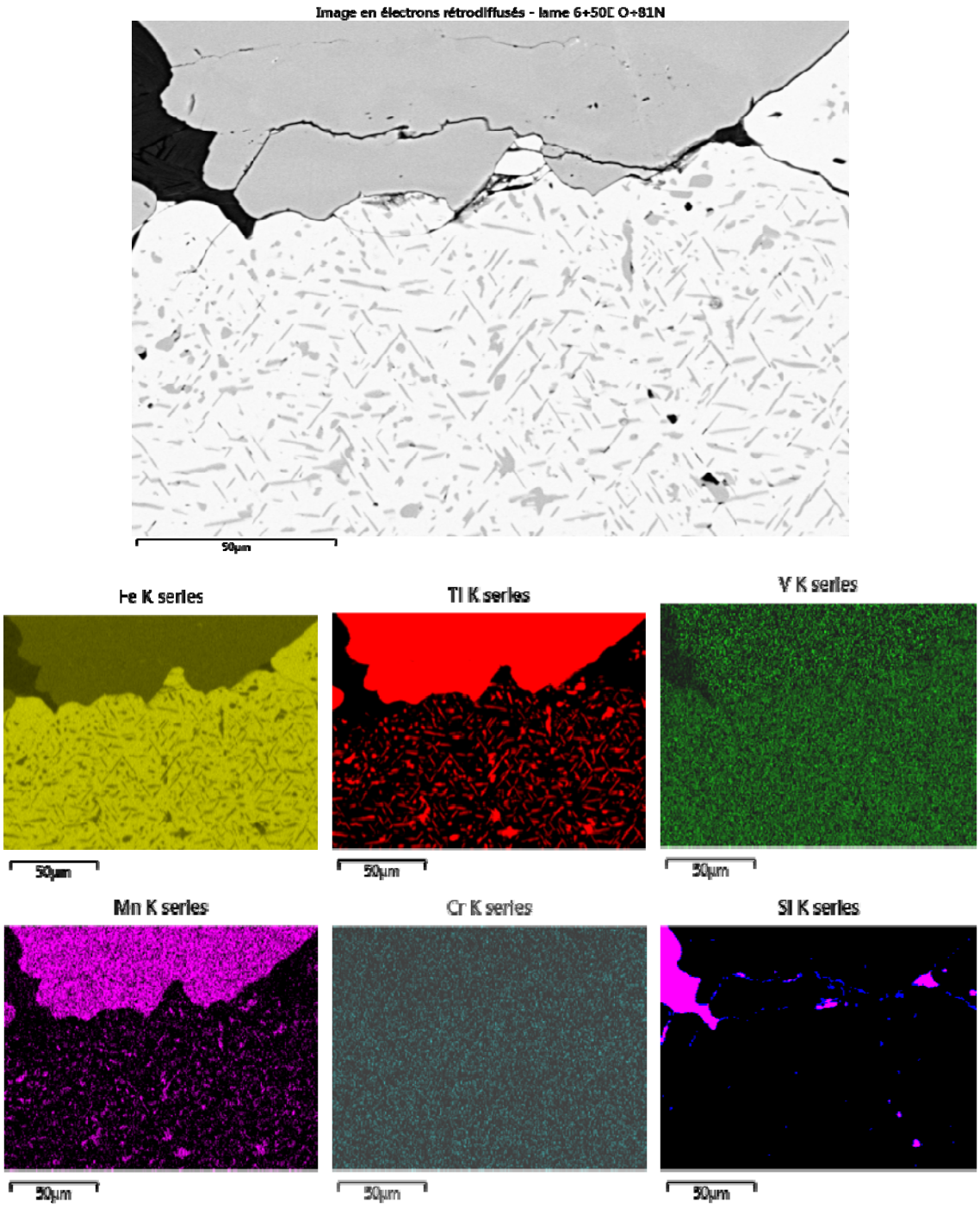


***Figure 7A**: X-Ray micromapping of a titano-magnetite and ilmenite grain from P2 horizon. Abundant ilmenite exsolutions, less than 10 µm across, are peppering the titano-magnetite (bottom), while no magnetite inclusion is present in granular ilmenite (top). A backscattered electron image (top, black and white) provide a clear view of the various minerals, while X-rays maps provide the distribution of each elements (colors). Image generated on IOS's scanning electron microscope.*

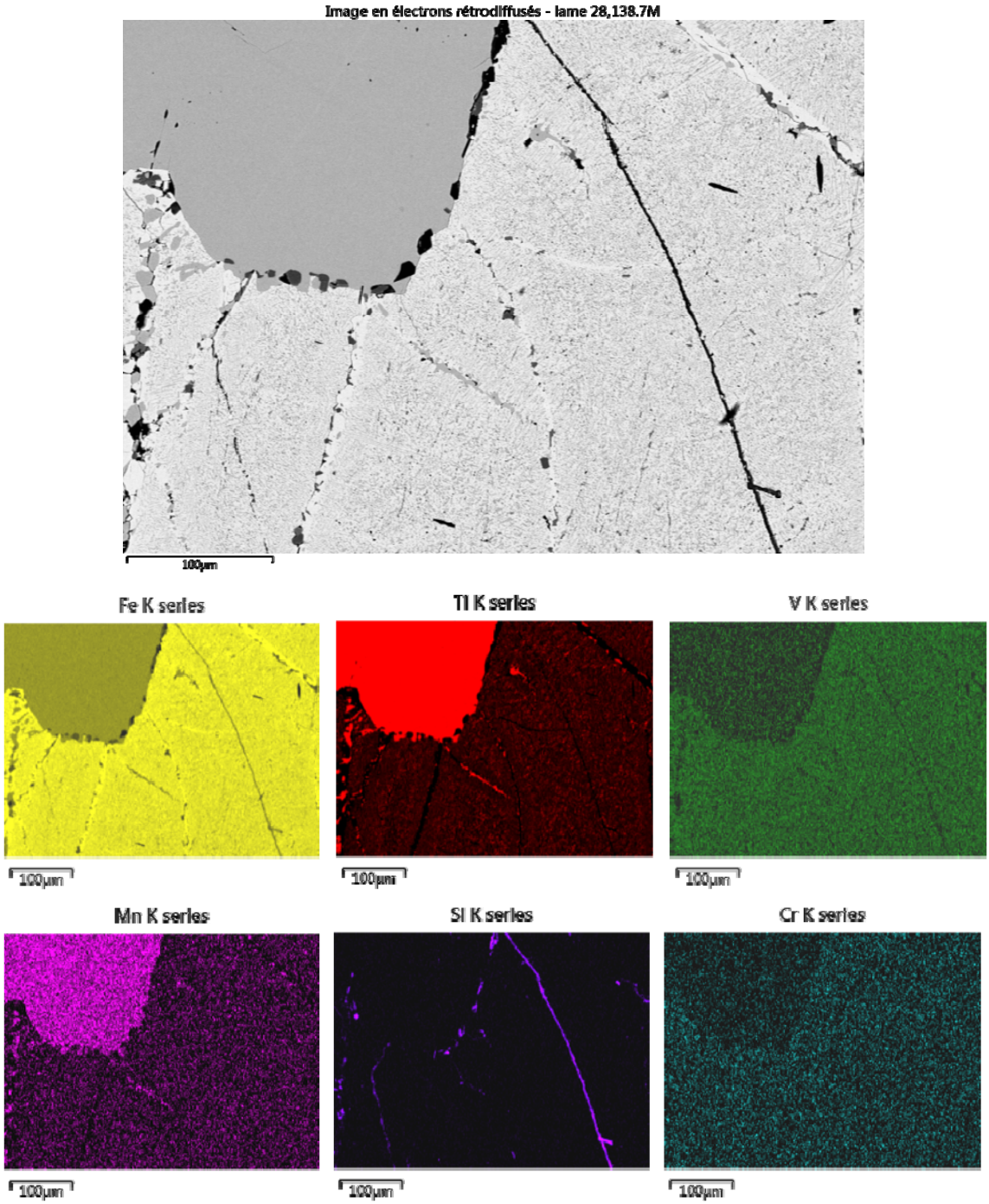


***Figure 7B**: X-Ray micromapping of a titano-magnetite and ilmenite grain from P2 horizon. Ilmenite exsolutions, less than 1 µm across, are at the limit of the image resolution. Difference in vanadium, chromium and manganese distribution between ilmenite and titano-magnetite are clearly visible on X-ray maps. Image generated on IOS's scanning electron microscope.*

ITEM 8: DEPOSIT TYPES

In his discovery report, Allard (1967) made comparisons between the magnetite series of the Lac Doré Complex and the ones of the Bushveld Complex in South Africa. Such series are also reported in the Skaergaard complex in Greenland, the Stillwater Complex in Nunavut, and the Cullin Complex in the British Tertiary Province. Another Archean equivalent is the Bell River complex in the Matagami area[37], Northern volcanic zone of the Abitibi Greenstone belt. Such differentiated mafic intrusions are rather common on the planet, and many of them are susceptible to contain vanadium bearing magnetite series. More than 80% of the vanadium produced worldwide is from such occurrences, which also account for near to 100% of the primary production.

METALLOGENY

Vanadium is a ubiquitous element, reported at levels reaching hundreds of ppm in almost any kind of rock. Vanadium is a polyvalent transition metal, with valences between V^{++} to V^{+5}, which is the controlling factor in its distribution. The only minerals where vanadium is a constituent are from supergene environments, representing very oxidizing conditions and where vanadium is present as tetravalent vanadyl $(V^{+4}O)^{+2}$ or pentavalent vanadate radical $(V^{+5}O_4)^{-3}$ such as pentagonite, mounanaite, bannermanite and more than 200 exotic mineral species.

In reducing systems, V^{+2} has a chemical behaviour similar to iron in regards to most common ferromagnesian minerals, such as chlorite or pyroxene, where it substitutes into M^{+2} sites. Vanadium therefore does not tend to concentrate in a specific mineral in silicate dominated magmatic, hydrothermal or metamorphic systems. Inversely, under higher oxygen fugacity, vanadium in its V^{+++} state tends to partition against Fe^{+++} in minerals such as magnetite (coulsonite or vuorelainenite are the vanadium end-member of the spinel family $(Fe\text{-}Mn)^{+2}V_2{}^{+3}O_4$) and hemo-ilmenite (karelianite V_2O_3 end-member[38] as a diadochic substitution with $FeTiO_3$).

Massive iron oxide precipitation can occur in differentiating mafic magmatic systems, such as layered complexes. Triggering of this precipitation is apparently caused by silica saturation related to contamination of the magma by melted roof-rocks and the development of granophyre. Precipitation of these iron and titanium oxides may take on the form of rhythmically layered series such in the case at the Lac Doré or in the Bushveld, as massive oxide pockets such as the "*pipes*" such as in the Bushveld

[37] Owned by VanadiumCorp Resources and referred to as the Iron-T project.

[38] Some complex vanadium-titanium minerals are known, such as Kyzylkumite and Schreyerite, which are noted for reference.

Complex or the St-Urbain Anorthosites, or as broad horizons such as nelsonites[39] and cumberlandite deposits in the Lac St-Jean Anorthosites. In all cases, vanadium is preferentially partitioned into the first oxides to precipitate. Only magnetite layers series and magnetite pipes are economically mined as vanadium sources. Vanadium within ilmenite ore is considered a contaminant in respect of titanium production. Vanadium bearing magnetite can not be distinguished from common magnetite on the basis of its appearance or physical property, necessitating assaying.

Layered mafic complexes being large geological features, tens to hundreds of square kilometres in area, they have the capability to generate large magnetite deposits, up to billions of tonnes. Such occurrences are easily identified in mining exploration due to their prominent aeromagnetic signature. However, on most occurence, layers are thin or the magnetite is disseminated, rendering mining of these non-economical. Massive magnetite pipes, such as the Kennedy Vale in the Bushveld, are not present in the Lac Doré Complex. However, Lac Doré is exceptional by the thickness of its magnetite series.

[39] Nelsonite: An ilmenite-apatite magmatic rock, typically associate with anorthosite.
Cumberlandite: An olivine-magnetite-ilmenite magmatic rock, typically associated with troctolite.

ITEM 9: EXPLORATION

A large amount of exploration work was conducted on the East and West deposits by the previous owners. The most detailed surveys were conducted by IOS on behalf of McKenzie Bay Resources, and are considered as superseding previous work done by SOQUEM or the *Ministère des Richesses Naturelles*.

Comparatively, less work was conducted by VanadiumCorp. Two trenching programs, two drilling programs and three ground magnetometric surveys were conducted, plus some road improvement and GPS survey (Aurus, 2013).

GROUND MAGNETOMETRIC SURVEYS

Three ground magnetometric surveys were conducted on behalf of Apella and PacificOre, covering the **Lac Doré** (Tshimbalanga, 2009, 2012[40], and **Lac Doré North** (Tshimbalanga and Hubert, 2009) *(**table 13**)*. All three surveys were conducted in a similar manner by Geosig Inc., from Québec City. The surveys were conducted with the use of 2 GSM-19WV Overhauser (neutron precession) magnetometers, a mobile and a stationary unit. Lines were spaced every 100 metres, oriented N315°, plus a baseline and tie lines. Station locations were measured with handheld GPS device. A base station was established and calibrated at 57,000 γ, providing an accuracy of 1 γ. Isopleths map and profiles were provided. No vertical or horizontal gradient was measured or calculated, and no modelization was generated. Results from these surveys were concatanated and re-gridded as a single map (***figures 8A*** and ***8B***).

Year	Property	Length Line	Spacing	Stations
2009	Lac Doré	35 km 35	100 m	12.5 m
2009	Lac Doré North	66.7 km 38	50/100 m	12.5 m
2012	Lac Doré	45 km 53	50 m	12.5 m

***Table 13**: Magnetometric Surveys.*

For the purpose of the ground magnetometric survey, the former McKenzie Bay's picketed line network was refreshed and surveyed (Aurus, 2013).

2008 AND 2009 STRIPPING PROGRAM

A stripping program was conducted on the South-Western extremity of the **Lac Doré North** property in 2008. The area targeted seems to coincide with the most intense

[40] Recall that the portion of the property covering the deposit was in conflict in 2009, which force to postpone the magnetometric coverage.

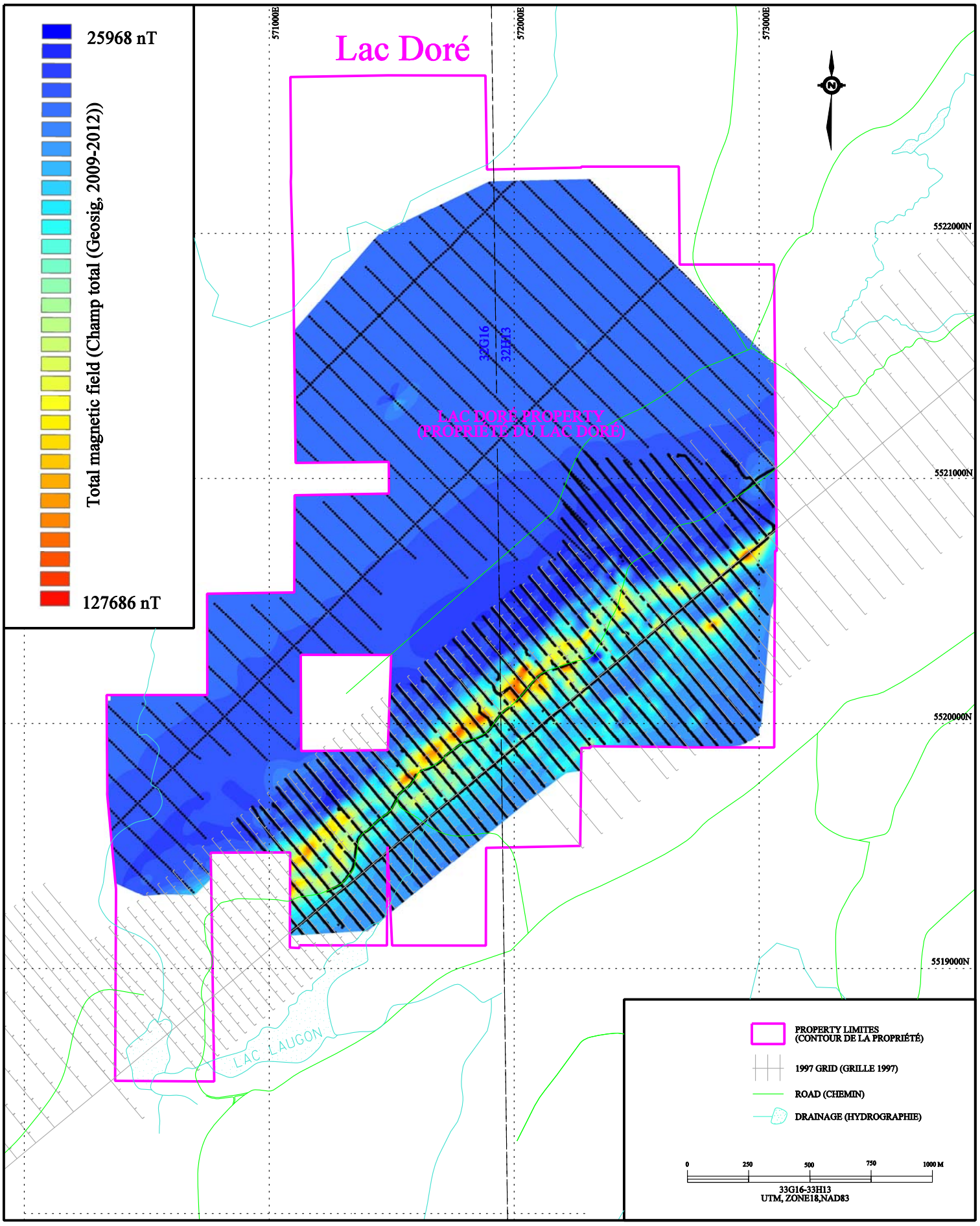


Figure 8a: Ground magnetic survey, Lac Doré property (Levé magnétique au sol, propriété Lac Doré)

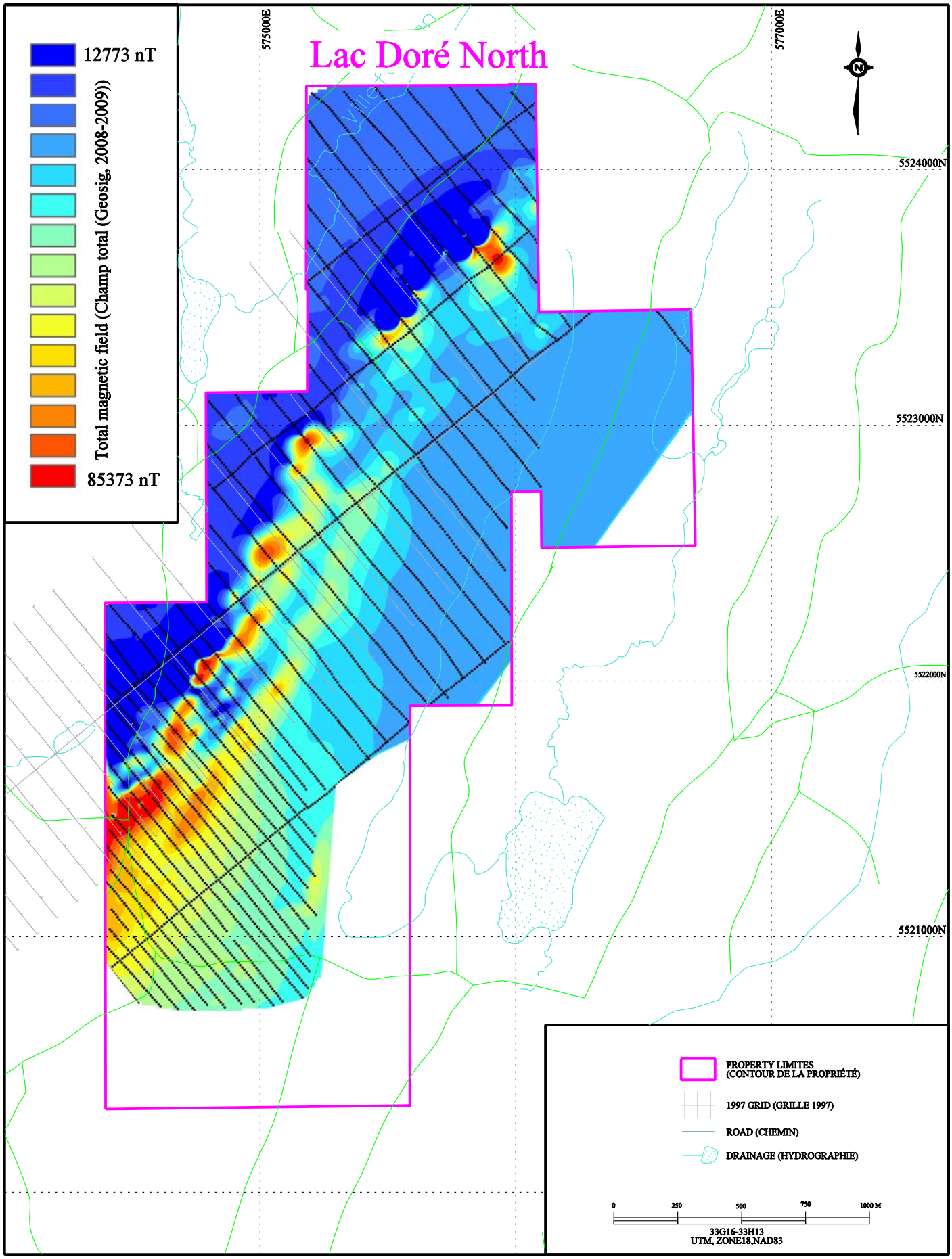


Figure 8b: Ground magnetic survey, Lac Doré North property (Levé magnétique au sol, propriété Lac Doré North)

ground magnetometric anomaly reported (Tshimbalanga and Hubert, 2009). No report describing the program was made available to the author[41,42], nor is any report filed for assessment at the government. A total of 60 samples were submitted for assaying, and results were published through a press release (January 22, 2010), indicating vanadium pentoxide grades between 0.05% and 1.089%, with an average of 0.55%[43].

The author visited the stripping in his mandatory field visit in November 2013, and witnessed the extent of the stripping as well as the presence of channel sampling *(**pictures 14** to **17**)*. The work seems to have been conducted according to industry procedures. However, no sample location, maps, field notes or assay databases were made available, and reconstructing the sample distribution will require re-typing the assay and remapping of the trenches, scheduled for next summer.

A second channel sampling program was conducted in summer 2009, concomittently with the drilling program. Only a mention in November 30, 2009 press release is available to the author, evidences in the fields not being discernable from the 2008 program. The same press release indicates that 86 channel samples were submitted for assay, results of which were not provided to the author.[44]

[41]Mr. Christian Derosier, P.Geo, former Vice President of Exploration for Apella Resources, indicated to the author that he transmitted all the available data to the current VanadiumCorp management, and that he did not keep copies of this applicable data or any reports. No further attempt was made by the author to acquire this data.

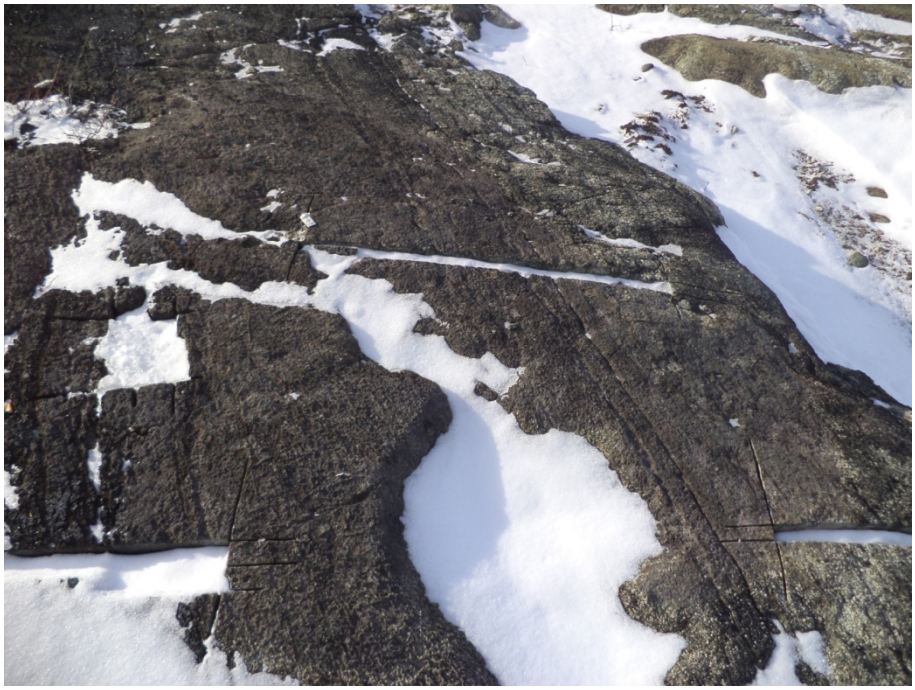
[42]The author recently (June 9th) made contact with Mr. Roger Moar, P. Geo, who conducted the program under contract for Apella. Mr. Moar confirmed there is no report written on this program, but that he has all the maps and data, which he will transmit to the author in near future.

[43] The press release, dated January 22, 2009 provided a listing of assays for 2008 program, without disclosing the sample lengths and locations, making it impossible to calculate intervals. Two assaying methods are described, without indicating which one was used for the release.

[44]Inversely to 2008 program, intervals for 2009 program were provided in a press-release, dated November 9, 2009, without their constituant sample results.

***Picture 14**: View of the main areal stripping excavated by Apella Resources in 2008 on Lac Doré North property, as currently visible. Notice the massive magnetite layer in the middle of the picture*

***Picture 15**: View of the sampling channel on the broad stripping excavated on Lac Doré North. Notice the uniform width of the channels, but also their swirling attitude.*



***Picture 16**: Channel sampling of a magnetite rich layer on Lac Doré North stripping. Notice the discontinuous channels with gaps between segments.*

***Picture 17**: Channel sampling of a barren anorthosite, showing gaps left between samples.*

2012: CHANNEL SAMPLING

A channel sampling program was conducted in the summer of 2012. No data or reports were made available to the author, nor is any report filed for assessment. According to information provided by Mr. Christian Derosier, who supervised the program, the sampling was intended to replicate former McKenzie Bay channel samples. Samples were apparently collected, but never sent to the laboratory for assays.

The author visited a few former McKenzie Bay trenches in the course of his mandatory field visit, and noticed the evidence of the recent sampling. He also has in his facility a large quantity of samples recovered from VanadiumCorp, which likely contains the channel samples. However, no locations or descriptions are available, and future collaboration with the former staff who carried out the sampling program is unlikely.

VALIDITY OF AVAILABLE SURVEYS

The ground magnetometric surveys were conducted according to the industry standards by a contractor known to provide surveys of adequate quality. However, the pertinence of these surveys can be questioned, since similar surveys covering the same area were available from SOQUEM and McKenzie Bay Resources. Furthermore, these surveys are superseded by the BlackRock Metals high resolution helicopterborne survey.

The trenching programs will not be commented on.

INDEPENDENCE OF CONTRACTORS

Geosig Inc. is a well established contractor, the independence and integrity of whom is not questioned.

The trenching program was contracted to Glen McCormick Exploration Ltd. from Chibougamau[45], who received stock payments from Apella Resources. He is therefore not considered as independent. The 2012 sampling program was conducted by Mr. Christian Derosier, VanadiumCorp's former Vice-President Exploration and Director and therfore is not considered independent.

[45] Confirmed by Mr. Moar, the geologist contracted for the program, but who did not supervised it directly.

ITEM 10: DRILLING AND CHANNEL SAMPLING

Limited drilling was completed by VanadiumCorp to date. Ten (10) short exploration holes were drilled on ***Lac Doré North*** by Apella Resources in 2009, and four confirmation holes drilled in 2013 by PacificOre Mining on **Lac Doré** property. This is in contrast with the fair amount of historical drilling done by previous onwers, and which shall be the basis for the future resource calculation. **Due to the importance of these historic drill holes, they will be described in detail in the following items**, which shall usually be restricted to work conducted by the current owner.

Trench and drill hole locations from the Lac Doré project are summarized in ***figures 9A*** and ***9B***. The sampling and assaying procedures are provided in the next items. Trench details and drill hole sections are provided in ***appendix 2***, as extracted from historic reports, with the exception of SOQUEM and MRN holes which are currently available only as large format blue prints.

1997 McKENZIE BAY RESOURCES TRENCHING

The 1997 stripping campaign carried out by the author on behalf of McKenzie Bay Resources provided quite systematic channel samples on more or less continuous section across the East and West deposits, spaced every 100 metres (Tremblay, 1998). A gap in the trenching pattern exists between 0+50E at the West end of the West deposit, to 2+00W due to topographic constraints. These trenches are quite systematic and continuous, being interrupted only on topographic accident or to avoid ripping out the road. Location of the trenches has been established with the use of a magnetometer, to locate the limits of the mineralization. Land surveying was made in 1997 and recently reviewed (Aurus, 2013). Overburden was typically less than a metre thick. The quality of these tenches is sufficient to consider them as equivalent of horizontal drill holes, as used by the various historical resource estimates. Trenches within the actual VanadiumCorp's **Lac Doré** project are listed in ***table 14***. An example is depicted on ***picture 18.***

It is to be noted that segments of trenches 2+50E, 3+50E, 4+50E, 5+50E, 2+00W, 3+00W and 4+00W are partly located on BlackRock Metals property.

Trench	From	To	Length	V2o5%	Fe2o3%	Tio2%
1050E	73	184.6	111.60	0.23	19.39	3.50
1200W	93	189	96.00	0.43	35.71	6.27
1250E	45	166	121.00	0.25	24.77	5.32
1350E_2	10	115	105.00	0.49	37.83	6.34
1400W	69	180	111.00	0.52	44.79	8.77
1450E_2	6	118	112.00	0.40	33.59	6.23
150E	43	122	79.00	0.32	28.34	5.84
150E	140	173	33.00	0.30	24.43	3.53
1550E	159	327	168.00	0.35	29.22	5.32
1600W	68	241	173.00	0.23	22.10	4.42
1650E	203	335	132.00	0.28	22.03	3.78
1750E	70	243	173.00	0.33	29.23	5.58
1825W_2	44	137	93.00	0.43	39.87	8.07
1831E	48	110	62.00	0.26	28.58	7.51
1850E	8	125	117.00	0.43	35.67	6.23
1950E_2	3	110	107.00	0.54	46.72	8.87
2000W	5	116	111.00	0.27	21.19	3.64
200W	7.5	124	116.50	0.27	22.64	4.32
2050E	24	327	303.00	0.34	31.37	6.36
2150E	32	64	32.00	0.43	46.88	10.73
2150E	213	246	33.00	0.58	41.91	6.72
2250E	31	333	302.00	0.23	19.25	3.24
2350E	67	245	178.00	0.34	30.12	5.80
2350E	281	317	36.00	0.30	23.98	3.37
2400W	45	199	154.00	0.33	27.42	4.89
2450E	21	321	300.00	0.27	24.21	4.25
2450E	384	411	27.00	0.23	17.55	2.58
250E	14	134	120.00	0.37	31.27	5.79
350E	69	240	171.00	0.34	31.96	5.77
400W	0	42	42.00	0.35	31.86	5.89
400W	115	174	59.00	0.34	27.11	4.07
450E	121	337	216.00	0.34	32.38	5.98
50E	27	144	117.00	0.28	26.31	4.84
550E	81.8	111	29.20	0.36	45.35	10.68
550E	192	258	66.00	0.36	26.52	4.08
650E	108	277	169.00	0.22	17.96	2.67
750E	47	82.5	35.50	0.39	51.66	11.67
750E	173	216	43.00	0.58	47.46	8.54
850E	89	235	146.00	0.33	32.46	6.70
950E	44	206	162.00	0.30	30.15	6.23

DDH	From	To	Length	V2o5%	Fe2o3%	Tio2%
DDH-40	41.15	85.78	44.63	0.42	32.12	5.74
DDH-42	3.83	150	146.17	0.60	47.11	8.68
DDH-44	6	147	141.00	0.46	36.29	6.07
LD-13-01	17.93	150	132.07	0.36	26.98	5.35
LD-13-02	78.47	150	71.53	0.56	44.00	9.57
LD-13-03	4.8	150	145.20	0.33	25.54	4.33
LD-13-04	2.8	150	147.20	0.31	27.87	5.89
LDN-09-01	9	93.05	84.05	0.27	25.96	3.88
LDN-09-06	6.69	27.18	20.49	0.28	25.56	3.84
S-10	7.92	79.4	71.48	0.48	42.73	4.46
S-11	4.88	75.77	70.89	0.53	42.42	8.48
S-12	6.16	114.36	108.20	0.51	40.99	8.11
S-13	21.55	112.17	90.62	0.60	47.23	9.76
S-14	5.64	101.19	95.55	0.59	47.36	9.98
S-15	23.56	86.87	63.31	0.61	50.51	10.75
S-16	9.6	99.21	89.61	0.52	42.26	9.15
S-17	13.29	64	50.71	0.65	46.82	9.13
S-18	3.05	139.29	136.24	0.45	34.25	6.89
S-19	13.41	94.79	81.38	0.39	35.60	7.74
S-21	29.65	47.35	17.70	0.46	58.52	12.71
S-21	134.38	195.1	60.72	0.43	40.47	6.60
S-22	50.5	175.25	124.75	0.32	29.33	5.47
S-24	25.04	174.05	149.01	0.48	45.52	8.81
S-24	189	211.36	22.36	0.29	24.53	3.39
S-25	4.3	175.4	171.10	0.50	48.22	9.46
S-27	9.45	128.3	118.85	0.49	44.15	8.22
S-28	24.6	150	125.40	0.41	42.83	8.81
S-29	9	191.25	182.25	0.42	39.88	8.06
S-30	1.15	68.15	67.00	0.42	36.17	6.38
S-32	0.9	48.78	47.88	0.63	53.73	11.27
S-33	0.9	95	94.10	0.52	45.01	8.19
S-34	1.35	206	204.65	0.40	37.67	7.71
S-35	1.77	78.8	77.03	0.47	49.34	10.81
S-36	9.7	183	173.30	0.33	29.76	5.93
S-37	53.15	250.6	197.45	0.52	46.58	9.60
S-7	4.11	183.49	179.38	0.69	60.66	6.24
S-20	41.5	151.6	110.10	0.36	30.19	5.38
S-31	2.04	183.8	181.76	0.39	35.21	6.60
S-38	79.6	225.25	145.65	0.48	42.06	8.27
S-8	0	164.9	164.90	0.40	50.32	5.20
S-9	5.91	51.36	45.45	1.00	87.94	8.65
S-9	114.91	163.07	48.16	0.32	31.23	1.15

DDH	From	To	Length	V2o5 %	Mag %
DDH-01	72	112	40.00	1.28	15.92
DDH-01	135.4	162	26.60	1.40	15.95
DDH-04	36.16	99	62.84	1.31	31.16
DDH-05	54.65	84	29.35	1.21	35.93
DDH-06	36.5	168	131.50	1.27	22.47
DDH-07	49	108	59.00	1.21	12.24
DDH-08	41.45	153	111.55	1.12	15.31
DDH-13	85	183	98.00	1.32	13.87
DDH-14	75	111	36.00	1.13	22.92
DDH-14	177	216	39.00	1.20	11.11
S-1	64.01	91.44	27.43	1.13	28.80
S-3	145.39	185.93	40.54	1.28	16.90
S-7	97.54	130.15	32.61	1.13	43.27
S-9	21.34	43.74	22.40	1.11	40.59

572000N
573000N
5519000N
L25E
L23E
L21E
L19E
L17E
L15E
L13E
L11E
L9E
L7E
L5E
L3E
L1E
L1W
L3W
3+00S
4+00S
5+00S
Lac Laugon

1997 grid (Grille 1997)
Property outline (Limites de la propriété)
Road (Chemin)
0 100 200 300 400 m

Figure 7a

Rock analyse (Aanalyse de roche total) V2O5 %
- Non data (Pas de données)
- < 0.2 %
- < 0.5 %
- >= 0.5 %

Magnetite concentration (Concentation magnétique) Magnetitie %
- Non data (Pas de données)
- < 10 %
- < 30 %
- >= 30%

VANADIUMCORP RESOURCE INC.

991 Project (Projet): Vanadium

Figure 9a: Drill holes and trenches:Lac Doré (Forages et tranchées: Lac Doré)

NTS (SNRC): 32G16, 32H13
UTM, Zone18, NAD83

Verification: R. Girard, Geo
Dessin (Drawing): S. Gao
Date: Mar. 2014

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Réjean Girard, Geo

574000E
575000E
576000E
577000E
5523000N
5522000N
5521000N
L39E
L41E
L43E
L45E
L47E
L49E
L51E
L53E
L55E
L57E
L59E
L61E
L63E
L65E
L67E
L69E
2+00S
4+00S
LDN-09-10
LDN-09-09
LDN-09-08
LDN-09-07
LDN-09-06
LDN-09-05
LDN-09-04
LDN-09-03
LDN-09-02
LDN-09-01
DDH-01
0.27 % V2O5, 25.96 % Fe2O3
3.88 % TiO2 / 84.05 m
0.28 % V2O5, 25.56 % Fe2O3
3.84 % TiO2 / 20.49 m
15.95 % magnetite / 26.60 m
15.92 % magnetite / 40.00 m
Kuisseau Lake
Tadnan
N
1997 grid (Grille 1997)
Property outline
(Limites de la propriété)
Road (Chemin)
0 100 200 300 400 m
Lac Doré North
Figure 7b
Rock analyse
(Aanalyse de roche total)
V2O5 %
Non data (Pas de données)
< 0.2 %
< 0.5 %
>= 0.5 %
Magnetite concentration
(Concentation magnétique)
Magnetitie %
Non data (Pas de données)
< 10 %
< 30 %
>= 30%
VANADIUMCORP RESOURCE INC.
991 Project (Projet): Vanadium
Figure 9b: Drill holes and trenches:Lac Doré North
(Forages et tranchées: Lac Doré North)
NTS (SNRC): 32G16, 32H13
UTM, Zone18, NAD83
Verification: R. Girard, Geo
Dessin (Drawing): S. Gao
Date: Mar. 2014
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Réjean Girard, Geo

***Picture 18**: Recent view, taken by the author in the course of his mandatory field visit, of the channel samping carried out by McKenzie Bay in 1997. Notice the absence of gaps between samples and that sampling tags are still in place.*

No trenching was undertaken on Northeast deposit by McKenzie Bay.

Deposit	Line	Station from	Station to	Length	Stratigraphy
East	24+50E	0+72S	3+66N	438	P0-P1-P2-P3
East	23+50E	0+00	3+405N	340.52	P0-P1-P2
East	22+50E	0+37S	3+38N	375	P0-P1-P2
East	21+50E	0+19N	2+66N	246.63	P2
East	20+50E	0+57S	2+72N	328.97	P0-P1-P2-P3
East	19+50E	0+13S	1+52N	164.9	P2-P3
East	19+50E	1+60N	2+88N	128.26	P1-P2
East	18+50E	1+86N	3+41N	155	P0-P1-P2-P3
East	18+31E	0+75N	1+90N	115.22	P2-P3
East	18+25W	1+00N	1+46N	45.74	P2-P3
East	18+25W	2+50N	3+88N	138.22	P0-P1-P2
East	17+50E	0+74N	3+30N	255.8	P0-P1-P2
East	16+50E	0+38S	3+12N	349.76	P0-P1-P2-P3
East	15+50E	0+00	4+37N	437.24	P0-P1-P2-P3
East	14+50E	0+08S	1+005N	108.57	P3

Deposit	Line	Station from	Station to	Length	Stratigraphy
East	14+50E	1+55N	2+77N	122.13	P1-P2
East	13+50E	0+15N	1+64N	148.93	P3
East	13+50E	1+79N	3+04N	124.6	P1-P2
East	12+50E	0+44N	2+105N	166.44	P2-P3
East	11+50E	0+87N	1+765N	89.51	P2-P3
East	11+50E	2+21N	2+75N	54.22	P1
West	10+50E	0+70N	2+96N	225.97	P1-P2-P3
West	9+50E	0+67N	2+85N	218	P1-P2-P3
West	8+50E	0+20N	2+675N	247.51	P1-P2-P3
West	7+50E	0+25N	2+50N	224.6	P1-P2-P3
West	6+50E	0+50N	2+35N	185	P0-P1-P2-P3
West	6+50E	2+65N	4+015N	136	P0-P1-P2-P3
West	5+50E	0+54N	1+15N	61	P3
West	5+50E	3+45N	3+98N	53	P0
West	4+50E	4+30N	4+99N	68.65	P0-P1
West	3+50E	3+85N	4+50N	65	P0-P1
West	2+50E	2+55N	3+85N	130	P0-P1-P2
West	1+50E	1+73N	3+47N	174.14	P1-P2-P3
West	0+50E	1+50N	2+97N	146.67	P1-P2-P3
West	2+00W	1+25N	3+32N	206.7	P1-P2
West	3+00W	1+09N	2+15N	171.67	P2
West	4+00W	0+84N	0+95N	11	P2

***Table 14**: Location of 1997 trenches. Segments belonging to BlackRock were excluded.*

1958 DRILLING BY JALORE MINING LTD.

Six holes were drilled by Jalore Mining in 1958, of which 5 are within the main **Lac Doré** property. These holes are oriented N308[o46] to 339° so about 20° to the east of the actual grid. Collars are poorly located, and were not found in the field by McKenzie Bay. Core is AX in diameter, and split for sampling. Jalore assayed the core for iron and titanium in their private laboratory, of which results are not available. The core was recovered by MRN in 1970, quarter-split and submitted for vanadium assaying in Davis tube magnetite concentrate at CRM (Kish, 1971). The core was not preserved. These holes are of little use and shall not be included in future resource estimation.

[46] Indicated as S28°E in Jalore report, which shall translate into N152°. However, every subsequent reports indicate them being oriented towards northwest.

1959 DRILLING BY TREPAN MINING

A series of five holes (T-1 to T-5) were drilled by Trepan Mining South-East of Armitage lake, on the Armitage deposit in 1959 (GM-10012). The holes are located approximately on section 10W of the Armitage grid[47], the accurate location is not available. Only drill logs are available, without much detail. The core was assayed for iron and titanium, but the vanadium content was only estimated. Logs are incomplete, hole T-4 is missing. The core was not preserved. These holes cannot be used for any resource calculation.

1970-1974 DRILLING BY QUÉBEC GOVERNMENT

Ten of the 13 holes drilled by the *Ministère des Richesses Naturelles* are located within **Lac Doré** property, of which 9 are on East deposit. Two of the remaining holes are on the South-West deposit while two others are on the West deposit but outside VanadiumCorp' property (BlackRock property).

Four holes were drilled in 1970 (DDH-07 to DDH-10), and logged by contract geologist of the MRN (Kish, 1971). Another nine holes (DDH-11 to DDH-19) were drilled in 1974 by L. Abvramtchev, of which only logs are available (***table 15***). They are oriented parallel to actual lines, between N320° and N330°[48]. Casings were not left behind and old drill pads are not visible. Accurate locations are not known. Logging and footage markings on these holes were apparently not done in a conventional manner[49] and accurate relogging of these holes is not possible[50]. Core is BQ in diameter, and was sampled by half-splitting. Drill logs were obtained from assessment files, as conventional paper logs, which were captured into a Microsoft office Excel database by IOS in 1997, and converted to Geotic' database for the purpose of the current report. The core has likely been preserved and stored at a BlackRock facility.

[47] Sections are numbered according to the grid established by McKenzie Bay Resources in 1997, which has subsequently been extended to cover the whole length of the deposit. Baseline is axial to the deposit and Line 0+00 is located at the western end of Laugon Lake. The Armitage deposit has its own grid, slightly different in orientation, with its line 40+00E intersecting line 24+00W of the main grid.

[48] The grid established by MRN was oriented with an East-West baseline and due north lines. No evidence of this grid remains visible in the field.

[49] No footage marker blocks were inserted at the end of each tubing, rendering footage recalculation impossible.

[50] Numerous manipulation and transport of the core boxes caused the split core to shift inside the boxes. Also, the core resided for almost 20 years in core-racks at Niobec mine, near the tailing pond, and is therefore heavily contaminated with niobium-carbonatite dust.

Drill hole	Company	Section	Collar	Azimut	Plunge	Length	Year	Property
S-1	Jalore Mining	25+00E	2+40.37N	308	-35	154.3	1958	West (partial)
S-2	Jalore Mining	31+82E	1+86N	323	-35	214.58	1958	West
S-3	Jalore Mining	39+96.96E	1+78.4N	339	-35	199.1	1958	East
S-4	Jalore Mining	46+30.94E	1+81.7N	334	-35	114.6	1958	East
S-5	Jalore Mining	36+30.94E	2+20.36N	327	-35	90.8	1958	East
S-7	MERN	25+00E	2+40.37N	330	-60	183.49	1970	West (partial)
S-11	MERN	36+92.15E	2+19.42N	320	-37	87.17	1974	East
S-12	MERN	37+32.72E	2+12.58N	324	-60	120.7	1974	East
S-13	MERN	37+81.94E	2+07.09N	324	-53	114.91	1974	East
S-14	MERN	38+35.16E	2+13.6N	324	-65	107.59	1974	East
S-15	MERN	39+0.43E	2+5.82N	324	-40	86.87	1974	East
S-16	MERN	39+74.95E	2+11.27N	324	-38	99.67	1974	East
S-17	MERN	40+96.02E	2+59.23N	324	-43	64	1974	East
S-18	MERN	41+74.14E	1+97.18N	324	-40	139.29	1974	East
S-19	MERN	42+75.36E	1+68.81N	324	-45	94.79	1974	East
S-20	Soquem	34+00E	1+50N	324	-50	152.45	1979	East
S-21	Soquem	35+00E	1+00N	324	-50	195.1	1979	East
S-22	Soquem	36+00E	1+25N	324	-50	225	1979	East
S-23	Soquem	36+50E	1+75N	324	-50	170.73	1979	East
S-24	Soquem	40+50E	1+80.5N	324	-50	231	1979	East
S-25	Soquem	37+50E	1+41N	324	-60	189	1979	East
S-26	Soquem	41+50E	1+93N	324	-50	200.7	1979	East
S-27	Soquem	38+50E	2+11N	324	-50	164.6	1979	East
S-28	Soquem	39+50E	1+61N	324	-48	150.17	1979	East
S-29	Soquem	42+50E	1+75N	324	-45	200.6	1979	East
S-30	Soquem	40+50E	2+69N	324	-45	74.7	1979	East
S-31	Soquem	43+00E	1+75N	324	-50	188.92	1979	East
S-32	Soquem	42+00E	2+50N	324	-45	48.8	1979	East
S-33	Soquem	42+50E	2+62N	324	-45	100.3	1979	East
S-34	Soquem	42+00E	1+50N	324	-45	208.78	1979	East
S-35	Soquem	40+50E	1+50N	324	-45	200.3	1979	East
S-36	Soquem	45+50E	1+50N	324	-45	200.3	1979	East
S-37	Soquem	40+00E	1+50N	324	-65	268.3	1979	East
S-38	Soquem	38+50E	1+50N	324	-60	256.1	1979	East
DDH-01	McKenzie Bay	46+00E	5+00S	320	-47	168	2001	NorthEast
DDH-05	McKenzie Bay	28+00E	1+75S	320	-45	102	2001	East
DDH-06	McKenzie Bay	26+00E	0+00	320	-45	168	2001	East
DDH-40	McKenzie Bay/SNC	23+00E	1+60N	320	-60	150	2002	East
DDH-42	McKenzie Bay/SNC	21+00E	1+50N	320	-45	150	2002	East
DDH-44	McKenzie Bay/SNC	13+00E	1+70N	320	-60	150	2002	East
LDN-09-01	Apella	45+30E	3+74S	320	-45	99.35	2009	NorthEast
LDN-09-02	Apella	44+32.6E	4+50S	320	-45	99.35	2009	NorthEast
LDN-09-03	Apella	46+31.4E	4+46S	320	-45	99.21	2009	NorthEast

Drill hole	Company	Section	Collar	Azimut	Plunge	Length	Year	Property
LDN-09-04	Apella	46+31.4E	3+78S	320	-45	99.42	2009	NorthEast
LDN-09-05	Apella	47+32.7E	4+44.5S	320	-45	96.31	2009	NorthEast
LDN-09-06	Apella	45+30E	3+00S	320	-45	81	2009	NorthEast
LDN-09-07	Apella	51+34.7E	5+58S	320	-45	99.3	2009	NorthEast
LDN-09-08	Apella	53+22.5E	2+70.5S	320	-45	99.34	2009	NorthEast
LDN-09-09	Apella	57+07E	0+10N	320	-45	98.97	2009	NorthEast
LDN-09-10	Apella	64+51E	2+40N	320	-45	123.4	2009	NorthEast
LD-13-01	PacificOre	20+83E	0+88N	321	-50	150	2013	East
LD-13-02	PacificOre	16+31E	0+92N	321	-60	150	2013	East
LD-13-03	PacificOre	12+26E	1+11N	321	-45	150	2013	East
LD-13-04	PacificOre	9+45E	1+00N	321	-50	150	2013	West

***Table 15**: List of drill holes, historic and recent. Length protruding into BlackRock property are not removed, but holes are indicated as "partial". Coordinates in red are referring to the original MRN or SOQUEM grids, and represent a translation compared to McKenzie Bay 1997 grid, the absolute value of which is not available.*

The quality and level of details of the logging by the MRN is adequate except for potential issues with depth measurement. No RQD, density, photographs or other measurements are available. Orientation precision is uncertain, considering the magnetic deviation occurring on the deposit, and the absence of GPS devices which did not exist at that time. Orientation was probably made aligning the rig with the lines, the quality of which cannot be verified. The pitch of the hole was measured with acid tests. Sampling procedures are not described nor is the chain of custody. Only Davis tube magnetite analyses are available for the 1970 holes conducted at CRM[51]. Averages of headgrade analysis are reported, but individual analyses were not disclosed. Holes made in 1974 have both headgrade and magnetite concentrate assays.

1979 DRILLING BY SOQUEM

In 1979, SOQUEM conducted a first resource definition drilling program over the Eastern deposit, for 19 holes and 3,325 metres (Dion, 1980). Holes were spaced between 50 to 100 metres along sections, with sections every 100-200 metres. Holes were oriented parallel to the sections or N324°, plunging toward the Northeast. Collars were located by grid coordinates, but the grid was surveyed by a land surveyor, providing accurate relative location. However, the grid position was anchored on a local datum (E40+00.23, S0+25.07) no longer available, which means that the exact location of these holes is not exactly known. A few collars were located by McKenzie Bay, providing some confidence. Drill core is BQ in diameter, with near perfect recovery. Sampling proceeded by splitting,

[51] CRM: *Centre de recherche minérale*, a government owned metallurgy laboratory, currently operating as COREM.

typically 3 metres in length. Approximately 300 density measurements were apparently made, although not available.

2001 EXPLORATION DRILLING BY McKENZIE BAY RESOURCES

In 2001, McKenzie Bay Resources conducted an exploration drilling campaign outside of the main deposit (Huss, 2003), for a total of 2,187 metres. Of the 14 holes, one (DDH-01) is located on **Lac Doré North**, while two (DDH-5 and DDH-6) are within **Lac Doré**. The remaining 11 holes are collared on BlackRock's property. This drilling was conducted by L. Huss, a well-trained geologist, under the author's supervision and is compliant with industry standards.

Holes were located to intersect the ground magnetometric anomaly, oriented parallel to the grid, and located according to grid pickets. They were NQ in diameter, and deviation of pitch was measured with acid testing[52]

Only Davis tubes magnetite concentrates were analyzed *(**table 16**)*, without headgrade analysis. Rejects were not preserved, so headgrade analysis is not possible anymore. Samples were typically 3 metres in length, for a total of 497 samples. However, due to budgetary constraints, samples were not assayed until 2003, under the Cambior Option. They were then concatenated into 197 samples, typically 9 metres in length. Of these, 166 were selected for Davis tube testing and assaying of the magnetite concentrate.

2002 CONFIRMATION DRILLING BY SNC-LAVALIN

Under the supervision of SNC-Lavalin, and as part of their due diligence on the resources of the deposits, IOS conducted a three hole drill program, aiming to certify former SOQUEM and MRN results on the Eastern deposit. Surprisingly, at the request of SNC, these holes were not duplicates of former holes, but seem to rather test surface results obtained from trenching. The program was directed by Mr. Alexandre Boudreault, junior engineer, under the supervision of the author, in the fall of 2002. Holes were NQ in diameter, and located according to line pickets. Dips were measured with clinometer at collar, and by acid test at depth.[53]

The core was logged according to industry standards, on a Microsoft Excel spreadsheet[54]. RQD were measured, the only ones over the whole project. Sampling was done with a core splitter, for a total of 107 samples, plus QCQA materials.

[52] Only the pitch of the hole was recorded, acid test do not measure orientation.
[53] Therefore, only the pitch of the hole was recorded.
[54] The numerical data of these logs were stored on floppy disc, which are now corrupted, and DOS-based

Atop of the three drill holes, trench 11+50E was resampled for a length of 15 metres. Sampling proceeded with a diamond rocksaw, cutting a 2" wide strip beside the former samples, for a total of 15 samples.

Samples were crushed and prepared at COREM for headgrade analysis. Davis tube testing has not been conducted. Material from these samples are no longer available, and cannot be tested for magnetic concentration. It is in the author opinion that the log description and sampling procedure were adequate. SNC considered that these holes and results adequately reproduced anticipated results.

2009 APELLA DRILLING

In 2009, Apella Resources conducted a drilling program on their **Lac Doré North** property, for a total of 10 holes and 1129.94 metres. The program was conducted by Mr. Roger Moar[55], P.Geo, under the supervision of Mr. Christian Derosier, P.Geo. No report was produced on this program, only drill logs were submitted for assessment files, and only the Geotic drilling database was made available to the author. Drilling sites were visited by the author in the course of his mandatory visit *(**picures 19** to **21**)*, and seem properly located and oriented *(**table 16**)*. Casing were left on a few of the holes, capped with aluminium plug. A wooden peg was inserted in the hole where no casing was left.

Hole	UTMX[56]	UTMY	Comments
LDN-09-01	574457	5521446	
LDN-09-02	574585	5521451	
LDN-09-03	574541	5521508	
LDN-09-07	575045	5521682	
LDN-09-09?	574661	5521517	
LD-03-01	572277	5520247	
LD-03-02	571926	5519968	
LD-03-04	571567	5519691	
LD-03-04b	571398	5519533	

***Table 16**: Coordinates of the drill collar measured by the author with a handheld GPS.*

tape back-up which cannot by easily read with modern computers. These original electronic logs are considered as lost, and current logs were rebuilt from paper prints.

[55] The author recently (June 9, 2014) contacted Mr. Moar, who is currently trying to gather the original data from his archives.

[56] NAD-83, UTM-18.

Core was HQ in diameter, and stored in a previously rented PacificOre Mining facility in Chibougamau. It was recovered by the author's crew and repatriated to his facility, located in Saguenay. The core was exanimated by Gennady Ivanov, P. Geo, and the log reviewed. The logs were of adequate quality and sufficiently detailed. Location of the collar was apparently done by handheld GPS[57], and downhole survey by Flex-it[58] device. RQD, density or magnetic susceptibility were not measured, nor were photographs taken.

Samples were taken with the use of a diamond saw, for a total of 254 samples, for length up to 3 metres. It was noted that wallrock to the magnetite bearing layers were not sampled. Samples were crushed and pulverised at the CEAQ-TJCM, in Chibougamau, and shipped for assay at ALS Mineral in Val-d'Or.

Most of the holes are located on the west side of the property, testing the large magnetic anomaly and the magnetite layers visible on their trenches. Four holes were testing other targets further East. Surprisingly, these do not coincide with magnetic anomaly, and their purpose is uncertain.

***Picture 19**: View of the capped casing found at LDN-09-01 site.*

[57] Recorded coordinates are within a few metres from the ones measured by the author.

[58] The use of a Flex-it device is indicated in the logs. However, a Flex-it works by measuring the orientation of the magnetic field, and is therefore useless in a magnetite bearing deposit! Therefore, only the pitch measurement is considered reliable, the orientation being likely useless.

***Picture 20**: View of the capped casing found at LDN-09-04 site.*

***Picture 21**: View of the casing left at LDN-09-07.*

2013 DRILLING BY PACIFICORE MINING

In 2013, PacificOre Mining conducted a short drilling program of four holes on their **Lac Doré** property, for a total of 600 metres *(**Pictures 22** to **25**)*. These holes aimed to duplicate former SOQUEM and Jalore holes, as shown in ***table 17***. It is to be noted that these duplicate holes were shorter than the original holes, and with slightly different orientation and pitch, and that they were collared up to 20 metres away from the reported position of the original holes. Confusion in the labelled hole numbers were noted by the author between LD-13-03 (not existing in the field) and LD-13-04B (as indicated on the peg).

2013 Hole	Historic hole	Line	Station
LD-13-01	S-77-31	43+00E	1+75N
LD-13-02	S-77-38	38+50E	1+50N
LD-13-04	S-58-02[59]	35+00E	1+75N
LD-13-03[60]	S-77-20	33+00E[61]	1+50N

***Table 17**: 2013 confirmation holes equivalents.*

Holes drilled in 2013 were HQ in diameter. They were reportedly located with the use of handheld GPS, with downhole survey made from acid testing. Collars were all located by the author last fall. They were described by Mr. Christian Derosier, P.Geo, using a Geotic database. Logs are according to industry standards and of adequate quality. RQD, recoveries and magnetic susceptibility were measured along with fracture description. Density measurement or detailed photographs are not available. The core was sampled and halfed with the use of a diamond saw, and samples shipped to the CEAQ-TJCM facilities in Chibougamau, for a total of 122 samples and 317.05 metres of core. The core was stored in a Chibougamau facility until it was recovered and transferred to IOS facilities in Saguenay. No detailed report was written, and only the logging database is now available to the author. Assays were indicated on printed copies of the logs, but not present in the database, suggesting the database provided was outdated and incomplete. Datas were retyped in the database to the best of our capabilities.

[59] Confusion is present in PacificOre logs, where it is indicated that LD-13-04 is a twin of DDH-71-02, which does not exist. It probably referred to Jalore's S-2 drilled in 1957, but assayed only in 1971 by the MRN.
[60] Tagged as LD-13-4a in the field.
[61] Indicated as on line 34+00 on the database, but on line 33+00 on the map.

***Picture 22**: Picture of the author at the LD-13-04 drill site.*

***Picture 23**: View of the labels on the peg inserted on LD-13-04 hole.*

***Picture 24**: View of the casing, cut at a bevelled angle, as left at LD-13-02 drill hole.*

***Picture 25**: View of the author's assistant at the casing left at LD-13-01.*

MINERALIZED INTERSECTIONS

Mineralized intersections were published officially only for the 2009 program by Apella Resources (November 30, 2009 press release) and 2013 program by PacificOre Resources (April 2, 2013 press release). Calculation parameters were not disclosed. For other holes, no intersections were ever published or calculated in reports.

For the purpose of the current report, mineralized intersects were calculated by the author using uniform parameters, using *"Explorpac"* (*Gemcom*) software (***tables 18*** and ***19***). McKenzie Bay channel samples were included in the calculation as "*horizontal holes"*, assuming unsampled interval as barren. Segments of hole or trenches outside the property (onto BlackRock property), naming trenches 3+50E, 4+50E, 5+50E and 6+50E, as well as for drill holes S1 and S7, were not excluded. Constrains were set as:

Minimum interval length: 25 metres
Maximum internal dilution: 25 metres
Maximum total internal dilution: 10 metres
Blank diluted.
Minimum cut-off grade: 0.2% V_2O_5 for headgrade assays
Minimum external dilution grade: 0.2% V_2O_5 for headgrade assays
Minimum length weighted grade for thin composite: 100% m
Minimum cut-off grade: 1% V_2O_5 for Davis tube concentrate[62].
Minimum external dilution grade: 1% V_2O_5 for Davis tube concentrate
Minimum length weighted grade for thin composite: 500% m.

Hole	From	To	Length	V2O5	Fe2O3	TiO2
24+50E	21.00	321.00	300.00	0.27%	24.21%	4.25%
24+50E	384.00	411.00	27.00	0.23%	17.55%	2.58%
23+50E	67.00	245.00	178.00	0.34%	30.12%	5.80%
23+50E	281.00	317.00	36.00	0.30%	23.98%	3.37%
22+50E	31.00	333.00	302.00	0.23%	19.25%	3.24%
21+50E	32.00	64.00	32.00	0.43%	46.88%	10.73%
21+50E	213.00	246.00	33.00	0.58%	41.91%	6.72%
20+50E	24.00	327.00	303.00	0.34%	31.37%	6.36%
2+50E	14.00	134.00	120.00	0.37%	31.27%	5.79%
19+50E	3.00	110.00	107.00	0.54%	46.72%	8.87%
18+50E	8.00	125.00	117.00	0.43%	35.67%	6.23%
18+31E	48.00	110.00	62.00	0.26%	28.58%	7.51%

[62] Sample with less than about 5% magnetite were not processed, and thus considered as blanks

Hole	From	To	Length	V2O5	Fe2O3	TiO2
17+50E	70.00	243.00	173.00	0.33%	29.23%	5.58%
16+50E	203.00	335.00	132.00	0.28%	22.03%	3.78%
15+50E	159.00	327.00	168.00	0.35%	29.22%	5.32%
14+50E	6.00	118.00	112.00	0.40%	33.59%	6.23%
13+50E	10.00	115.00	105.00	0.49%	37.83%	6.34%
12+50E	45.00	166.00	121.00	0.25%	24.77%	5.32%
10+50E	73.00	184.60	111.60	0.23%	19.39%	3.50%
9+50E	44.00	206.00	162.00	0.30%	30.15%	6.23%
8+50E	89.00	235.00	146.00	0.33%	32.46%	6.70%
7+50E	47.00	82.50	35.50	0.39%	51.66%	11.67%
7+50E	173.00	216.00	43.00	0.58%	47.46%	8.54%
6+50E	108.00	277.00	169.00	0.22%	17.96%	2.67%
5+50E	81.80	111.00	29.20	0.36%	45.35%	10.68%
5+50E	192.00	258.00	66.00	0.36%	26.52%	4.08%
4+50E	121.00	337.00	216.00	0.34%	32.38%	5.98%
3+50E	69.00	240.00	171.00	0.34%	31.96%	5.77%
1+50E	43.00	122.00	79.00	0.32%	28.34%	5.84%
1+50E	140.00	173.00	33.00	0.30%	24.43%	3.53%
0+50E	27.00	144.00	117.00	0.28%	26.31%	4.84%
2+00W	7.50	124.00	116.50	0.27%	22.64%	4.32%
S-7	4.11	183.49	179.38	0.69%	42.43%	6.24%
S-9	5.91	51.36	45.45	1.00%	61.51%	8.65%
S-9	114.91	163.07	48.16	0.32%	21.84%	1.15%
S-10	7.92	79.40	71.48	0.48%	29.89%	4.46%
S-11	4.88	75.77	70.89	0.53%	29.67%	8.48%
S-12	6.16	114.36	108.20	0.51%	28.67%	8.11%
S-13	21.55	112.17	90.62	0.60%	33.03%	9.76%
S-14	5.64	101.19	95.55	0.59%	33.13%	9.98%
S-15	23.56	86.87	63.31	0.61%	35.33%	10.75%
S-16	9.60	99.21	89.61	0.52%	29.56%	9.15%
S-17	13.29	64.00	50.71	0.65%	32.74%	9.13%
S-18	3.05	139.29	136.24	0.45%	23.95%	6.89%
S-19	13.41	94.79	81.38	0.39%	24.90%	7.74%
S-20	41.50	151.60	110.10	0.36%	21.12%	5.38%
S-21	29.65	47.35	17.70	0.46%	40.93%	12.71%
S-21	134.38	195.10	60.72	0.43%	28.30%	6.60%
S-22	50.50	175.25	124.75	0.32%	20.52%	5.47%
S-24	25.04	174.05	149.01	0.48%	31.84%	8.81%
S-24	189.00	211.36	22.36	0.29%	17.16%	3.39%

Hole	From	To	Length	V2O5	Fe2O3	TiO2
S-25	4.30	175.40	171.10	0.50%	33.73%	9.46%
S-27	9.45	128.30	118.85	0.47%	29.66%	7.84%
S-28	24.60	150.00	125.40	0.41%	29.96%	8.81%
S-29	9.00	191.25	182.25	0.42%	27.89%	8.06%
S-30	1.15	68.15	67.00	0.42%	25.30%	6.38%
S-31	2.04	183.80	181.76	0.39%	24.63%	6.60%
S-32	0.90	48.78	47.88	0.63%	37.58%	11.27%
S-33	0.90	95.00	94.10	0.52%	31.48%	8.19%
S-34	1.35	84.20	82.85	0.25%	21.87%	7.21%
S-35	1.77	78.80	77.03	0.47%	34.51%	10.81%
S-36	9.70	183.00	173.30	0.33%	20.81%	5.93%
S-37	53.15	250.60	197.45	0.52%	32.58%	9.60%
S-38	79.60	225.25	145.65	0.48%	29.42%	8.27%
DDH-40	41.15	85.78	44.63	0.42%	32.12%	5.74%
DDH-42	3.83	150.00	146.17	0.60%	47.11%	8.68%
DDH-44	6.00	147.00	141.00	0.46%	36.29%	6.07%
LD-13-01	17.93	150.00	132.07	0.36%	26.98%	5.35%
LD-13-02	78.47	150.00	71.53	0.56%	44.00%	9.57%
LD-13-03	4.80	150.00	145.20	0.33%	25.54%	4.33%
LD-13-04	2.80	150.00	147.20	0.31%	27.87%	5.89%
LDN-09-01	9.00	93.05	84.05	0.27%	25.96%	3.88%
LDN-09-06	6.69	27.18	20.49	0.28%	25.56%	3.84%

***Table 18**: Mineralized intersections calculated from drill holes and channel samples.*

Hole	From	To	Length	%Mag	$\%V_2O_5$[63]	Property
DDH-01	72.00	112.00	40.00	15.92	1.28	Northeast
DDH-01	135.40	162.00	26.60	15.95	1.40	Northeast
DDH-05	54.65	84.00	29.35	35.93	1.21	East
DDH-06	36.50	168.00	131.50	22.47	1.27	East
24+50E	180.00	321.00	141.00	15.77	1.11	East
23+50E	182.00	256.50	74.50	25.74	1.24	East
23+50E	285.70	326.00	40.30	11.03	1.28	East
22+50E	180.00	213.00	33.00	40.03	1.25	East
21+50E	213.00	246.00	33.00	40.01	1.45	East
20+50E	201.00	234.00	33.00	35.05	1.18	East
20+50E	235.20	321.00	85.80	36.84	1.22	East
19+50E	3.00	110.00	107.00	34.39	1.35	East
18+50E	98.00	125.00	27.00	17.59	1.41	East

[63] % V_2O_5 in the magnetite concentrate.

Hole	From	To	Length	%Mag	%V_2O_5[64]	Property
17+50E	88.00	133.00	45.00	42.12	1.12	East
17+50E	173.50	193.00	19.50	21.47	1.34	East
17+50E	217.00	250.90	33.90	9.76	1.45	East
16+50E	289.00	315.00	26.00	24.96	1.31	East
15+50E	183.00	238.90	55.90	38.20	1.15	East
15+50E	273.00	300.00	27.00	8.18	1.32	East
14+50E	37.00	64.00	27.00	45.34	1.18	East
14+50E	76.00	108.00	32.00	18.26	1.24	East
13+50E	19.00	79.00	60.00	28.41	1.38	East
13+50E	91.00	115.00	24.00	19.26	1.43	East
12+50E	130.00	166.00	36.00	33.26	1.27	East
10+50E	143.00	173.00	30.00	21.57	1.46	West
9+50E	140.00	200.00	60.00	23.70	1.22	West
8+50E	173.00	200.00	27.00	33.97	1.27	West
6+50E	185.00	206.70	21.70	34.83	1.29	West
6+50E	211.00	238.80	27.80	14.40	1.28	West
6+50E	247.00	265.00	18.00	15.13	1.56	West
5+50E	165.00	189.00	24.00	8.20	1.50	West
5+50E	219.00	312.00	93.00	22.22	1.32	West
4+50E	216.00	234.00	18.00	30.71	1.55	West
4+50E	251.00	277.00	26.00	25.30	1.30	West
4+50E	288.00	310.00	22.00	14.95	1.42	West
3+50E	132.00	246.00	114.00	13.36	1.31	West
2+50E	53.00	101.00	48.00	26.55	1.28	West
2+50E	110.50	143.00	32.50	10.71	1.58	West
2+00W	97.50	127.00	29.50	26.63	1.45	West
S-1	64.01	91.44	27.43	28.80	1.13	West
S-3	145.39	185.93	40.54	16.90	1.28	East
S-7	97.54	130.15	32.61	43.27	1.13	West
S-9	21.34	43.74	22.40	1.11	40.59	
S-11	17.37	70.80	53.43	1.18	32.85	
S-12	21.34	100.16	78.82	1.21	35.15	
S-13	36.76	112.17	75.41	1.20	42.51	
S-14	48.01	101.19	53.18	1.28	49.86	
S-15	23.56	75.22	51.66	1.25	42.85	
S-16	9.60	68.06	58.46	1.22	41.64	
S-17	27.19	64.00	36.81	1.24	35.74	
S-18	45.42	125.27	79.85	1.25	38.33	
S-19	13.41	40.14	26.73	1.09	34.37	
S-19	64.13	94.79	30.66	1.45	23.31	

***Table 19**: Mineralized intersections as calculated based on a minimal vanadium grade in the magnetite from the Davis tube. SOQUEM drill results are currently being reviewed, and thus not indicated in the table.*

[64] % V_2O_5 in the magnetite concentrate.

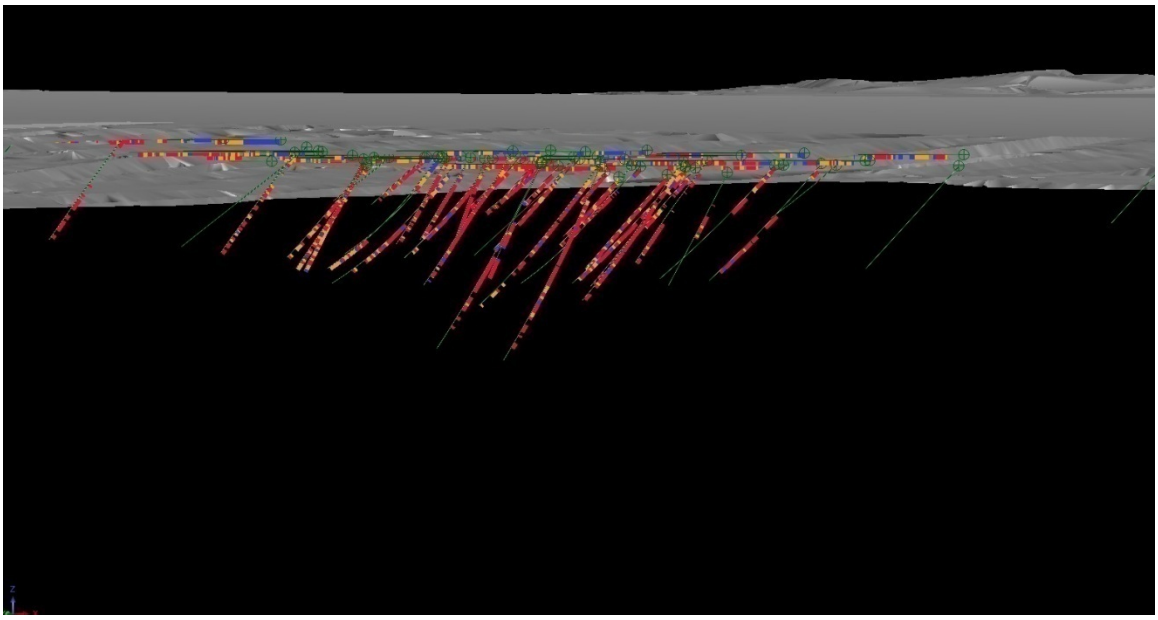

***Figure 9c**: 3-D projections of trenches and drill holes on East deposit, view from underneath the surface from the South. Blue: 0.1-0.2% V_2O^5, Orange 0.2-0.5% V_2O_5, Red: >0.5% V_2O_5. Digital terrain model is from the aeromagnetic survey.*

DISCUSSION ABOUT DRILLING RESULTS

The VanadiumCorp deposits include 54 drill holes, from all previous drill programs. The majority of these drill holes are located on **Lac Doré** property, specifically the Eastern deposit. Drilling on the Western deposit is sparse with only 6 holes, two of which are outside of the property, and two of which are split between VanadiumCorp and BlackRock's properties. This is not enough to evaluate resources. Similarly, 11 holes are within the Northeastern deposit, 7 of which are a small cluster, which provides only a partial interpretation of this deposit. The entire stratigraphy of the magnetite layers is traversed by only a few sections, excluding the P0 which was not intersected by drilling. The bulk of the drilling was targeting the P2 unit, which is the dominant resource of magnetite. The irregular drilling pattern contrasts with the regular and thorough channel sampling conducted by McKenzie Bay, which is of sufficient quality to be incorporated into resource estimation. Such trenching is not available on the North Eastern deposit. Drilling of the Northeastern deposit suggests the deposit is affected by faulting related to the Grenville Front, which creates stacking and truncation of the stratigraphy, in stark contrast to Eastern and Western deposits. Detailed interpretation of the Northeastern deposit has never been attempted. It seems that further to the East, the P2 unit disappears, leaving a thick non-economical P3 unit.

DRILL CORE STORAGE

The drill core from Trepan Mining and Jalore Mining is considered lost.

The drill core from the *Ministère des Richesses Naturelles* was recovered by SOQUEM and stored at Niobec Mines storage facility. In 1997, this core, along with SOQUEM core, was recovered from Niobec by McKenzie Bay Resources and stored at Laugon Lake. In 1999, core-racks were built at Laugon Lake, and the core properly stored[65].

The core from the 2001 drill holes done for McKenzie Bay and SNC-Lavalin has also been stored at Laugon Lake. From 2001 to recently, this storage facility was left unattended, and some core was vandalized.

In the summer 2008, the core stored at Laugon Lake was transferred to new core-boxes with covers and strapped on palettes pending transfer to a secured BlackRock Metals facility. The fate of this core is not known to the author.

Drill core from Apella and PacificOre is currently stored in rack in the IOS secured facility, located in Saguenay, QC.

[65] McKenzie Bay managed to recover this core in-extremis, days prior to the planned destruction of the core-racks and stored it at Laugon Lake. This core stayed unattended cross-piled on pallets, without covers put on the boxes, for two year prior to be put on core-racks, and then stayed unattended for years. This core was then recovered by BlackRock and the core-racks dismantled, and the fate of the core is uncertain to the author. However, due to its state while recovered from Niobec and the subsequent multiple manipulations, it is likely this core is not in a reliable state anymore.

ITEM 11: SAMPLING, SAMPLE PREPARATION, ANALYSIS AND SECURITY

McKENZIE BAY CHANNEL SAMPLING

All the channel sampling for McKenzie Bay Resources was completed by IOS using the same protocol. Channels were cut using diamond saws, about 4 centimetres wide and deep, parallel to the sections (trench axis). Samples are typically 3 metres in length, amounting to 10-20 kg per sample. Aluminum tags were nailed on the rock for identification. Locations were chained from the line's pickets. Sample length disregarded the geology, and was kept as constant as possible. Samples were chiselled out of the channels, bagged and shipped to Laboratoire S.L. (1997) or IOS facilities (1998) for crushing and grinding. No witness samples were kept, since trenches are readily accessible. Rejects from crushing were kept temporarily for eventual metallurgical processing but were finally discarded in 2002. A rigorous chain of custody was implemented by the author, due to stronger regulatory measures imposed in the same time frame.

The effect of weathering was tested upon a few samples, by collecting twin dulpicates below the initial sample. No discrepancies were noted. No weathering is noticeable at the surface of the trenches (Tremblay et *al*., 1998)

JALORE AND TREPAN MINING CORE SAMPLING

No information is available on sampling procedure, else that the MRN resampled the core in 1971.

MRN CORE SAMPLING

Core drilled by the MRN, BQ in size, was split with a standard core splitter and shipped to CRM for assaying. Details are not available, and rejects were discarded. The author noted that depth markers were not inserted in the boxes, neither is samples limits, implying that it would be impossible to properly quarter-split this core to replicate the assays.

SOQUEM CORE SAMPLING

Core drilled by SOQUEM, BQ in size, was split with a standard core splitter and shipped to Chimitec in Québec City for assaying. Detailed sampling procedure is available (Dion, 1980), and rejects were discarded. According to our 1997 observation, sampling was according to industry standards. Contrarily to MRN core, the depth marks were properly located. Various sections of the core were re-sampled by quarter-splitting by the author in 1997, and submitted to ALS Chemex for confirmation assays. However, due to the multiple manipulations on the core through time, pieces shifted in the boxes and exact position cannot be certified.

McKENZIE BAY RESOURCES CORE SAMPLING

The NQ core from the 2001 and 2002 McKenzie Bay Resources drill program was split in half on site using a regular hydraulic core splitter by IOS crews, following industry standards. The samples were bagged and shipped to IOS facilities for crushing and pulverizing. This core now likely stored at BlackRock facility, and if such would be available for re-sampling. A proper chain of custody was implemented for the two McKenzie Bay programs.

APELLA RESOURCES AND PACIFICORE MINING CORE SAMPLING

The NQ core from the 2009 and 2013 Apella Resources and PacificOre Mining drill program was halfed with a diamond saw in a facility rented in Chibougamau, apparently by Glen McCormick Exploration staff, following industry standards. The samples were bagged and shipped to TJCM facilities for crushing and pulverizing. This core now stored in IOS facility, and sampling currently being redone. No chain of custody was implemented by Apella or PacificOre, while a strict chain is implemented in IOS facility.

SAMPLE SECURITY AND TAMPERING ISSUES

Historical drilling program were sampled either by government or a crown corporation representative, and falsification of the samples is not considered a concern.

Since the 1997 McKenzie Bay Resources trenching program was carried out just after the outbreak of the Bre-X saga, much care was devoted to sample security. Samples were trucked by IOS employees to IOS or Laboratoires S.L. preparation facilities, and preparation done under IOS supervision (Bédard, 1998). Tampering issues were discussed but considered practically irrelevant (Girard, 1997), considering the size of the sample, the abundance of vanadium and its embedding in the magnetite structure.

McKenzie Bay representatives never acceded the samples in the course of the programs.

Samples from Apella or PacificOre drilling programs were collected by Mr. Glen McCormick, a local prospector and contractor, who was granted public company securities from the same companies. Mr. McCormick, or his employees, are not then considered independent.

JALORE AND TREPAN CORE ASSAYS

Core samples from Jalore Mining were initially assayed in their private laboratory for iron and titanium only (***table 20***).

Program	Year	Samples	Laboratory	Method	Davis Tube	Lab.
Jalore	1953	361	Jalore		124	CRM XRF
MRN	1971	122	CRM	XRF	109	CRM XRF
MRN	1973	274	CRM	XRF	270[66]	CRM XRF
SOQUEM	1979	691	Chimitec	AA	150	CRM XRF
MKBY	1997	1347	Chemex Lab	ICP-AES	481	IOS XRF
MKBY	2001	497	Not assayed		166	IOS XRF
MKBY	2002	107	Chemex Lab	ICP-AES	0	
Apella	2009	254	ALS-Chemex	ICP-AES	Underway	IOS XRF
PacOre	2013	122	ALS Minerals	ICP-AES	Underway	IOS XRF

Table 20*: Compilation of the headgrade assays and Davis tube testing for the various programs. Numbers encompass the entire historic database, thus including some segments of holes and trenches located on BlackRock property.*

MRN HEADGRADE ASSAYS

Core recovered from *Ministère des Richesses Naturelles* drill campaign was sent to *Centre de Recherches Minérales* ("CRM") for assay. CRM was then a governmental laboratory dedicated to mineral processing, with extensive expertise in iron ore dressing. Samples were ground at 75 µm (200 mesh), prior to being submitted for Davis tube testing. Headgrade was apparently assayed but not reported for iron, titanium, vanadium and chromium. Davis tube magnetite concentrates were assayed and reported for iron, titanium and vanadium. Analytical procedures were not disclosed, although the use of XRF on lithium glass bead is likely. Quality controls protocols and proficiency were not disclosed, if at all implemented.

[66] Currently under revision. Provided as separated metallurgical reports from CRM, and not compiled in drill logs.

It shall be noted the grinding prior to Davis tube testing was finer (75 microns) than for the McKenzie Bay Resources samples (200 microns) preventing direct comparison. This resulted in slightly higher vanadium and lower titanium grades in the concentrates.

SOQUEM HEADGRADE ASSAYS

Core form SOQUEM drilling was first assayed for vanadium, iron and titanium by Chimitec[67]. A total of 691 samples were submitted, and analyzed by atomic absorption for vanadium, colorimetry for titanium and $K_2Cr_2O_7$ titration for iron. A quality control protocol was implemented, including re-assaying of 169 samples by the CRM, plus 60 aliquots of five different internal reference materials. SOQUEM also carried a redundancy proficiency test (*"round-robin"*) prior to selecting Chimitec, involving five (5) different commercially operated or institutional laboratories[68]. Chimitec was selected on the basis that they provided results close to the average of the test, plus economic consideration. However, it must be noted that no certified reference material was inserted in the test, meaning that only precision[69] was tested, but not accuracy. The samples assayed both at Chimitec and CRM indicated a discrepancy of about 15% of their average, suggesting that at least one of the datasets was biased.

A set of 10 quarted-splits of SOQUEM core has been reassayed by McKenzie Bay, using ICP-OES after multi-acid digestion at Chemex Lab. These samples were significantly contaminated by niobium-bearing carbonatite from Niobec Mine, and it is likely that limits of samples are likely slightly different from SOQUEM samples. Hoewever, re-analysis enabled the comparison of 1979 with 1997 analysis, and to merge them into a single coherent dataset. As demonstrated by Bédard (1997), Bédard and Girard (1997) and Girard (1997), the results obtained by SOQUEM were underestimated by 13% (relative)[70], an observation similar to the discrepancy noted by

[67] A Bondar-Clegg subsidiary, subsequently bought by Inscape Testing in the 1980's, then by Chemex Lab in the 1990's, the by ALS in the 2000's. The then director of Chimitec, Mr. Richard Deschambeault, is currently still working for ALS, and much detail about analytical procedures were obtained from him.

[68] Back in 1979, implementing a quality control protocol on assaying was not the industry standard procedure, and to conduct proficiency test witnesses the professionalism used by SOQUEM at that time.

[69] The precision of an analysis represents the standard deviation of the replicated results, or how goods are the replicates. The accuracy represents the capacity of the analysis to provide results close to the real value, or how close is the average of the duplicate to the certified value of a reference material. When dealing with resource estimation, accuracy of the analysis is of utmost importance, more than precision. Measuring accuracy requires the use of certified reference material.

[70] This under-evaluation of the grade prooved to be fatal to the then economics of the project, which was abandoned based on its poor profitability. However, use of proper grade for resource estimation and preliminary economic assessment could have led to a totally different scenario in regards to the projectoutcomes.

SOQUEM in regards to CRM assays, confirmed by Cambior (2000) but refuted by SNC-Lavalin (2002).

Laboratory accreditation did not exist at the time of these programs.

McKENZIE BAY HEADGRADE ASSAYS

Samples from the 1997 and subsequent trenching programs were assayed with the same protocol under IOS guidance. Headgrade analysis was carried out on behalf of McKenzie Bay Resources, while Davis tube testing and magnetite concentrates analysis were done on the behalf of Cambior Inc.

Samples were crushed at 1.6 mm (10 mesh), aliquoted to 500 grammes, and pulverized at 63 µm (250 mesh) in IOS or S.L. Laboratories, prior to be shipped to Chemex Labs in Rouyn-Noranda for final pulverisation at 32 µm (325 mesh) with a CW ring mill. The pulps were then shipped to Vancouver for assaying at Chemex-Labs, using ICP-AES after a multi-acid digestion, except for vanadium analyzed by atomic adsorption. Vanadium, chromium and major oxides were measured. Rejects and pulps were discarded.

Samples from the 2002 confirmation drilling was prepared and assayed according to the same protocol. Samples from the 2001 exploration drilling were not submitted for headgrade assays. Rejects and pulps are not available anymore.

QUALITY CONTROL OF McKENZIE BAY HEADGRADE ASSAYS

Rigorous testing of assayer's proficiency was carried out in 1997 prior to the selection of Chemex laboratories. A set of test samples taken from the SOQUEM core, plus a series of certified reference material (SARM-12, SARM-38, and SARM-12 doped with SARM-38 [71]) were submitted to Intertek, Chemex Laboratories, Metriclab, CRM, X-Ral, Australian National University and Mintek[72], who used a variety of analytical methods[73].

[71] SARM-12 material is a vanadium bearing magnetite from the Mapoch mine. SARM-18 material is a pure vanadium pentoxide.

[72] Mintek is a South African metallurgical facility, similar to CRM, but having extensive expertise in vanadium.

[73] Accurate assaying of vanadium in magnetite is pretty challenging. First, for digestion-based wet chemistry, such as atomic absorption and ICP-methods, vanadium is rather refractory and is put into solution only with difficulty, requiring very acidic and oxidizing conditions, which create a risk of vanadium sesquioxide flocculation in the digestion liquor. Sodium peroxide fusion is required to obtain a robust digestion. Also, regarding X-ray fluorescence, the K_α spectral line for vanadium interferes with K_β of titanium, while K_β of vanadium interferes with K_α of chromium. As these three metals are present in the titanomagnetite, and because less energetic vanadium L_α lines interferes with oxygen K_α, deconvolution of the signal is tricky.

Chemex accurately and precisely reported the expected values (Bédard, 1997). This test represented the first attempt to measure the accuracy of the assays, and the author is very confident in its robustness.

Quality control included repeated assaying of certified material (SARM-12, plain and doped with SARM-38), internal reference material manufactured from Lac Doré minibulk samples, and blanks. Discrepancies were within analytical limitations and no issues were raised with regard to assay quality which were not addressed and corrected. No sample duplicate or re-analysis in a separate laboratory was made.

ALS-Chemex was not, at the time of the project, an ISO-9001 accredited facility, which was obtained in 2008.

APELLA AND PACIFICORE HEADGRADE ASSAYS

PacificOre (2013) samples were prepared for assaying at the *Centre d'Étude Appliquée au Quaternaire (CEAQ)*, a Chibougamau based preparation laboratory run by the *Table Jamesienne de concertation minière (TJCM)*, a local mining development organization. Samples were dried, crushed to 70% passing 2 mm with a jaw crusher, split to 250 grammes with a riffle splitter, and pulverized with a disk mill. Quality of milling is monitored by sieving every ten samples or so.

Samples were then shipped by the *CAEQ* to ALS Minerals in Val-d'Or, who rerouted them to another facility for assaying. Major oxides and vanadium were analyzed using XRF on a borate glass bead, plus trace elements by ICP-MS after aqua-regia digestion for selected samples. Results were transmitted electronically to PacificOre, who integrated them into their database[74].

Apella (2009) samples were submitted to *CEAQ*, likely to be prepared according to the protocol described for 2013 samples. They were then shipped to ALS Minerals in Val-d'Or for assaying. Since no report is available, details are not disclosed, and only the analytical package is indicated on the certificates plus some details on the press release dated November 30, 2009. Certificates of analysis are available only as a companion to the assessment report stored at the MRN repository, originals or electronic copies were not provided to the author. These certificates indicate that major oxide and vanadium were analyzed by XRF on a borate glass bead (ME-XRF-06 and V--XRF-10 packages), plus trace elements by ICP-MS after aqua-regia digestion for selected samples.

[74] The core of the 2013 program is currently being relogged and a short report written by an IOS geologist, in order to submit the work for assessment credits. These credits were not previously applied for by PacificOre in 2013.

However, in the logs, a second set of vanadium assays are indicated, for which no certificate are available. These second assays are discrepant from the previous one, when both are provided. Not all samples were apparently assayed with both methods, and results presented on sections without discriminating the dataset.

QUALITY CONTROL ON APELLA AND PACIFICORE ASSAYS

Apella Resources and PacificOre Mining implemented a quality control procedure for assaying of their core samples. However, no description of this procedure and its proficiency was provided to the author.

The 2013 drill logs indicate that eight (8) reference materials were inserted among the samples, distributed irregularly, representing 6.5% of the population *(**table 21**)*. These include three (3) blank materials, referred as *"Graymont limestone*", which shall be devoid of vanadium. Five other analyses refer to "*SITA, SITB or SITD*" internal reference materials which were prepared by CDN Resources Laboratories from Langley, B.C., and certified by Smee and Associates[75].

Analysis	Material	V% measured	V% Certified	Std-Dev
M742131	Lime	0.01%	?	
M742185	Lime	<0.01%	?	
M742159	Lime	0.01%	?	
M742219	SITA	0.10%	0.095%	0.008%
M742152	SITB	0.11%	0.101%	0.004%
M742162	SITB	0.11%	0.101%	0.004%
M742125	SITD	0.29%	0.273%	0.018%
54951[76]	DITB	0.27%	0.273%	0.018%
M742142	LD	0.13%	0.121%	0.004%

***Table 21**: QCQA results on 2013 drilling reference materials.*

Although the population is not large enough to be considered as representative, it can be noted that every analysis exceeds the certified grade by about 0.1-0.2% V (10% relative). A thorough review of the certification procedure is required prior to conclusion of the quality of the assays. Coefficient of variation of these certifications is large, between 5-10%, which is of a concern as it shows a low precision of the method indicate which will propagate to the resource estimates. Similar concerns affect the McKenzie Bay assays.

[75] Certification reports were made available to the author by Mr. Smee.

[76] A ninth sample, with a different number sequence, is indicated in the database, but not present in the certificate. It is likely a database artifact from a previous program.

The *CEAQ* used an alloyed steel ring mill for pulverisation, the steel of which containing up to 1.0% V[77]. It was noted by the author, in a previous project, that milling of magnetite-rich samples cause a severe wear to the mill, which contributes up to 1% of the sample weight, or 1% of iron in the analysis. The current vanadium content of the steel could then contribute to 0.01% vanadium to the sample, higher than the standard-deviation indicated for the assays. This would not be seen in the reference material, since they were not prepared by *CEAQ*. It is uncertain if the pulverisation of the *"blank*" limestone would have caused such wearing, calcite being much softer than steel, while magnetite is of comparable hardness.

The 2009 drill logs[78] indicate that six (6) reference materials were inserted among the samples, for a total population of 2.4%. Assay results and the nature of these reference materials were not made available to the author, and Mr. Moar, who logged the core, do not recall.

ALS Minerals was, at the time of the programs, an ISO-9001 accredited facility. It is uncertain if ALS had its ISO-17025 accreditation or vanadium assays. *CEAQ* does not have any accreditation.

COMPARISON BETWEEN McKENZIE BAY AND HISTORICAL HEADGRADE ASSAYS

The quality of assays had always been a concern with the current project, mainly regarding their accuracy. Vanadium hosted in iron-titanium is difficult to assay, first due to its refractory nature, second because the complex spectral interferences with iron, titanium and chromium and third because of its multiple valence influencing its solubility and complexing capacity. Rigorous quality control was implemented by McKenzie Bay Resources in 1997, and all datasets acquired since then are considered as being accurate and compatible with each other.

Assays carried on behalf of *Ministère des Richesses Naturelles* were not rigorously controlled. The Ministère sent a series of 11 samples to four different governmental laboratories in 1968, but had to have the assays done at CRM. Discrepancies were significant. The tested samples did not include certified reference materials.

SOQUEM performed a similar test, sending 16 samples to five laboratories (Dion, 1980). No certified reference material was included, which later proved to be a fatal flaw.

[77] Certificate provided to the author.
[78] LDN-09-01 to LDN-09-10 only, available at MRN repository. Only 249 assays are listed on paper copies of the logs, while 292 are indicated in the database for the same number of reference material.

Chimitec, which was chosen for headgrade analysis, reported values 13% lower than CRM, used for Davis tube testing (Vallée, 1989). Re-analysis of some of these samples by McKenzie Bay in 1997 confirmed the problem and concluded that Chimitec assays were 13% lower than where they should be. Resource calculation used the Chimitec assays, but inter-laboratory discrepancies were reported (LMBDS-Sidam, 1981). Since the majority of drill core assays are from SOQUEM, this discrepancy was perpetuated in the subsequent resource calculation. It shall be considered that using a grade 13% higher in their resource calculation and economic evaluation would likely have changed the fate of SOQUEM's project.

Cambior did a thorough quality control on assay results; including re-assays of McKenzie Bay Resources channel samples and SOQUEM core samples. They reported that Chemex results done by ICP-OES after multi-acid digestion for McKenzie Bay were 3% lower than Corem (previously CRM) by XRF on borate glass. Discrepancies were also noted from the SOQUEM core, the magnitude of which is not disclosed.

SNC-Lavalin did a review of the quality of the analyses, based on statistical evaluation. SNC did not re-assay any samples. Their conclusion comes in contrast with previous studies, claiming that assays done by various owners were comparable, and can be used without any correction in a resource calculation. The author remain skeptical on these conclusions and recommends caution in use of this data.

COMPARISION BETWEEN APELLA-PACIFICORE AND McKENZIE BAY HEADGRADE ASSAYS

The quality of Apella and PacificOre assays was poorly constrained, and a comparison with assays done by McKenzie Bay, SOQUEM or MRN is not currently feasible and will require partial reassaying for such. Discrepancies in the range of a few 0.01% V_2O_5 is realistically expected, which can have serious impact as such bias may represent an overestimation of 5% of the contained vanadium.

DAVIS TUBE TESTING GENERALITIES

Davis tube testing is the industry standard protocol to routinely measure the abundance of magnetite in iron ore. It is a wet high strength magnetic separation, operating at 3000 gauss under a water current to wash the non-magnetic fraction. It is considered by metallurgists that Davis tube testing is a fair simulation of industrial wet magnetic separator. The quality of the magnetite concentrate is dependent on liberation of the magnetite grains, and thus to grain size and grinding process, as well as the settings of the various other parameters such as magnetic field strength and water current. Such settings are usually not disclosed. Some laboratories use "standard" settings, while other

will optimize them through a grinding test. Magnetite abundance obtained by Davis tube testing and its analyses can be used directly into resource estimation and block modelling.

Abundance of magnetite can also be measured with the use of a *Statmagan* apparent magnetic susceptibilitimeter. This indirect method was used by the CRM on SOQUEM and Cambior samples, in parallel with the Davis tube testing. A fair correlation was obtained.

DAVIS TUBE TESTING OF JALORE, MRN AND SOQUEM SAMPLES

Samples from Jalore drill holes (spot samples), MRN and SOQUEM holes were tested for their magnetite content by Davis tube at the CRM. Little details are available on settings; other than the testing wasperformed on material grinded at 200 mesh. A standardized protocol is expected. No grindability or liberation tests are available. Magnetite concentrate was assayed for iron, titanium and vanadium, and no systematic measurement of the remaining silica and lime is available. Most of these Davis tube tests were conducted as individual metallurgical test, providing headgrade, concentrate and reject analyses, allowing calculation of mass balances, which calculation were provided. A total of 653 tests were conducted, apparently using similar procedures. Notice that assays from SOQUEM headgrade and concentrate were made by Chimitec and CRM, and these laboratories have documented discrepancies.

No Davis tube testing is reported by Jalore. However, such testing with iron assays are reported in a subsequent MRN report (Kish, 1971), but it is uncertain who conducted it. The report mentions that the MRN resampled the core, taking only "spot" samples at different depth, and processed by Davis Tube testing to have the concentrates assayed for vanadium, titanium and chromium by CRM[79]. No details on analytical procedure are available, however, a similar procedure as for MRN core is suspected in regards to Davis Tube testing.

A series of 17 SOQUEM samples were resubmitted for testing by Cambior (internal report, 2000), who failed to reproduce the initial results. Discrepancies in the order of 12-15% are indicated.

[79] Therefore, the vanadium assays of the magnetite concentrates do not represent intervals of core. However, according to author experience, the vanadium grade in the magnetite concentrate does not vary much over short interval. Therefore, for the purpose of the database for intervals calculations, the author used the vanadium grade in magnetite on spot samples, and applied it to the magnetite abundance calculate on the Jalore samples, over thier indicated intervals. Although not rigorous, this shall provide results relatively close to reality.

No laboratory accreditation existed at the time of the programs.

DAVIS TUBE TESTING OF McKENZIE BAY CHANNEL SAMPLES FOR CAMBIOR

A first series of Davis tube magnetite concentrates were made in 1997 on samples from the trenching program by MetricLabs from Montreal, and assayed at Chemex Laboratory by ICP-AES after sodium peroxide fusion. These concentrates and analyses were plagued with quality problems, and the program was halted.

In 1999, IOS was mandated by McKenzie Bay to initiate magnetite concentration on channel samples with the use of the Davis Tube. An extensive series of tests were carried to assess the grinding, concentration and assaying best protocol (Girard, 2000)[80].

Production of magnetite concentrate was reinitiated by IOS on behalf of Cambior in 1999. Adjacent samples aliquots were concatenated by group of typically three, in order to represent intersection of about 6 to 9 metres[81]. Of the 1347 samples, 481 magnetite concentrates were made, of which 401 are from the East and West deposits.
Sample's aliquots were milled at 100 µm (150 mesh), and magnetite separated with the Davis tube according to a complex protocol and reprocessed until quality specifications were met (<4% silicates in the concentrate, <10% magnetite in the rejects, <5% losses, >5 grammes magnetite) (Villeneuve, 2000). Concentrates and rejects were shipped to Cambior. Analyses were made at Corem (*"Consortium de Recherche Minérale", ex-CRM*) using XRF on borated fused beads for the magnetite concentrates and ICP-AES for headgrades.

A thorough quality control protocol was implemented by Cambior in regards to their magnetite concentrate analysis, including inter-laboratory cross-checks, certified and internal reference material insertion, replicates and mass balance calculation. Quality control concerning the Davis tube concentration was implemented by IOS and included grain size control, mass balances and binocular examination of the concentrate.

[80] In 2011, IOS conducted a large Davis tube testing program for an iron ore project. At the onset of this program, further testing of the protocol was conducted, including magnetic field strength measurements. It was then detected that the seperator used for these tests, which was the same as for Cambior and McKenzie Bay tests, was malfunctioning due to a manufacturer's (Dings Electric Co) defect. The polarity of one of the induction coils was inverted, which precluded obtaining the required magnetic field strength and caused hysteresis instability due to overheating. This explains why the proper separation was difficult to achieve during Cambior testing and why a complex protocol had to be implemented. Visual examination and assaying however confirms the quality of the concentrates and the author remains confident in using them.

[81] Sample concatanation was not corrected for their respective weight or length, according to the protocol required by Cambior, which may cause a slight bias.

Cambior, in an internal note, indicated that these tests met specifications, except that grinding was slightly too coarse.

IOS did not have any laboratory certification at the time. Corem was, at the time of the program, an ISO-9001 accredited facility. However, it did not have the ISO-17025 accreditation for vanadium assays.

DAVIS TUBE TESTING OF McKENZIE BAY DRILL CORE SAMPLE

Samples collected from McKenzie Bay Resources drill holes in 2001 were submitted for Davis tube testing, although they were not submitted for headgrade analysis[82]. Of the 497 samples, typically 3 metres in length, 197 concatenated samples were made and 166 magnetite concentrates prepared. Grinding, magnetic separation and assaying protocols were near to identical to the one used by Cambior, and results considered thoroughly comparable. Grinding was set at 85% <150µm. Analyses were made at Corem, using XRF on borated beads.

Quality control on Davis tubes testing included grain size control, mass balance and binocular microscopic examination of the concentrate. Quality control on assaying was included mass balance as well as certified and internal reference material insertion[83].

Davis tube tests by IOS for McKenzie Bay Resources on samples outside the main deposit, such as on drill core from Southwest deposit, Armitage and the abutted Northeast extension, currently held by BlackRock Metals, were carried out with the same protocols as for Cambior on the main deposits, and are considered as comparable.

DAVIS TUBE TESTING OF APELLA AND PACIFICORE CORE SAMPLES

Samples from Apella Resources (2009) and PacificOre Mining (2013) were not tested for the magnetite content with a Davis tube. They are currently in the process of being resampled and tested by the author's firm.

[82] Due to a lack of funds in 2001, Davis tube testing was conducted in 2003 only.
[83] QCQA results were not disclosed in the report but are available in archives.

DISCUSSION ON DAVIS TUBE TESTING RELIABILITY FOR TITANOMAGNETITE

The discrepancies which arose between Ministère, SOQUEM and Cambior are even more significant with regards to magnetite concentrates made by Davis tube testing. Each set of data were made according to different specifications, especially with respect to grinding. Samples submitted by Jalore Mining and MRN to the CRM were ground at 90% - 325 mesh (<50 µm), SOQUEM samples were ground at 85% - 200 mesh (<75 µm) and McKenzie Bay plus Cambior at 85% - 100 mesh (<150 µm). Obtained grades are not directly comparable, although it does not mean that they are inaccurate. It is likely that these values can be normalized at constant magnetite-ilmenite ratio.

The vanadium grade obtained in the magnetite concentrate is a function of the efficiency to remove minute ilmenite intergrowths. The finer the comminution, the more efficient is the removal, but the lower is the overall vanadium recovery. Optimization of the grinding and beneficiation process in regards to the kiln requirement will be complex. To grind finer means cleaner kiln feed and lower reactants consumption[84], but also increased grinding costs and clinking issues. Grinding cost is a square of the function of the fineness and represents the bulk of the beneficiation circuit operating costs. Conversely, less grinding means less beneficiation cost and better recovery due to the processing of vanadium bearing ilmenite, but a higher roasting cost due to the lower feed grade and higher soda ash consumption.

The importance of this grinding can be visualized from Davis tube tests. Such testing is a magnetic separation done routinely on individual samples, currently regarded as a standard procedure in the iron industry. As pointed out by SNC-Lavalin, Davis tube concentrates done for Cambior were grinded at 120 µm, and yielded 1.2% V_2O_5 and high ilmenite content, while the metallurgical tests completed when grinding at 60 µm yielded 1.4% V_2O_5 and lower titanium content. The decision for grinding at 120 µm for testing was made after a series of tests which indicated that the bulk of oxides were liberated at such fineness. Grinding at 60 µm for the metallurgical test allowed production of a cleaner (<1% SiO_2) and richer concentrate, but quadrupled the grinding cost and reduced recovery.

[84] The bulk of the silicate minerals contaminating the magnetite concentrate is calcic plagioclase. During roasting, the silica of the plagioclase reacts with soda ash to form sodium metasilicate, which ends in the pregnant liquor and forms silica gel. It is the main cause of soda ash consumption aside from the formation of sodium vanadate. Sodium metasilicate cannot be economically regenerated into soda carbonate. Second is calcium, which reacts with vanadium pentoxide in the kiln, to form insoluble calcium vanadate, which is the main cause of vanadium non-recovery during the roasting-hydrometallurgical process. Therefore, cleanliness of the kiln feed is of utmost importance.

For the very same reasons, Davis tube tests done at different laboratories with different protocols cannot be directly compared. The tests done by IOS for Cambior on McKenzie Bay's channel samples does not readily compare with the tests done on the drill core by the *Centre de Recherche Minérale* for SOQUEM and *Ministère des Richesses Naturelles*. **The vanadium grades achieved on the magnetite concentrate are process sensitive** (Girard, 2014).

ITEM 12: DATA VERIFICATION

Considering the project spans over 60 years of work, by numerous groups, with different goals and methods, and considering the very large and heterogeneous database involved, thorough data verification has not been completed to the accuracy level satisfying the author. The thorough drill and assay validation is currently under process, in order to produce a resource recalculation in coming months.

HISTORIC REPORTS

Most of the over 200 historical reports[85] relating to the deposit were read by the author through time, and significant information, maps, drill-holes and assays are currently being captured into database and mining software. Most of these reports were handed to the author in 1997 by SOQUEM, and are available only as hardcopies. Thorough validation and capture of relevant data is currently done under the author's supervision.

McKENZIE BAY RESOURCES DATA

The author carried out extensive review of all the data collected by his various field crew during the McKenzie Bay period. No significant data was acquired subsequently to the time when McKenzie Bay held the project. The author is confident in the quality and robustness of this data, with the exception of the ground magnetic survey. However, the trenching data was not captured in a manner to enable to use them with current drill hole management software[86]. The capture of the data into a Gemcom compatible format is currently underway.

GROUND MAGNETIC SURVEYS

The author is of the opinion that the quality of the ground magnetic survey data carried out for Apella and PacificOre by Geosic Inc. is of adequate quality, notably with regard to the density of measurement points. No significant leveling issues are noted.

The set of ground magnetic surveys conducted for McKenzie Bay contains severe leveling issues, which cannot be properly corrected. They shall be used for illustration purposes only, and no modelling shall be attempted from these data.

[85] The author's archives for the project currently fill 3 complete four drawer file cabinets.

[86] For example, samples locations were quoted as lines and positions along lines coordinates. This data was converted in a database by Cambior and subsequently by SNC-Lavallin, but these files were not transferred to the author.

The author does not have the expertise to fully interpret the Novatem airborne magnetic survey.

APELLA AND PACIFICORE DATA

A negligible amount of data from the two trenching program conducted by Apella (2008) and PacificOre (2012) was made available to the author. The only information recovered was part of the sample booklets and what is stated in press releases. To reconstruct the data, the trenches will have to be mapped, which is planned for early summer, and the certificates recalled from ALS Minerals.

Drill logs from Apella (2009) and PacificOre (2013) programs were compared meticulously with the core, and considered of acceptable quality. The sample's meterage were thoroughly checked, and corrected if needed. Most collars were visited by the author, and coordinates taken with the use of a GPS fitted coordinates indicated by Apella. The core is currently being resampled and resubmitted for Davis tube testing including headgrade re-analysis.

ITEM 13: MINERAL PROCESSING AND METALLURGICAL TESTS

Titano-magnetite is notorious for not being suitable for iron production, unless coupled with vanadium and titanium co-production and smelted by direct reduction and arc furnace. Conventional blast-furnace smelting of titano-magnetite was attempted in the early 1900's for various deposits located in Québec (St-Charles de Bourget, St-Urbain, Natashquan, etc.) without commercial success.

Since its discovery by Gulf Mineral in 1956, more attention was placed on the metallurgy of the Lac Doré magnetite mineralization than on the characterization of the deposit itself. Successively, Jones and Laughin Steel, the Québec Departement of Natural Resources (*Ministère des Richesses Naturelles*), SOQUEM, McKenzie Bay Resources and BlackRock Metals[87] did extensive work on the metal recovery and various aspects of the metallurgy. Extraction of ferroalloys is usually more complex than for base or precious metals and requires metallurgical testing early in the exploration process. The overall profitability of a project, independently of its grade and resources, is usually dictated by the choice of metallurgical process and the capital requirements attached to the selected process.

Presenting the Lac Doré project systematically raises questions about efficiency of the metallurgical process and availability of essential know-how. Extensive metallurgical testing on Lac Doré mineralization was carried out by past owners of the project, **and indicates clearly the suitability of the mineralization to beneficiation, and the recoverability of vanadium by conventional processes**. Both tested routes, alkali roasting and intensive fusion, have been commercially operated worldwide upon similar ore for more than 50 years and are proven technologies. Laboratory and pilot plant tests on Lac Doré mineralization were carried out by various independent laboratories, which indicated clearly that the mineralization behaves similarly to other vanadiferous-titaniferous-magnetite deposits actually processed in the world. Concentrate and recovery grades were similar to other ores when tested with both methods. Overall metallurgical efficiency is thus forecasted with acceptable certainty.

Titaniferous magnetite is the cleanest vanadium ore and requires the simplest metallurgical process. Vanadium extraction out of shales, phosporite, uranium ore, flue ashes, bauxites, non-titaniferous iron ore, stone coal or clays is known as complex and expensive (Gupta and Krishnamurthy, 1992), and shall not be compared to titaniferous iron ore processing.

[87] BlackRock Metals has stated they have conducted metallurgical testing of the Lac Doré ore in China, without disclosing any details.

For almost all metallurgical tests done, bulk samples were taken from P2 in the East deposit. It was amply demonstrated that the mineralization from the West deposit is very similar to that of the East deposit, as well is the mineralization from BlackRock's Southwest and Armitage deposits. Mineralization from Northeast deposit may behave differently in the course of beneficiation, due to metamorphic overprint causing sintering, grain coarsening and the presence of abundant iron silicates such as chlorite.

More important is the stratigraphic zonation of the deposit, both in grade and mineralogy. Beneficiation and metallurgical efficiency is dependent on the specific stratigraphic unit which is to be tested. Conversely, the decision as to which unit is to be mined, and thus tested, is dependent on the process selected in the metallurgical tests, and which metals are to be recovered. Production of vanadium alone by alkali roasting requires high vanadium grade in the magnetite and may tolerate low magnetite abundance, while co-production of vanadium, iron and titanium by intense fusion is less sensitive to vanadium headgrade[88] but requires high magnetite content. Abundance and easy accessibility explain why P2 unit was selected for most bulk sampling.

SNC-LAVALIN TESTING

In the course of the feasibility study carried by SNC-Lavalin Inc. on behalf of McKenzie Bay International Ltd., extensive beneficiation and metallurgy testing was carried out in 2002. Although the Quebec Gouvernment significantly funded the SNC Feasibility Study, they only received a partial copy upon its completion. All intellectual rights held by McKenzie Bay International relating to their former Lac Doré project, including the electrolyte process, were then sold to BlackRock Metals in 2008 (***figure 10***). This Feasibility Study is available to the author, but likely subject to confidentiality. McKenzie Bay International's objective was to produce electrolyte for vanadium based Vanadium Redox Batteries (VRB) only, ignoring the production of metallurgical grade vanadium pentoxide as well as ferrovanadium. Although beneficiation tests involved conventional processes, electrolyte production relates to processes which are proprietary and strictly confidential. **The high purity vanadium extraction processes, even in their broad scope, cannot be disclosed in the current report without harming the various parties.** According to discussion the author had with Mr Mracek who developped the process, this process shall be adaptable for the production of pure (99.99%) vanadium pentoxide at a similar production costs than for conventional metallurgical grade. Although beneficiation tests involved conventional processes, they may still be confidential. The vanadium extraction processes will not be disclosed in this report for these reasons. Electrolyte production at Lac Doré is an option that shall be developed

[88] As example, the Pangang deposit in China is mined at a average headgrade of 0.27% V_2O_5, and produce a magnetite concentrate grading 0.53% V_2O_5, or less than half the Lac Doré magnetite.

conveniently once the commercial market justifies production. In the event then the McKenzie Bay process in not made available to VanadiumCorp, conventionnal process remain available and hydrometallurgical refinements shall be initiated by VanadiumCorp in order to develop its own process. Part of the testing results for the historic electrolyte technology is publicly available for reference in the 26 pages SNC-Lavalin executive summary from the feasibility study, publicly disclosed on the internet[89].

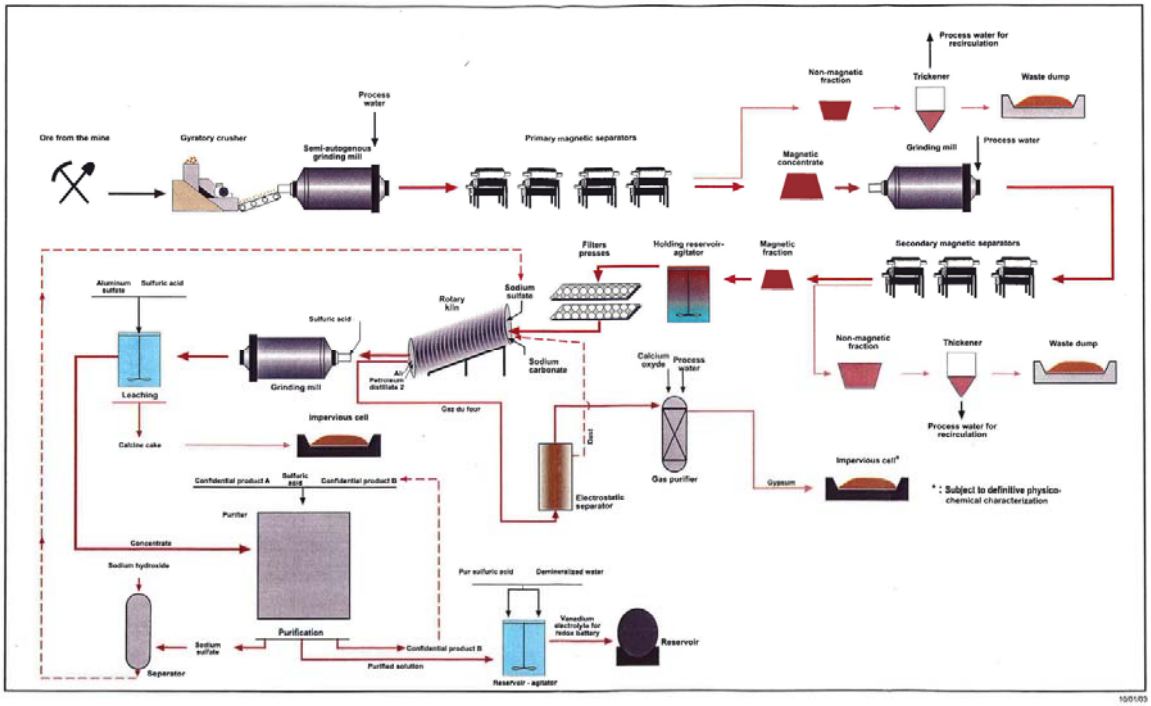

***Figure 10**: Process for Production of VRB Electrolyte from Entraco Environmental Study.*

BULK SAMPLES

The *Ministère des Richesses Naturelles du Québec* collected successively three bulk samples of 30, 200 and 600 tonnes in late 1960' and early 1970'. These samples were taken from the P2 magnetite rich beds of the Eastern deposit. It is uncertain if these three bulk samples were taken at the same location. They are considered as likely biased toward a higher headgrade than the average deposit. They were taken within the area of the initial pit design for SOQUEM, the site still being visible in the field ***(picture 26)***.

[89] In the executive summary posted on internet, SNC-Lavalin indicated that all data related to metallurgy and process had to be removed from the public version of the feasibility, and thus kept confidential by McKenzie Bay. Sensitive information about the hydrometallurgical process was carefully removed.

***Picture 26**: Sampling site for 600 tonnes bulk sample collected by the Ministère des Richesses Naturelles in 1971.*

***Picture 27**: Sampling site for the 50 tonnes bulk sample collected for SNC-Lavalin in 2001.*

A series of eight (8) small 1 tonne bulk samples were collected by McKenzie Bay in 1997, from various stratigraphic units. Bench tests including grinding, energy consumption and magnetite concentration were carried-out on one of these samples

(T1) (Lamontagne, 1998). SNC-Lavalin also used these for preliminary beneficiation tests. These are the only bulks samples taken from P0, P1 and P3.

A 50 tonnes sample was collected for SNC-Lavalin in 2001, which was used for the pilot plant testing carried out within the scope of the feasibility study. This sample was collected from the P2 horizon in Eastern Deposit, close to the former MRNQ site ***(picture 27)***.

BENEFICIATION AND MAGNETITE CONCENTRATE QUALITY

Beneficiation of the Lac Doré magnetite is apparently a relatively easy process. The specifications to be met are what is needed to produce a pure magnetite-ilmenite concentrate containing less than 1% silica and 0.1% lime. These two elements are the most deleterious in regards to vanadium recovery and alkali consumption. Magnetite can be easily separated with the use of cascading magnetic separators. Various designs were tested both at the laboratory and pilot plant scales. Reported results in the literature are sometimes confusing, since they do not always provide details of the tests. In every single test, specifications were apparently exceeded positively.

The efficiency of subsequent metallurgical processing is sensitive to the grinding and beneficiation process employed. With the roasting process, finer the magnetite concentrate, more fly ash are generated in the rotary kiln. Leaching gets more effective and filtration is less efficient. Invesely, smelting is likely to require pelletization, rendering the process less sensitive to fineness. *The Lac Doré mineralization is not expected to be suitable for economical direct reduction smelting such as RTIT (QIT) process without pelletization.*

BENEFICIATION TEST CONDUCTED BY JALORE MINING LTD.

Jalore Mining Ltd. reported a limited beneficiation test relating to the potential production of iron ore. They were unable to produce a magnetite concentrate with titanium content low enough to be suitable for blast-furnace iron smelting.

BENEFICIATION TEST CONDUCTED BY CAMPBELL-CHIBOUGAMAU MINES LTD.

A 35 tonnes bulk sample, taken from the Campbell-Chibougamau deposit[90], was sent to CRM for magnetite concentration in 1966. The report is not available.

FIRST CRM BENEFICIATION TEST, 1967

The first beneficiation test done on the Lac Doré mineralization was carried by the CRM on drill cores recovered from Jones and Laughlin drilling. At the time, four small samples representing 50 kilogrammes were selected by Dr. Gilles O. Allard and tested. Concentration was done by Davis tube and with a Sala magnetic separator, on samples grinded at 325 mesh. A few alkali roasting tests were subsequently performed on these concentrates.

BENEFICIATION TEST BY IRSID, 1970

A pilot plant beneficiation test was performed by IRSID (*"Institut de recherche sidérurgique")* in Nancy, France in 1970, on behalf of the *Ministère des Richesses Naturelles* (Gerbe et *al*., 1970, Astier et *al*., 1970). It processed 5 samples of 4 tonnes each from the MRNQ bulk samples *(**table 22**)*. Autogenuous grinding energy requirements were established at 8.15 to 12.7 kWh/t. A dry route test included primary grinding and low strength magnetic separation (usually referred as *"scalping"* by metallurgist). Subsequent humid route involved secondary grinding at 325 mesh, magnetic separation and recycling. Ilmenite was concentrated using a high strength magnetic separator and gravity separator from rejects of primary magnetic separation (Astier and Boudier, 1969). The results for the five samples are listed below. The low vanadium grade is probably a result of sampling parts of the P3 unit, vanadium distribution not being understood at that time. The material was not assayed for contaminants.

IRSID	Yellow	Red	Bleu	Brown	Green
Fe	85.3%	83.8%	82.3%	80.8%	81.7%
V	1.39%	1.26%	1.16%	0.87%	1.19%
TiO_2	9.5%	11.0%	12.4%	15.6%	12.1%

***Table 22**: Analysis of IRSID concentrates.*

[90] The Campbell-Chibougamau deposit consists of another series of magnetite layers near lac Caché, Chibougamau.

2nd BENEFICIATION TEST BY THE CRM

A second beneficiation test was carried in 1971 (Cloutier, 1971) by the CRM using aliquots of the same samples than IRSID tests. Conventional wet methods were used for comminution and separation, including multiple steps crushing and grinding down to 270 mesh. Magnetic separation was done using a Sala separator and then a Davis tube. This work aimed mainly to establish the effect of grinding mesh on concentration.

BENEFICIATION TEST BY FOOTE MINERALS

Tests were carried on the Lac Doré mineralization by Foote Minerals for an American Steel producer. Only a shipping statement is available at this point, no results were found.

3rd BENEFICIATION TEST BY CRM

The third concentration test (Delisle et Dessureaux, 1977) was done at the pilot plant scale by the CRM *(**table 23**)*. The samples were extracted from trenches T-1 (45 tonnes) and T-3 (200 tonnes). Such large tonnage was needed for subsequent smelting test. The rock was first crushed to -28 mesh and submitted to a first magnetic concentration ("*scalping"*). Rejects were treated with Humphrey spirals for ilmenite recovery (3%). The concentrate was then ground to 90% -325 mesh and submitted to a second magnetic separator. Grinding indexes were calculated at 12.7-13.0 kWh/t for the rock and 23.9-26.0 kWh/t for the magnetite concentrate.

Drums of this concentrate were submitted to various laboratories for pelletizing, roasting and smelting tests.

	1	**2**	**3**	**4**	**5**	**6**
Fe_{total}	65.9%	64.7%	64.1%	65.0%	64.37%	66.0%
FeO		32.5%	30.6%	--	32.25%	--
Fe_2O_3		--	57.7%	--	56.19%	--
TiO_2	9.6%	8.0%	7.97%	7.5%	7.75%	0.54%
V_2O_5[91]	1.46%	1.61%	1.48%	1.6%	1.56%	0.77%
SiO_2		1.20%	0.80%	1.0%	0.88%	2.8%
Al_2O_3		0.81%	0.67%	0.8%	0.78%	0.36%
MgO		0.24%	0.25%	0.24%	0.45%	3.86%
CaO		0.17%	0.15%	0.17%	0.14%	0.05%
P		0.0017%	--	--	--	0.01%

[91] A large variability is noted in V_2O_5 between the various concentrates shipped. The reasons are elusive.

	1	2	3	4	5	6
As		< 0.001%	--	--	--	--
Cr_2O_3		0.06%	0.13%	0.13%	0.12%	--
MnO		0.15%	0.20%	--	0.15%	--
Na_2O		0.07%	0.05%	--	--	--
K_2O		0.05%	--	--	--	--
S		0.02%	--	0.02%	--	0.02%
Ni		0.011%	--	--	--	0.06%

***Table 23**: Analysis of the magnetite concentrate from the 3rd CRM test.*

1: CRM pilot plan concentrate reported by CRM; 2: CRM pilot plan concentrate analyzed by Rautaruukki Oy; 3: CRM pilot plan concentrate analyzed by Hatch Associate; 4: CRM pilot plan concentrate as mentioned in CIM Bulletin; 5: CRM pilot plan concentrate used by QIT fusion.

BENEFICIATION TEST DONE BY LAKEFIELD RESEARCH FOR SNC-LAVALIN

A pilot plan beneficiation test was commissioned to Lakefield Research in 2001 by SNC-Lavalin, under the supervision of Mr. A.R. MacPherson, Consultant, on behalf of McKenzie Bay International (McKen, Bigg, Williams, 2002). This included the bench-scale processing of the eight 1 tonne bulk samples collected in 1997 by McKenzie Bay, plus the pilot plan processing of the 50 tonnes bulk sample collected in 2001. The test includes primary grinding, magnetite scalping at low magnetic intensity, secondary closed circuit regrinding and triple drum low intensity magnetic separation ***(figure 11)***. Results were apparently within specifications, yielding a magnetite concentrate at <1.2% SiO_2 and <1.2% V_2O_5, from a feed of 0.47% V_2O_5 and 32% magnetite. Results of these tests are currently confidential. Subsequent beneficiation test for ilmenite were reported by McKenzie Bay, once the feasibility was completed, the results of which are not available to the author.

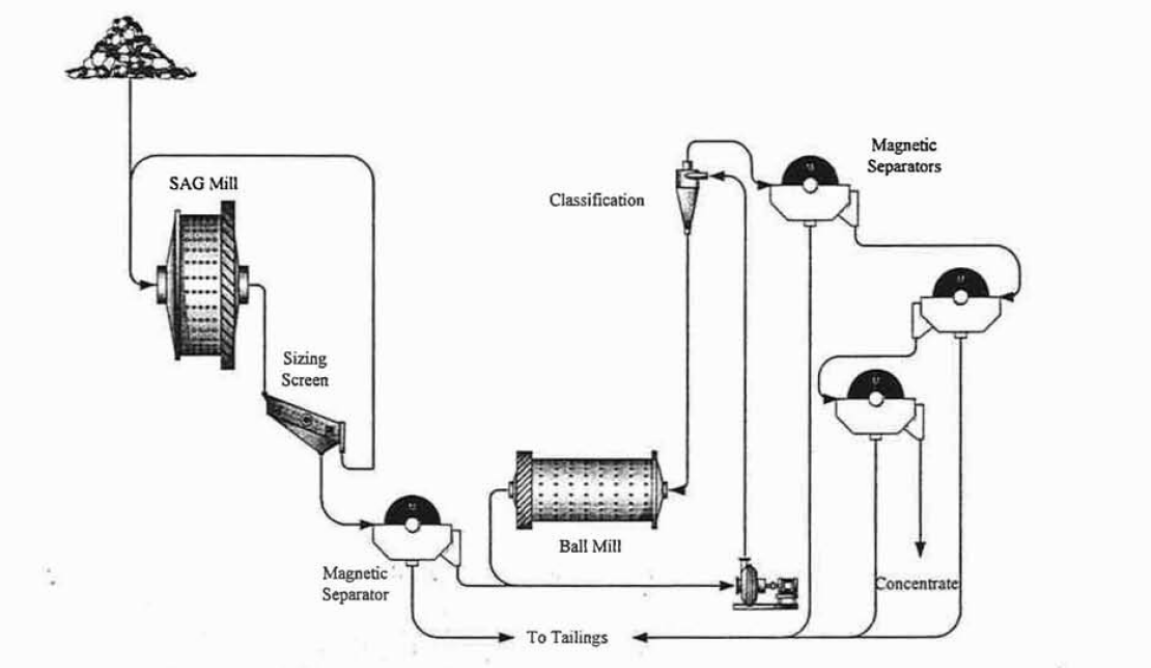

***Figure 11**: Beneficiation flow diagram designed by SNC-Lavalin, as presented in their excutive summary.*

PELLETIZATION

Numerous pelletization tests were carried on the Lac Doré magnetite concentrates. These were done by Rautaruuki (Finland), Ontario Research Foundation (Fossen, 1977) and CRM (Naldo, 1978). The pellets quality were considered as excellent.

HIGHVELD-TYPE SMELTING TESTS

The Lac Doré magnetite mineralization, because of its titanium content, is not suitable for iron smelting in standard shaft or blast furnaces. *"Should this process be used to smelt magnetite ore, the carbon reduces the titanium dioxide*[92] *content to titanium sequioxide, which then combines with the air blast to form titanium nitrides and carbides. This results in the precipitation into a solid agglomeration which shuts down the furnace by choking up the blast passages"*[93]. Early attempts to smelt similar titanium bearing magnetite lumps ore from St-Charles-de-Bourget and St-Urbain deposits failed, the ore being reported as too refractory.

[92] Titanium dioxide: *TiO_2; titanium sesquioxide: Ti_2O_3*
[93] http://www.evrazhighveld.co.za/processoverview.asp

However, the ore can be smelted by direct reduction in electrical furnaces and two variance were tested, namely Highveld and QIT. These processes involved direct reduction and intensive fusion in an arc furnace for the production of either steel or pig iron, and a vanadium-titanium slag. Direct reduction accounts for the production of about 74 million tonnes of iron annually for the world[94], mainly in "*minimills*"[95], or 4.6% of the total steel production.

The Highveld process is currently used by Highveld Steel and Vanadium from South Africa, a subsidiary of Evraz, as well as various producers in Russia and China. It involves direct reduction in rotary kilns influxed by carbon monoxide followed by intensive fusion of the sponge iron (*"bloomery"*) in a submerged arc furnace, where vanadium in partitioned 40% in the slag and 60% in pig iron (Gupta and Krishnamurthy, 1992). Then the vanadiferous pig iron is converted into steel and high vanadium slag in an oxygen-blown converter (similar to Bessemer converter).

> *"Evraz Highveld's own innovative method of smelting the magnetite ore involves a preliminary "pre-reduction" stage. The ore is mixed with coal and fluxes, fed to rotary kilns and heated. This effects a degree of oxygen removal from the iron ore and complete charring of the coal; the danger of a titanium reaction is then eliminated. The pre-reduction stage, because it makes use of coal and not coke and has the effect of lowering the power requirements of the smelting, results in a cheaper iron-making process. The hot pre-reduced charge from the pre-reduction kilns is smelted in submerged arc furnaces. The titanium separates from the molten pig iron and forms a dense slag which can be drawn off at the start of tapping. The molten pig iron contains about 3% carbon and about 1.25% vanadium. In Evraz Highveld's steel plant the hot metal is agitated and oxygen-blown in shaking ladles to remove the vanadium. The process steps which follow are steelmaking, continuous casting and rolling."*[96]

This process is complex, mills being expensive to build and technologically intensive. It was partly tested on the Lac Doré ore by Canmet[97] (Viens et *al*,, 1976), CRIQ[98] (Handfield, 1978) and CRM (Gabra, 1978). Smelting of the Lac Doré mineralization was successful, the mineralization proved to behave properly and vanadium to be properly

[94] http://www.midrex.com/uploads/documents/MDX%20STATS%202012%207-3-13Final.pdf
[95] *"Minimill"* is a steel production concept, developed by Co-Steel Lasco, currently Gerdau Corporation, who built small intensive fusion steel mills in proximity of their markets, such as car assembly plants. One such will is present in Oshawa, Ont.
[96] http://www.evrazhighveld.co.za/processoverview.asp
[97] Canmet: Metallurgical division of Natural Resources Canada
[98] CRIQ: Centre de recherche industrielle du Québec

held in the pig iron with a grade of 0.9% V (compared to 1.1%-1.4% in Highveld). The conversion of pig iron to steel has not been tested, and thus vanadium recovery has not been attempted. It must be noted that the steel produced by this process could not be used directly by other Quebec or Ontario based steel mills (Arcelor-Mittal in Contrecoeur, US Steel in Hamilton (closed in December 2013)). Titanium is not recovered by the Highveld process, the slag being recycled as furnace liner.

QIT SMELTING TEST

The second smelting process is based on the pre-UGS[99] QIT[100] process (Malinsky and Castonguay, 1983). The pelletized Lac Doré magnetite, compared to lump ore in QIT, is reduced in rotary kiln and then in arc furnace to produce high purity pig iron and a Fe-Ti-V slag. Vanadium is extracted from the slag through alkali-roasting. A low-titanium residue is left, which can be used for titania production through sulfate (Malinsky, 1977) or chlorine (Marsan, 1978) route. A full scale test was conducted in QIT furnace, which yielded acceptable quality pig iron and 6.84% V_2O_5 slag (Gagnon, 1978). About 90% of the vanadium was recovered in the slag (Malinsky and Kougioumutzakis, 1979). This process is capital intensive and would require the acquisition of specific technologies from RTIT (Malinsky, 1975).

Extensive testing of the vanadium recovery out of the slag was carried out by the CRM (Malinsky, 1979, 1978, 1977; Kougioumoutzakis, 1979; Trudeau, 1979). Production of synthetic rutile (Malinsky, 1981) was also tested.

Various options were proposed by the CRM to integrate the Lac Doré smelting with other operating mills and smelters, such as processing the ore at QIT (actually RTIT) in Sorel or selling hot metals to Sidbec (ArcelorMittal) for their Contrecoeur steel mill.

The QIT mill in Sorel produces pig iron and titanium slag as co-products. Profitability of the integrated operation depends on these two independent commodities. Currently, the bulk of their revenues is made out of steel production, while a decade ago titanium dominated its revenues. The titanium dioxide, end-product of the titaniferous slag, was reported as a more saturated market in recent years.

OTHER SMELTING PROCESS

The smelting processes used in Russia and China are apparently similar to the Highveld process, although details are not available to the author *(**figure 12**)*. However, vanadium

[99] UGS: Upgraded slag process, introduced in late 1990's by QIT, the details of which are confidential.
[100] QIT: Quebec Iron Titanium, currently operated as RTIT or RioTinto Iron Titanium.

grades of their ore are significantly lower than in South Africa. Titanium production is reported for some of these operation, and BlackRock states that titanium would be extracted from their ore and credited. This process is used by Pangang[101], the largest vanadium producer in China, accounting for 35% of this country output. It is to be noted that the magnetite concentrated produced at their Baima mine is grading only 0.53% V_2O_5 and that the process recovers only 42% of the vanadium present in the magnetite. Lac Doré magnetite concentrates from BlackRock were apparently tested successfully by Pangang. BlackRock claimed that the titanium slag production would apparently cover most of their cost of production, and that they have an off-take agreement with Pangang Titanium from China for the sale of their magnetite concentrate[102] with a credit for its titanium concentrate.

[101] "Pangang": Panzhihua Iron and Steel Company Limited, a state-owned Chinese steelmaker, who is also the largest titanium and vanadium producer in China. This is said to be another group BlackRock intends to sell product.

[102] BlackRock promotional presentation in Chibougamau, held on October, 2013.

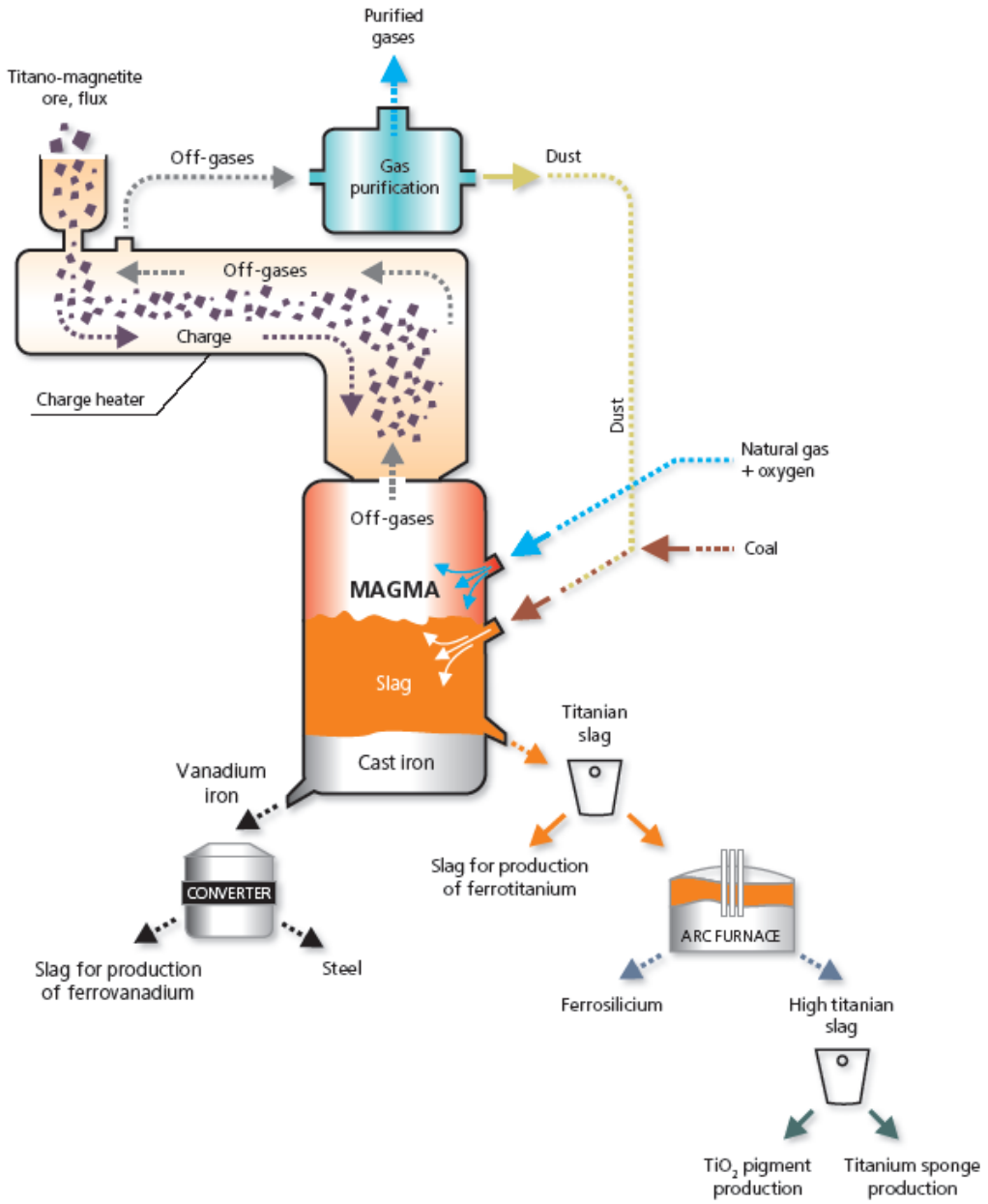

***Figure 12**: Schematic steel, titanian slag and vanadium production process using direct reduction into pig iron and conversion to steel, as developped by Russian Technologiya Metallov.*

Finally, Rautaruuki Oyj, a government-owned Finnish steelmaker used to produce vanadium and steel from titano-magnetite from their Mustavaara mine, with a different process. The ore was pelletized and alkali-roasted in a shaft furnace; the vanadium extracted from calcined pellets with conventional hydrometallurgy. Leached pellets were subsequently processed by intensive fusion in a blast furnace. However, alkali roasting

typically leaves sodium residues in the calcine, the smelting of which damages furnace liners.

DIRECT CARBURATION, PLASMA FUSION

A direct solid-state carburation process was tested on the Lac Doré magnetite in order to directly produce carbovanadium or vanadium-nitride (active agents in steel alloying) and titanium slag. These tests, carried out by the Ontario Research Foundation were never conclusive or completed (Smellie, 1974, 1975; White, 1974). Similarly, fusion or roasting using nitrogen driven plasma furnace, similar to the process used for chromium reduction, were tested (Malinsky, 1977).

ALKALI ROASTING

Alkali roasting is the process used to extract the vanadium pentoxide out of most mineral material *(**figure 13**)*. It can be used on vanadium bearing slag (Highveld), clays (Union Carbide), uranium mine by-products (Colorado plateau), oil and tar residues (defunct Carbovan in Alberta[103]) as well as primary vanadiferous magnetite ore. Although the general process is constant, differences in recipes and furnace or vessel configurations are noticed. It is used to produce primary vanadium, vanadium as by-product of other commodities as well as vanadium recycling. The overall process is divided into roasting itself, leaching, cleaning, precipitation and cracking.

[103] Canadian Patent #4798709 and #4966761.

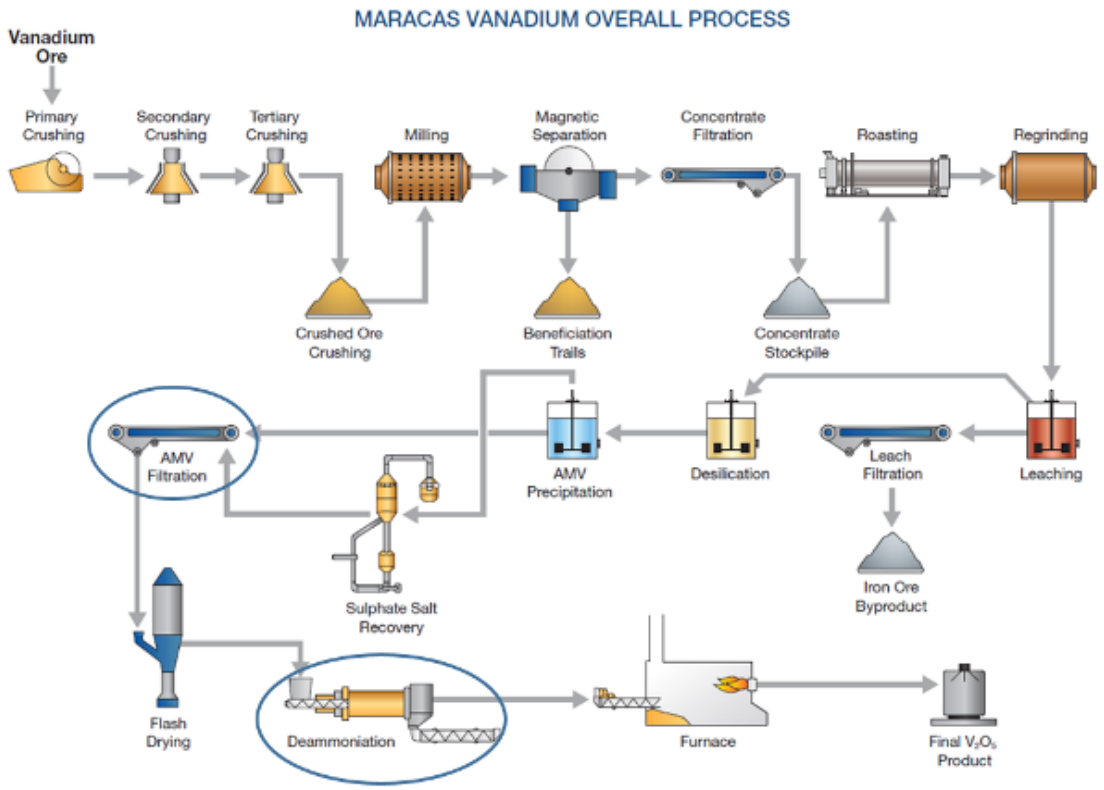

***Figure 13**: Process anticipated by Largo, Brazil, for their future operation. This process is the conventionnal alkali roasting and AMV route, similar to what is anticipated for Lac Doré.*

Roasting is a delicate operation. The principle is to produce a sodium vanadate out of the feed-stock, which is leached in water. Sodium vanadate is produced through complex reactions between molten sodium oxide and vanadium sesquoxide while expelled out of the magnetite (or other feed-stock). Sodium oxide is produced by the breakdown of any volatile based sodium oxysalt, soda ash (Na_2CO_3) being the most convenient[104]. The addition of ammonia salt to the leach liquor precipitates ammonium poly-vanadate (*APV route)* or ammonium meta-vanadate *(AMV route),* which is be broken into vanadium pentoxide and ammonia by heating.Although apparently complex, this process is used by most vanadium producers upon a wide variety of material, and is

[104] Windimurra, a vanadium producer experiencing technical difficulties in Western Australia, had used sodium oxalate ($Na_2C_2O_4$) as alkali source for a while, which is a residue of local bauxite production plants. Sodium sulphate (Na_2SO_4) can replace sodium carbonate as long as sulfur scrubber are added at the kiln exhaust in order to recover sulfuric acid. Sodium sulphate is widely available in Eastern North America, being extensively used by paper mills and detergent companies. Sodium chloride can also be used, but do cause important corrosion issues.

also used for the production of other polyvalent transition metals such as molybdenum, tungsten, and chromium.

The roasting reaction is sensitive to various factors, the most important being the roasting temperature, the residence time, the soda ash excess, the content of silica and lime. Various tests indicated that heating and chilling times, as well as titanium content do not significantly affect the reaction. Recovery usually increases with rising temperature, time and soda content, although a threshold needs to be in balance since each parameter interacts with each other. Temperature is dictated by the firing process and BTU input, plus the fact that magnetite oxidation into hematite is an exothermic reaction. Soda ash is the principal operating cost and a lower consumption may lead to substantial savings. Finally roasting time is the important factor influencing the engineering, as it dictates the size of the kiln. Doubling the roasting time doubles the kiln size or reduce throughput by half, and physical limitations do exist. Construction of the kiln is the costliest single item of the plant.

In laboratory tests (Malinsky, 1981), the best recoveries on non-aggregated magnetite were obtained using a temperature of 1300 ^{o}C, with the use of about 2% weight of soda ash and a residence time of 1 hour. This recipe yielded a 94% recovery of V_2O_5. Using these parameters is optimal in terms of soda ash consumption (40% of operating cost in South Africa) and in term of roasting time (optimization of the throughput of the kiln). Kilns in South Africa are usually fired at 1,150-1,200 ^{o}C, with 5% soda ash and a few hours of roasting time. The author is unsure if rotary kilns can economically withstand protracted firing at 1,300 ^{o}C. No pilot plant testing was done on this process by CRM.

Tests were carried on pellet, cake, beads, as well as on powdered material (McDonough, 1980). Best recoveries were from pelletized ore. Powdered material tends to agglutinate, especially at very high temperature, requiring very skilled kiln operators to avoid *"donuts"* formation.

Tests involving various heating and chilling times were conducted, indicating that these parameters do not significantly influence recoveries (Gabra, 1979; Grégoire, 1979). However, they do alter the mechanical property of the calcine, especially its grinding index.

A roasting cage test was carried inside the Rautaruukki vertical shaft furnace (Tolonen and Lindholm, 1978). Cages filled with pelletized Lac Doré magnetite were incorporated in the load of the furnace and recovered afterward. Recoveries up to 92% were obtained. Shaft furnaces are notorious for a non-uniform temperature distribution, leading to a variable recovery, which was noted as expected. Such phenomenon is not

encountered in a rotary kiln, meaning that better recovery should be obtained (Malinsky, 1980).

Silica content of the feed-stock influences the recovery process (Desrochers, 1980). Silica reacts with soda forming leachable sodium meta-silicate, thus consuming the reactant. Furthermore, meta-silicate forms a silica gel in the reactor, resulting in the clogging of the filtration units. More than half the soda used in South African operations is lost through sodium meta-silicate. A larger amount of reactants is thus needed to counteract this, which means that the cleanest ore should be used as kiln-feed. South Africans tolerate 2% SiO_2 in feed-stock. The Lac Doré beneficiation test produced <1% SiO_2 magnetite, which can still be improved. However, coal firing produces about 5% SiO_2 ashes. Thus burning the required 5 tonnes of coal versus 100 tonnes of magnetite leads to addition of 0.25% silica contamination in the calcine. A delicate economical balance must be achieved between finer grinding (lower silica) and alkali consumption. Furthermore, the abundance of molten sodium peroxide is prone to create stickiness to the magnetite, forming "*donuts"* rims which may cause hot-spots the kiln. The favorably low silica level at Lac Doré is expected to reduce cost at production stage compared to current producers.

Alkali-roasting has also been tested on Lac Caché deposit by Campbell-Chibougamau Mines, with similar results (Delisle, 1972).

Various furnace designs were considered, including standard rotary kiln (Union Carbide), air-recirculated rotary kiln (SNC) and shaft furnace (Rautaruuki). Other furnace configuration were mentioned but not discussed or tested, such as fluidized bed (Agnew Cough[105]), Herrendorf furnace, Herrendorf-fluidized bed, nitrogen plasma furnace, etc.

SNC-LAVALIN PILOT PLANT ROASTING

A full scale roasting test on 8.5 tonnes of magnetite concentrate was carried for SNC-Lavalin in 2001 by Krupp-Polysius, in Germany. Results of these tests are under confidentiality seal. Typical clinking and sticking difficulties in the hot zone were encountered.

[105] Explosion of the Agnew Cough fluidized bed furnace at the onset of the commercial production is often taken as case history in regards to the risk inherent to introducing new technologies in extractive pyrometallurgy. Every new vanadium project development is confronted with this challenge.

LEACHING AND PRECIPITATION

Sodium vanadate $Na_2V_2O_6$ is water soluble. In the conventional process, it is leached from calcine in agitated slurry tanks, drained and filtered. The pH of the pregnant liquor is adjusted with sulfuric acid, and then mixed with ammonium sulfate or chloride. Through agitation, vanadium polymerize with ammonia to produce either ammonium metavanadate (AMV, NH_4VO_3), hexavanadate (*AHV,* $(NH_4)_2V_6O_{16}$) or polyvanadate (*APV,* $(NH_4)_2O\text{-}3(V_2O_5)$) depending on acidity and concentration, which precipitates. The vanadate is filtered, dried and roasted again. During this roasting, ammonium vanadate cracks down into fused V_2O_5 flakes and ammonia or NOX (Kougioumoutzagis, 1981).

Bench scale leaching tests were made, both on roasting of magnetite and slag from smelting tests (Malinsky, 1979). More specific tests were made on resin-exchange column for vanadium recovery (Drapeau, 1978), on effluents conditioning, on chromium elimination (Kougioumoutzakis, 1980), on ammonium vanadate precipitation, on the effect of lime, titania and silica as contaminant, and on sodium metasilicate precipitation. Solvent extraction process, such as those developed by the CRM for the Mingan deposit (Ritcey et Lucas, 1979) were apparently not tested on Lac Doré material.

LEACHING OF THE SNC-LAVALIN CALCINE

The calcine obtained from roasting by Krupp-Polysius on behalf of SNC-Lavalin, was shipped to Lakefield Research to be submitted to a pilot plant leaching test (Molnar, Verbaan, Seidler, 2002). Detail of the process is currently confidential.

The pregnant liquor obtained from the leach test was used for the development and pilot testing of the vanadium refining process (*"VEXS and VEXH"*) (Verbaan, Molnar, 2002). The end-product of the McKenzie Bay International project was the production of electrolyte for vanadium redox batteries ("*VRB Electrolyte"*). The nature of this electrolyte is confidential. Production of such electrolyte requires a very low contaminant level in the soluble vanadium compound, notably for silica (<10 µg/l) and sodium (<100 µg/l). Such contaminant level cannot be achieved by conventional hydrometallurgy, but was apparently achieved by Lakefield.

The process developed for VRB electrolyte production is adaptable for the production of dry vanadium pentoxide within a single facility, with similarly low contaminant levels. The operating costs of the "*VEX"* process has been described by Mracek to be comparable to those of conventional hydrometallurgical process used in the production of technical grade pentoxide.

FERROVANADIUM

About 90% of the world production of vanadium pentoxide is dedicated to ferrovanadium conversion. As demonstrated by Niobec Inc., the adjunction of a ferroniobium facility to their pyrochlore (niobium oxide) production improved significantly their overall profitability and robustness. Surprisingly, ferrovanadium conversion of the Lac Doré pentoxide has never been tested. A problem historically faced by the project was a worldwide excess of ferrovanadium converting capacity, compared to a lack of V_2O_5 flakes production capacity. No incentives' were perceived for conversion.

CARBON-BASED VANADIUM PRODUCTION

Vanadium has a tendency to be scavenged by organic matter, typically by reduction of vanadate solution in contact with carbon-based reducing material. For such reason, organic rich materials are typically enriched in vanadium, such as tar-sand fly-ashes, orimulsion fly-ashes, and anthracite (stone-coal). Based on salt roasting, these processes are typically complex, especially in regard of hydrometallurgical refining, and of lower economic robustness. Various alternatives are described in literature. They will not be discussed in details, as they are not suitable for titanomagnetite processing, and as they account only for a marginal share of the total production.

FULL HYDROMETALLURGICAL PROCESS

A number of companies announced, in the last few years, new hydrometallurgical process to extract titanium and vanadium as well as other metals from titanomagnetite concentrates, without preliminary salt roasting.

Argex Resources is announcing they developed a process to produce titanium dioxide from the *Lac-à-la-Blâche* deposit[106]. This deposit is typical cumberlandite-nelsonite assemblage developed within a Grenvillian anorthositic complex. The mineralogy is composed of a coarse assemblage of titano-magnetite, ilmenite and apatite. The titano-magnetite is slightly vanadiferous, probably about 0.5-0.8% V_2O_5, and probably half this grade for the ilmenite. The "CTL"[107] proprietary process involved is confidential, and stated as capable to produce low-cost high purity titanium dioxide, as well as ferrrous chloride and V_2O_5, within a single acidic digestion process and without involvement of

[106] http://www.argex.ca/fr/operations/usine-de-valleyfield
http://www.argex.ca/images/pdf/fr/Dernieres-nouvelles/2012/06.14.2012.pdf
[107] CTL: Chlorine total leaching. To the author's knowledge, Argex process involves a total digestion with HCl in pressurized vessel.

pyrometallurgy. A complete feasibility study was commissioned, and Argex is currently building its facilities in Valleyfield, Québec.

Nichromet [108] is a second company developing hydrometallurgical process for the extraction of metal from complex ore through total digestion. Their approach has similarities with Argex process, although dedicated to other metals, being based upon dry chloruration using chlorhydric acid. The process is currently being tested in a pilot plant in Black Lake, Québec.

NovX21 Inc. is a third company developing hydrometallurgical process for the recovery of platinoid metals based on dry chlorination[109]. They currently operate a small plant in St-Augustin DesMaures, near Québec City, for the recycling of spent catalytic converters, and continue to develop the process for mining application.

CVMR [110] is a fourth company working on the development of hydrometallurgical processes for the extraction and refining of metals, mostly nickel, but including titanium and vanadium from magnetite ore. This Toronto based company is offering refining process of base metal using a low-temperature, atmospheric pressure vaporizing process, based on a chlorination process. Vanadium is extracted from the titanium-vanadium slag from direct reduction of titanomagnetite through chlorination with carbontetrachloride at 250^{o} to produce volatile vanadium pentachloride, which is reduced in contact with metallic aluminium. This process is similar to the Kroll process, used for the chlorination of titanium. Industrial application of this process is currently being tested by American VanadiumCorp.

The author does not have the expertise to judge of the efficiency of the process offered by the aforementioned company. However, only CVMR is commercially producing refined metal at an industrial scale, the other three being pilot plants only. It must be noted that ramping from pilot plant to a full scale hydrometallurgical plant is a risky endeavor, as witness by the ill-fated Magnola[111] and various nickel laterite projects in Australia[112]. Similarly, introducing new technology into vanadium refining is a reminder of the Agnew Clough plant disaster[113].

[108] http://magazine.cim.org/fr-CA/February-2008/cim-news/Thetford-Branch-visits-Nichromet.aspx
[109] http://www.novx21.com/en
[110] CVMR: Chemical Vapour Metal Refining Inc. A Canadian corporation based from Toronto. http://www.cvmr.ca/
[111] Magnesium metal produced from asbestos residues, developed by Noranda Group in the 1990's.
[112] Murin-Murin, Cawse, Bulong, Ravensthorpe, etc.
[113] Closed in 1983 after the explosion of the triple-deck flash-roast furnace.

ITEM 14: MINERAL RESOURCES ESTIMATES

It is in the author's opinion that **there is no current resource estimation valid for the VanadiumCorp's Lac Doré project.** Historical resources are described in *Item 6*, and shall not be considered as current based primarily on claim ownership, available datas and changes in mining and refining methods. Furthermore, the author emits some concerns in regard of the way they were calculated. Estimation will need to take into accountthe portion of the West deposit now belonging to BlackRock's. The final determinant factor in completing a current resource calculation on the East and West deposits comprising the Lac Doré Main deposit will entail re-assaying, Davis tube testing & integration of the 2013 PacificOre Mining drill date. Resource calculations are expected to be presented in a subsequent update of the report.

No resources were ever calculated for the North-Eastern deposit, partly included in **Lac Doré North** project.

ITEM 15 TO 22: ADDITIONAL REQUIREMENTS FOR ADVANCED PROPERTY

Items 15 to 22 relates exclusively to advanced property, dealing with mining reserves estimates (*Item 15*), mining methods (*Item 16*), recovery methods (*Item 17*), project infrastructure (*Item 18*), market studies and contracts (*Item 19*), environmental studies, permitting and social or community impact (*Item 20*), capital requirement and operating cost (*Item 21*) and economic analysis (*Item 22*).

Although such studies were conducted within the SNC-Lavalin Feasibility study on the former McKenzie Bay Resources project, **they are not considered as current** for the present project. The author considers that these studies will require revision prior to be disclosed, pending additional reference data availability in the future.

ITEM 23: ADJACENT PROPERTIES

*The Lac Doré and Lac Doré North property are located in viccinity of the Chibougamau mining district. The area has expericenced intense exploration activity in the past, and reccurent waves of staking. VanadiumCorp' properties are currently enclaved, and surrounded by various other players (**figure 14**).*

LAND AVAILABILITY

The area encompassing the 17 kilometres long aeromagnetic anomaly associated with the magnetite layers is currently entirely covered by either VanadiumCorp or BlackRock. VanadiumCorp's **Lac Doré** property is surrounded by BlackRock property, while the **Lac Doré North** is partly enclosed. Land is available for staking to the north and to the east of the properties, either by conventional posted claims or map designation.

PROPERTIES IN CONFLICT

No dispute of claims are currently reported in vicinities of **Lac Doré** and **Lac Doré North** properties.

SURROUNDING PROPERTIES

BlackRock Metals Inc.

BlackRock Metals hold nine (9) map-designated cells and 291 posted claims covering the Southwest and Armitage deposits, as well as surrounding lands for exploration or infrastructure. Their titles are in good standing and well managed. BlackRock conducted important stripping and drilling efforts in order to estimate resource on the Southwest and Armitage deposits, and are currently concluding a feasibility study. Infrastructure construction is expected to begin in the current year, pending conclusion of their financing.

Work conducted by BlackRock metals and accessible in assessment files includes:

- The southwest deposit was trenched (1638 metres, 2009) and drilled (103 holes for 23,066 metres in 2010-2011-2012).
- The Armitage deposit has been trenched and drilled (81 holes for 18,763 metres (2011-2012).

560000E
570000E
580000E
32G16
32H13
32G09
32H12
5520000N
5510000N
Lac Chibougamau
Lac de l'Aiguon
Lac de l'Os
Lac de l'Averse
Lac Bryet
Lac de la Poutie
Lac Ruben
Récupération MAP (84216)
Apella Resources inc. (81845)
Ressources Metchib inc. (85436)
2736-1179 Québec inc. (8009)
9219-8845 Québec inc. (Canadian Mining House) (85234)
Métaux BlackRock inc. (88633)
Métaux BlackRock inc. (88633) Suspended (Suspendu)
Cogitore Resources Inc. (87801)
Western Troy Capital Resources (19122)
(19122)
Minéraux CBay inc. (89205)
SOQUEM inc. (2427)
(85234)
Réjean Raymond (81277)
Anna Rosa Giglio (96502)
Mines Agnico-Eagle Limitée (1728)
Nitinat Minerals Corporation (89802)
(81277)

Property outline
(Contour de la propriété)
Road (Chemim)
0 1 2 3 4 5 km

VANADIUMCORP RESOURCE INC.

991 Project (Projet): Vanadium

Figure 14: Adjacent property (Propriété adjacent)

NTS (SNRC): 32G16, 32H13
UTM, Zone18, NAD83
Verification: R. Girard, Geo
Dessin (Drawing): S. Gao
Date: Mar. 2014

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GÉOLOGUE / GEOLOGIST RÉJEAN GIRARD # 521 QUÉBEC

Réjean Girard, Geo

In May 2012, BlackRock completed a bankable feasibility study (Genivar, 2012). However, BlackRock being a privately owned company, has no obligation to disclose such study, which is maintained strictly confidential. Resources estimates were not published, although incomplete numbers[114] were disclosed in some public presentations. Since these are promotional documents, the author notes an unreliability in regard of this information.

The BlackRock environmental and social assessment study, conducted by Groupe-Conseil Entraco, was published by the *Canadian Environmental Assessment Agency* (Federal Agency) on May 2013[115]. It contains limited information regarding the mine and its resources, but is still the most detailed and reliable description of the project.

On April 14, 2014, Camex Energy Corporation announced that a letter of intent has been signed with BlackRock Metals Inc. for a reverse take-over transaction. This press-release[116] announced the publication of a NI-43-101 compliant report by BlackRock, soon to be available on Sedar[117].

LIMITATIONS ON SIMILARITIES

The mineralization found on *Lac Doré* and *Lac Doré North* properties is a continuation of the mineralization on the adjacent BlackRock Metals properties. However, there is no guarantee that VanadiumCorp's deposits are equivalent to BlackRock's deposit in regard to the resource and economic viability. Only a thorough feasibility study, including all the various aspect of such project, will establish the economic viability the project.

Cogitore Inc.

Cogitore Inc. holds a large property to the south of BlackRock Metals, which properties are interlocked to the East. Cogitore is a company dedicated towards base metal

[114] In various investor presentations, the private company BlackRock Metals discloses a resource of 220 million tonnes grading 25% magnetite. Vanadium grades are not disclosed, and titanium grades are partials. In the summary of their environmental assessment study, they disclose a realistic resource of 152.2 million tonnes at 29.1% iron (magnetite, ilmenite and silicates), containing 38 Mt of magnetite concentrate. Other presentations share similar discrepancies. Given the discrepancy of figures, the author does not have an accurate reference to confirm figures, and he is unaware of any potential compliance with CIM Guidelines and NI-43-101. The exception is for the figures disclosed in the environmental assessment study available on the internet. The Camex Energy Corp. news release publicly states an NI-43-101 compliant geological report is "currently being prepared for filing with the TSX Venture Exchange".

[115] (https://www.ceaa-acee.gc.ca/050/documents_staticpost/62105/90328/vol1-eng.pdf)

[116] http://www.stockwatch.com/News/Item.aspx?bid=Z-C%3aCXE-2165187&symbol=CXE&region=C

[117] This transaction has apparently been postponed to Autumn 2014.

exploration, and their presence is not considered as a hindrance. Their property is anchored on the former *Lemoine Mine*, which was a small but rich volcanic massive sulphide deposit. Important exploration efforts were conducted by Cogitore on this property.

Third parties

To the Northeast, the **Lac Doré North** property it is bounded by map designated cells belonging to *Récupération MAP* de Rouyn-Noranda (expire date of November 21st, 2014). To the Southeast, the property is bounded by map designated cells belonging to *Ressources Metchib*[118] (expire date of November 2nd, 2015) from Chibougamau. A 500 metres wide band of land is available for staking between **Lac Doré North** and Metchib. These two properties cover faint aeromagnetic anomalies. They represent opportunistic staking and are not considered as hindrance. Very limited exploration work was conducted on these properties.

LAND AVAILABLE FOR STAKING

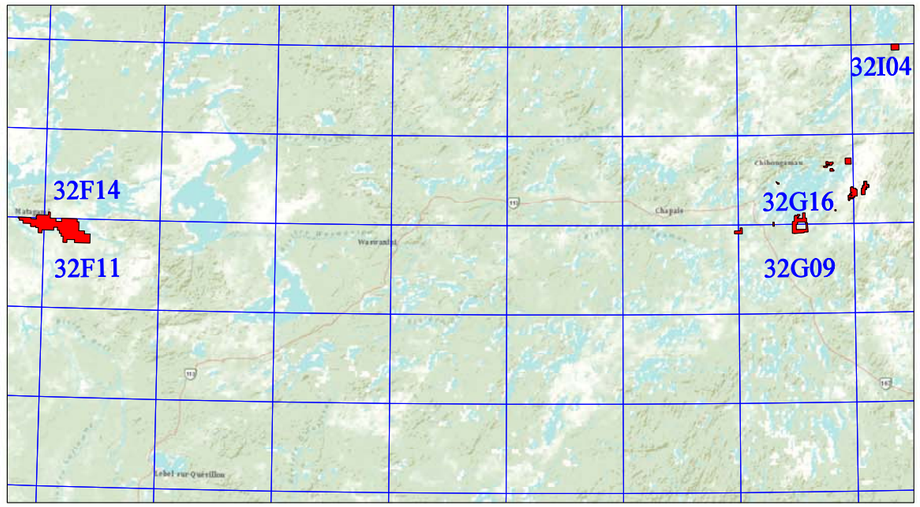
Ample land is available for staking to the North and North-West of **Lac Doré** and **Lac Doré North** properties, separated by a one-claim wide band of claim belonging to BlackRock. The area adjacent to BlackRock requires to be staked by conventional posted claim, while the area about 1 kilometre to the north can be acquired by map-designated cells. The claims are currently been staked by IOS for VanadiumCorp and are pending approval from the ministry.

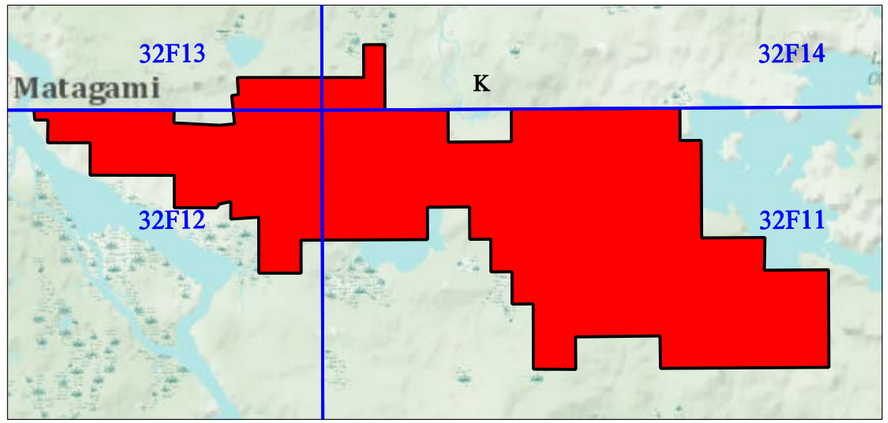
OTHER PROPERTIES HELD BY VANADIUMCORP

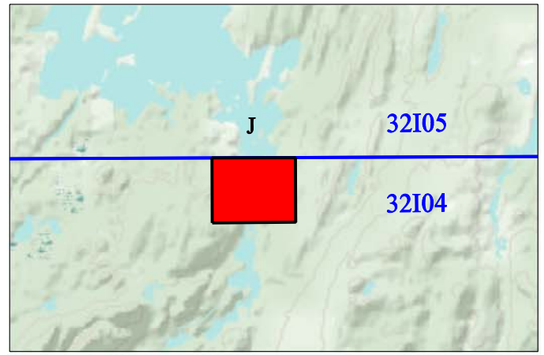
Novawest Resources used to be the largest claim owner in the Chibougamau area, most of which were allowed to lapse by previous management. VanadiumCorp (formerly Novawest) still owns ten other properties in Québec, all except one in the Chibougamau area, plus one in Ontario *(**figure 15**)*. These properties were not evaluated by the author. One of these properties also contains a vanadium deposit similar to Lac Doré, the **Iron-T** project in the Rivière Bell Complex, near Matagami. All the claims are currently in good standing. Other properties are dedicated to copper-gold occurences, acquired under the recommendation of Mr. Glen McCormick. Many encompass or are adjacent to former mines or deposits in the Chibougamau Mining Region.

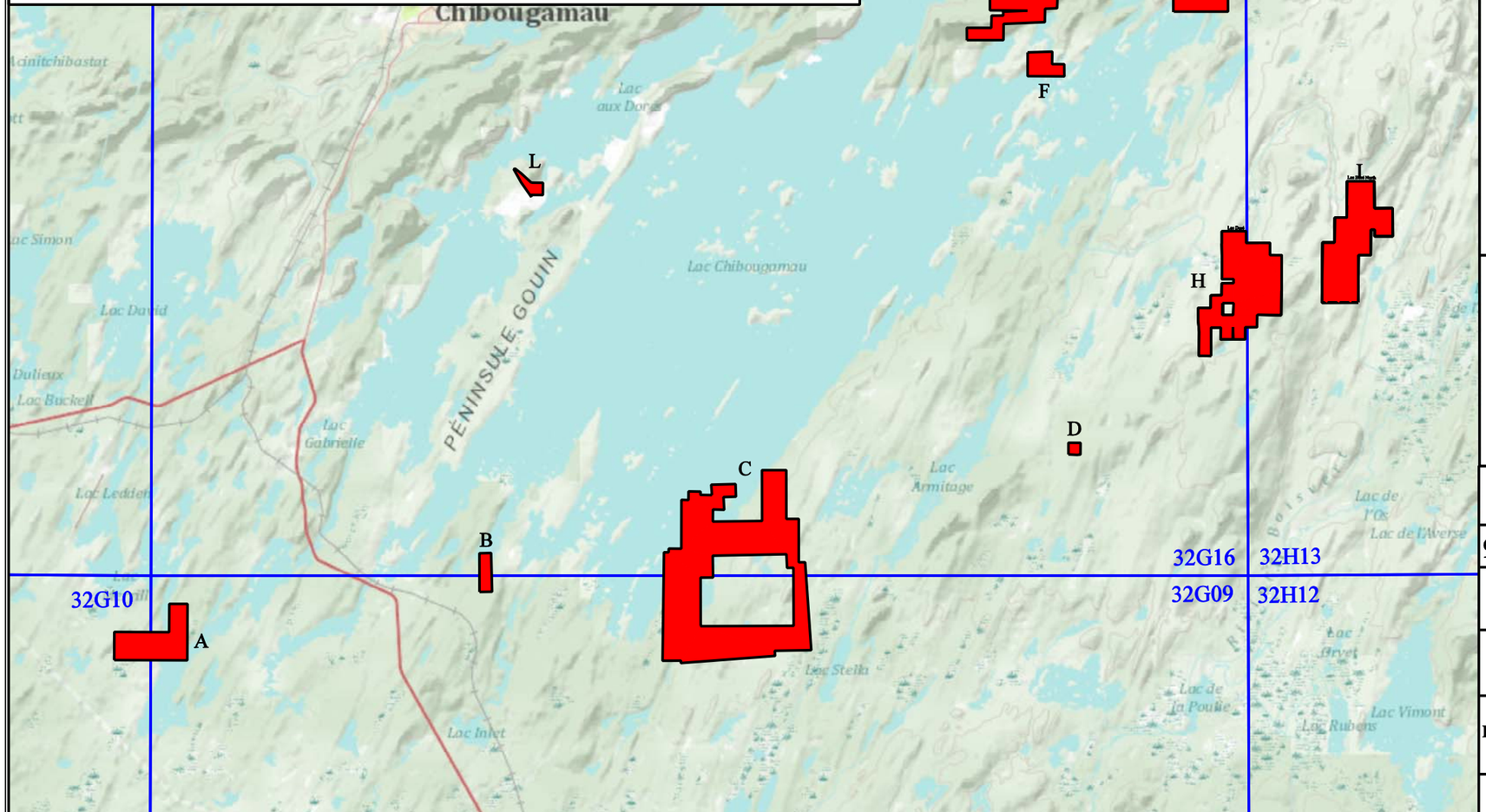
A. Merrill Lake Project, comprising five map designated cells, is located near

[118] Metchib Resources has the same civic address and administrator as *Services Métallurgiques Metchib*, a metallurgical laboratory located in Chibougamau.









Property of Vanadium Resource Inc.
(Propriété de Vanadiumcorp Resource Inc.

0 500 1000 1500 m

VANADIUMCORP RESOURCE INC.

991 Project (Projet): Vanadium

Figure15: Vanadiumcorp Resource Inc. property
(Propriétés de Vanadiumcorp Ressource Inc.)

NTS (SNRC): 32G, 32H, 32F
UTM, Zone18, NAD83

Verification: R. Girard, Geo
Dessin (Drawing): S. Gao
Date: Mar. 2014

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Réjean Girard, Geo

Merrill Lake, Hauy twp. The purpose of this property is uncertain.

B. Fieldgold property, comprising two (2) map designated, cells, is located South of Queylus Bay, Obaslki twp.
C. Cornerback Property, comprising 104 posted claims, surrounds the claims and mining lease of Corner Bay deposit. Its Southeast corner is adjacent to BlackRock Metals property and encompasses a small corner of Armitage deposit.
D. One posted claim is located adjacent to the Armitage Deposit between BlackRock Metals and Cogitore properties, south of Southwest deposit expected to be mined by BlackRock and just north of the former Lemoine Mine.
E. Magnetite Bay North or Kickoff property is made of 17 posted claims, encompassing the *Magnetite Bay North* iron-titanium deposit, which is the equivalent of the Lac Doré magnetite layer on the north limb of the Chibougamau anticline.
F. Magnetite Bay South, a small five (5) posted claim property, encompassing the *Magnetite Bay South* iron-titanium deposit, which is the equivalent of the Lac Doré magnetite layer on the north limb of the Chibougamau anticline.
G. Nepton property, near Nepton Bay on Chibougamau Lake, covering a few small copper occurences.
J. Icon copper mine (Pointafter property), comprising eight (8) map designated cells, is located near the Mistissini community, and encompass the former Icon copper mine.
K. Iron-T property, south of Matagami, encompassing the magnetites layers of the *Bell River* complex adjoining the mining town of Matagami and adjacent to the Perseverance Zinc Mine near all the associated infrastructure.
L. Tailback Project, a small property located on the Merril Mine tailling, and almost enclaved in the area temporarily excluded from staking for the rehabilitation of the tailings park.

AVAILABILITY OF INFORMATION

Information regarding the adjacent properties was obtained from the *Gestim* on-line registry of the Natural Resources Ministry. Information regarding exploration work upon these property was obtained from the *Examine* on-line report library available at the Natural Resources Ministry.

INDEPENDENCE OF THE AUTHORS

Most of the available information on neighbouring properties was acquired from public domain assessment files, government work, press releases and web sites. The author is independent of the holders and operators of the adjacent properties. However, IOS was

involved on BlackRock project in 2008 when the company was structured. As well an IOS geologist was hired by Cogitore to work on Lemoine project in 2007-2009 period.

VALIDATION OF THE INFORMATION

Most of the historical information pertaining to the neighbouring properties was acquired under the author's supervision. This information is considered adequately verified.

Work conducted by BlackRock and Cogitore on their properties has not been verified by the author.

ITEM 24: OTHER RELEVANT INFORMATION

VANADIUM USES

Vanadium is dominantly used as an alloying agent in high strength metals, which represent 95%[119] of its consumption *(**figure 16**)*. As an alloying agent, it can be used in steel (85%) or in aluminum-titanium alloys (11%). The remaining 4% is used as a catalyst agent by the chemical industry. Vanadium and niobium are interchangeable in some cases in microalloyed steels, however the substitution is not without operational or performance compromises Vanadium generally does not have any substitutes in oxidation catalysts and titanium alloys.

In microalloyed steels, vanadium precipitates as vanadium carbide or vanadium carbonitride promoting increased strength as a result of grain refinement and precipitation hardening. In full alloy steels, precipitation of vanadium carbides and carbonitrides promotes fine grain structure leading to increases in high temperature abrasion resistance. Vanadium is used in a variety of steels which are intended for use in the as rolled condition including hot rolled coil, plate, structural members, bars and forging steels, atop of some stainless steel. Vanadium is also used to strengthen titanium and aluminum alloys, especially for aircraft structures.

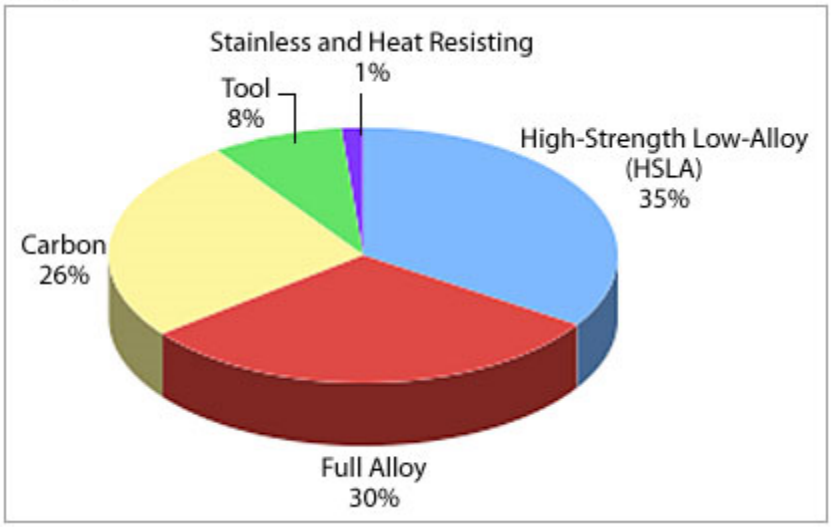

***Figure 16**: Pie-chart of the vanadium usages in steel, which account for 85% of the vanadium consumption (Source: USGS website). The largest share is used for HSLA steel, such as rolled steel or rebars.*

[119] Vanadium market update, analysis and outlook. Roskill Information Services. 1985. P.59.

Vanadium is used in a variety of forms and applications in catalysis usually as an oxidation reaction catalyst, including vanadium pentoxide for sulfuric acid and maleic anhydride production, vanadium chlorides as Ziegler Natta catalysts for the synthetic rubber polyethylene polymerization, and ammonium metavanadate for the production ofadipic acid.

Some other applications exist including vanadium metal for the nuclear industry and as heat sinks in computer hard drives, superconductors, vanadium oxides and downstream chemicals in glass coatings, non food crop micronutrients, anti fouling agents in marine paints, pollution control catalysts and pharmaceutical applications.

World vanadium consumption is basically driven by two variables: global steel production rates and specific vanadium consumption rates within the steel industry. In recent years vanadium demand has shown compound annual growth rates in excess of 6% (***figure 17***). High strength steel production is growing faster than the standard steel production, (input growth rates here) especially for construction applications in China, vanadium-bearing pipeline and automotive part grade steel. Typically, while the amount of steel used for a single car decreases, the amount of vanadium in the same car increases.

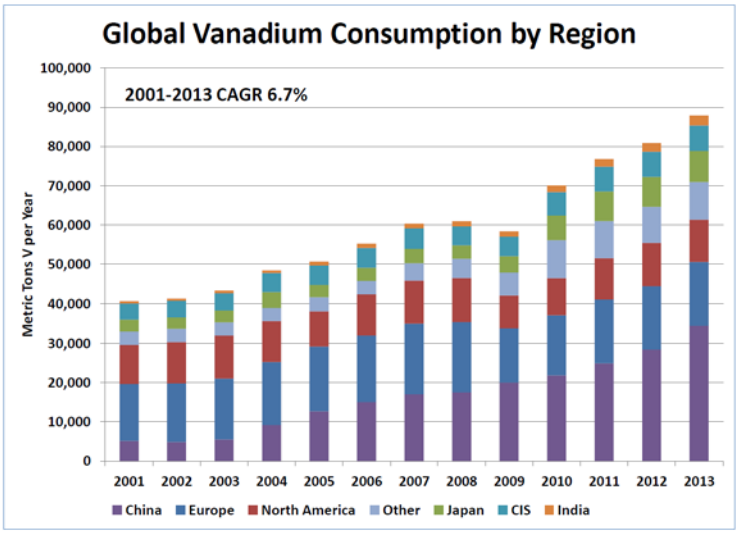

Figure 17*: Vanadium consumption since 2001. The increase in demand is essentially driven by China (Perles, 2013).*

Vanadium is usually added to steel in the form of ferrovanadium or vanadium carbonitride alloys, although in some cases vanadium oxides are used in conjunction with vacuum degassing. Converters of oxides to ferrovanadium or vanadium carbonitride alloys are thus the main consumers of pentoxide. The ferrovanadium and vanadium

carbonitride converting capacity is divided into integrated and non-integrated producers. Integrated plants couple steel plant, pentoxide refinery and converter. They are usually large producers, such as Evraz in Russia and South Africa, Panzhihua Iron & Steel and Chengde Iron & Steel in China.

Non-integrated converting facilities rely on traded pentoxide as feedstock, such as Masterloy in Ottawa, Bear Metallurgical in USA, Korvan and Woojin in Korea, and a host of Chinese converters. The largest capacity for conversion of vanadium oxides into ferrovanadium and vanadium carbonitride alloys exists in China. The dominant trend in the vanadium industry is towards integration of production.

VANADIUM PRICE

On March 28th, 2014, the published vanadium pentoxide price was US$5.70 per pound FOB in Rotterdam warehouse[120]. The base price was rather stable in the range of US$5.20-US$5.50 per pound for V_2O_5 (technical 98% grade) over the past year[121]. Since 1980 the mean vanadium pentoxide published price was US$6.25[122]/pound V_2O_5 and the annual average price has ranged from US$1.34/pound V_2O_5 in 2002 to US$16.25/pound V_2O_5 in 2005 [123] . Ferrovanadium (80%V) currently sells at approximately US$26.00 per kilogram.

Vanadium prices are characterize by occasional short-term spikes, historically recurring every 7-10 years and related to triggers or destabilizations in the market ***(figure 18)***. In February 1989 vanadium pentoxide prices reached US$10.95/pounds V_2O_5. In years prior to this time, vanadium prices were extremely week causing the Russian steel mill Nizhny Tagil to eliminate the duplex process in the BOF shop which generated vanadium bearing slag. This slag was the source of vanadium production in China and eventually the market reacted to the contraction of supply. Once the market reacted the Russian supply restarted and prices quickly came back to normal levels.

[120] Metal Pages Website.
[121] August 1st, 2013, Resources Investing News website. US$5.20-$5.50 per pounds.
[122] Not adjusted for inflation.
[123] Metal Bulletin website.

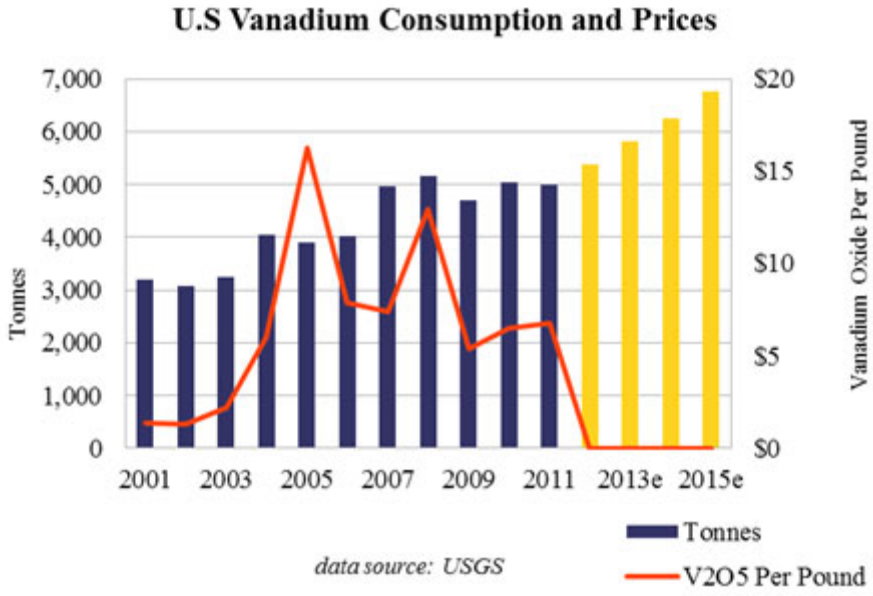

Figure 18: *Price of vanadium on the American market, as monitored by USGS. Most of the vanadium remains sold under private contract, the pricing of which is elusive.*

In May 2005 vanadium pentoxide prices reached US$26.25/pound V_2O_5 (equivalent to US$35.08/lbs V_2O_5 in November, 2013). This relates to China implementation a new standard for high strength, high ductility reinforcing bar used in construction applications which resulted in a massive new application for vanadium which continue to impact the growth rate of vanadium consumption today. Very high prices for vanadium resulted in investment in new sources for production including carbon based "stone coal" ore in China and eventually added capacity combined with substitution of V with Nb in some rebar applications resulted in prices moving back to reasonable levels in a matter of months.

In 2008 power shortages and load shedding in South Africa resulted in reduced vanadium production from this important source of global exports, leading to vanadium pentoxide prices reaching US$17.66/pound V_2O_5 in June 2008 (equal to US$16.58/pound V_2O_5 in November, 2013). The Global financial crisis which struck in mid-2008 resulted in a significant decrease in global demand and plummeting prices in a matter of months.

The occasional spikes in vanadium prices to very high levels are typically a result of market disruptive events. In the past, these events have proven to be unsustainable over the long term and very high prices have exhibited short time duration. These price spikes shall not be considered when forecasting prices for economic studies.

The prices shown are in warehouse duty unpaid price from Rotterdam. Chinese domestic prices are currently available, quoted in renminbi, currently around 80 Rmb/lbs[124]. However, prior to the influence of the Chinese market, most vanadium was sold close to quarterly published prices set by Highveld (South Africa).

A price of US$6.00 per pound V_2O_5 can be accepted as a realistic long term price, in balance with production costs. It should be the maximum price accepted for any feasibility study.

A significant proportion of vanadium is sold through long-term contracts between steel makers and integrated vanadium producers or major traders with off-take agreements with producers. Typically this contract business is based on formula prices with a single digit discount to the published price indexes.

[124] Approximately US$12/pounds contained vanadium in ferrovanadium.

VANADIUM WORLD PRODUCTION

Reliable figures of world production of vanadium products have been difficult to obtain in the past. As a result of the fact that major producers are minor parts of international corporations who consolidate production and financial reporting, the specific detail about vanadium production was difficult to discern. As China has grown to become a major producer with dozens of small producing plants, the situation has become even more opaque since 2004.

In Recent years VANITEC (the Vanadium International Techncial Committee), an industry group comprised of major vanadium producers has published statistics on vanadium production and consumption levels. VANITEC data can be summarized by the following table *(**table 24**)* (data in units of metric tonnes vanadium contained per year):

Year	Production	Consumption
2011	76,166	71,700
2012	71,289	75,500
2013	79,144	79,300

***Table 24**: Production and consuption of vanadium (contained) in rencent years, according to Vanitec.*

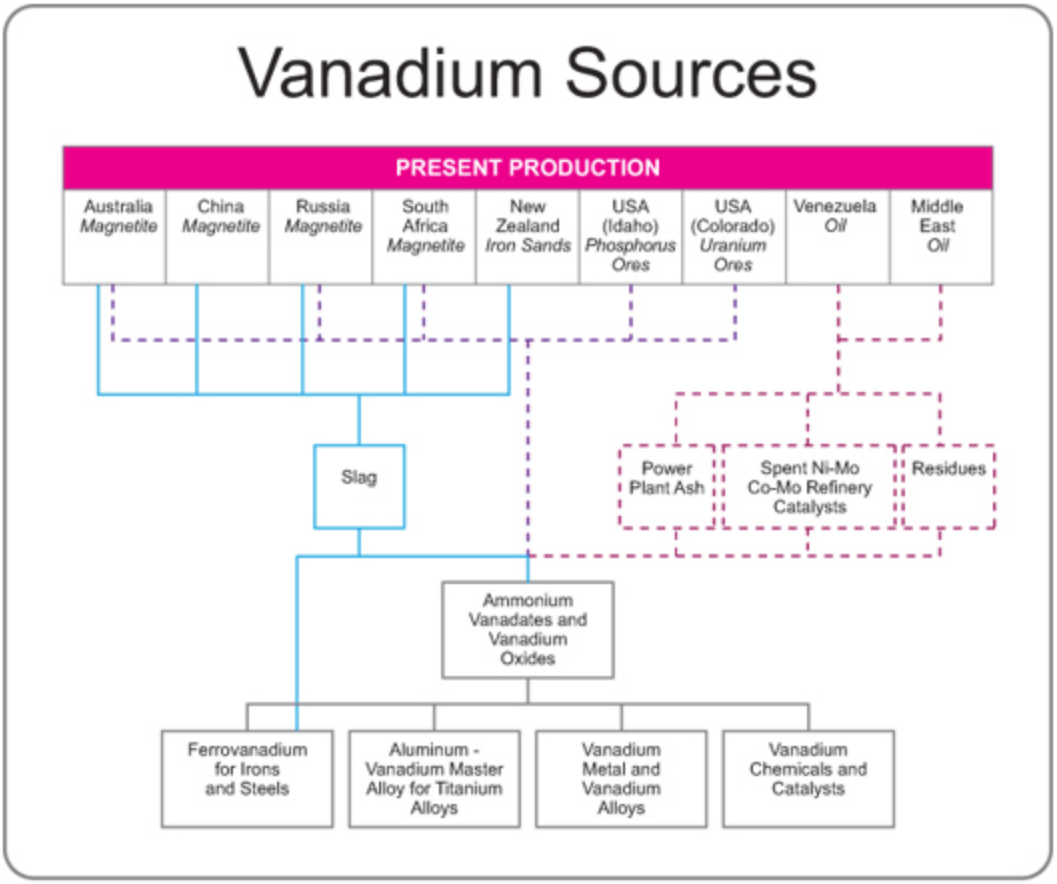

***Figure 19**: Vanadium sources, per country and type of raw materials (Vanitec website).*

The VANITEC methodology for development of the data would seem to be accurate regarding production data given the fact that the majority of the vanadium producers contribute to the data *(**figure 19**)*. The consumption data is more difficult to assemble particularly given the opaqueness of consumption in China and CIS countries. Other sources indicate global vanadium consumption in 2013 as high as 85,000 metric tonnes vanadium.

The size of the vanadium market is comparable to the cobalt market, is 40% of the molybdenum market, or 10% of the chromium market. Uses of these metals are all dominated by the ferro-alloys industry.

World reserves of commercially exploitable vanadium are estimated (excluding The Lac Doré Vanadium deposit) at 17 million tonnes of vanadium pentoxide (Roskill, 1995, page 1), including both magnetite ore and oil residues. However, reserve in lower grades are enormous, just the Julia Creek deposit in Austalia being reported to contain a resource of near 20 million tonnes of pentoxide equivalent.

Today's production is concentrated in South Africa, Russia and China, which collectively account for in excess of 90% of the production of vanadium raw materials ***(figure 20)***. China, Russia and South Africa remain major exporters of both vanadium raw materials and refined vanadium products. According to Perles (2013), there is six (6) current vanadium-slag producers in China, with a production of about 42,000 tonnes of equivalent vanadium, dominated by Pangang [125] and Chengde. In addition there is currently at least 10,000 metric tonnes of vanadium per year capacity from processing of "stone coal" ore in China. Most of this capacity is considered relatively high cost and is not in production today.

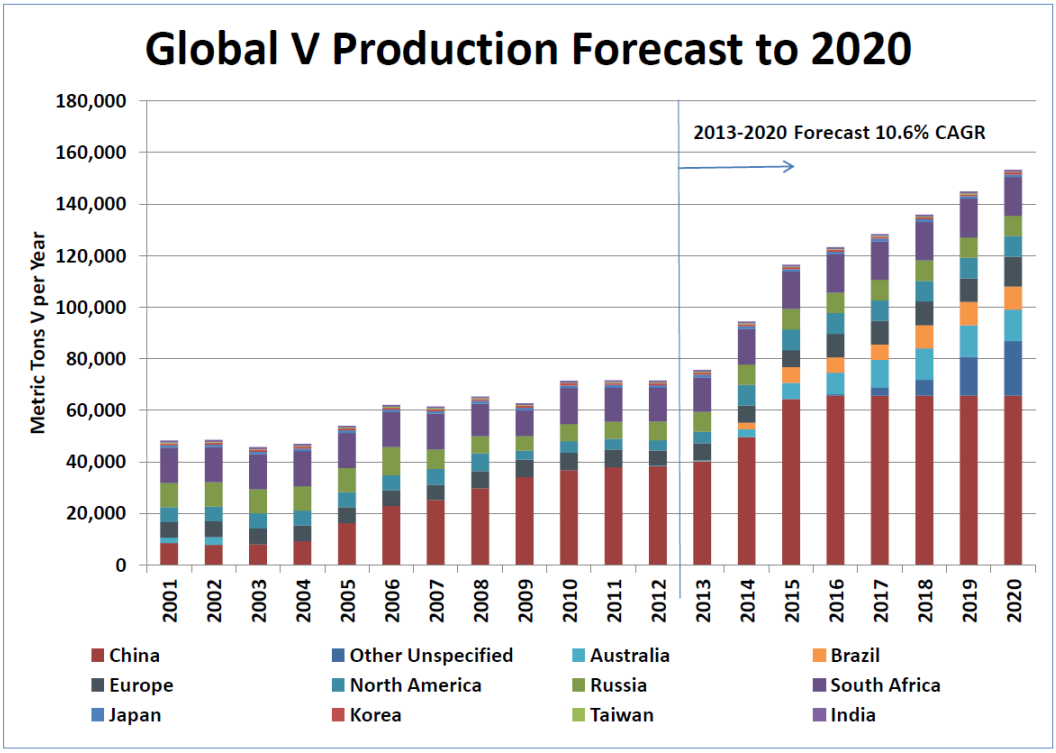

Figure 20*: Vanadium production, by country. The intense increase in production by Chinasince 2005 is driven by their steel production and consumption (Perles, 2013).*

In South Africa, three producers of vanadium refined products exist. Highveld Steel and Vanadium (formerly Anglo American, but recently acquired by Evraz, the largest Russian steel maker), and partly resold to a domestic investment fund, is the major supplier of vanadium bearing slag from their steel mill which is refined at other South African vanadium operations and Austria. The Highveld steel mill generates approximately 8000 metric tonnes V contained in vanadium slag as a co-product from the steel operations.

[125] Pangang is the largest vanadium producer in China. Its 20,000 tonnes equivalent vanadium production requires the consumption of about 2 million tonnes of magnetite concentrate a year, or the production of 1.3 million tonnes of steel per year, a small producer. Total titanomagnetite consumption in China is evaluated at 4.5 million tonnes of concentrate. BlackRock Metals expects to produce 3 millions tonnes of magnetite per year, to be sold to Chinese steelmaker, Pangang among others.

This vanadium slag in processed by three companies for refinement to final vanadium products with an approximate recovery rate of 81% from slag to vanadium oxide. The vanadiferous magnetite ore comes from the Mapochs mine, which still have good reserves, but which is located 110 kilometres away from the smelting-roasting plant. This mine was opened in replacement to the former Kennedy Vale pipe mine, an exhausted vanadium-rich massive magnetite pipe.

The Vanchem vanadium refinery, adjacent to the Highveld steel mill, refines both vanadium slag from the steel mill as well as iron ore fines from the Mapochs iron ore mine which contain vanadium. The Vanchem vanadium plant, which was sold by Highveld/Evraz to Duferco Steel as part of the agreement between the EU government and Evraz Group in conjunction with the Highveld Steel and Vanadium acquisition, produces a total of about 4,800 metric tonnes vanadium per year as oxides, ferrovanadium and vanadium chemicals.

Vametco Alloys, also a part of the Evraz group, similarly process both slag from the Highveld steel mill and ore from their mine in the Bushveld complex. Vametco Alloys produces a total of about 3500 metric tonnes vanadium per year in the form of V_2O_3 which is converted into vanadium carbonitride alloy (Nitrovan© trade name).

Rhovan, the primary vanadium mine owned by Glencore (formerly a part of Xstrata) also mines vanadium bearing titaniferous ore from the Bushveld complex and produces approximately 5000 metric tonnes vanadium per year as oxides and ferrovanadium. In addition, Highveld slag represents the major source of raw material for production of vanadium by Treibacher in Austria. Approximately 80% of Treibachers annual production of 6500 metric tonnes of vanadium is based on the processing of Highveld slag. The balance of Treibacher production as well as minor production by GFE in Nurembrug is based on the processing of vanadium bearing ashes, slags or spent catalyst secondary materials resulting from burning vanadium bearing oil in power stations or oil refineries processing vanadium bearing crude oil.

In Russia, Evraz Group produces in excess of 14,000 metric tonnes vanadium slag each year, as a co-product from the Nizhny Tagil steel mill. This slag is predominately processed at the Evraz vanadium refinery in Tula, resulting in 7800 metric tonnes of vanadium as vanadium oxides each year. The Tula refinery capacity is not capable of processing all of the slag from Nizhny Tagil. As a result in past years Evraz has sent excess slag to China for processing or sales. Evraz intends to feed their sister company Stratcor facility in Hot Springs Arkansas with excess slag beginning in 2014.

North America produces about 5% of the world total vanadium output, essentially as secondary production from oil residues resulting from oil orignating in Venezuela

(Orimulsion) and Mexico. The Athabasca oil sands of Alberta contribute small amounts of vanadium raw materials to North America today with the potential for future growth, as expressed by the ill-fated Carbovan project.

Three plants in the USA process secondary materials from Venezuela, Mexico and Canada into final vanadium products; Evraz Hot Springs Arkansas, Gulf Chemical and Metallurgical in Freeport Texas, and AMG Vanadium in Cambridge Ohio. Total production of vanadium final products in North America in 2013 was approximately 4000 metric tonnes vanadium while consumption was close to 12,000 metric tonnes vanadium. Evraz claims it's Stratcor mine capable of producing high purity vanadium chemical producer, suitable for battery electrolyte.

Windimurra mine (Atlantic Vanadium), the ill-fated Australian producer, has gone back into production in 2010, but the accidental destruction of the refinery in February 2014 recently re-halted the production.

BUSHVELD ANALOGY

The Bushveld Complex provides the best known analogy to the Lac Doré Complex. Other complex actively mined is Russia and China are not properly described or at least available to the author. The Bushveld currently sustains three vanadium producers, and supplies the raw material for production of approximately 18,000 metric tonnes vanadium final products per year or about 23% of global vanadium production. The Bushveld Complex is a flat lying loppolith 260 kilometres in diameter (Sharpe, 1986). The magnetite series are located near its top, above the anorthositic series. They are made of 24 individual beds of magnetite, very continuous[126] across the complex. The thickest bed, called the *"Main magnetite layer"* is about 1.8 metre thick *(**picture 28**)*, made of near 100% magnetite with 1.6% V_2O_5 and is the only layer which is economically mined. Magnetite pipes, such as the Kennady Vales, are massive pockets of magnetite associated with the various layers, the origin of which is debated. This latter was the initial ore source for Highveld. Mining of the Bushveld's main magnetite layer is plagued with difficulties related to its narrowness and its gently dipping attitude. A comparison between mining the Bushveld and Lac Doré *(**picture 29**)* was made by the author for McKenzie Bay Resources (Girard, 1999) and is reported in ***table* 25**.

[126] These layers are unrelated to the *"reefs"* which are known for their chromium and platinum content, located much lower in the stratigrahy.

	South Africa	**Lac Doré**
Tonnage	200 millions tonnes ore[127]	Obsolete
Magnetite content	100%[128]	About 25%-30%
Accessibility	Scattered ownership	50% VanadiumCorp, 50% BlackRock Metals
Headgrade	1.5-1.6% V_2O_5 Undiluted	About 0.45% V_2O_5 diluted
Concentrate grade	1.5-1.7% V_2O_5	1.2-1.5% V_2O_5
Concentration Factor	1:1.1	About 1:3
Mine setting	Strip mining	Open pit mining
Thickness	1.5 metres	100-200 metres
Length	100's of km	17 km
Dip of layers	10-20°	70°
Pit ratio	>10	Small
Mining cost	Rising	Low
Mine-mill distance	110 km	Adjacent
Ore type	Partly oxidized, soft	Fresh, hard and abrasive
Grinding cost	Low	High
Concentrate purity	2% SiO_2	<1% SiO_2 targetted
Mill recovery	90% of the vanadium content	75%, to be improved
Refin. Recov.	78% average	>80% expected
Coal	Cheap	Other alternatives
Natural Gas	Available	Not available
Electricity	Expensive, unreliable	Cheap and abundant
Labor	Over staffed	Automated
Labor Cost	Cheap but rising	Expensive
Expertise	Available	Needed to be brought in
	South Africa	**Lac Doré**
Soda Ash	Expensive, cnd$350/t in 1997, around $500/tonne today	Cheap, CAD $280/t (June 2013)[129]
Soda Ash needed	About 5%	About 2%
Climate	Dry and hot	Harsh and cold
Water	Expensive	Abundant
Environment	Little restriction for now	Zero emission
Politic	Unstable country	Stable country

[127] Taken from literature, not a current or NI-43-101 resource, not validated by the author. The Bushveld being exploited by strip mining, economically viable resources available to the various producers are very sensitive to local factors and can not be validated by the author.

[128] Assuming the aforementioned resources are massive magnetite, as indicated in the literature.

[129] http://www.fmcchemicals.com/LinkClick.aspx?fileticket=86YzPNHUfls%3d&tabid=6700&mid=14328&language=en-US

	South Africa	Lac Doré
Taxation	Royalties based	Profit based
Duty to USA	13%	0%
Cost of prod.	US$1.70-1.80 in 1997[130]	To be updated
Corporation	Russian steel producer Evraz	Junior companies

***Table 25**: Synthetic comparision between the Lac Doré project and the Bushveld-based operations. Updated from Girard (1998).*

***Picture 28**: Picture of the flat-lying main magnetite layer from the Bushveld Complex. The mined layer is limited to the bank in front of the people.*

[130] 1997 figures, not adjusted for inflation.

***Picture 29**: General view of the sub-vertical magnetite bearing layered series from P2 at the Lac Dore deposit, the thickness of the sequence being comparable to the length of the trench (picture 9).*

The comparison made with the Bushveld complex and its mine series does not conclusively suggest that similar mines are present within the Lac Doré property. Both settings have their characteristics which may influence the possibility to exploit a mine. Only systematic exploration and development efforts on the Lac Doré property may establish the economic feasibility of the project with confidence.

VANADIUM MARKET STRUCTURE

The vanadium price used to be characterized by stable price reflecting production cost, with severe and sharp surges when the market was destabilized. This market went into a structural change with the emergence of large Chinese surge in demand resulting from the implementation of the use of vanadium in Chinese rebar and resulting growth in vanadium supply from China from new steel mills processing vanadium bearing iron ore and irrational investment in high cost "stone coal"[131] based vanadium capacity in China. Today China accounts for approximately 55% of vanadium production and at least 40% of vanadium consumption globally.

[131] Commercial name of Antracite, a hard and compact (and polluting) variety of coal still mined in China as substitute for coke in blast furnace or fuel for power generation.

The bulk of the vanadium market is steel related, 60% of the consumption being for HSLA [132] steel plus 25% for specialty steel. About 4% of vanadium production is dedicated to the chemical industry, the rest being consumed for aluminium-titanium alloying.

Metallurgical grade vanadium is a "commodity", which means that its value is independent of who produce it, as long as it meet the specifications. The selling price is more or less dictated by market, and those who survive the difficult periods are producers with lowest or most elastic cost of production. Vanadium is chiefly (96%) used to make other commodities, and its market remain therefore highly dependent on other commodity performance.

The vast majority of world vanadium production is as co-product (68%[133]) or secondary production (21%), which makes its production capacity rather non-elastic. Only 11% of the vanadium is a primary production which can react to market outcomes. Vanadium production is then controlled by demand for other commodities, mainly steel, and not by its intrinsic demand. It is therefore a "*co*-commodity". Furthermore, the steel industry is simultaneously its major consumer and dominant source of supply! So demand and production are related and dependant. The only buffer available in the vanadium market seems to be stockpile accumulation in low market, and stockpiles depletion in a boom market, and all the impacts of market fluctuation are absorbed by the primary producers. Therefore, as vanadium production is not related to its selling price, variations in demand are directly reflected in price fluctuation. Because of these factors it can be difficult to invest and build new facilities for primary production. Consequently, during the last 20 years and despite a 100% increase in overall production, only one facility entered the market, Windimurra (currently temporarily closed) in Australia, plus one project under construction in Brazil by Largo Resources. Each of these projects represents about 8% of the market.

In the last ten years, American production of vanadium has waned as a result of the decreasing availability of vanadium bearing raw materials. The vast majority of vanadium production in North America is based on secondary refinement of vanadium bearing ashes, slag and residues originating from burning Venezualan Orimulsion. Each year the vanadium grade of these oils decreases. Total oil production in Venezuela is also in a downward spiral, and more and more of the Venezuelan oil is being shipped to China rather than North America. Today consumption of vanadium in USA plus Canada is approximately 11,000 metric tonnes per year compared to a production from domestic raw materials sources of less than 1,000 metric tonnes vanadium per year. The

[132] HSLA: High Strength Low Alloy steel, typically containing 0.015% to 0.5% vanadium.
[133] Numbers taken from Perles, 2013.

increasing dependency of supply of vanadium demand in USA and Canada from unstable or government oriented jurisdictions like Venezuela, South Africa, Russia and China is of great concern. No strategic stockpile is available anymore in United States.

There is a certain desire in the manufacturing industry for a dependable source of vanadium located in a politically stable and market controlled economy. As a reference, a similar situation prevails in the niobium industry, where the Niobec Mine (located near Chicoutimi, Québec, an Iamgold Corporation subsidiary) was kept in production for the last 40 years for the sole sake of market stability.

Ferrovanadium imports in the USA from China and South Africa are essentially non existent as a result of dumping duties. Import duty on ferrovanadium from countries not subject to dumping are typically 3.7% and imports of V_2O_5 into the USA generally carry a 5% import duty. Lac Doré proction would be exempted of such duty, considering the North America free trade agreement.

VANADIUM BATTERY

Thanks to its multiple valences (V^{++}, V^{+++}, V^{++++} and V^{+++++}), its high solubility under wide acidity ranges and its high electrical density, vanadium is the metal with one of the highest electroactive capacities. Thus the interest in vanadium based batteries. Currently, two families of vanadium based batteries are emerging on the market.

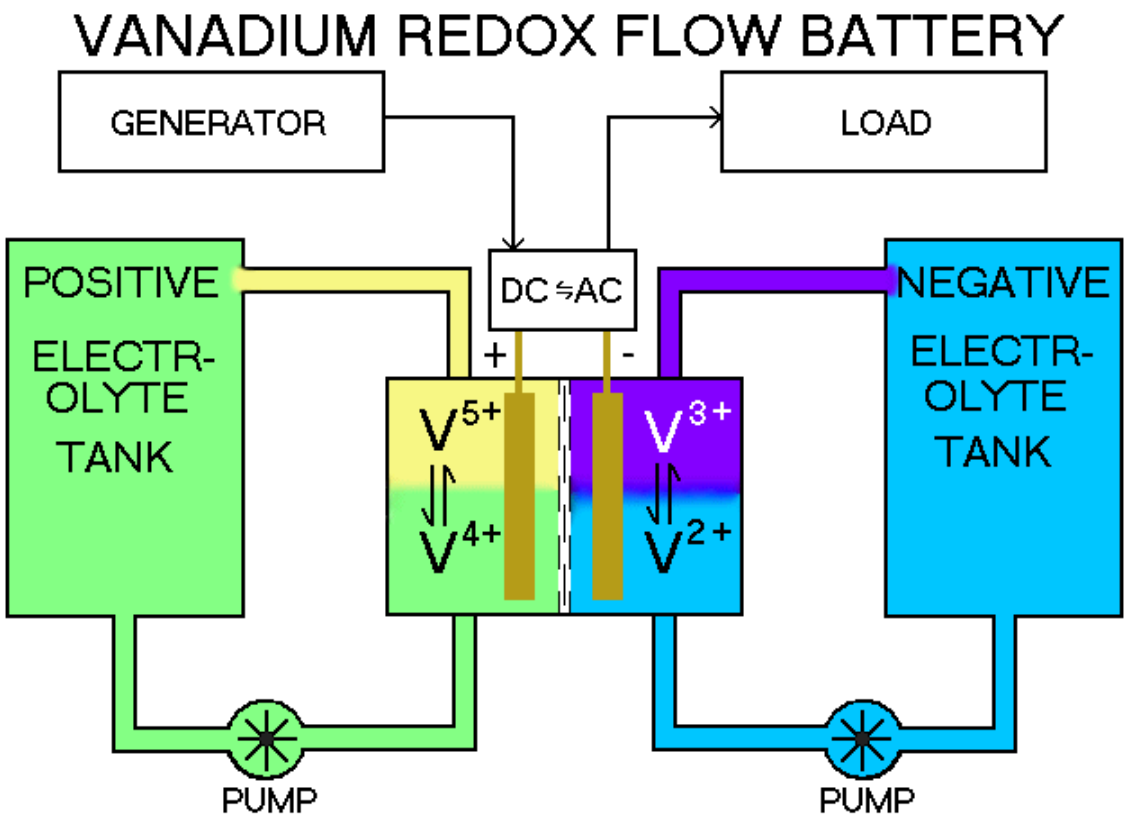

Figure 21: *Diagram of the vanadium redox battery, made of two electrolyte tanks, which electrolyte are pumped into a fuel cell where electricity is generated or the electrolyte regenerated (Wikipedia.org).*

The vanadium redox flow battery was developed by Dr. Maria Skyllas-Kazacos, from New-South-Wales University (Australia), patented in 1989[134] ***(figure 21)***. It uses a VO^{++} ==> VO_2^{+} reduction electrolyte and V^{++} ==> V^{+++} oxidation electrolyte upon discharging. Both electrolytes are put in semi-contact through an electroporous membrane for electron exchange. Since both electrolytes are made of the same metal, cross contamination is not an issue. Since both electrolytes are liquids, they can be pumped through the cell, and stored in tanks. Then, the storage capacity is dependent on the tanks size and power is dependent on membrane surface. Thus the battery runs as two electrolyte storage tanks, a membrane unit (fuel cell) and pumps for circulating the electrolyte in the charge or discharge cycles. These batteries then represent large storage capacity (kW/h to mW/h) suitable where high power is required. Applications are multiple:

[134] Dr. Skyllas-Kazacos is currently an advisory board member of VanadiumCorp, as well; she was involved in the former McKenzie Bay International project.

- Full electric vehicle, where the batteries can either be recharged on grid, or "*refueled"* with charged liquid electrolytes. The official release of such a vehicle happened at the Sydney 2000 Olympic Games, where it propelled public transportation. Promoters claim that it may likely replace the standard Pb-Pb car battery as well as dominate the electric car market.
- Power back-up for a small community isolated from national electrical grid, such as islands, Nordic villages and jungle or desert outposts[135]. Electric power for such communities is usually produced with diesel powered generator, which have a near constant fuel consumption regardless of the power output. Therefore, the generators needs to be built to supply peak demands, and thus runs constantly at full fuel consumption. Coupling storage battery with generators or even windmills enables to supply peak demands with significantly lower generating capacities.
- Grid stabilization of industrialized areas subjected to supply reliability which do not match the needs, such as California's silicon valley. Such large scale batteries are considered sufficiently powerful to supply industrial complexes sensitive to electrical power outage, such as robotized assembly lines and computer centers. It is reported that a single power outage of a car assembly line cost about a million dollars to restart.
- Grid stabilization for large communities, enabling leveling of peak demands. Cost of electricity is, on most grids, dependant on demands, meaning it may quadruple during peak periods (such as dinnertime every day and extreme cold or heat periods). The only large power stations which can easily cope with short-term variations are hydro-electricity, which represents only a fraction of North-American production[136].
- The need for grid stabilization for wind farms is very evident.

The storage capacity of vanadium redox battery relates directly to the amount of vanadium, with a capacity of 250 watt-hours of energy per 1 kilogram vanadium employed in the electrolyte. A megawatt-hour size battery then requires 5000 metric tonnes of vanadium electrolyte! The commercialization of this battery will create a tremendous pressure on the vanadium price. The reader shall recall the non-elasticity of the current production, and therefore the need for primary-source vanadium to fulfill the battery market.

[135] The Windstor system, developed by Dermont Engineering, a subsidiary of McKenzie Bay International, was a precursor of such system. The first vertical-axis wind turbine coupled to V-redox battery was installed at the Rouyn-Noranda College (Québec) in 2002.

[136] Hydro-Québec is the only utility company vastly producing from hydro-electricity. Although its net exports are near to nil, Hydro-Québec imports power from New-England at low cost during low demands period, and export power at high prices during peak period, generating hundreds of millions dollars in profits. A similar profit structure could be applicable to large vanadium-based grid stabilizers.

The second type of vanadium based battery is the lithium-vanadium-polymer battery and vanadium-lithium-phosphate battery. Originally developed by Avestor, a Hydro-Québec subsidiary[137], in the late 1990's, this solid-electrolyte battery use lithium ions as anode and vanadium-iron phosphate or vanadium oxide polymer as cathode. Its main applications are considered for electric vehicles, where it may deliver a higher power/weight ratio than regular lithium ion batteries. Although this battery has numerous advantages over conventional lithium-cobalt iron batteries, its commercialization is uncertain.

FORMER ECONOMIC EVALUATION ON LAC DORÉ PROJECT

The various economic studies carried-out prior to McKenzie Bay's SNC Lavalin feasibility study **shall be considered as outdated and non-current**.

The original Lac Doré project, as estimated by the author (Girard, 1998), aimed at the production of 15 million pounds V_2O_5 per year at a then anticipated production cost of $1.84/lbs[138]. This capacity was calculated as the highest achievable throughput for a five (5) metres diameter rotary kiln with conventional technology, fed at the rate of 82 tonnes of magnetite per hour. This production represented about 17% of the 1997 world production, or 6% of the actual production. Capital cost and internal rates of return calculated back then by the author are not reliable anymore.

Cambior, in their prefeasibility study (Services techniques, 1999), targeted a production of 12.8 million pounds of V_2O_5, or 4300 tonnes of ferrovanadium, Operation cost, capital cost and internal rate of return provided by Cambior are currently obsolete.

SNC-Lavalin, in their feasibility study, estimated a production of 63 million litres of VRB electrolyte, equivalent to about 31 million pounds (15,000 tonnes) V_2O_5. Capital cost and operating cost are currently obsolete. Since the selling price of VRB electrolyte was unknown, estimates for IRR varies wildly depending on scenarios.

The production anticipated by McKenzie Bay International represented about 25% of the 2001 world consumption, which has almost doubled since then. With an annual growth rate of 5%, the former Lac Doré project would have accounted for about 4 years of typical annual growth of the world market.

[137] Hydro-Québec still owns the patents on this technology.
[138] All figures are indicated in their 2001 dollars values, and were not adjusted in 2014 dollars.

MARKET OUTLOOK

Historically, until 2005, the vanadium demand and production has grown about 4-5% annually, related to augmentation in steel production and of its vanadium content. Since 2005, due to the Chinese increase in steel production as well as the implementation of higher strength and ductility specifications for construction steels in China, vanadium demand and production has increased by about 70%, for a growth of 7-8% annually. Although the growth rate of the Chinese steel industry has decelerated for the last 2-3 years, the demand in vanadium as alloying agent increased. The phenomenon related to the usage "*intensity"*, which relates to which proportion of the steel produced is alloyed or micro-alloyed. Traditional steel produced and consumed in China is used in regular carbon steel. However, the proportion of HSLA steel consumption has steadily increased, and the intensity of world vanadium use in steel has steadily increased by 5%[139] in the last decade (50% total), multiplied by the steel production which has doubled. This represent a 7% overall increase in consumption per year by the steel industry. Despite the slowdown in steel production increase, the vanadium intensity increase is on a long term outlook, which shall sustain a 5% annual growth of vanadium consumption by the steel industry. The bulk of the non-alloyed steel produced by China is dedicated to its domestic market. The last quinquennial economic plan of the Chinese government indicate the will to improve the quality of domestic steel consumption, thus to sustain the trend in vanadium growth consumption.

The market for vanadium chemical to be used in the various types of batteries currently stands at less than 2000 tonnes per year. It is currently difficult to forecast future demand in this emerging market, but 10,000 tonnes per year by 2017 was proposed by Perles (2013). However, the demand can vary wildly depending if lithium-vanadium-phosphate batteries get more acceptances by the car industry, and mostly if large scale VRB power storage systems get fully commercialized. The construction of a single VRB unit to back-up the Hoover Dam electricity production, enough to sustain a city the size of Vancouver, would require about 5000 tonnes of V_2O_5 equivalent as electrolyte! The supply for such increase in demand could not be derived from an increase in direct reduction steel production, and would have to come from primary production.

[139] Or an increase of 0.002 KgV/t of steel per year (Perles, 2013).

ITEM 25: INTERPRETATION AND CONCLUSION

VanadiumCorp owns a significant portion of the series of vanadium bearing magnetite layers historically defined on the South limbs of the Lac Doré Anorthositic Complex. It is in the author's opinion that the portion owned by VanadiumCorp is sufficiently endowed to justify proceeding with resource estimation and preliminary economic assessment. The deposit has a protracted exploration history spanning 60 years, and experienced advanced stages of development four times in its history. Building on these previous studies shall enable VanadiumCorp to accelerate its development. Vanadiumcorp currently owns totally and free of lien the entire Eastern deposit, which, by itself, is likely large enough to justify such studies. Furthermore, VanadiumCorp owns about 90% of the Western deposit, which has a similar potential as the eastern deposit, as well as the Northeastern deposit the extent of which is poorly controlled. With the additional consideration of BlackRock Metals putting their adjacent deposit into production, there is no reason why, with sufficient effort and proper management, VanadiumCorp shall not succeed.

Completing the resources calculation and preliminary economic study would require about one year of work.

As only portions of the SNC-Lavalin's feasibility study are in the public domain, VanadiumCorp essentially must either acquire it to gain access to the technical data or replicate it. **Gaining access to the feasibility would represent a savings of time and capital for VanadiumCorp. Conversely, not gaining access would not be considered a drawback to the project, just an addition of time and investment.**

The author shows some concerns about the resource calculation made by SNC-Lavalin, and the large discrepancy in category compared to Cambior estimate. For such, the author insists that resource being calculated, regardless of the historic estimates and that some data acquisition will be needed, as follow:

A. The bulk of the historic SOQUEM and MRN drilling is located on the Eastern deposit, which is the only portion of the deposits owned by VanadiumCorp to be sufficiently detailed to justify a reliable resource calculation.
B. Extensive trenching but only limited drilling data is available on Western deposit, and extensive definition drilling is obviously required if resources estimation is needed on this desposit. For this reason, defining resources on the Western deposit shall be considered as a secondary priority.
C. Since the non-current SNC resource estimation, the property outline was modified, and a small portion of the Lac Dore Western Deposit now belongs to a

third party (BlackRock Metals). This portion of the deposit shall be excluded from the eventual resource estimate.

D. Resources as calculated by SNC were based on vanadium headgrade to which an overall recovery was applied. Since vanadium is partitioned into various mineral phases, it is in the author opinion that resources calculated from Davis tube measurement of the magnetite abundance shall be attempted, and the vanadium analysis being performed upon magnetite concentrate, and not upon headgrade.
E. Since SOQUEM drilling in 1979, only three confirmation holes were drilled by SNC, plus four confirmation holes by PacificOre Mining. None of these holes were tested by Davis Tube, which needs to be. Although these were considered as sufficient to certify the validity of the Soquem drilling, the author emits concerns that the current drilling pattern may not be sufficient to allow calculation of indicated and measured resources. Therefore, upgrading the categories will likely require a systematic drilling program in the future.
F. It is uncertain if the Northeastern deposit, or ***Lac Doré North,*** is worth to be considered for resource estimation. This part of the deposit is affected by Grenvillian faulting and metamorphism, bringing structural complications. Supplementary drilling is not justified for the moment, and shall not be considered as priority.
G. Conciliation between SOQUEM and McKenzie Bay grades was a matter of debate among the various geologist who worked on the project through time. It is in the author's opinion that SOQUEM headgrades are slightly underevaluated, and would require corrections to be incorporated into resource database. SNC used SOQUEM and MRN assays as they were, while Cambior disregarded them. Rigorous reconciliation is of utmost importance to the author. It must be considered that the current assay database is a kind of a patchwork which will need extensive testing to be rendered robust. This single issue may require redrilling of the deposit.
H. Despite the author's firm had conducted the work program for McKenzie Bay Resources, this work was partitioned into various mandates, and no complete database was constructed by the author. Some of these partial databases are not unavailable anymore in digital format and need to be re-built.
I. The Cambior and SNC-Lavalin database used for resource calculation were not provided to the author in digital format, meaning that their database needs to be reconstructed and thoroughly validated.
J. The trenching work carried by Apella Resources and PacificOre Mining cannot be recovered as it is. It will require detailed mapping and re-assay.
K. The drilling results from Apella and PacificOre Mining are lacking Davis tube results, which will need to be done. Numerous issues were noted in logging, which will need to be corrected.

From these considerations, a thorough review and consolidation of the data is needed prior to any attempt to modelize the resources. Before further drilling is required, it is in the author's opinion that measured indicated resources can be calculated from the Lac Dore Eastern deposit (Phase I), while the Lac Dore Western deposit would yield inferred resources form the current data. Geological information, such as Davis tube results or mapping of Apella trenchwork will have to be conducted. Then, once this is complete, a drill program focused on the Lac Dore West Deposit shall be considered, depending on strategic considerations.

The author recommanded that VanadiumCorp complete a resource estimation based upon the currently available database, though thoroughly validated and completed. Based upon such estimate, a preliminary economic assessment shall be completed based upon the historic metallurgical testing to evaluate if systematic drilling, metallurgical testing and environmental impact studies are a justified investment.

ITEM 26: RECOMMENDATIONS AND BUDGET

The author has reviewed information relevant to the VanadiumCorp owned **Lac Doré** and **Lac Doré North** properties and the surveys carried out to date. The progress made on the Lac Doré deposits and the geological continuity between the various segments of these deposits provides ample evidence of important vanadium, titanium and iron endowment and the technical capabilities to economically recover these metals. The historic work completed on these deposits provides Vanadiumcorp with the opportunity to quickly establish compliant resources and the re-affirm the economic potential of the project. The author suggested sequence of work for the development is as follows:

PHASE 1: RESOURCE ESTIMATION

Update previous field work pertaining to the Lac Dore Eastern and Western deposits and calculate resources on these deposits according to the now available data. Focus shall be dedicated to the Eastern deposit, which host most of the historical drilling and trenching. The paucity of drilling on the Western deposit may impede its inclusion as resource. No attempt to estimate resources for the Northeastern deposit shall be made for the moment.

The following work needs to be conducted to first complete the analysis of PacificOre and Apella Resource drilling:

1. An attempt to properly locate the historic drill site shall be conducted as first priority.
2. 2013 PacificOre drill core must be carefully relogged, photographed, verifying sample locations. Further sampling must be completed to include wallrocks and unsampled intervals.
3. A grinding test must be performed to calibrate the milling time on a mini-rodmill, in order to obtain the best magnetite liberation for Davis tube testing.
4. Density measurement must be made on every sample.
5. Samples must be prepared for Davis tube testing, including all required measurement to evaluate the variability of the Bond's work index.
6. Davis tube, headgrade assays and magnetite concentrate assays must be completed.
7. Assessment report for 2013 drilling must be handed to the government.

The following work will also be required for the construction of the resource model:

8. The historic database must be rebuilt and thoroughly tested in order to be compatible with current resources estimation software.

9. 3-D geometrical model will be built for the East and West deposits. Localized detailed mapping is likely to be required, including potential land surveying of the trenches to establish their accurate altitude.
10. Resources from currently available data must be calculated by a reputed specialist.

Ideally, the following work shall be added to complete the data acquisition from Apella's trenching and drilling over the **Lac Doré North** property.

11. Apella 2009 drill core must be carefully relogged, photographed, verifying sample locations. Coreboxes need to be replaced. Databases need thorough verification.
12. Apella 2009 core may need to be resampled by quartersplitting.
13. Apella drill core sampling must be completed to include wallrocks and unsampled intervals.
14. Core sample must be tested by Davis tube, and the concentrate as well as the headgrade been assayed. Density and grindability measurement must be done along.
15. Apella trenches on Northeastern deposit must be mapped, with all samples properly located. Care must be applied to structural information in order to evaluate the effect of Grenvillian faults on the geometry of the deposit, which data shall be integrated with structural measurement on drill core.
16. Surface exposed through trenching must be resampled, and the samples assayed as for the core samples.
17. Database validation and preliminary resource estimates must be calculated.

Phase 1 program shall be initiated as soon as the funds are available in order to be completed by the end of the summer.

Budget for phase 1 is as follow:

Field word	$2000/day[140]	20 days	$40,000
Data verification	$80/hours	200 hours	$16,000
Grinding test			$4,000
Davis tubes	$100/samples	500 samples	$50,000
Assaying	$25/samples	1000 samples	$25,000
3D modelling	$100/hours	100 hours	$10,000
Resource estimate			$50,000
Applied mineralogy	$250/hours	100 hours	$25,000
Contingencies			$30,000
Total Phase 1			$250,000

[140] 2 men, all cost included.

PHASE 2: PRELIMINARY ECONOMIC ASSESSMENT

Considering the fact that the prefeasibility study completed in 2000 by Cambior as well as the bankable feasibility study completed in 2002 by SNC-Lavalin are not current anymore, that the issue of access to the SNC-Lavalin is not fully resolved, the author recommends that, assuming that the aforementioned resource estimate are sucessfully completed, VanadiumCorp proceed with a preliminary economic assessment of its project, including a detail market study for high purity vanadium products.

A preliminary economic assessment[141] shall be produced, based upon the calculated resource from phase 1. Cost estimates shall be done using a scenario of primary production of technical grade pentoxide though conventional alkali roasting and APV route. Concomitantly, a thorough market study shall be conducted regarding the high purity vanadium chemical suitable for electrolyte production. Such market study shall be completed by a reputed and independent firm, with contribution of the knowledgeable VanadiumCorp collaborators, such as Mr Perles, and shall be done in such a way to be a direct contribution to the eventual feasibility study. Phase 2 program can be conducted along with phase 1 if sufficient funds are available. A six month period will be required.

Budget for phase 2 is as follow:

Market study	$100,000
Preliminary economic assessment	$100,000
Total phase 2	$200,000

Conditionnal to a positive preliminary economic study, a feasibility study could be initiated. It is too early in the process to provide a budget and schedule for such.

The author considers the budgets and targets presented in the above recommended program to be realistic and legitimate, and, if properly managed, they will provide a reasonable chance of defining the needed resources, notwithstanding the risks inherent to any exploration project.

[141] It is in the author' opinion that the purpose of a preliminary economic assessment is only to justify the investment required by a full scale feasibility, or a less than 10 million dollars investment. PEA shall thus be a simple economic study with preliminary engineering based upon comparatives, "rules-of-thumbs" and indicated pricing of the main equipements. In the last years, the concept of PEA was confused with prefeasibility study in the industry, to include fairly extensive engineering and mine design, which are not required for such type of studies to the author's opinion.

Signed in Saguenay on December 08, 2014
Effective date of the report: June 10, 2014

Lac Doré Vanadium, December 08, 2014

RÉJEAN GIRARD # 521

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ITEM 28: CERTIFICATE OF QUALIFICATION

RÉJEAN GIRARD, PROFESSIONAL GEOLOGIST

I, Réjean GIRARD, P. Geo., do hereby certify that:

1. I am currently employed as a senior geologist by:
   IOS Services Geoscientifiques Inc
   1319 Boulevard St-Paul
   Chicoutimi, Québec, G7J 3Y2
2. I graduated with a degree in geology from *Université Laval* in Ste-Foy, Québec, in 1985. In addition, I completed 5 years of graduate studies in mineral resources at *Université du Québec à Chicoutimi*.
3. I am a member of the *Ordre des Géologues du Québec*, #521.
4. I have worked as a geologist for 29 years since my graduation from university.
5. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI-43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI-43-101), and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purpose of NI-43-101.
6. I am responsible for the preparation of the technical report entitled " The Lac Doré project: An integrated vanadium project in the Lac Doré Complex, Chibougamau, Québec, Canada, NI-43-101 technical report**",** dated June the 12th, 2014, with an effective date of June 10th 2014 and relating to the **Lac Doré** and **Lac Doré North** properties. I visited the properties on November 10, 2013 and more recently on October 6 to 10, 2014.
7. From 1997 to 2002, I have been actively involved in the project on behalf of previous ownership, supervising exploration work and attending the feasibility as client representative.
8. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report of which the omission to disclose would make the Technical Report misleading.
9. I am independent of the issuer and their former partner, having applied all the tests in section 1.5 of National Instrument 43-101.
10. I have read National Instrument 43-101 and Form 43-101-F1, and the Technical Report was prepared in compliance with that instrument and form.
11. I consent to the filing of the Technical Report with any stock exchange or other regulatory authority, and any publication of the Technical Report by them on their publicly accessible websites.

Dated December 08, 2014

Lac Doré Vanadium, December 08, 2014

Réjean Girard, P.Geo

APPENDIX 1

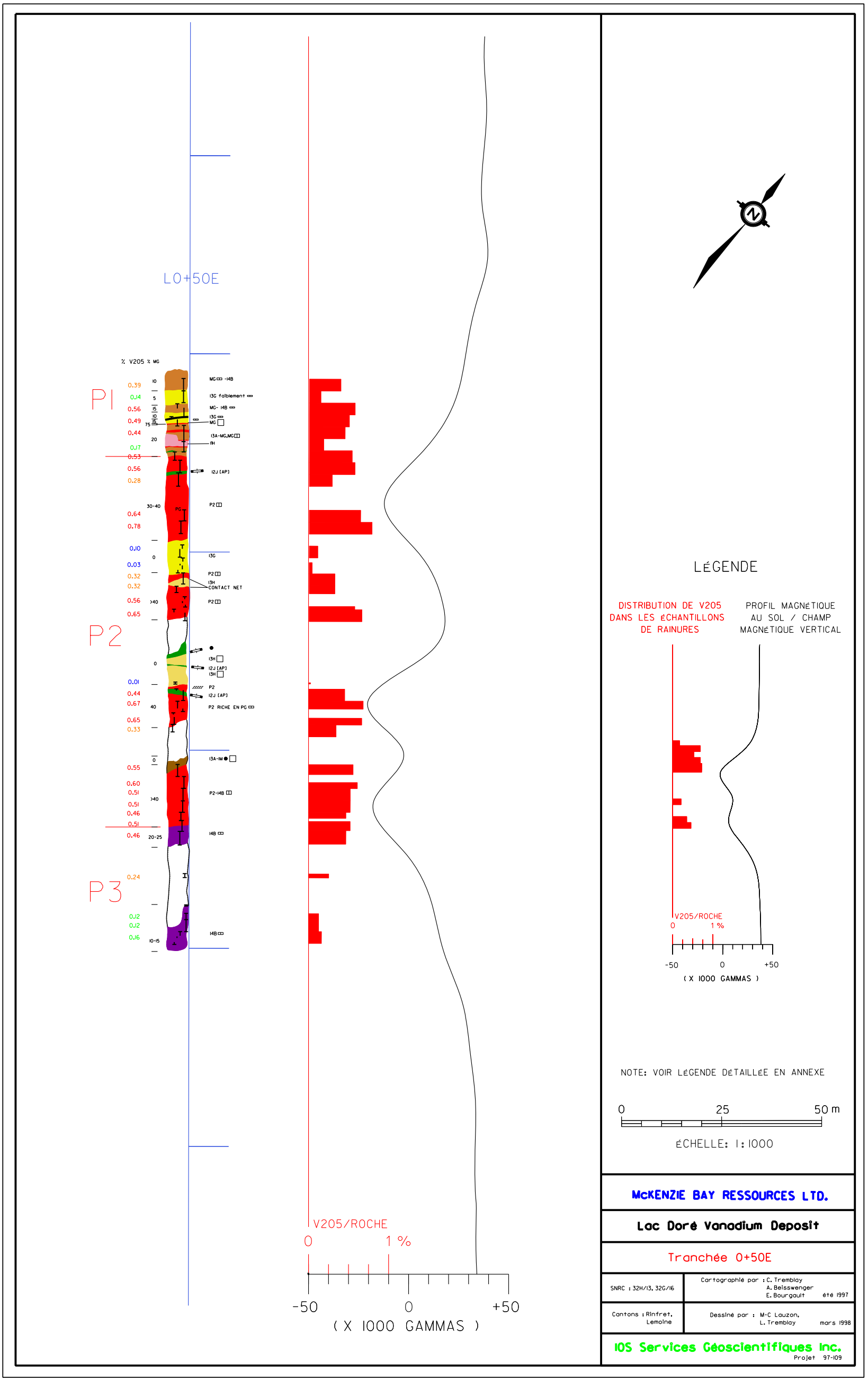
CLAIMS LIST

Claim #	NTS map	Property	Township	Area (HA)	Expiration	Credits	Requirement	Fees	Ownership
2174067	SNRC 32H13	LDN		55,51	2016-11-03	- $	1 800 $	55 $	Apella Resources inc. (81845) 100 % (responsable)
5266726	SNRC 32G16	LD	RINFRET	15,39	2015-09-12	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5266727	SNRC 32G16	LD	RINFRET	9,62	2015-09-12	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5266728	SNRC 32G16	LD	RINFRET	15,41	2015-09-12	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5266729	RC 32G16.32H	LD	RINFRET	15,57	2015-09-12	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5266831	SNRC 32G16	LD	LEMOINE	16,34	2015-09-12	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5266833	SNRC 32G16	LD	LEMOINE	16,2	2015-09-12	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5266834	SNRC 32G16	LD	RINFRET	15,24	2015-09-12	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5266835	SNRC 32G16	LD	RINFRET	9,27	2015-09-12	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274536	SNRC 32H13	LD	RINFRET	15,6	2015-03-30	2 225 $	500 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274537	SNRC 32H13	LD	RINFRET	15,56	2015-03-30	2 725 $	500 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274538	SNRC 32G16	LD	RINFRET	16,19	2015-03-30	3 225 $	500 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274539	RC 32G16.32H	LD	RINFRET	16,17	2015-03-30	2 725 $	500 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274540	SNRC 32H13	LD	RINFRET	16,07	2015-03-30	31 668 $	500 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274541	SNRC 32H13	LD	RINFRET	15,55	2015-03-30	3 725 $	500 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274543	SNRC 32G16	LD	RINFRET	15,59	2015-03-30	3 225 $	500 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274544	RC 32G16.32H	LD	RINFRET	15,55	2015-03-30	34 668 $	500 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274545	SNRC 32H13	LD	RINFRET	15,51	2015-03-30	3 225 $	500 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274546	SNRC 32H13	LD	RINFRET	14,63	2015-03-30	3 225 $	500 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274547	SNRC 32G16	LD	RINFRET	13,15	2015-03-30	3 226 $	500 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274548	SNRC 32G16	LD	RINFRET	15,76	2015-03-30	35 669 $	500 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274549	SNRC 32G16	LD	RINFRET	16,08	2015-03-30	35 669 $	500 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274550	RC 32G16.32H	LD	RINFRET	16,06	2015-03-30	3 726 $	500 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274552	SNRC 32G16	LD	LEMOINE	15,54	2015-03-30	- $	500 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274554	SNRC 32G16	LD	RINFRET	16,06	2015-03-30	3 725 $	500 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274555	SNRC 32G16	LD	RINFRET	15,78	2015-03-30	3 725 $	500 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274557	SNRC 32G16	LD	LEMOINE	15,83	2015-03-30	- $	500 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274561	SNRC 32G16	LD	RINFRET	15,48	2015-09-27	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274562	SNRC 32G16	LD	RINFRET	15,48	2015-09-27	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274563	SNRC 32G16	LD	RINFRET	15,87	2015-09-27	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274569	SNRC 32H13	LD	RINFRET	14,87	2015-09-27	1 242 $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274570	SNRC 32H13	LD	RINFRET	15,47	2015-09-27	1 228 $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274571	RC 32G16.32H	LD	RINFRET	15,48	2015-09-27	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274572	SNRC 32H13	LDN	RINFRET	15,92	2016-06-25	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274573	SNRC 32H13	LDN	RINFRET	14,99	2016-06-25	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274574	SNRC 32H13	LDN	RINFRET	15,69	2016-06-25	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274575	SNRC 32H13	LDN	RINFRET	15,68	2016-06-25	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274576	SNRC 32H13	LDN	RINFRET	15,68	2016-06-25	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274577	SNRC 32H13	LDN	RINFRET	15,48	2016-06-25	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274579	SNRC 32H13	LD	RINFRET	15,24	2016-06-25	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274580	SNRC 32H13	LD	RINFRET	15,8	2016-06-25	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274581	RC 32G16.32H	LD	RINFRET	15,84	2016-06-25	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274582	RC 32G16.32H	LD	RINFRET	15,81	2016-06-25	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274583	SNRC 32H13	LD	RINFRET	15,92	2016-06-25	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)

Claim #	NTS map	Property	Township	Area (HA)	Expiration	Credits	Requirement	Fees	Ownership
5274588	SNRC 32G16	LD	RINFRET	15,71	2015-10-15	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274589	SNRC 32G16	LD	RINFRET	15,71	2015-10-15	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274590	SNRC 32G16	LD	RINFRET	15,71	2015-10-15	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274591	SNRC 32G16	LD	RINFRET	15,71	2015-10-15	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274592	SNRC 32G16	LD	RINFRET	15,87	2015-10-15	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274599	SNRC 32H13	LDN	RINFRET	15,88	2015-12-06	27 591 $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274600	SNRC 32H13	LDN	RINFRET	15,97	2015-12-06	11 169 $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274601	SNRC 32H13	LDN	RINFRET	14,99	2015-12-06	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274602	SNRC 32H13	LDN	RINFRET	14,75	2015-12-06	13 772 $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274603	SNRC 32H13	LDN	RINFRET	15,45	2015-12-06	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274604	SNRC 32H13	LDN	RINFRET	15,69	2015-12-06	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274707	SNRC 32H13	LDN	RINFRET	16,51	2016-01-30	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274708	SNRC 32H13	LDN	RINFRET	16,44	2016-01-30	11 180 $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274709	SNRC 32H13	LDN	RINFRET	16,39	2016-01-30	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274710	SNRC 32H13	LDN	RINFRET	16,95	2016-01-30	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274711	SNRC 32H13	LDN	RINFRET	16,95	2016-01-30	11 135 $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274712	SNRC 32H13	LDN	RINFRET	15,86	2016-01-30	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274713	SNRC 32H13	LDN	RINFRET	15,86	2016-01-30	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274714	SNRC 32H13	LDN	RINFRET	15,86	2016-01-30	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274715	SNRC 32H13	LDN	RINFRET	15,87	2016-01-30	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274716	SNRC 32H13	LDN	RINFRET	15,87	2016-01-30	13 913 $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274717	SNRC 32H13	LDN	RINFRET	15,84	2016-01-30	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274718	SNRC 32H13	LDN	RINFRET	15,84	2016-01-30	- $	750 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274825	SNRC 32H13	LDN	RINFRET	16,93	2015-01-19	- $	500 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274826	SNRC 32H13	LDN	RINFRET	16,39	2015-01-19	- $	500 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274827	SNRC 32H13	LDN	RINFRET	15,87	2015-01-19	- $	500 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274828	SNRC 32H13	LDN	RINFRET	15,87	2015-01-19	- $	500 $	28 $	Apella Resources inc. (81845) 100 % (responsable)
5274829	SNRC 32H13	LDN	RINFRET	17,17	2015-01-19	- $	500 $	28 $	Apella Resources inc. (81845) 100 % (responsable)

APPENDIX 2

TRENCHES SKETCHS AND DRILL PROFILES, AS TAKEN FROM HISTORIC REPORTS



LÉGENDE

DISTRIBUTION DE V205 DANS LES ÉCHANTILLONS DE RAINURES

PROFIL MAGNÉTIQUE AU SOL / CHAMP MAGNÉTIQUE VERTICAL

V205/ROCHE
0 1 %
-50 0 +50
(X 1000 GAMMAS)

NOTE: VOIR LÉGENDE DÉTAILLÉE EN ANNEXE

0 25 50 m

ÉCHELLE: 1:1000

McKENZIE BAY RESSOURCES LTD.

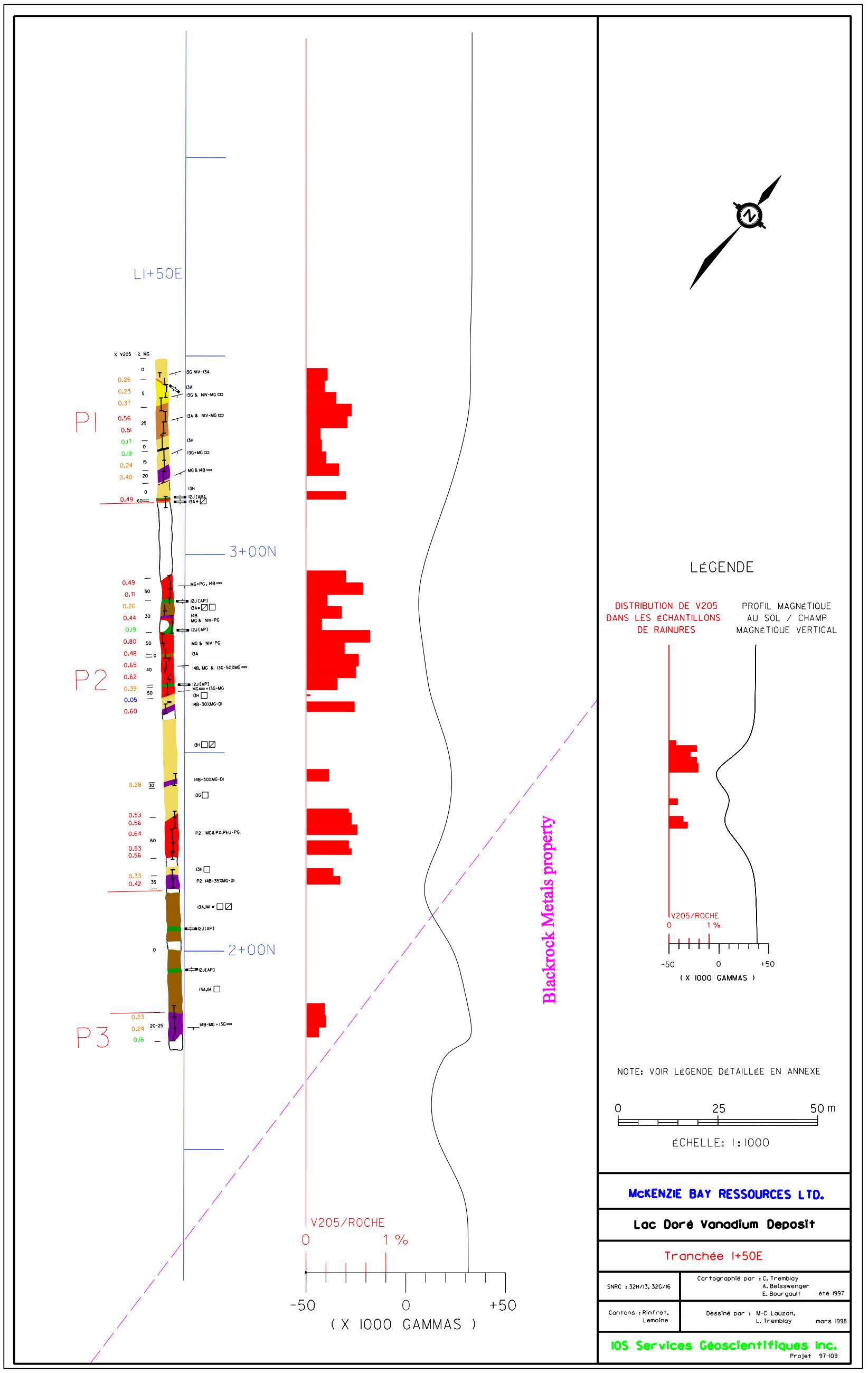
Lac Doré Vanadium Deposit

Tranchée 0+50E

SNRC : 32H/13, 32G/16	Cartographié par : C. Tremblay, A. Beisswenger, E. Bourgault — été 1997
Cantons : Rinfret, Lemoine	Dessiné par : M-C Lauzon, L. Tremblay — mars 1998

IOS Services Géoscientifiques Inc.

Projet 97-109



LÉGENDE

DISTRIBUTION DE V205 DANS LES ÉCHANTILLONS DE RAINURES

PROFIL MAGNÉTIQUE AU SOL / CHAMP MAGNÉTIQUE VERTICAL

NOTE: VOIR LÉGENDE DÉTAILLÉE EN ANNEXE

0 25 50 m

ÉCHELLE: 1:1000

McKENZIE BAY RESSOURCES LTD.

Lac Doré Vanadium Deposit

Tranchée 1+50E

SNRC : 32H/13, 32G/16	Cartographié par : C. Tremblay, A. Beisswenger, E. Bourgault été 1997
Cantons : Rinfret, Lemoine	Dessiné par : M-C Lauzon, L. Tremblay mars 1998

IOS Services Géoscientifiques Inc.

Projet 97-109

Blackrock Metals property

L2+00W

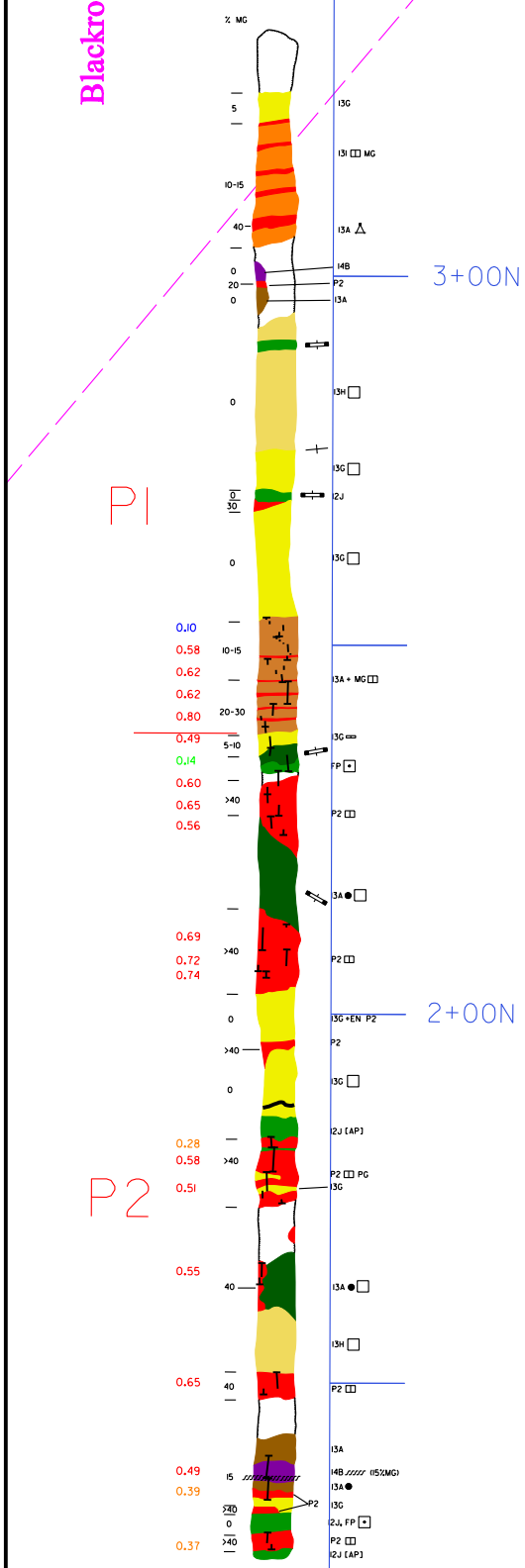
3+00N

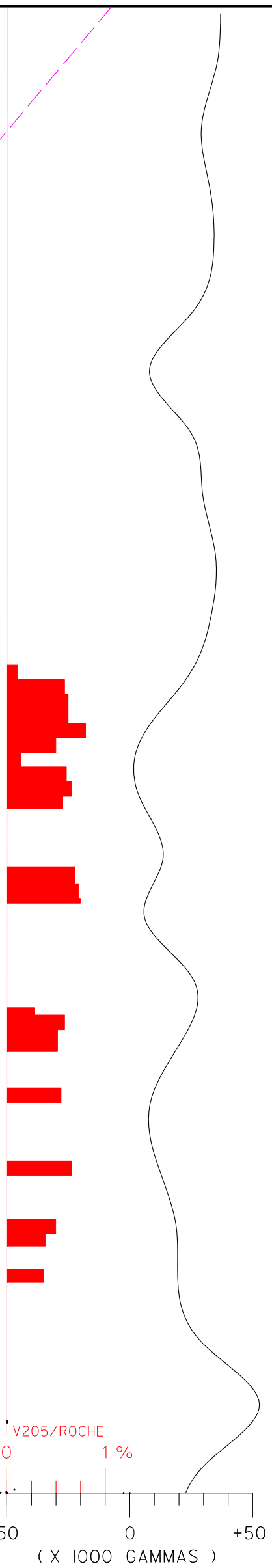
2+00N

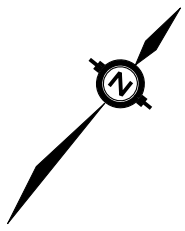
1+00N

P1

P2



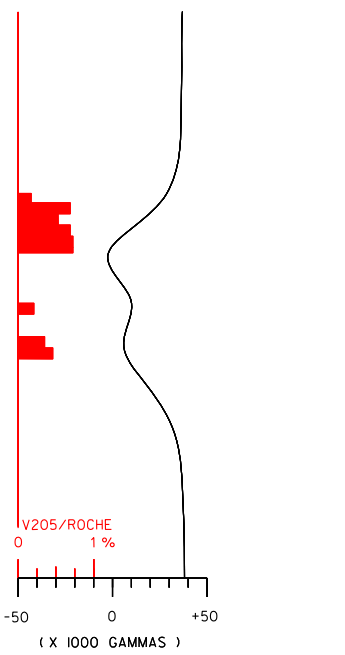




LÉGENDE

DISTRIBUTION DE V205 DANS LES ÉCHANTILLONS DE RAINURES

PROFIL MAGNÉTIQUE AU SOL / CHAMP MAGNÉTIQUE VERTICAL



NOTE: VOIR LÉGENDE DÉTAILLÉE EN ANNEXE

0 25 50 m

ÉCHELLE: 1:1000

McKENZIE BAY RESSOURCES LTD.

Lac Doré Vanadium Deposit

Tranchée 2+00W

SNRC : 32H/13, 32G/16	Cartographié par : C. Tremblay, A. Belsswenger, E. Bourgault — été 1997
Cantons : Rinfret, Lemoine	Dessiné par : M-C Lauzon, L. Tremblay — mars 1998

IOS Services Géoscientifiques Inc.

Projet 97-109

L2+50E

4+00N

3+00N

2+00N

%V205 % MG

13H & NIV-MG

13G

13G & NIV-MG
12J

12J [AP]

13G-MG DI & MG
P1

Contact graduel

13H sans MG

13A
14B-MG-DI

13A
MG
14B
13A
MG & 14B

14B-10%MG-DI

MG & 14B -UN PEU PG & IM

NIV-13A

13G & 14B+MG

NIV-13A

12J [AP]
(ZONE RICHE EN OXYDES)
PX & PG

14B & MG- IM
13G

14B & MG
13H sans MG

12J [AP]
13G
LIT MG QUI MOULE L'ENCLAVE
(RAINURES DE SOQUEM)
MG & 13G & 14B
13A
13G & 5% MINERAUX MAFIQUES (EN PETITS AMAS)
12J [AP]
13A,M

0.12 0.16 0.17 0.28 0.14 0.35 0.67 0.51 0.40 0.21 0.23 0.23 0.62 0.24 0.51 0.44 0.16 0.55 0.48 0.53 0.65 0.16 0.72 0.48 0.55 0.65 0.46 0.23 0.64 0.32 0.64 0.53 0.48 0.58 0.23 0.55 0.46 0.35

5-10 5 30 20 15 30 70 40 35 40 35 0 35 65 35 20 50

Blackrock Metals property

V205/ROCHE
0 1 %
-50 0 +50
(X 1000 GAMMAS)

LÉGENDE

DISTRIBUTION DE V205 DANS LES ÉCHANTILLONS DE RAINURES

PROFIL MAGNÉTIQUE AU SOL / CHAMP MAGNÉTIQUE VERTICAL

V205/ROCHE
0 1 %
-50 0 +50
(X 1000 GAMMAS)

NOTE: VOIR LÉGENDE DÉTAILLÉE EN ANNEXE

0 25 50 m

ÉCHELLE: 1:1000

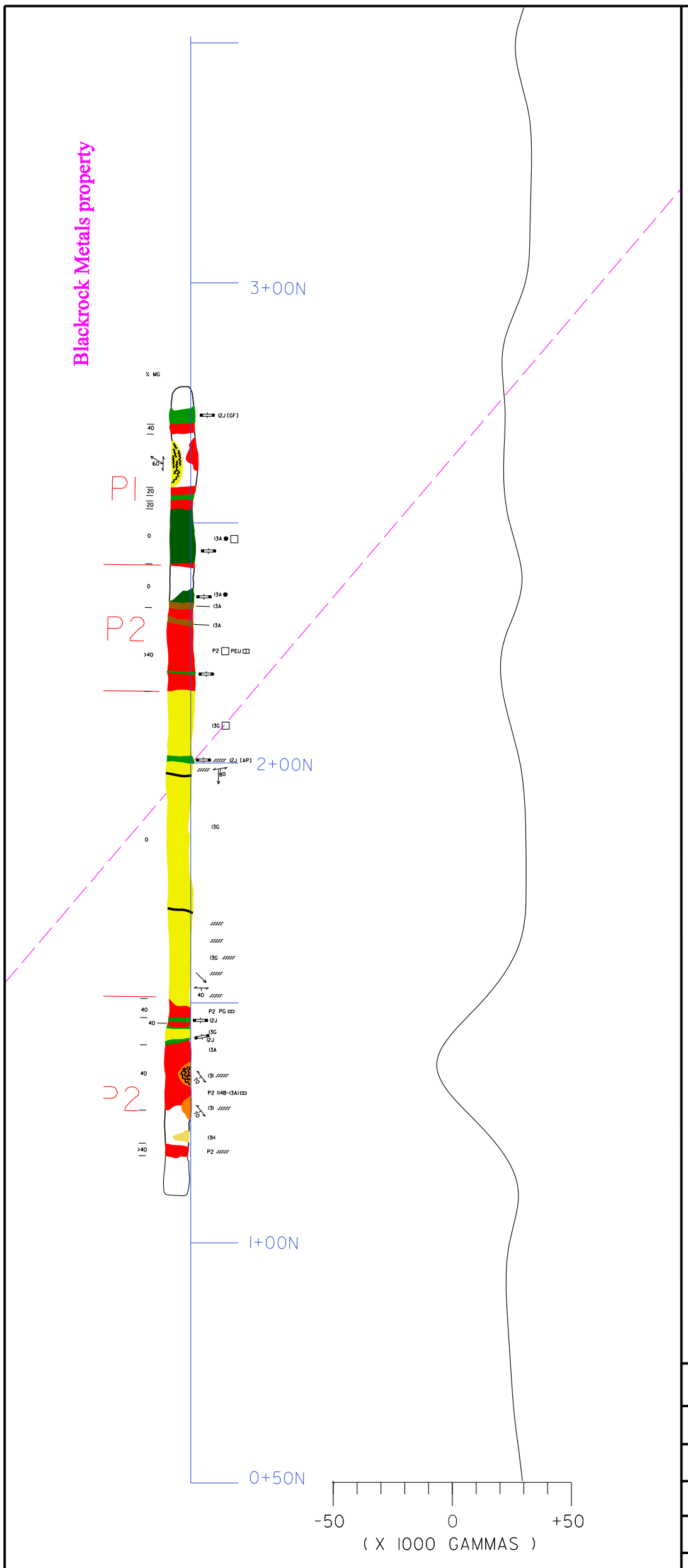
McKENZIE BAY RESSOURCES LTD.

Lac Doré Vanadium Deposit

Tranchée 2+50E

SNRC : 32H/13, 32G/16	Cartographié par : C. Tremblay, A. Beisswenger, E. Bourgault — été 1997
Cantons : Rinfret, Lemoine	Dessiné par : M-C Lauzon, L. Tremblay — mars 1998

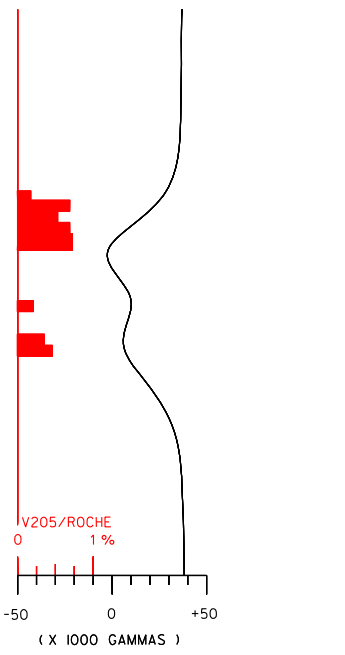
IOS Services Géoscientifiques Inc.
Projet 97-109



LÉGENDE

DISTRIBUTION DE V205 DANS LES ÉCHANTILLONS DE RAINURES

PROFIL MAGNÉTIQUE AU SOL / CHAMP MAGNÉTIQUE VERTICAL



NOTE: VOIR LÉGENDE DÉTAILLÉE EN ANNEXE

0 25 50 m

ÉCHELLE: 1:1000

McKENZIE BAY RESSOURCES LTD.

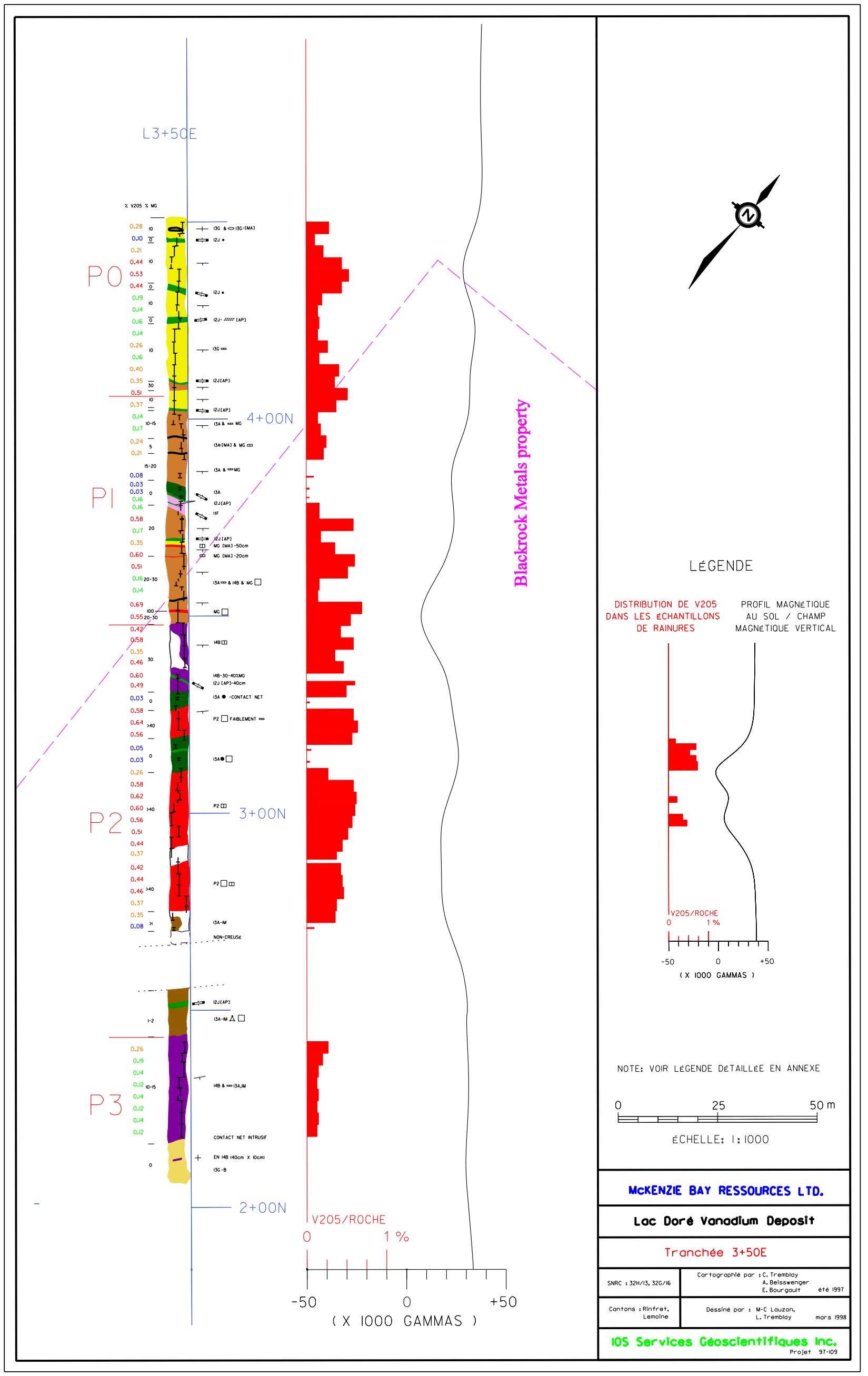
Lac Doré Vanadium Deposit

Tranché 3+00W

SNRC : 32H/13, 32G/16	Cartographié par : C. Tremblay, A. Beisswenger, E. Bourgault — été 1997
Cantons : Rinfret, Lemoine	Dessiné par : M-C Lauzon, L. Tremblay — mars 1998

IOS Services Géoscientifiques Inc.

Projet 97-109



LÉGENDE

DISTRIBUTION DE V205 DANS LES ÉCHANTILLONS DE RAINURES

PROFIL MAGNÉTIQUE AU SOL / CHAMP MAGNÉTIQUE VERTICAL

NOTE: VOIR LÉGENDE DÉTAILLÉE EN ANNEXE

0 25 50 m

ÉCHELLE: 1:1000

McKENZIE BAY RESSOURCES LTD.

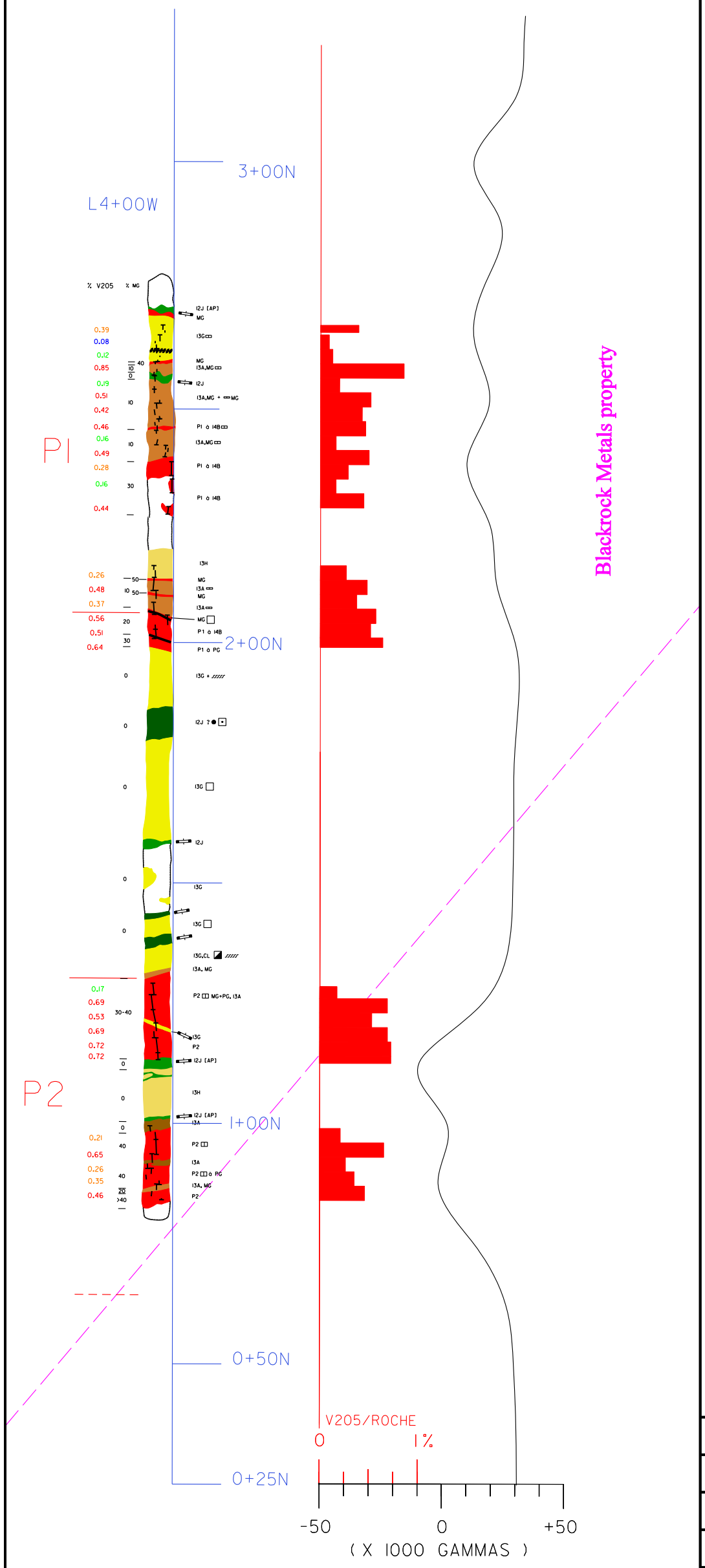
Lac Doré Vanadium Deposit

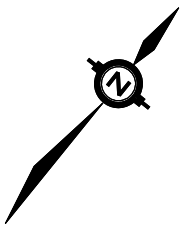
Tranchée 3+50E

SNRC : 32H/13, 32G/16	Cartographié par : C. Tremblay, A. Beisswenger, E. Bourgault — été 1997
Cantons : Rinfret, Lemoine	Dessiné par : M-C Lauzon, L. Tremblay — mars 1998

IOS Services Géoscientifiques Inc.

Projet 97-109

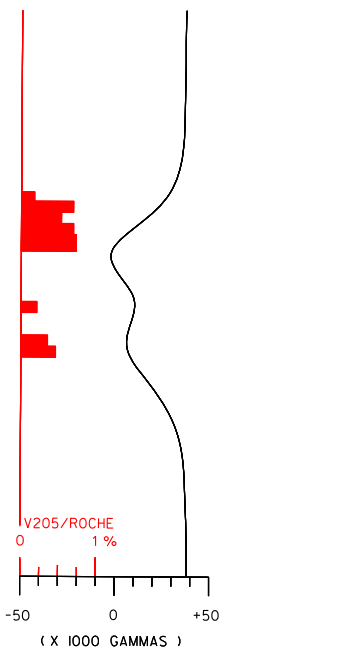




LÉGENDE

DISTRIBUTION DE V205 DANS LES ÉCHANTILLONS DE RAINURES

PROFIL MAGNÉTIQUE AU SOL / CHAMP MAGNÉTIQUE VERTICAL



NOTE: VOIR LÉGENDE DÉTAILLÉE EN ANNEXE

0 25 50 m

ÉCHELLE: 1:1000

McKENZIE BAY RESSOURCES LTD.

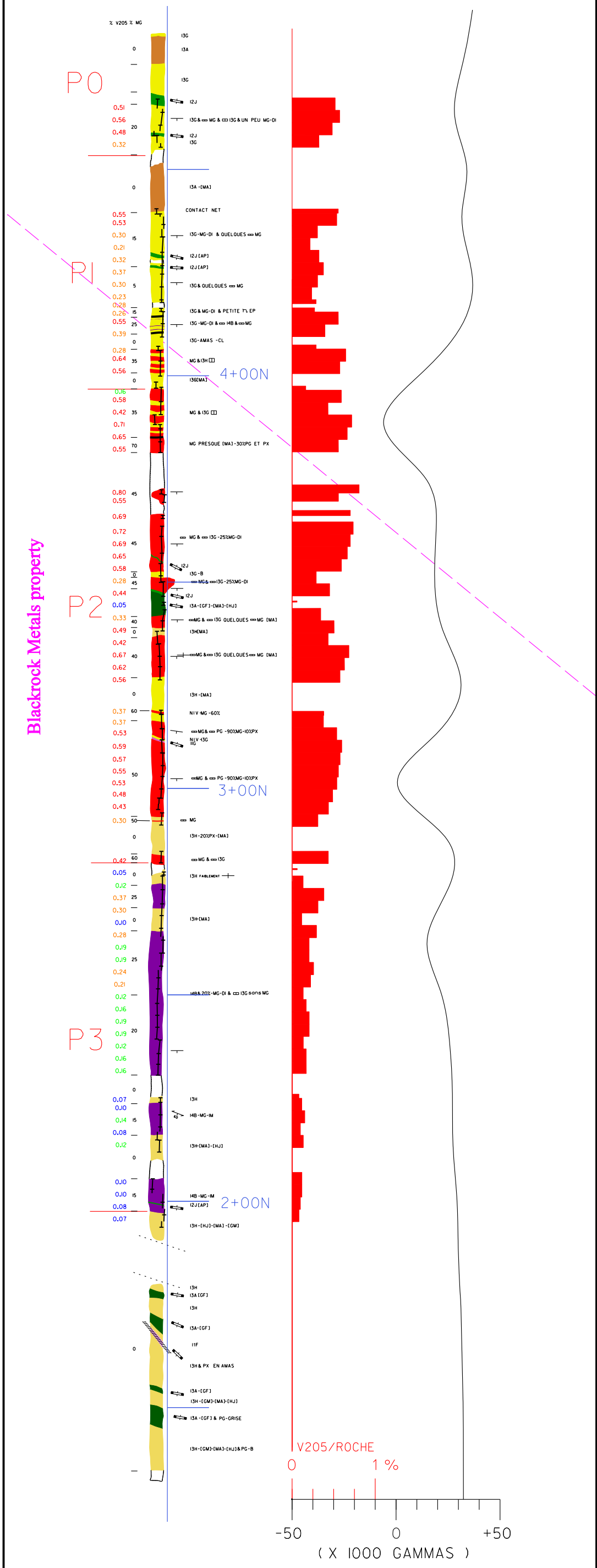
Lac Doré Vanadium Deposit

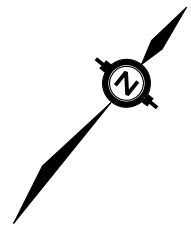
Tranchée 4+00W

SNRC : 32H/13, 32G/16	Cartographié par : C. Tremblay, A. Beisswenger, E. Bourgault — été 1997
Cantons : Rinfret, Lemoine	Dessiné par : M-C Lauzon, L. Tremblay — mars 1998

IOS Services Géoscientifiques Inc.

Projet 97-109

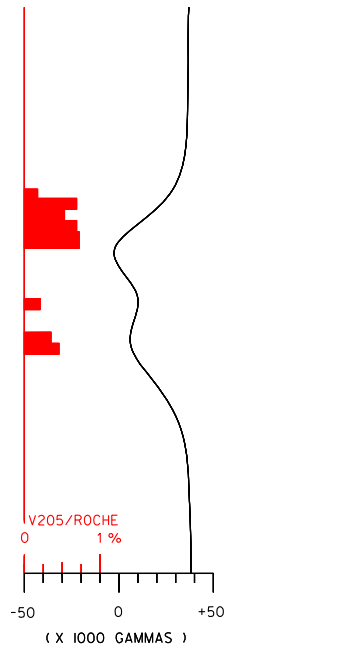




LÉGENDE

DISTRIBUTION DE V205 DANS LES ÉCHANTILLONS DE RAINURES

PROFIL MAGNÉTIQUE AU SOL / CHAMP MAGNÉTIQUE VERTICAL



NOTE: VOIR LÉGENDE DÉTAILLÉE EN ANNEXE

0 25 50 m

ÉCHELLE: 1:1000

McKENZIE BAY RESSOURCES LTD.

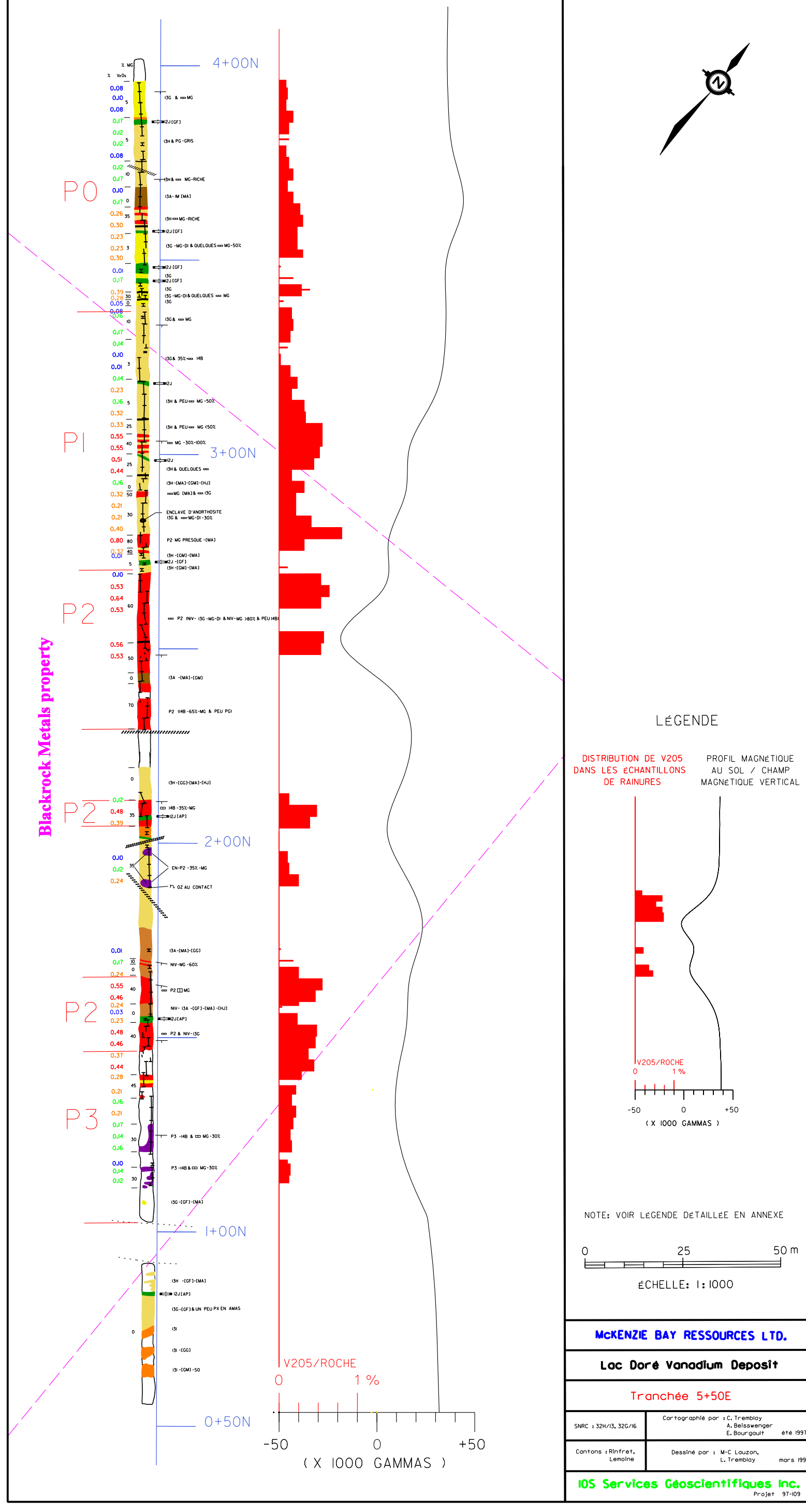
Lac Doré Vanadium Deposit

Tranchée 4+50E

SNRC : 32H/13, 32G/16	Cartographié par : C. Tremblay, A. Beisswenger, E. Bourgault — été 1997
Cantons : Rinfret, Lemoine	Dessiné par : M-C Lauzon, L. Tremblay — mars 1998

IOS Services Géoscientifiques Inc.

Projet 97-109



LÉGENDE

DISTRIBUTION DE V2O5 DANS LES ÉCHANTILLONS DE RAINURES

PROFIL MAGNÉTIQUE AU SOL / CHAMP MAGNÉTIQUE VERTICAL

NOTE: VOIR LÉGENDE DÉTAILLÉE EN ANNEXE

0 25 50 m

ÉCHELLE: 1:1000

McKENZIE BAY RESSOURCES LTD.

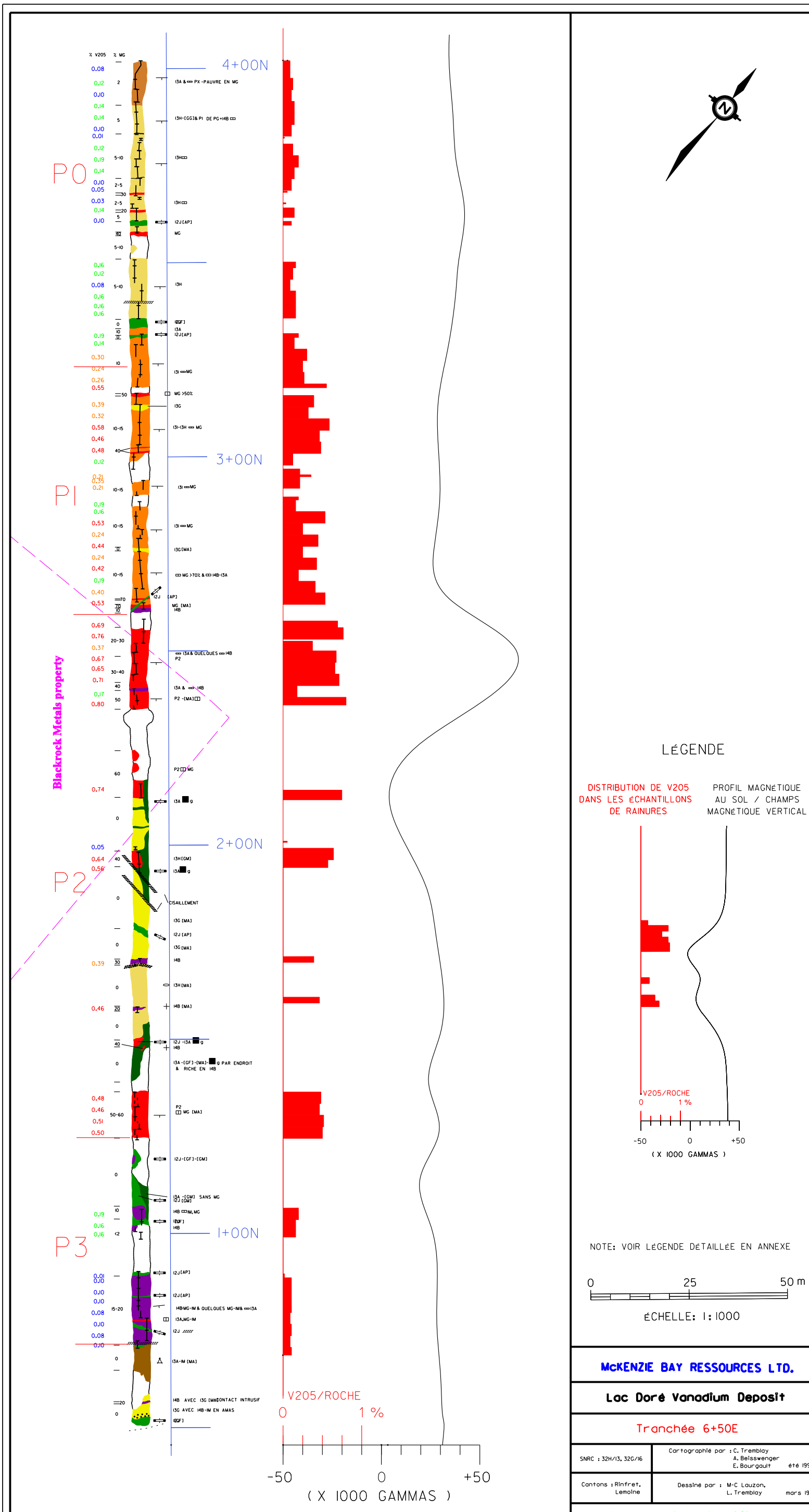
Lac Doré Vanadium Deposit

Tranchée 5+50E

SNRC : 32H/13, 32G/16	Cartographié par : C. Tremblay, A. Beisswenger, E. Bourgault — été 1997
Cantons : Rinfret, Lemoine	Dessiné par : M-C Lauzon, L. Tremblay — mars 1998

IOS Services Géoscientifiques Inc.

Projet 97-109



LÉGENDE

DISTRIBUTION DE V2O5 DANS LES ÉCHANTILLONS DE RAINURES

PROFIL MAGNÉTIQUE AU SOL / CHAMPS MAGNÉTIQUE VERTICAL

NOTE: VOIR LÉGENDE DÉTAILLÉE EN ANNEXE

0 25 50 m

ÉCHELLE: 1:1000

McKENZIE BAY RESSOURCES LTD.

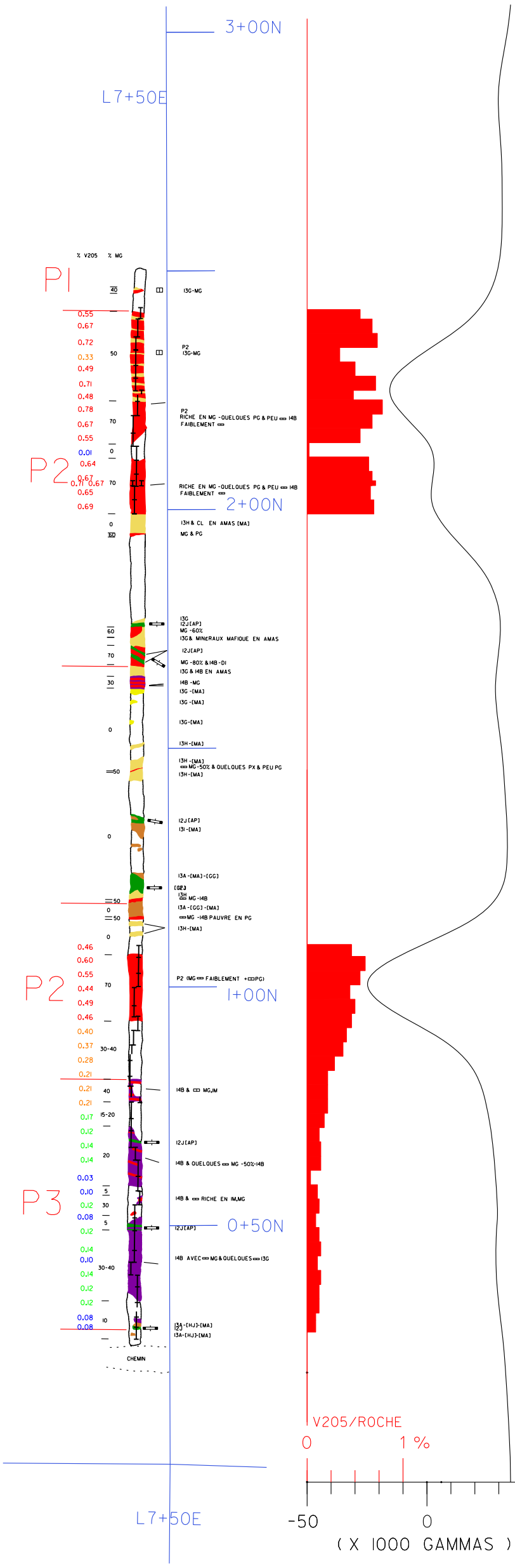
Lac Doré Vanadium Deposit

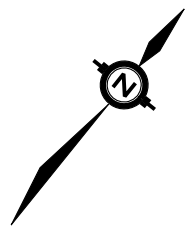
Tranchée 6+50E

SNRC : 32H/13, 32G/16	Cartographié par : C. Tremblay, A. Beisswenger, E. Bourgault — été 1997
Cantons : Rinfret, Lemoine	Dessiné par : M-C Lauzon, L. Tremblay — mars 1998

IOS Services Géoscientifiques Inc.

Projet 97-109

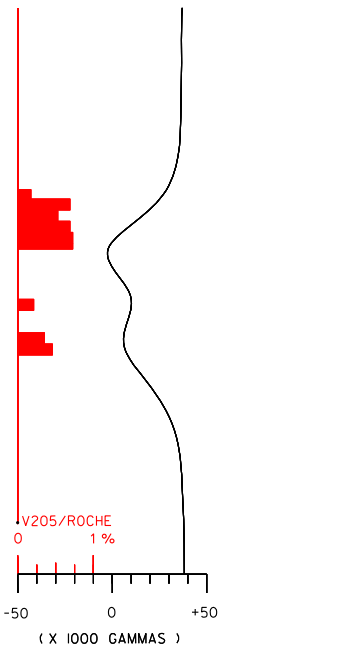




LÉGENDE

DISTRIBUTION DE V2O5 DANS LES ÉCHANTILLONS DE RAINURES

PROFIL MAGNÉTIQUE AU SOL / CHAMPS MAGNÉTIQUE VERTICAL



NOTE: VOIR LÉGENDE DÉTAILLÉE EN ANNEXE

0 25 50 m

ÉCHELLE: 1:1000

McKENZIE BAY RESSOURCES LTD.

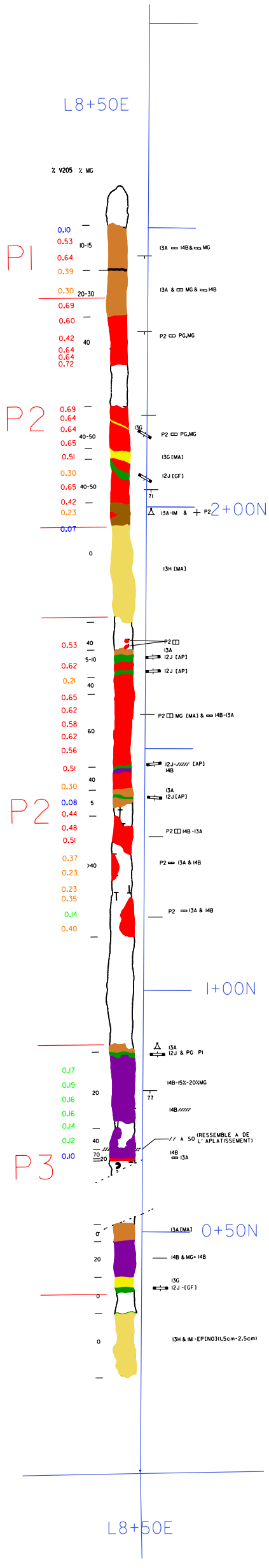
Lac Doré Vanadium Deposit

Tranchée 7+50E

SNRC : 32H/13, 32G/16	Cartographié par : C. Tremblay, A. Belsswenger, E. Bourgault été 1997
Cantons : Rinfret, Lemoine	Dessiné par : M-C Lauzon, L. Tremblay mars 1998

IOS Services Géoscientifiques Inc.

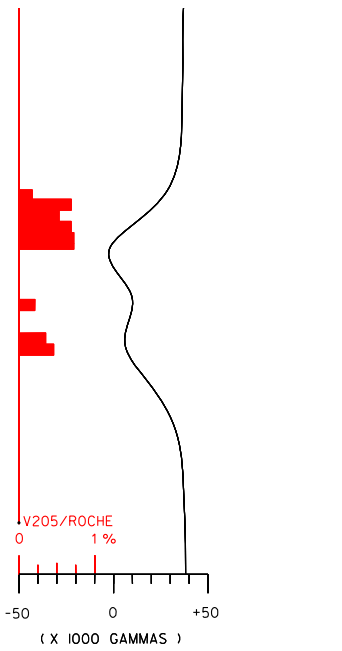
Projet 97-109



LÉGENDE

DISTRIBUTION DE V205 DANS LES ÉCHANTILLONS DE RAINURES

PROFIL MAGNÉTIQUE AU SOL / CHAMP MAGNÉTIQUE VERTICAL



NOTE: VOIR LÉGENDE DÉTAILLÉE EN ANNEXE

0 25 50 m

ÉCHELLE: 1:1000

McKENZIE BAY RESSOURCES LTD.

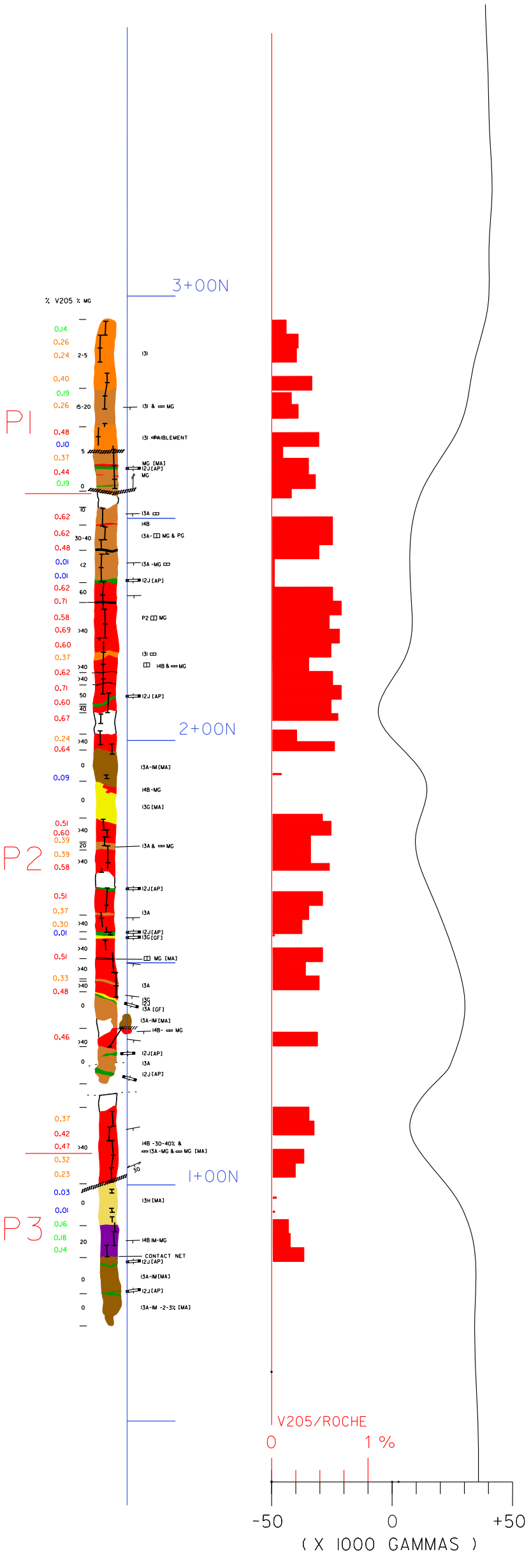
Lac Doré Vanadium Deposit

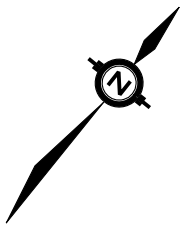
Tranchée 8+50E

SNRC : 32H/13, 32G/16	Cartographié par : C. Tremblay, A. Beisswenger, E. Bourgault — été 1997
Cantons : Rinfret, Lemoine	Dessiné par : M-C Lauzon, L. Tremblay — mars 1998

IOS Services Géoscientifiques Inc.

Projet 97-109

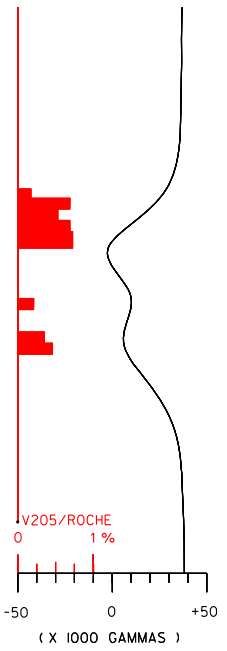




LÉGENDE

DISTRIBUTION DE V205 DANS LES ÉCHANTILLONS DE RAINURES

PROFIL MAGNÉTIQUE AU SOL / CHAMP MAGNÉTIQUE VERTICAL



NOTE: VOIR LÉGENDE DÉTAILLÉE EN ANNEXE

0 25 50 m

ÉCHELLE: 1:1000

McKENZIE BAY RESSOURCES LTD.

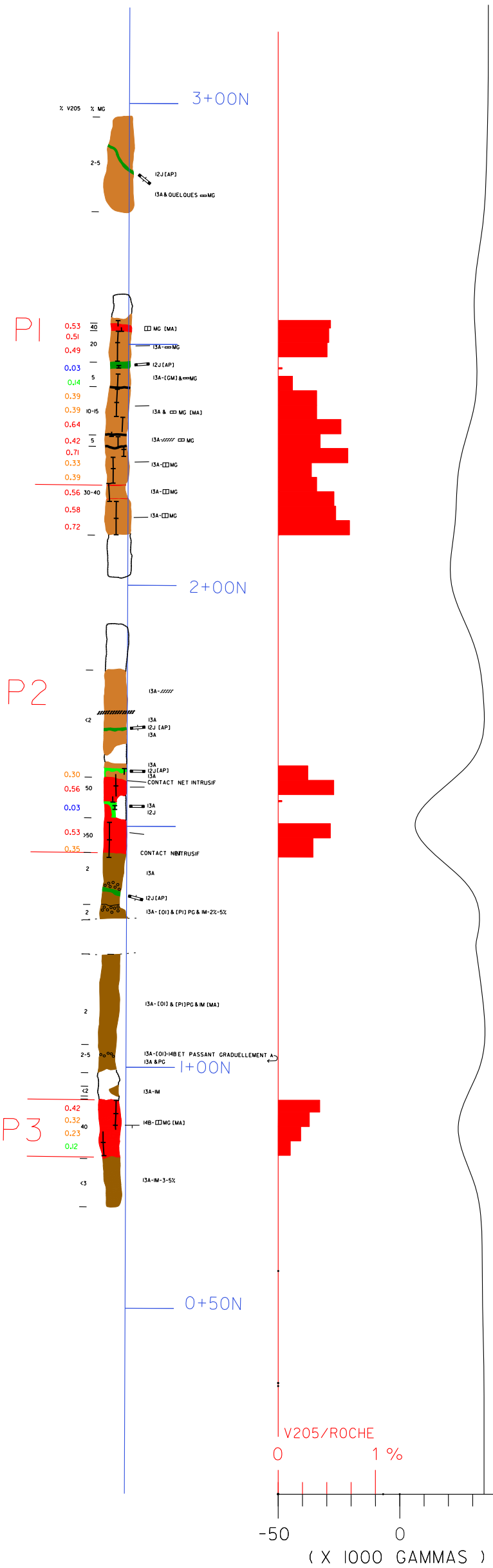
Lac Doré Vanadium Deposit

Tranchée 9+50E

SNRC : 32H/13, 32G/16	Cartographié par : C. Tremblay, A. Beisswenger, E. Bourgault — été 1997
Cantons : Rinfret, Lemoine	Dessiné par : M-C Lauzon, L. Tremblay — mars 1998

IOS Services Géoscientifiques Inc.

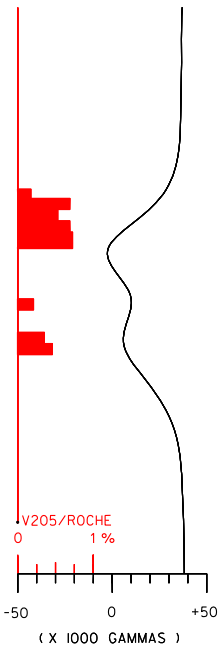
Projet 97-109



LÉGENDE

DISTRIBUTION DE V205 DANS LES ÉCHANTILLONS DE RAINURES

PROFIL MAGNÉTIQUE AU SOL / CHAMP MAGNÉTIQUE VERTICAL



NOTE: VOIR LÉGENDE DÉTAILLÉE EN ANNEXE

0 25 50 m

ÉCHELLE: 1:1000

McKENZIE BAY RESSOURCES LTD.

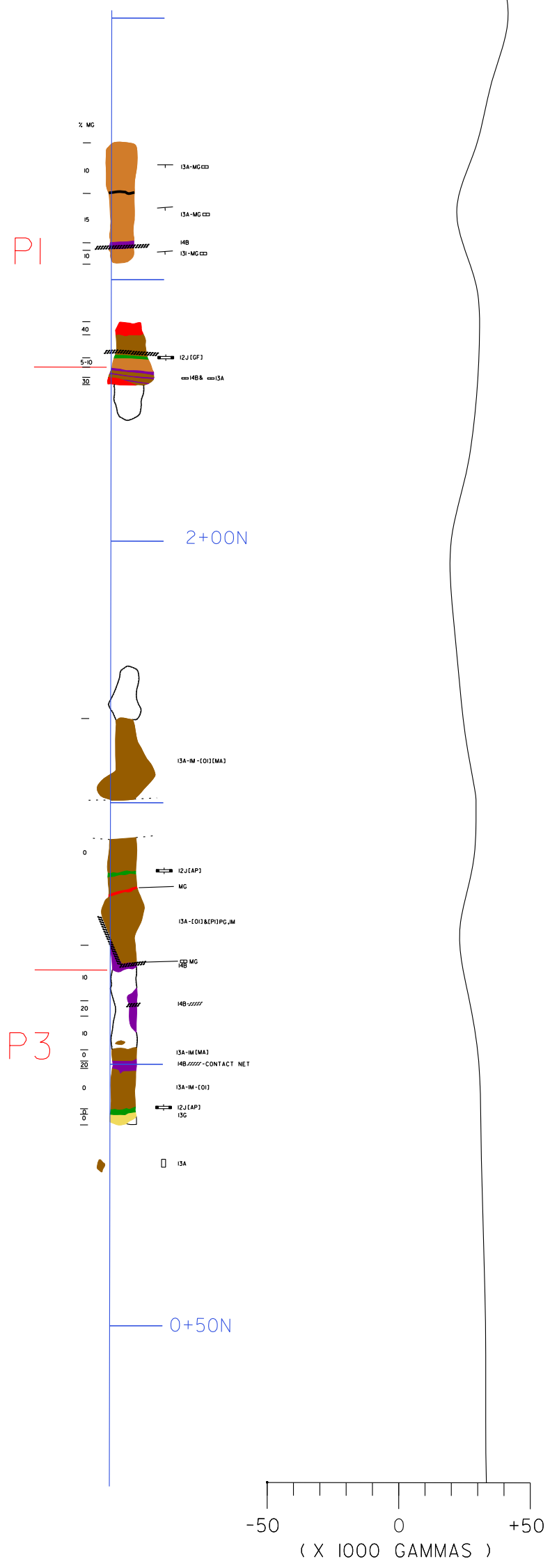
Lac Doré Vanadium Deposit

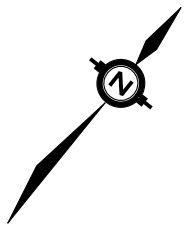
Tranchée 10+50E

SNRC : 32H/13, 32G/16	Cartographié par : C. Tremblay, A. Beisswenger, E. Bourgault — été 1997
Cantons : Rinfret, Lemoine	Dessiné par : M-C Lauzon, L. Tremblay — mars 1998

IOS Services Géoscientifiques Inc.

Projet 97-109

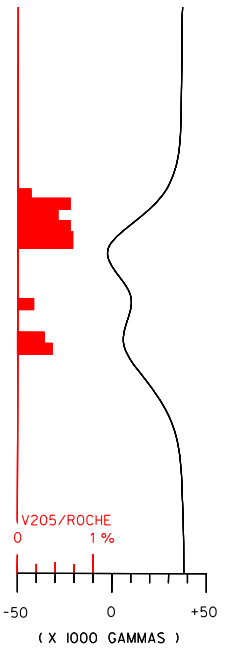




LÉGENDE

DISTRIBUTION DE V205 DANS LES ÉCHANTILLONS DE RAINURES

PROFIL MAGNÉTIQUE AU SOL / CHAMP MAGNÉTIQUE VERTICAL



NOTE: VOIR LÉGENDE DÉTAILLÉE EN ANNEXE

0 25 50 m

ÉCHELLE: 1:1000

McKENZIE BAY RESSOURCES LTD.

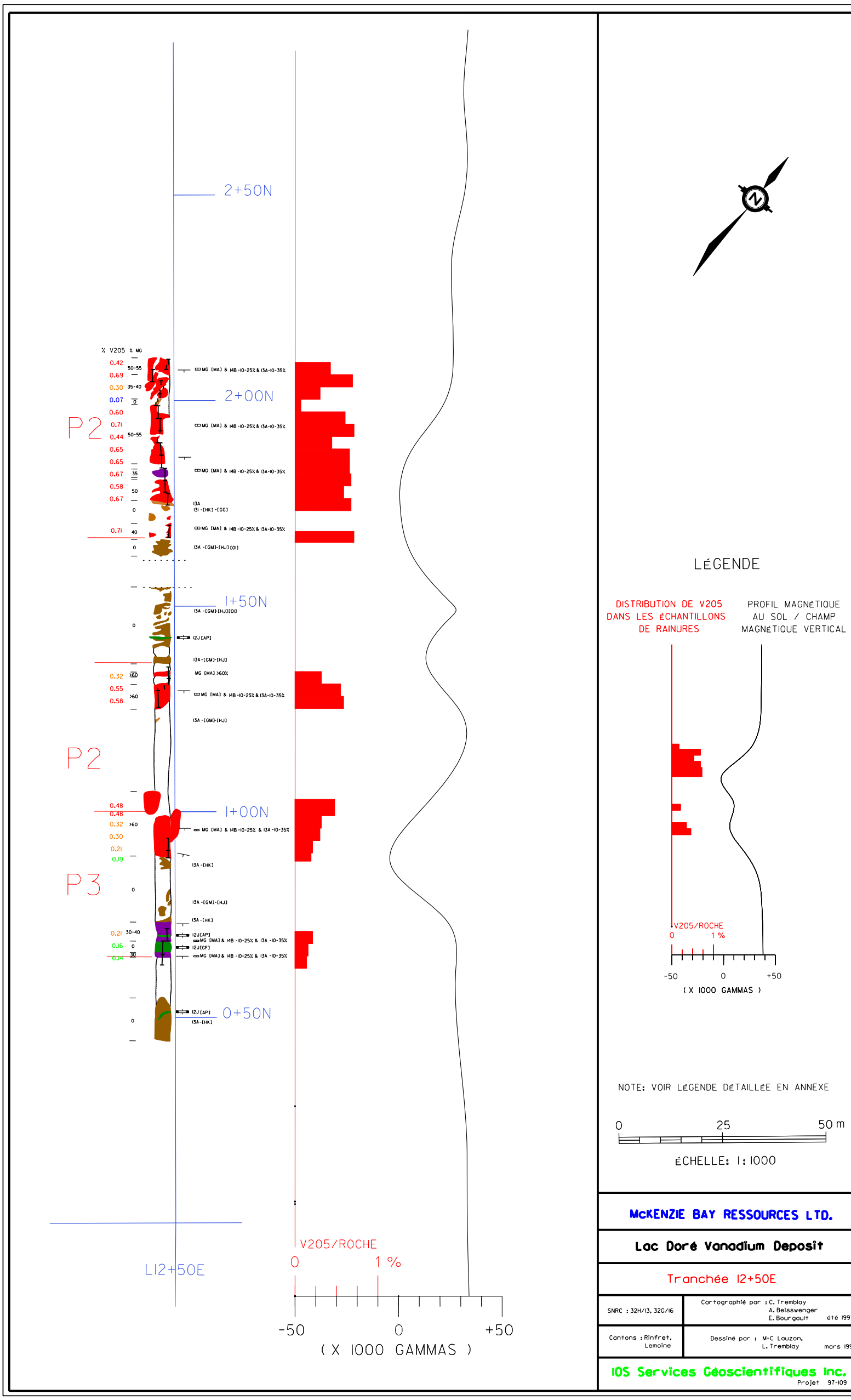
Lac Doré Vanadium Deposit

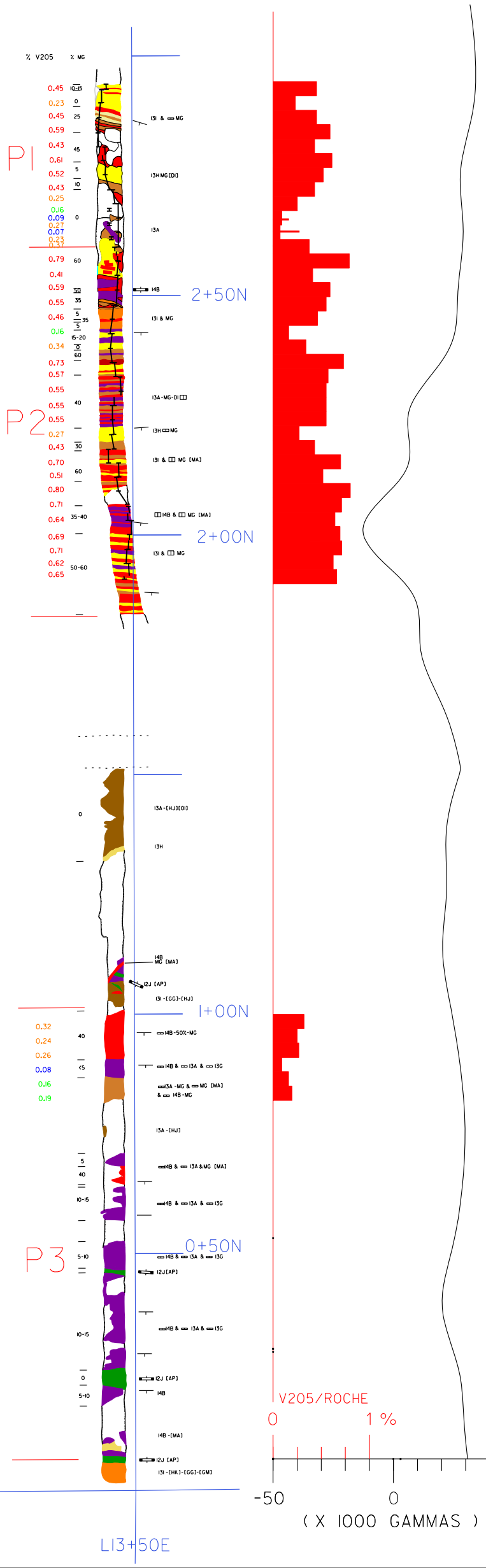
Tranchée 11+50E

SNRC : 32H/13, 32G/16	Cartographié par : C. Tremblay, A. Beiswenger, E. Bourgault été 1997
Cantons : Rinfret, Lemoine	Dessiné par : M-C Lauzon, L. Tremblay mars 1998

IOS Services Géoscientifiques Inc.

Projet 97-109

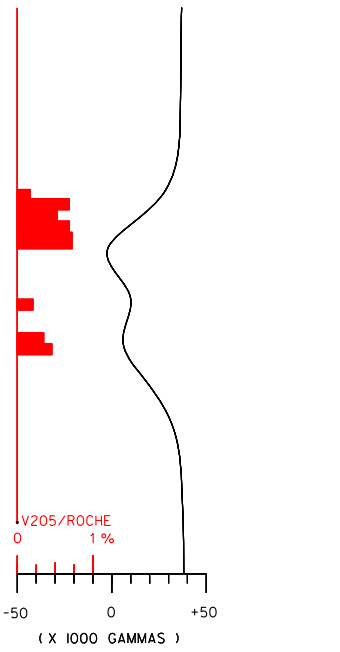

2+50N
2+00N
1+50N
1+00N
0+50N
P2
P2
P3
L12+50E
V2O5/ROCHE
0
1 %
-50
0
+50
(X 1000 GAMMAS)
LÉGENDE
DISTRIBUTION DE V2O5 DANS LES ÉCHANTILLONS DE RAINURES
PROFIL MAGNÉTIQUE AU SOL / CHAMP MAGNÉTIQUE VERTICAL
V2O5/ROCHE
0
1 %
-50
0
+50
(X 1000 GAMMAS)
NOTE: VOIR LÉGENDE DÉTAILLÉE EN ANNEXE
0
25
50 m
ÉCHELLE: 1:1000
McKENZIE BAY RESSOURCES LTD.
Lac Doré Vanadium Deposit
Tranchée 12+50E
SNRC : 32H/13, 32G/16
Cartographié par : C. Tremblay
A. Beisswenger
E. Bourgault
été 1997
Cantons : Rinfret, Lemoine
Dessiné par : M-C Lauzon,
L. Tremblay
mars 1998
IOS Services Géoscientifiques Inc.
Projet 97-109



LÉGENDE

DISTRIBUTION DE V205 DANS LES ÉCHANTILLONS DE RAINURES

PROFIL MAGNÉTIQUE AU SOL / CHAMP MAGNÉTIQUE VERTICAL



NOTE: VOIR LÉGENDE DÉTAILLÉE EN ANNEXE

0 25 50 m

ÉCHELLE: 1:1000

McKENZIE BAY RESSOURCES LTD.

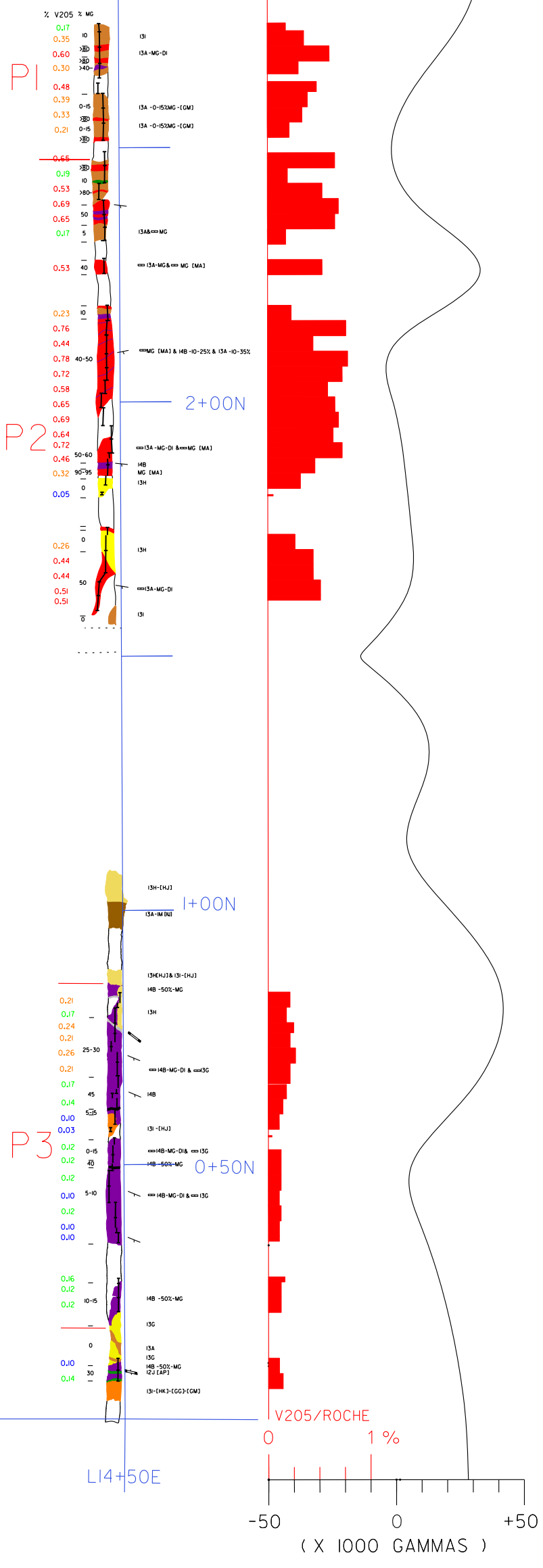
Lac Doré Vanadium Deposit

Tranchée 13+50E

SNRC : 32H/13, 32G/16	Cartographié par : C. Tremblay, A. Belsswenger, E. Bourgault — été 1997
Cantons : Rinfret, Lemoine	Dessiné par : M-C Lauzon, L. Tremblay — mars 1998

IOS Services Géoscientifiques Inc.

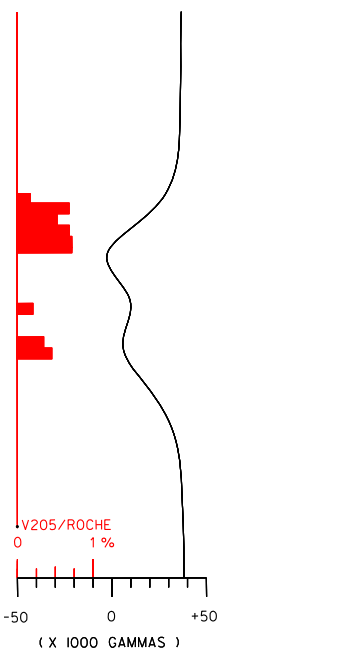
Projet 97-109



LÉGENDE

DISTRIBUTION DE V205 DANS LES ÉCHANTILLONS DE RAINURES

PROFIL MAGNÉTIQUE AU SOL / CHAMP MAGNÉTIQUE VERTICAL



NOTE: VOIR LÉGENDE DÉTAILLÉE EN ANNEXE

0 25 50 m

ÉCHELLE: 1:1000

McKENZIE BAY RESSOURCES LTD.

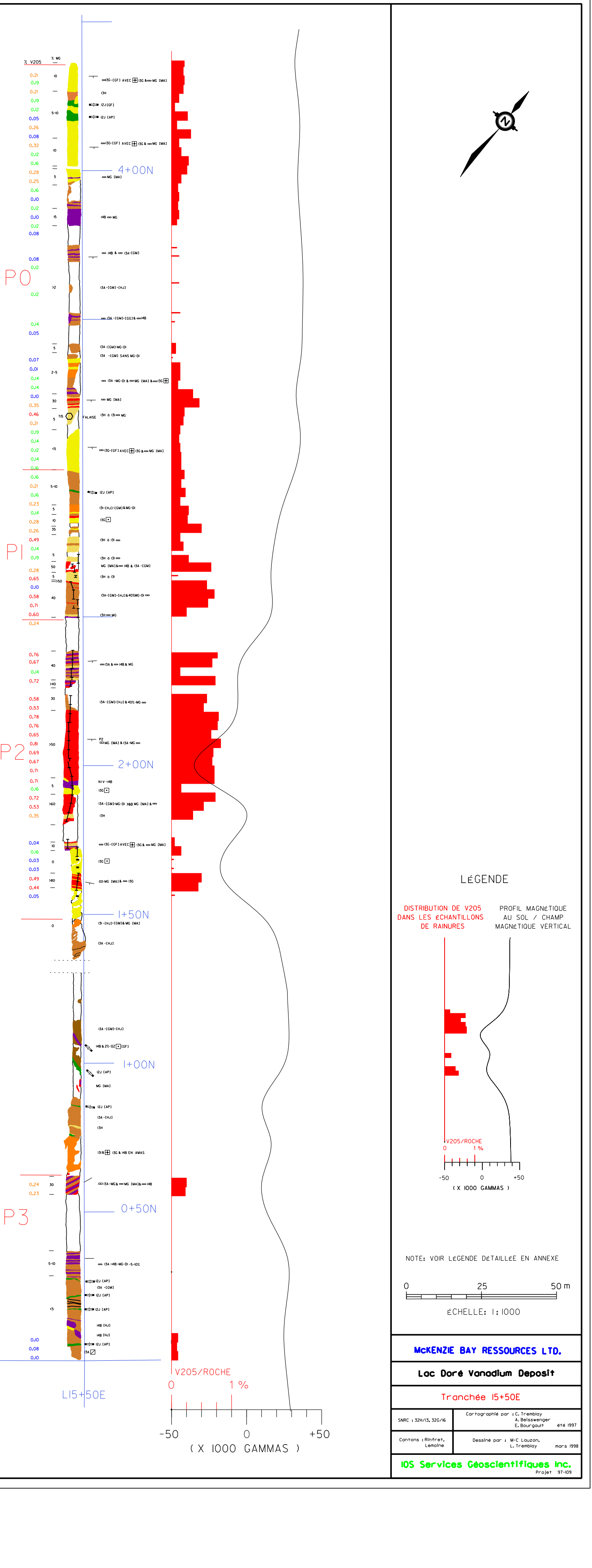
Lac Doré Vanadium Deposit

Tranchée 14+50E

SNRC : 32H/13, 32G/16	Cartographié par : C. Tremblay, A. Beisswenger, E. Bourgault — été 1997
Cantons : Rinfret, Lemoine	Dessiné par : M-C Lauzon, L. Tremblay — mars 1998

IOS Services Géoscientifiques Inc.

Projet 97-109



LÉGENDE

DISTRIBUTION DE V205 DANS LES ÉCHANTILLONS DE RAINURES

PROFIL MAGNÉTIQUE AU SOL / CHAMP MAGNÉTIQUE VERTICAL

V205/ROCHE
0 1 %
-50 0 +50
(X 1000 GAMMAS)

NOTE: VOIR LÉGENDE DÉTAILLÉE EN ANNEXE

0 25 50 m

ÉCHELLE: 1:1000

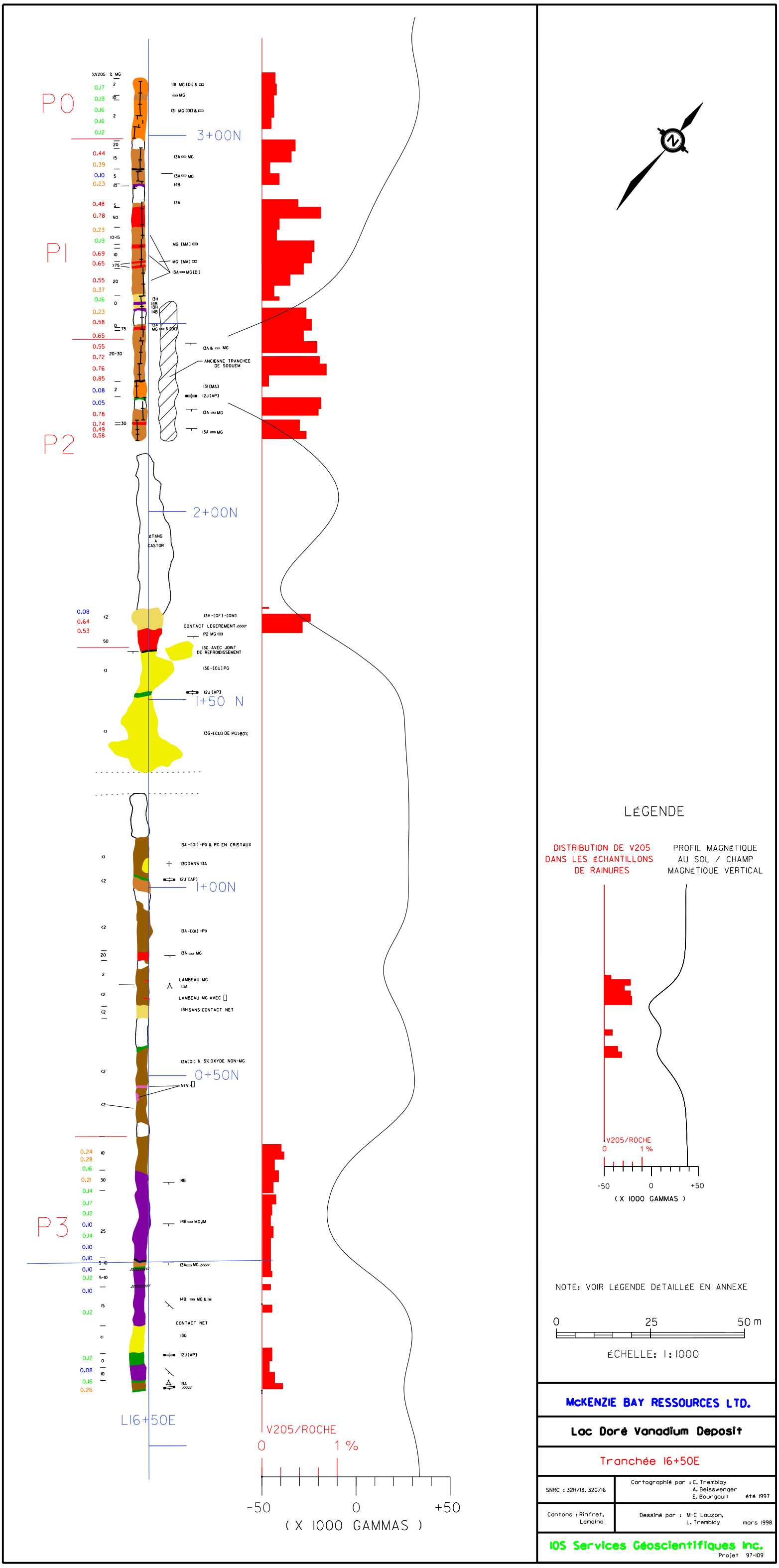
McKENZIE BAY RESSOURCES LTD.

Lac Doré Vanadium Deposit

Tranchée 15+50E

SNRC : 32H/13, 32G/16	Cartographié par : C. Tremblay, A. Beisswenger, E. Bourgault — été 1997
Cantons : Rinfret, Lemoine	Dessiné par : M-C Lauzon, L. Tremblay — mars 1998

IOS Services Géoscientifiques Inc.
Projet 97-109



LÉGENDE

DISTRIBUTION DE V205 DANS LES ÉCHANTILLONS DE RAINURES

PROFIL MAGNÉTIQUE AU SOL / CHAMP MAGNÉTIQUE VERTICAL

NOTE: VOIR LÉGENDE DÉTAILLÉE EN ANNEXE

0 25 50 m

ÉCHELLE: 1:1000

McKENZIE BAY RESSOURCES LTD.

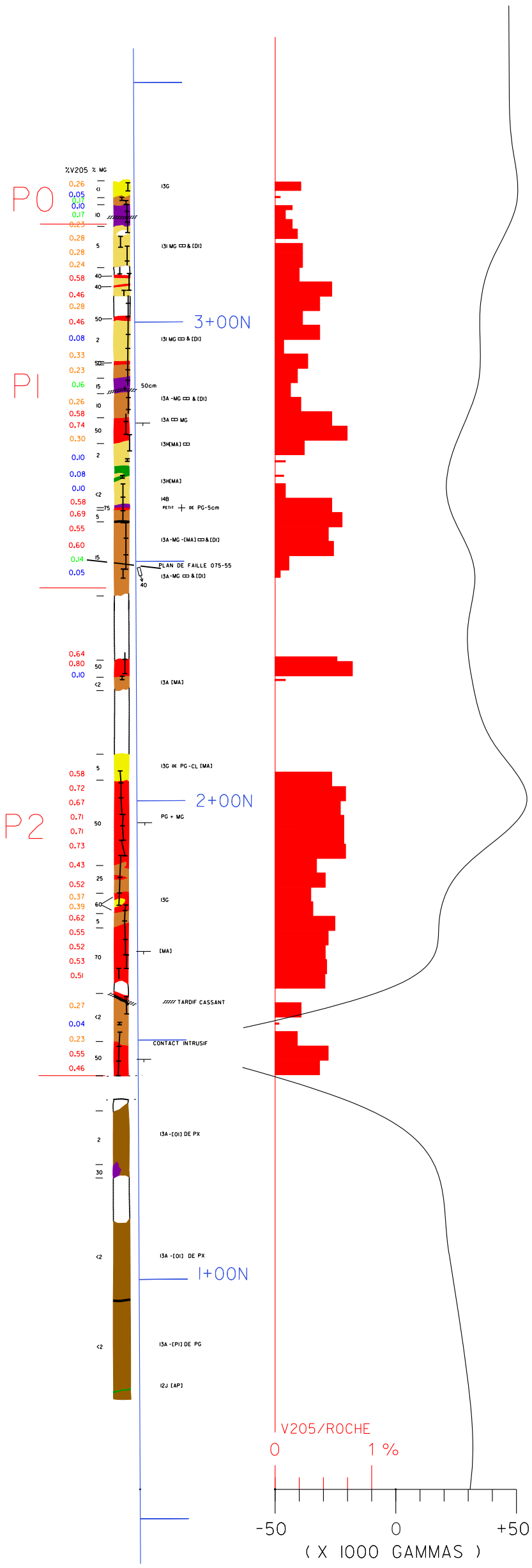
Lac Doré Vanadium Deposit

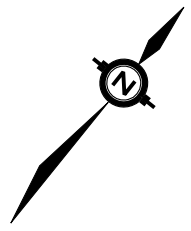
Tranchée 16+50E

SNRC : 32H/13, 32G/16	Cartographié par : C. Tremblay, A. Beisswenger, E. Bourgault — été 1997
Cantons : Rinfret, Lemoine	Dessiné par : M-C Lauzon, L. Tremblay — mars 1998

IOS Services Géoscientifiques Inc.

Projet 97-109

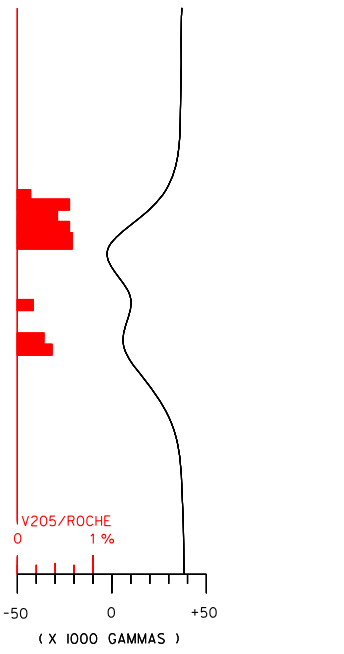




LÉGENDE

DISTRIBUTION DE V205 DANS LES ÉCHANTILLONS DE RAINURES

PROFIL MAGNÉTIQUE AU SOL / CHAMP MAGNÉTIQUE VERTICAL



NOTE: VOIR LÉGENDE DÉTAILLÉE EN ANNEXE

0 25 50 m

ÉCHELLE: 1:1000

McKENZIE BAY RESSOURCES LTD.

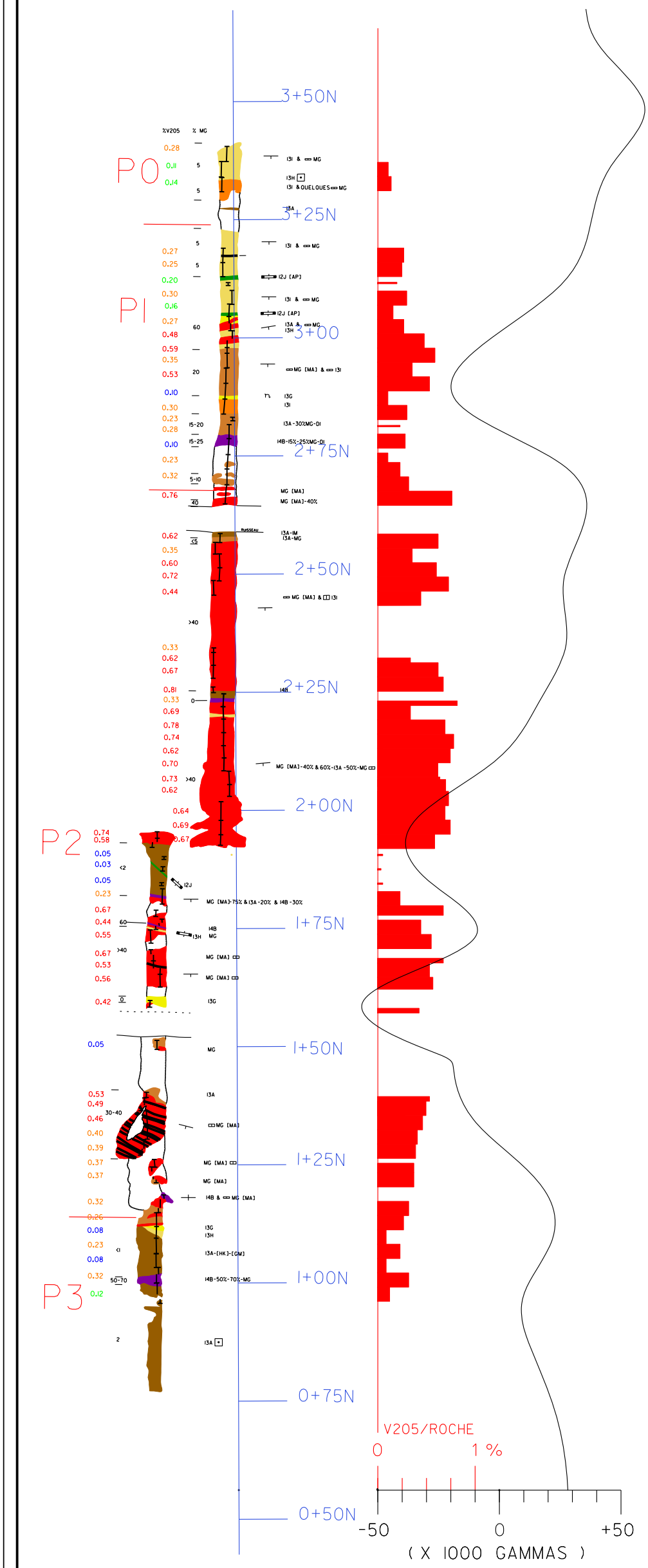
Lac Doré Vanadium Deposit

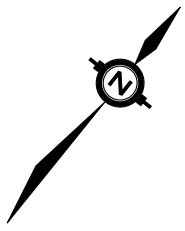
Tranchée 17+50E

SNRC : 32H/13, 32G/16	Cartographié par : C. Tremblay, A. Beisswenger, E. Bourgault été 1997
Cantons : Rinfret, Lemoine	Dessiné par : M-C Lauzon, L. Tremblay mars 1998

IOS Services Géoscientifiques Inc.

Projet 97-109

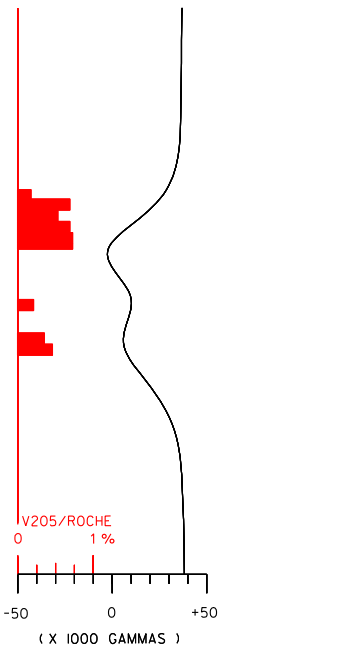




LÉGENDE

DISTRIBUTION DE V2O5 DANS LES ÉCHANTILLONS DE RAINURES

PROFIL MAGNÉTIQUE AU SOL / CHAMP MAGNÉTIQUE VERTICAL



NOTE: VOIR LÉGENDE DÉTAILLÉE EN ANNEXE

0 25 50 m

ÉCHELLE: 1:1000

McKENZIE BAY RESSOURCES LTD.

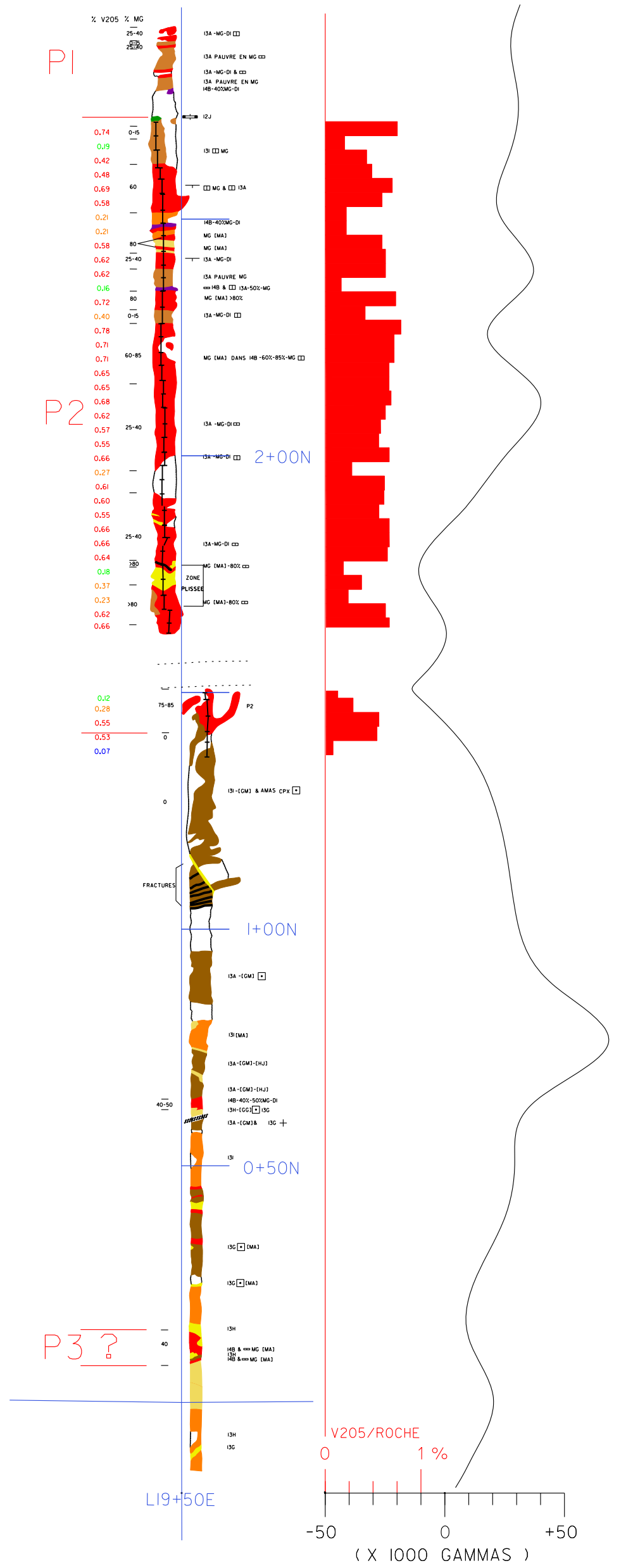
Lac Doré Vanadium Deposit

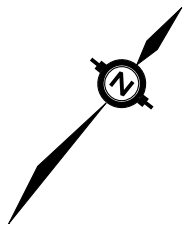
Tranchée 18+50E

SNRC : 32H/13, 32G/16	Cartographié par : C. Tremblay, A. Beisswenger, E. Bourgault — été 1997
Cantons : Rinfret, Lemoine	Dessiné par : M-C Lauzon, L. Tremblay — mars 1998

IOS Services Géoscientifiques Inc.

Projet 97-109

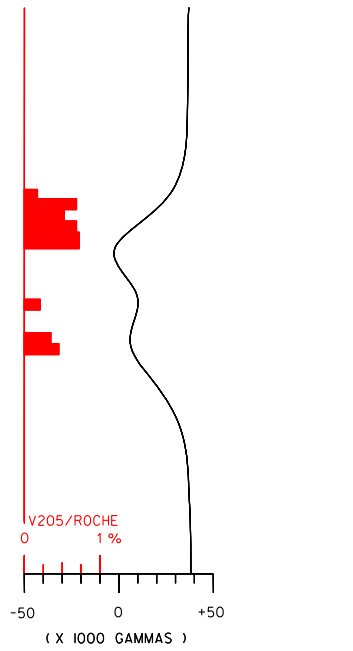




LÉGENDE

DISTRIBUTION DE V205 DANS LES ÉCHANTILLONS DE RAINURES

PROFIL MAGNÉTIQUE AU SOL / CHAMP MAGNÉTIQUE VERTICAL



NOTE: VOIR LÉGENDE DÉTAILLÉE EN ANNEXE

0 25 50 m

ÉCHELLE: 1:1000

McKENZIE BAY RESSOURCES LTD.

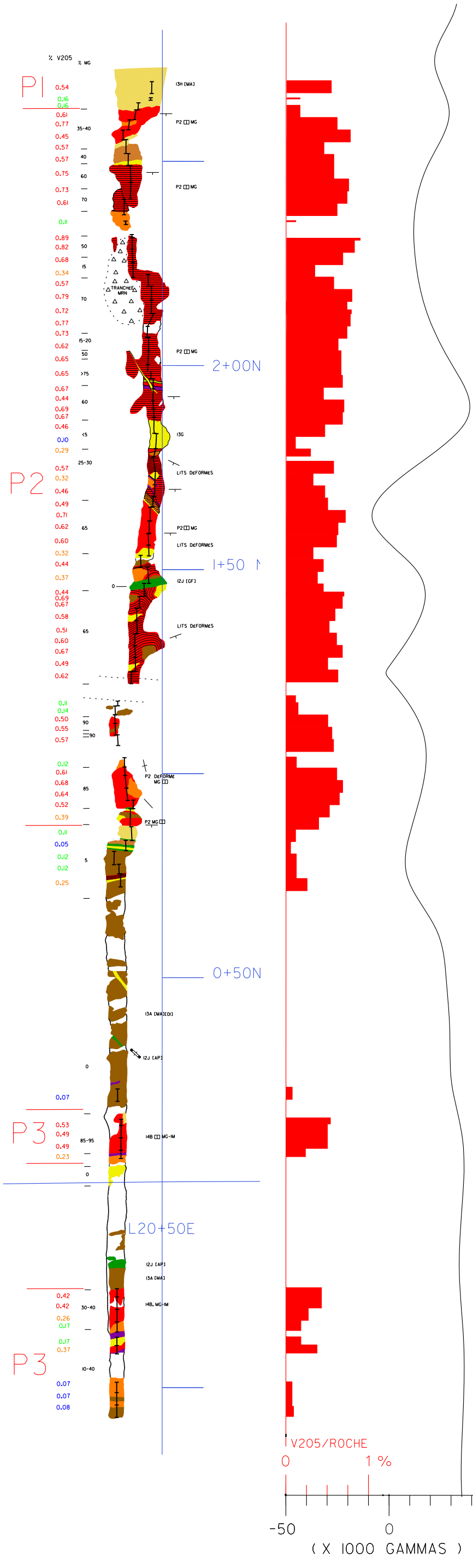
Lac Doré Vanadium Deposit

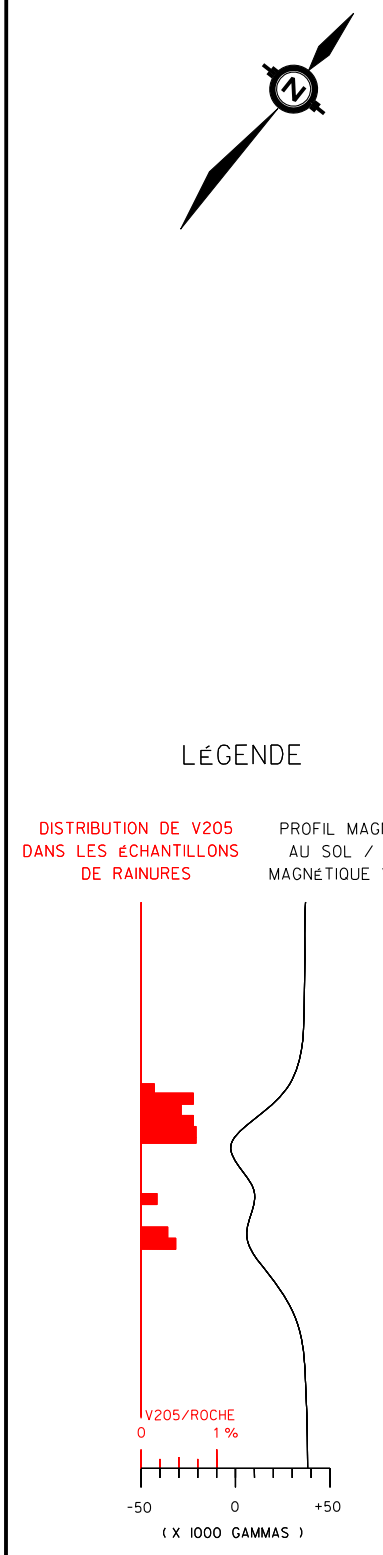
Tranchée 19+50E

SNRC : 32H/13, 32G/16	Cartographié par : C. Tremblay, A. Beisswenger, E. Bourgault — été 1997
Cantons : Rinfret, Lemoine	Dessiné par : M-C Lauzon, L. Tremblay — mars 1998

IOS Services Géoscientifiques Inc.

Projet 97-109





LÉGENDE

DISTRIBUTION DE V205 DANS LES ÉCHANTILLONS DE RAINURES

PROFIL MAGNÉTIQUE AU SOL / CHAMP MAGNÉTIQUE VERTICAL

NOTE: VOIR LÉGENDE DÉTAILLÉE EN ANNEXE

0 25 50 m

ÉCHELLE: 1:1000

McKENZIE BAY RESSOURCES LTD.

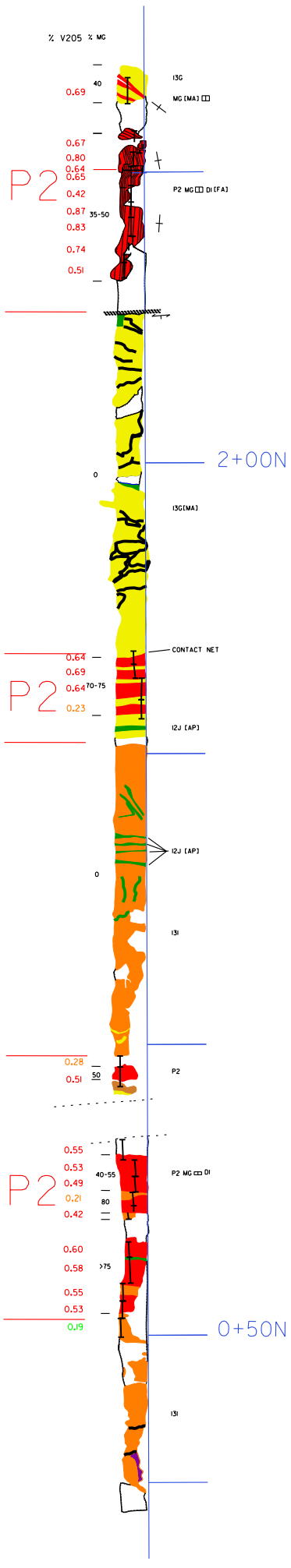
Lac Doré Vanadium Deposit

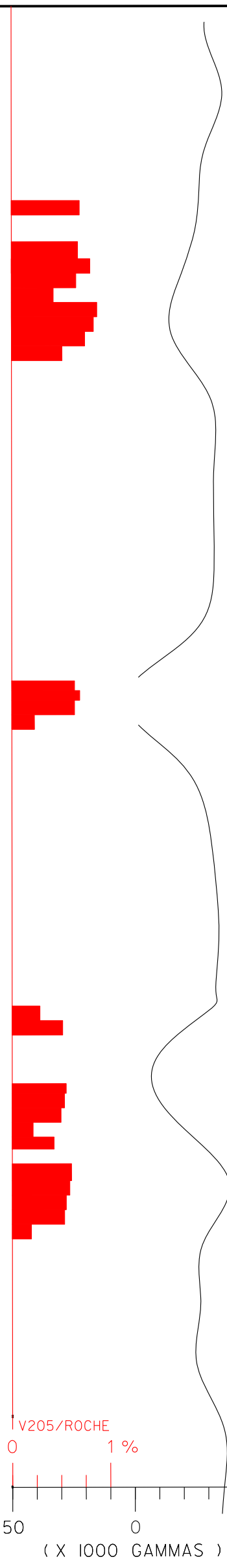
Tranchée 20+50E

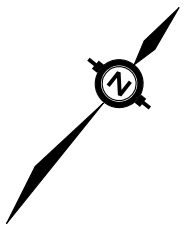
SNRC : 32H/13, 32G/16	Cartographié par : C. Tremblay, A. Beisswenger, E. Bourgault — été 1997
Cantons : Rinfret, Lemoine	Dessiné par : M-C Lauzon, L. Tremblay — mars 1998

IOS Services Géoscientifiques Inc.

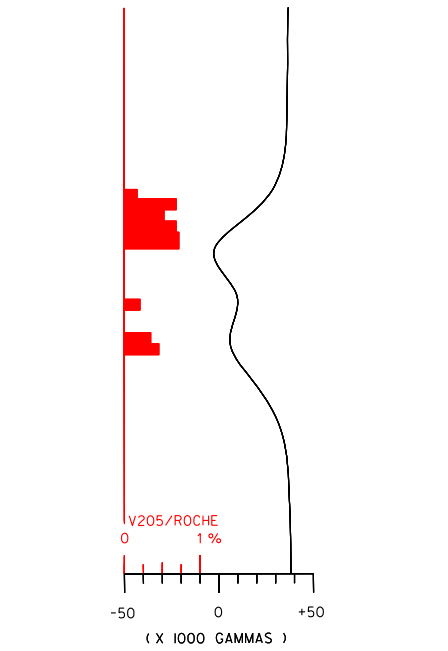
Projet 97-109







LÉGENDE



NOTE: VOIR LÉGENDE DÉTAILLÉE EN ANNEXE

0 25 50 m

ÉCHELLE: 1:1000

McKENZIE BAY RESSOURCES LTD.

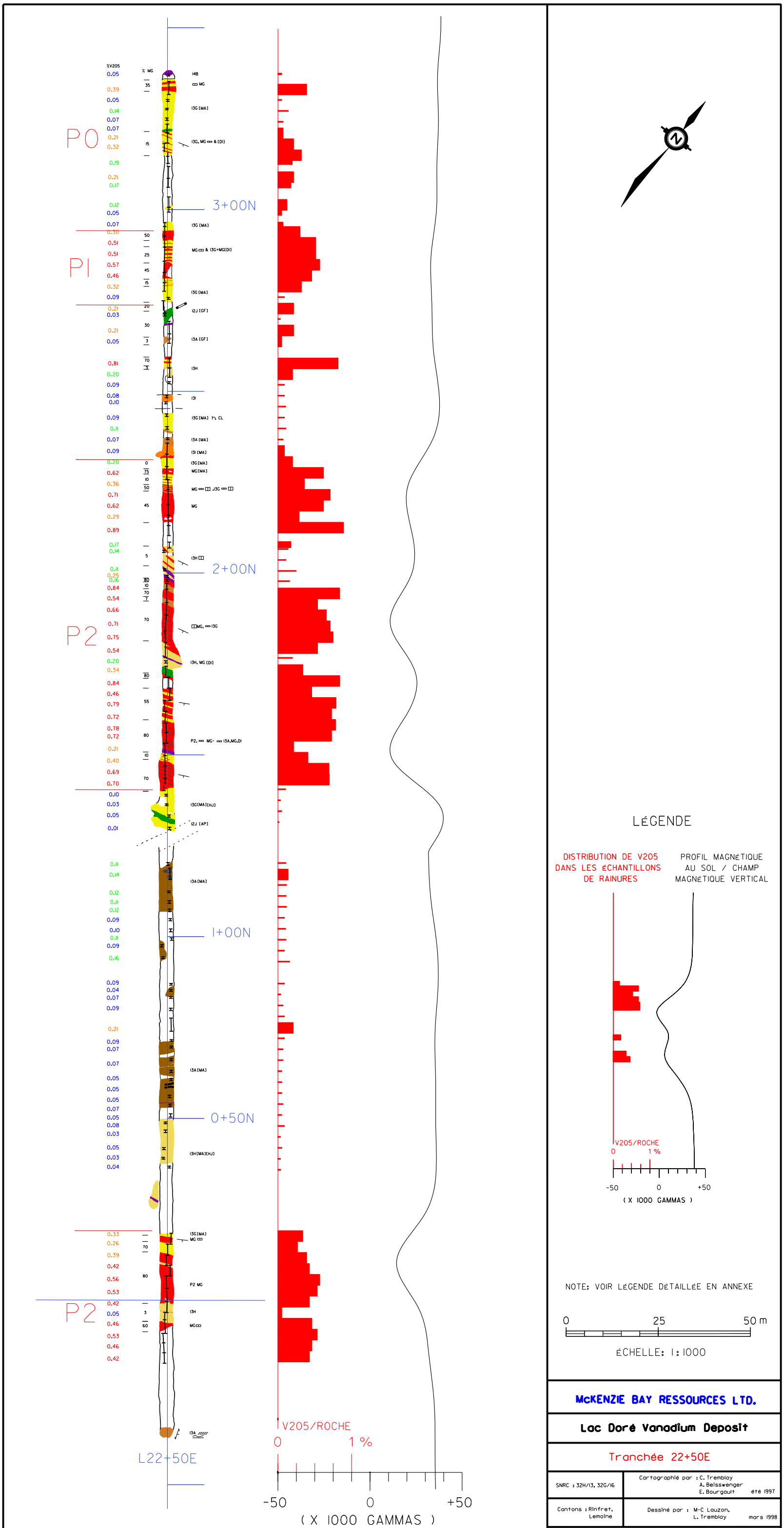
Lac Doré Vanadium Deposit

Tranchée 21+50E

SNRC : 32H/13, 32G/16	Cartographié par : C. Tremblay, A. Beisswenger, E. Bourgault — été 1997
Cantons : Rinfret, Lemoine	Dessiné par : M-C Lauzon, L. Tremblay — mars 1998

IOS Services Géoscientifiques Inc.

Projet 97-109



LÉGENDE

DISTRIBUTION DE V205 DANS LES ÉCHANTILLONS DE RAINURES

PROFIL MAGNÉTIQUE AU SOL / CHAMP MAGNÉTIQUE VERTICAL

NOTE: VOIR LÉGENDE DÉTAILLÉE EN ANNEXE

0 25 50 m

ÉCHELLE: 1:1000

McKENZIE BAY RESSOURCES LTD.

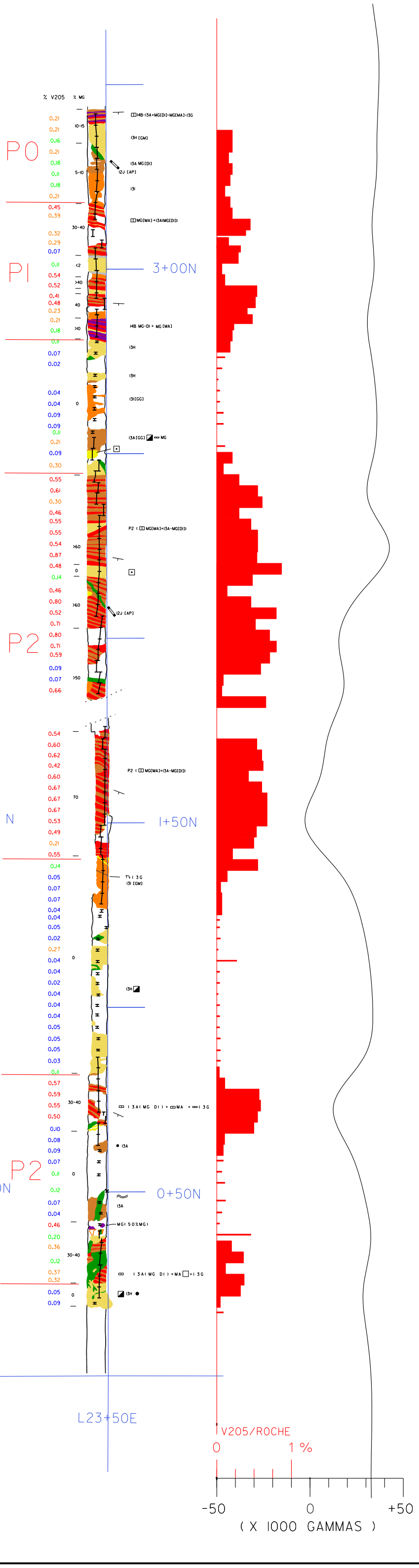
Lac Doré Vanadium Deposit

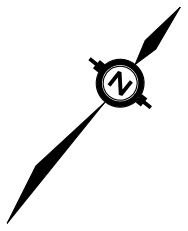
Tranchée 22+50E

SNRC : 32H/13, 32G/16	Cartographié par : C. Tremblay, A. Beisswenger, E. Bourgault — été 1997
Cantons : Rinfret, Lemoine	Dessiné par : M-C Lauzon, L. Tremblay — mars 1998

IOS Services Géoscientifiques Inc.

Projet 97-109

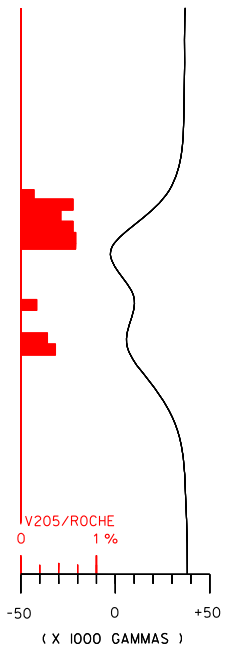




LÉGENDE

DISTRIBUTION DE V205 DANS LES ÉCHANTILLONS DE RAINURES

PROFIL MAGNÉTIQUE AU SOL / CHAMP MAGNÉTIQUE VERTICAL



NOTE: VOIR LÉGENDE DÉTAILLÉE EN ANNEXE

0 25 50 m

ÉCHELLE: 1:1000

McKENZIE BAY RESSOURCES LTD.

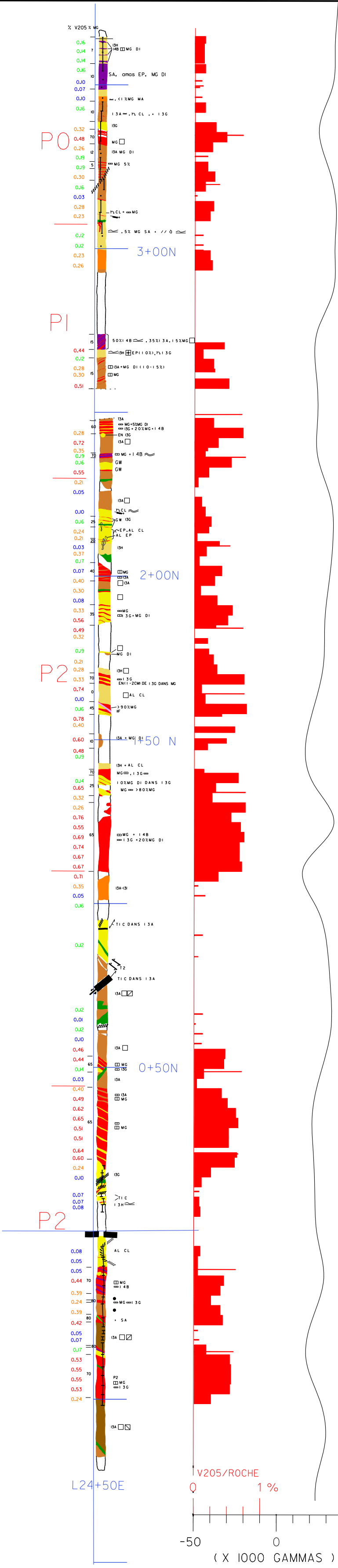
Lac Doré Vanadium Deposit

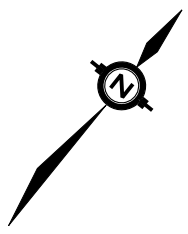
Tranchée 23+50E

SNRC : 32H/13, 32G/16	Cartographié par : C. Tremblay, A. Beisswenger, E. Bourgault — été 1997
Cantons : Rinfret, Lemoine	Dessiné par : M-C Lauzon, L. Tremblay — mars 1998

IOS Services Géoscientifiques Inc.

Projet 97-109

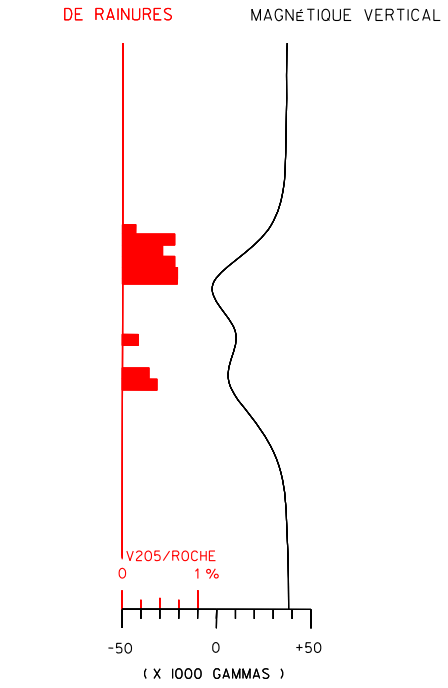




LÉGENDE

DISTRIBUTION DE V205 DANS LES ÉCHANTILLONS DE RAINURES

PROFIL MAGNÉTIQUE AU SOL / CHAMP MAGNÉTIQUE VERTICAL



NOTE: VOIR LÉGENDE DÉTAILLÉE EN ANNEXE

0 25 50 m

ÉCHELLE: 1:1000

McKENZIE BAY RESSOURCES LTD.

Lac Doré Vanadium Deposit

Tranchée 24+50E

SNRC : 32H/13, 32G/16	Cartographié par : C. Tremblay, A. Beisswenger, E. Bourgault — été 1997
Cantons : Rinfret, Lemoine	Dessiné par : M-C Lauzon, L. Tremblay — mars 1998

IOS Services Géoscientifiques Inc.

Projet 97-109

LÉGENDE POUR LES CARTES DES TRANCHÉES

CODE DE COULEURS DES LITHOFACIÈS

- PYROXÉNITE
- PYROXÉNITE ET GABBRO À MAGNÉTITE (P2)
- GABBRO
- GABBRO À ILMÉNITE
- GABBRO ANORTHOSITIQUE
- ANORTHOSITE GABBROÏQUE
- ANORTHOSITE
- GRANOPHYRE
- APLITE
- PEGMATITE
- DYKE DIORITIQUE
- DYKE GRENU GABBROÏQUE

LITHOFACIÈS

I4B	PYROXÉNITE	I2J	DIORITE	I1F	APLITE
I3A	GABBRO	I1D	TONALITE	T1C	GOUGE DE FAILLE
I3I	GABBRO ANORTHOSITIQUE	I3B	DIABASE	T2	MYLONITE
I3G	ANORTHOSITE	I1G	PEGMATITE		
I3H	ANORTHOSITE GABBROÏQUE	I1H	GRANOPHYRE		

MINÉRAUX

CL	CHLORITE
EP	ÉPIDOTE
FP	FELDSPATH
IM	ILMÉNITE
MG	MAGNÉTITE
PG	PLAGIOCLASE
PX	PYROXÈNE

STRUCTURES, TEXTURES ET AUTRES

AL	AMAS IRRÉGULIERS	[GG]	GRAINS GROSSIERS
AP	APHANITIQUE	[HK]	HÉTÉROGÈNE
BR	BRÉCHIQUE	[HJ]	HOMOGÈNE
CU	CUMULAT (À)	SA	LITÉ
DI	DISSÉMINÉ	[MA]	MASSIF
EN	ENCLAVE	[MX]	MÉLANOCRATE
FA	FRACTURÉ	NO	NODULAIRE
GW	GRADATION DENSIMÉTRIQUE	OI	OÏKOCRISTAUX (À)
[GF]	GRAINS FINS	PI	PHÉNOCRISTAUX (À)
[GM]	GRAINS MOYENS	SO	SUBOPHITIQUE
		VQ	VEINE DE QUARTZ

SYMBOLES

- BRÈCHE MAGMATIQUE
- CISAILLÉ
- ENCLAVE
- FOLIÉ
- GRAINS FINS
- GRAINS MOYENS
- GRAINS GROSSIERS
- g GRENU
- HÉTÉROGÈNE
- HOMOGÈNE
- LENTILLE
- LITS MINCES (1-10cm)
- LITS MOYENS (10-25cm)
- LITS ÉPAIS (>25cm)
- MASSIF
- OPHITIQUE
- PEGMATITIQUE
- PORPHYRE
- PORPHYRIQUE
- SCHISTEUX
- STRIE DE FAILLE
- VEINE
- ZONE DYNAMITÉE
- ZONE NON-CARTOGRAPHIÉE EAU ET/OU BOUE
- RAINURE
- CHEMIN FORESTIER ARPENTÉ

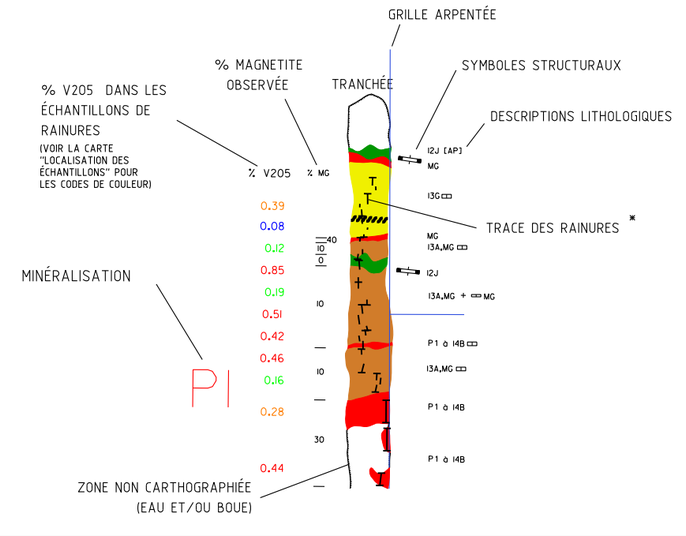
SYMBOLES STRUCTURAUX

- LITAGE VERTICAL, INCLINÉ, NON MESURÉ
- SCHISTOSITÉ VERTICALE, INCLINÉE, NON MESURÉE
- DYKE VERTICAL, INCLINÉ,NON MESURÉ
- VEINE NON MESURÉE
- ZONE CISAILLÉE
- RUBANNEMENT MYLONITIQUE VERTICAL
- LINÉATION MINÉRALE
- FOLIATION
- PLAN AXIAL NON MESURÉ

MINÉRALISATION

P0	ANORTHOSITE, LOCALEMENT LITÉE AVEC MAGNETITE (10-15%):	**MINÉRALISATION FAIBLE**
P1	GABBRO, PYROXÉNITE À LIT DE MAGNÉTITE (15-40%):	**MINÉRALISATION INTERMÉDIAIRE**
P2	PYROXÉNITE-GABBRO AVEC >40% MAGNÉTITE-ILMÉNITE LITÉES:	**MINÉRALISATION ÉLEVÉE**
P3	PYROXÉNITE AVEC LIT DE ILMÉNITE-MAGNÉTITE (20-40%):	**MINÉRALISATION FAIBLE**

EXEMPLE:



* LES RAINURES DES TRANCHÉES SUIVANTES N'ONT PAS ÉTÉ CARTOGRAPHIÉES: TRANCHÉES: 24+00W À 14+00W; 13+50E, 15+50E; 16+50E, 24+50E } PARTIELLEMENT

Blackrock Metals property

L2+00W

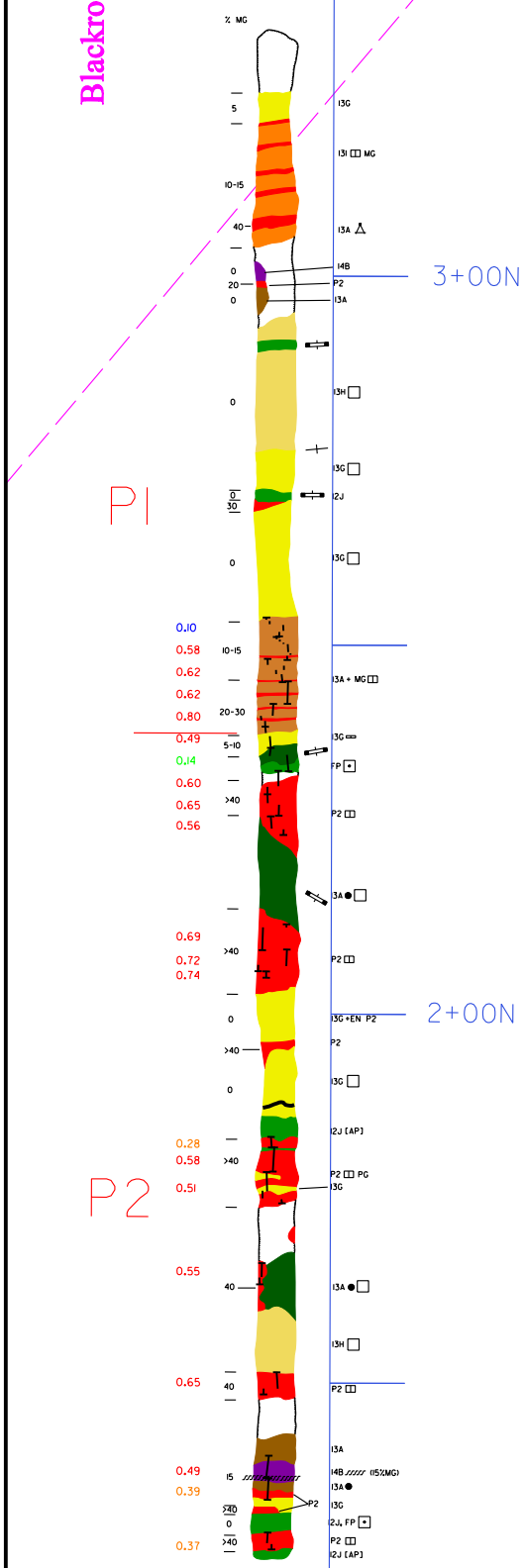
3+00N

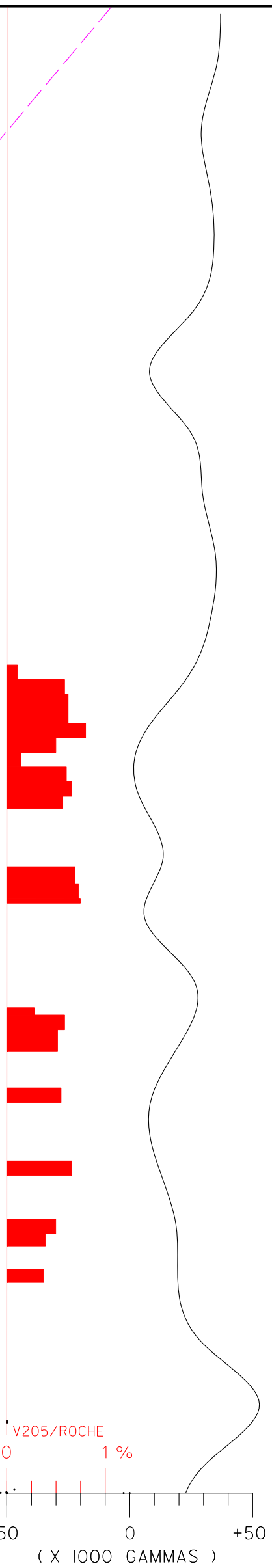
2+00N

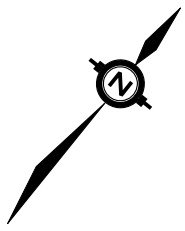
1+00N

P1

P2



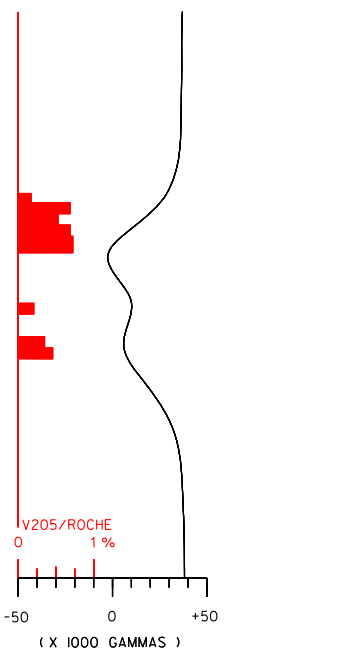




LÉGENDE

DISTRIBUTION DE V205 DANS LES ÉCHANTILLONS DE RAINURES

PROFIL MAGNÉTIQUE AU SOL / CHAMP MAGNÉTIQUE VERTICAL



NOTE: VOIR LÉGENDE DÉTAILLÉE EN ANNEXE

0 25 50 m

ÉCHELLE: 1:1000

McKENZIE BAY RESSOURCES LTD.

Lac Doré Vanadium Deposit

Tranchée 2+00W

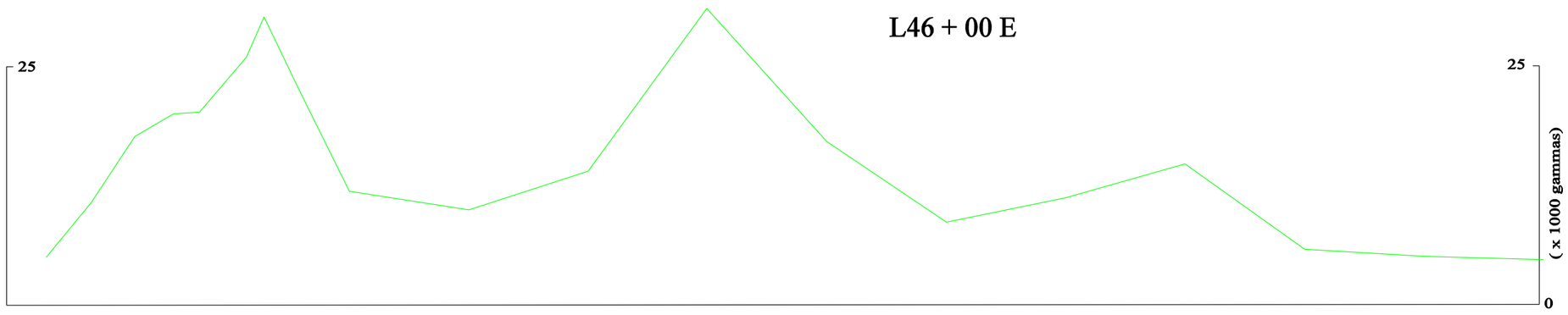
SNRC : 32H/13, 32G/16	Cartographié par : C. Tremblay, A. Belsswenger, E. Bourgault — été 1997
Cantons : Rinfret, Lemoine	Dessiné par : M-C Lauzon, L. Tremblay — mars 1998

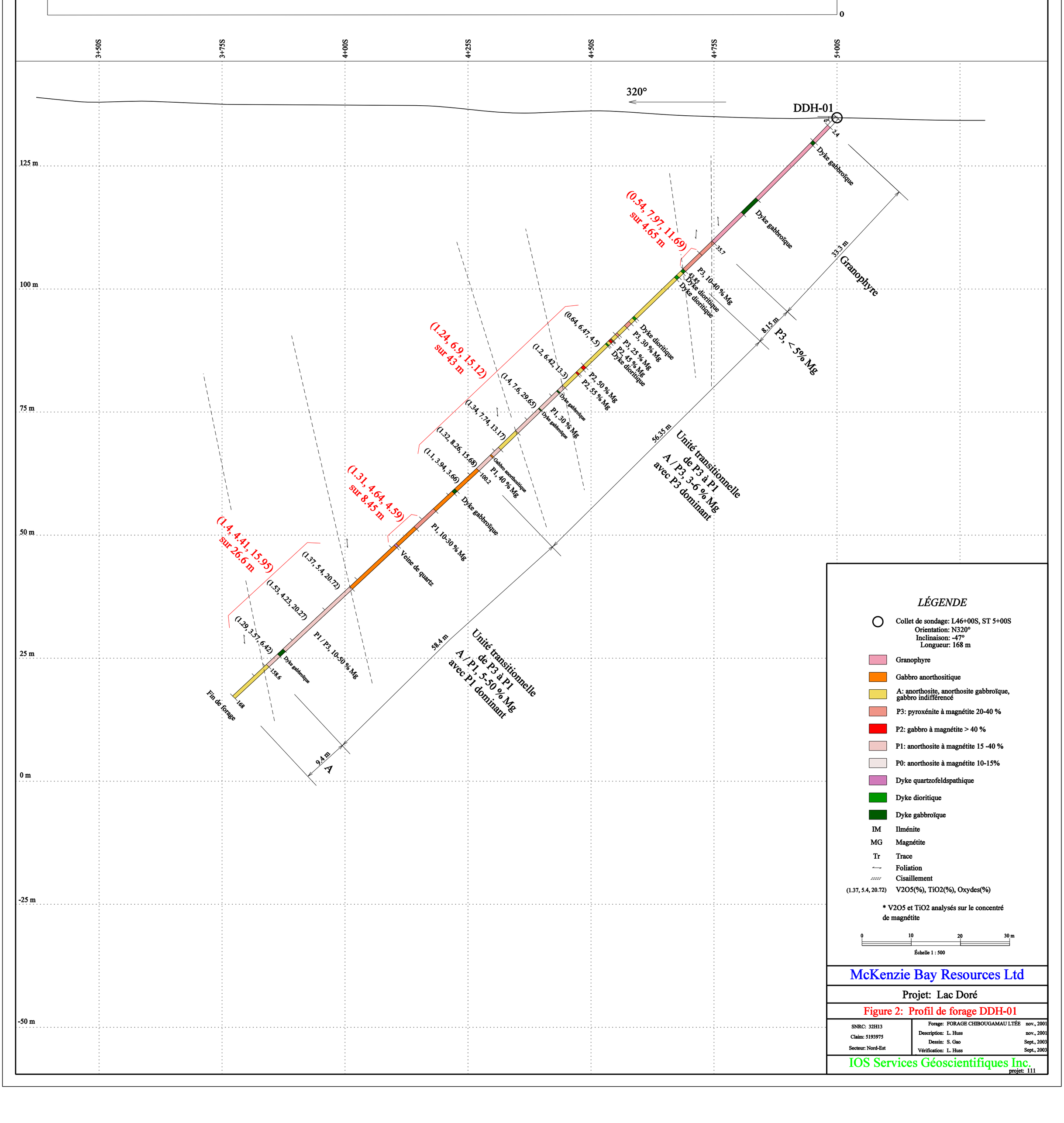
IOS Services Géoscientifiques Inc.

Projet 97-109

Profil de la composante verticale du champ magnétique au sol

L46 + 00 E





LÉGENDE

- Collet de sondage: L46+00S, ST 5+00S
  Orientation: N320°
  Inclinaison: -47°
  Longueur: 168 m
- Granophyre
- Gabbro anorthositique
- A: anorthosite, anorthosite gabbroïque, gabbro indifférencé
- P3: pyroxénite à magnétite 20-40 %
- P2: gabbro à magnétite > 40 %
- P1: anorthosite à magnétite 15 -40 %
- P0: anorthosite à magnétite 10-15%
- Dyke quartzofeldspathique
- Dyke dioritique
- Dyke gabbroïque
- IM Ilménite
- MG Magnétite
- Tr Trace
- Foliation
- Cisaillement
- (1.37, 5.4, 20.72) V2O5(%), TiO2(%), Oxydes(%)

* V2O5 et TiO2 analysés sur le concentré de magnétite

0 10 20 30 m

Échelle 1 : 500

McKenzie Bay Resources Ltd

Projet: Lac Doré

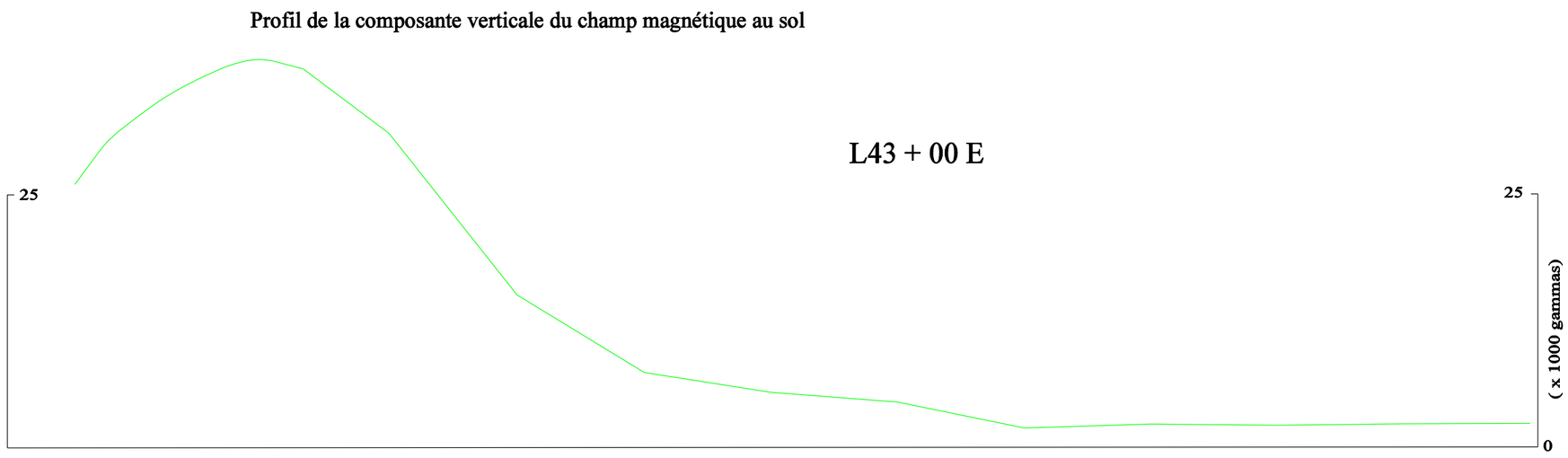
Figure 2: Profil de forage DDH-01

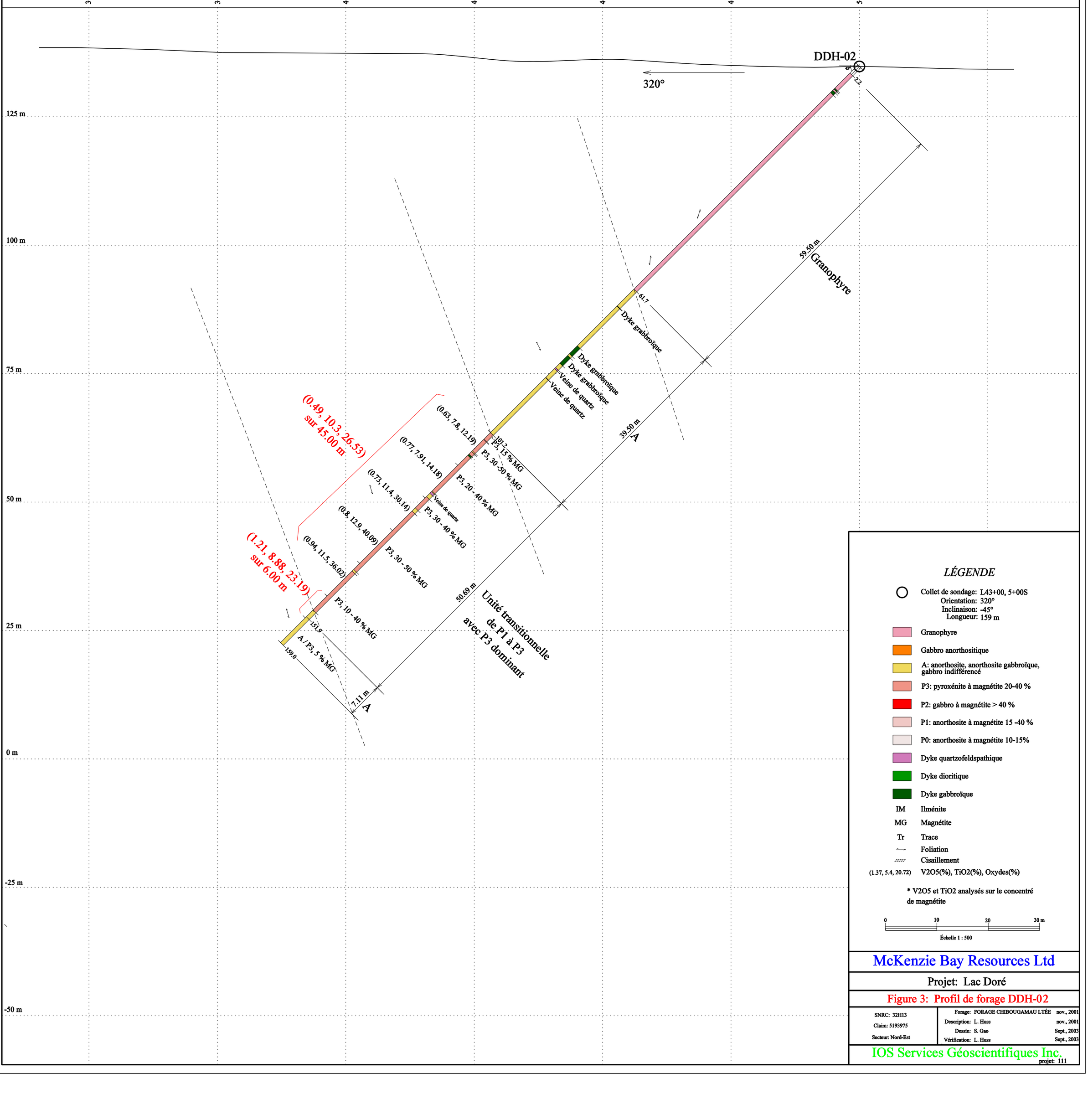
SNRC: 32H13	Forage: FORAGE CHIBOUGAMAU LTÉE nov., 2001
Claim: 5193975	Description: L. Huss nov., 2001
Secteur: Nord-Est	Dessin: S. Gao Sept., 2003
	Vérification: L. Huss Sept., 2003

IOS Services Géoscientifiques Inc.

projet: 111

Profil de la composante verticale du champ magnétique au sol





LÉGENDE

Collet de sondage: L43+00, 5+00S
Orientation: 320°
Inclinaison: -45°
Longueur: 159 m

- Granophyre
- Gabbro anorthositique
- A: anorthosite, anorthosite gabbroïque, gabbro indifférencé
- P3: pyroxénite à magnétite 20-40 %
- P2: gabbro à magnétite > 40 %
- P1: anorthosite à magnétite 15 -40 %
- P0: anorthosite à magnétite 10-15%
- Dyke quartzofeldspathique
- Dyke dioritique
- Dyke gabbroïque

IM Ilménite
MG Magnétite
Tr Trace
Foliation
Cisaillement
(1.37, 5.4, 20.72) V2O5(%), TiO2(%), Oxydes(%)

* V2O5 et TiO2 analysés sur le concentré de magnétite

0 10 20 30 m

Échelle 1 : 500

McKenzie Bay Resources Ltd

Projet: Lac Doré

Figure 3: Profil de forage DDH-02

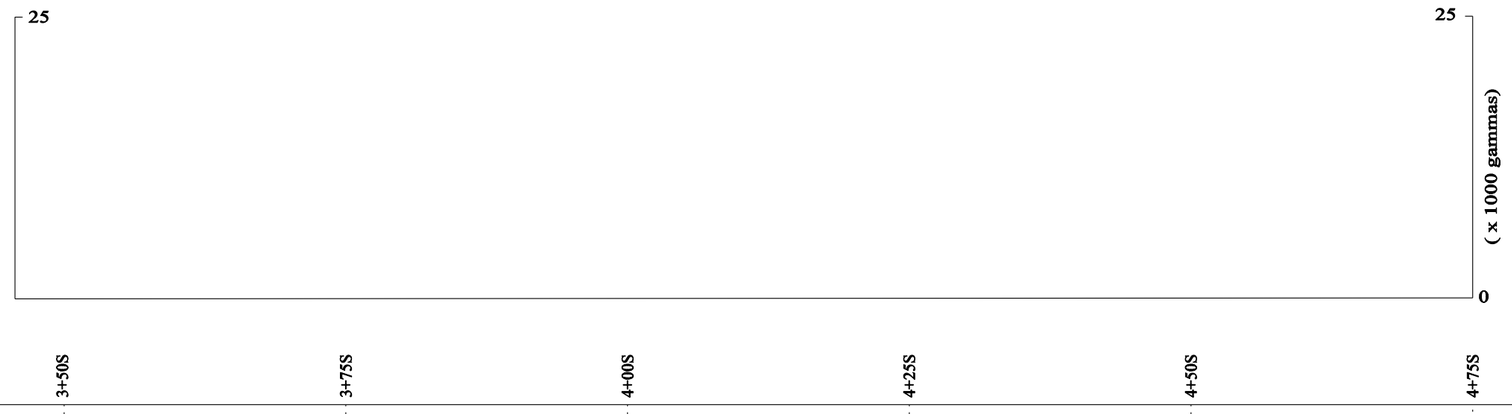
SNRC: 32H13
Claim: 5193975
Secteur: Nord-Est

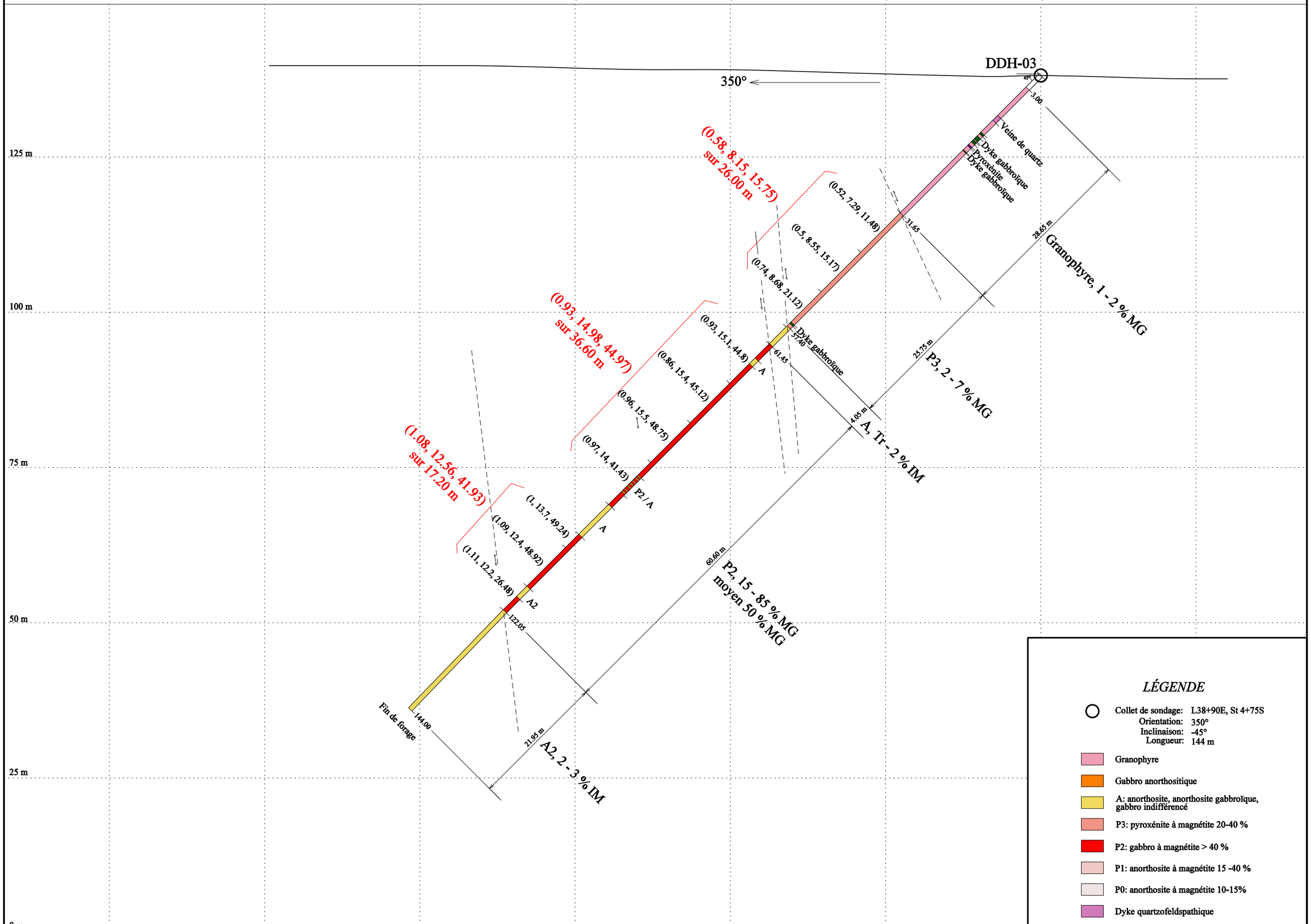
Forage: FORAGE CHIBOUGAMAU LTÉE nov., 2001
Description: L. Huss nov., 2001
Dessin: S. Gao Sept., 2003
Vérification: L. Huss Sept., 2003

IOS Services Géoscientifiques Inc.
projet: 111

Profil de la composante verticale du champ magnétique au sol

L38 + 90 E





LÉGENDE

Collet de sondage: L38+90E, St 4+75S
Orientation: 350°
Inclinaison: -45°
Longueur: 144 m

- Granophyre
- Gabbro anorthositique
- A: anorthosite, anorthosite gabbroïque, gabbro indifférencé
- P3: pyroxénite à magnétite 20-40 %
- P2: gabbro à magnétite > 40 %
- P1: anorthosite à magnétite 15 -40 %
- P0: anorthosite à magnétite 10-15%
- Dyke quartzofeldspathique
- Dyke dioritique
- Dyke gabbroïque
- IM Ilménite
- MG Magnétite
- Tr Trace
- Foliation
- Cisaillement
- (1.37, 5.4, 20.72) V2O5(%), TiO2(%), Oxydes(%)

* V2O5 et TiO2 analysés sur le concentré de magnétite

0 10 20 30 m

Échelle 1 : 500

McKenzie Bay Resources Ltd

Projet: Lac Doré

Figure 4: Profil de forage DDH-03

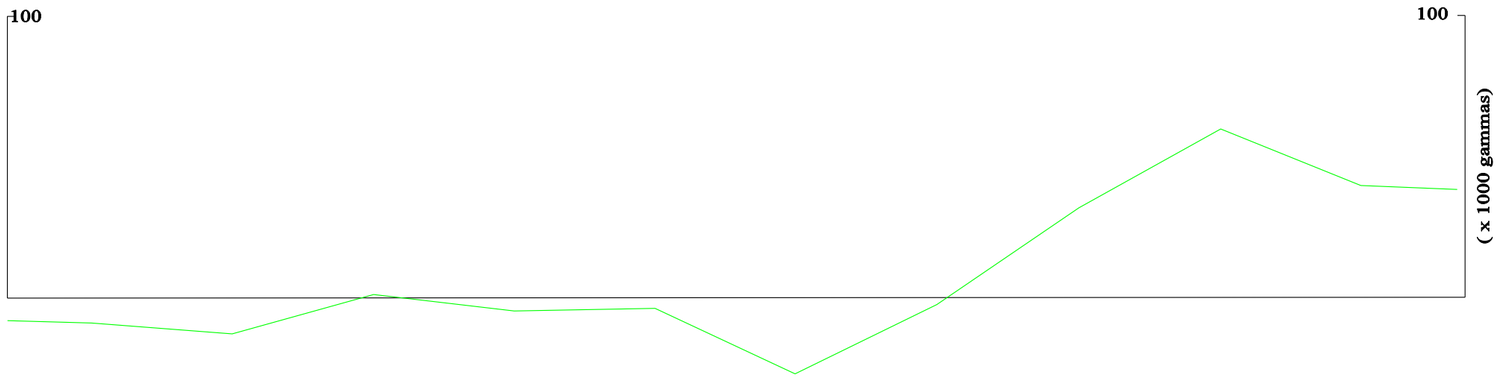
SNRC: 32H13
Claim: 5173427
Secteur: Nord-Est

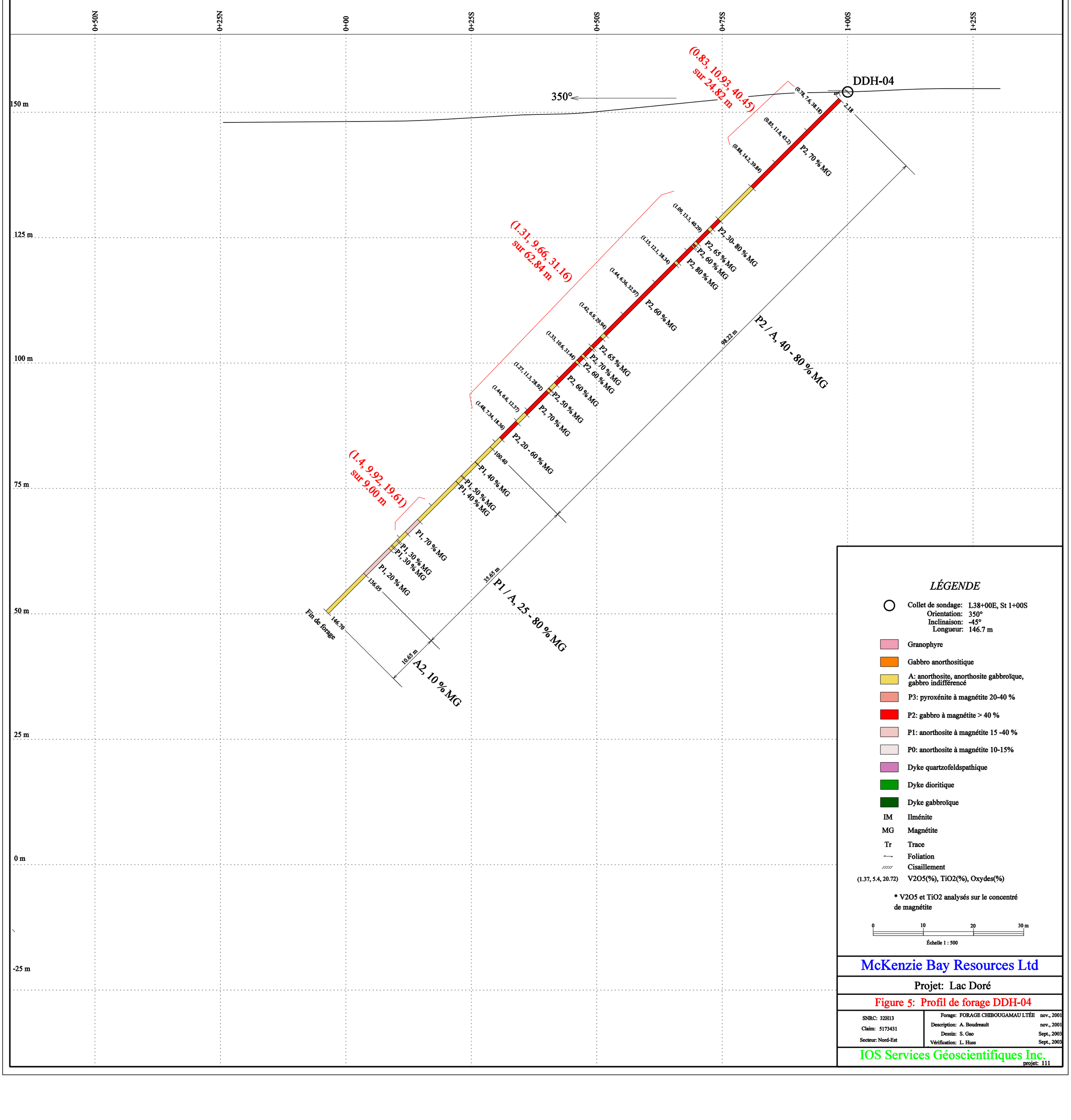
Forage: FORAGE CHIBOUGAMAU LTÉE nov., 2001
Description: A. Boudreault nov., 2001
Dessin: S. Gao Sept., 2003
Vérification: L. Huss Sept., 2003

IOS Services Géoscientifiques Inc.
projet: 111

Profil de la composante verticale du champ magnétique au sol

L38 + 00 E





LÉGENDE

Collet de sondage: L38+00E, St 1+00S
Orientation: 350°
Inclinaison: -45°
Longueur: 146.7 m

- Granophyre
- Gabbro anorthositique
- A: anorthosite, anorthosite gabbroïque, gabbro indifférencé
- P3: pyroxénite à magnétite 20-40 %
- P2: gabbro à magnétite > 40 %
- P1: anorthosite à magnétite 15 -40 %
- P0: anorthosite à magnétite 10-15%
- Dyke quartzofeldspathique
- Dyke dioritique
- Dyke gabbroïque
- IM Ilménite
- MG Magnétite
- Tr Trace
- Foliation
- Cisaillement
- (1.37, 5.4, 20.72) V2O5(%), TiO2(%), Oxydes(%)

* V2O5 et TiO2 analysés sur le concentré de magnétite

0 10 20 30 m

Échelle 1 : 500

McKenzie Bay Resources Ltd

Projet: Lac Doré

Figure 5: Profil de forage DDH-04

SNRC: 32H13
Claim: 5173431
Secteur: Nord-Est

Forage: FORAGE CHIBOUGAMAU LTÉE nov., 2001
Description: A. Boudreault nov., 2001
Dessin: S. Gao Sept., 2003
Vérification: L. Huss Sept., 2003

IOS Services Géoscientifiques Inc.
projet: 111

Profil de la composante verticale du champ magnétique au sol

L28 + 00 E

25 | 25 | (x 1000 gammas) | 0

0+75N | 0+50S | 0+75S | 1+00S | 1+25S | 1+50S | 1+75S | 2+00S

150 m | 125 m | 100 m | 75 m | 50 m | 25 m | 0 m | -25 m

320°

DDH-05

-45°

2.70

12.35

9.65 m

A, 2 - 5 % IM

(1.13, 9.54, 25.11)
sur 6.70 m

39.50

27.15 m

P3, Tr MG

(1.21, 9.81, 35.93)
sur 29.35 m

(1.16, 10.8, 40.72)

P2, 90 % MG

P2, 15 - 20 % MG

(1.28, 8.47, 36.09)

P2, 50 % MG

P2, 70 % MG

(1.2, 10.2, 31.74)

P2, 85 % MG

83.57

44.07 m

P2 / A

102.00

18.43 m

A, Tr - 2 % MG

LÉGENDE

Collet de sondage: L28+00E, St 1+75S
Orientation: 320°
Inclinaison: -45°
Longueur: 102 m

- Granophyre
- Gabbro anorthositique
- A: anorthosite, anorthosite gabbroïque, gabbro indifférencé
- P3: pyroxénite à magnétite 20-40 %
- P2: gabbro à magnétite > 40 %
- P1: anorthosite à magnétite 15 -40 %
- P0: anorthosite à magnétite 10-15%
- Dyke quartzofeldspathique
- Dyke dioritique
- Dyke gabbroïque
- IM Ilménite
- MG Magnétite
- Tr Trace
- Foliation
- Cisaillement
- (1.37, 5.4, 20.72) V2O5(%), TiO2(%), Oxydes(%)

* V2O5 et TiO2 analysés sur le concentré de magnétite

0 | 10 | 20 | 30 m

Échelle 1 : 500

McKenzie Bay Resources Ltd

Projet: Lac Doré

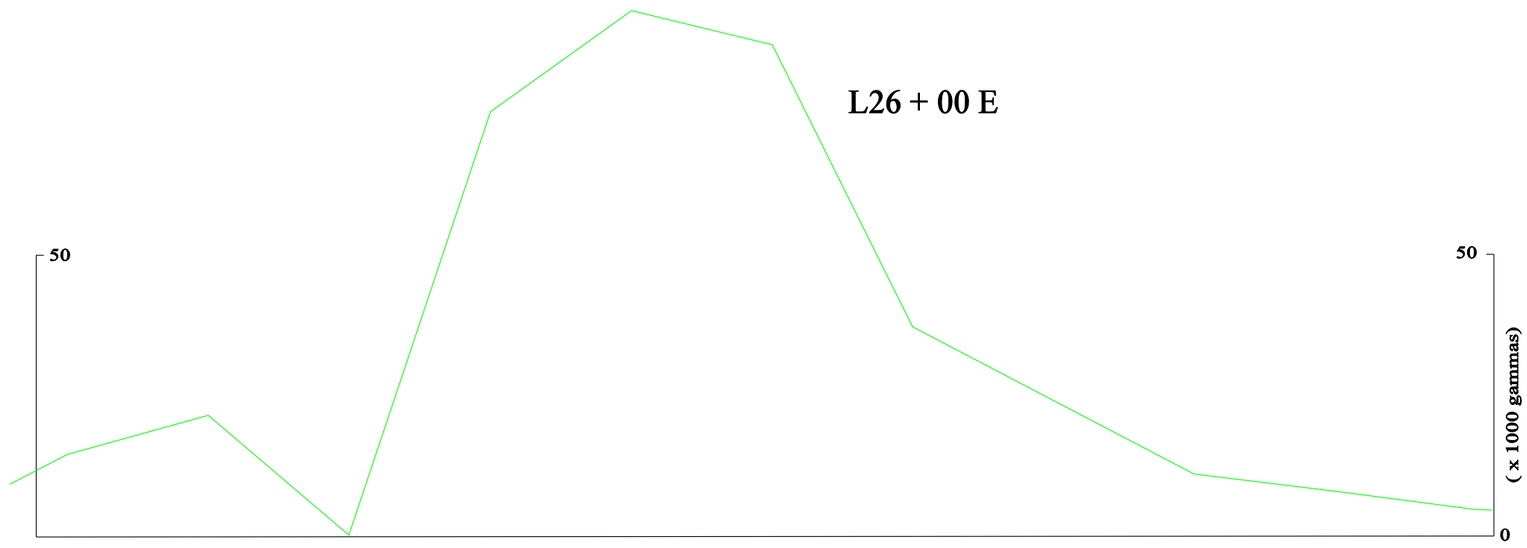
Figure 6: Profil de forage DDH-05

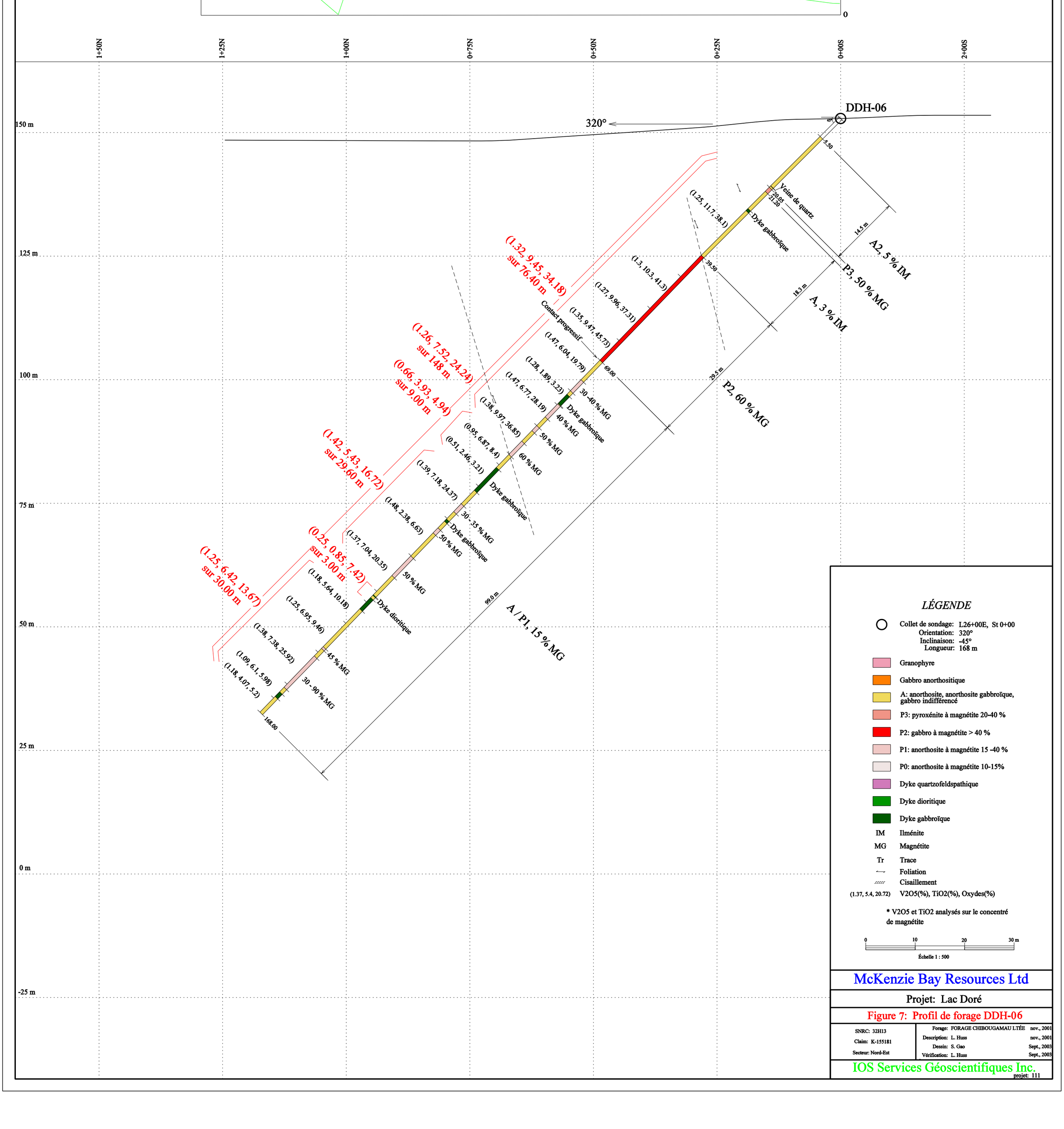
SNRC: 32H13
Claim: K-155181
Secteur: Nord-Est

Forage: FORAGE CHIBOUGAMAU LTÉE nov., 2001
Description: L. Huss nov., 2001
Dessin: S. Gao Sept., 2003
Vérification: L. Huss Sept., 2003

IOS Services Géoscientifiques Inc.
projet: 111

Profil de la composante verticale du champ magnétique au sol





LÉGENDE

Collet de sondage: L26+00E, St 0+00
Orientation: 320°
Inclinaison: -45°
Longueur: 168 m

- Granophyre
- Gabbro anorthositique
- A: anorthosite, anorthosite gabbroïque, gabbro indifférencé
- P3: pyroxénite à magnétite 20-40 %
- P2: gabbro à magnétite > 40 %
- P1: anorthosite à magnétite 15 -40 %
- P0: anorthosite à magnétite 10-15%
- Dyke quartzofeldspathique
- Dyke dioritique
- Dyke gabbroïque

IM Ilménite
MG Magnétite
Tr Trace
Foliation
Cisaillement
(1.37, 5.4, 20.72) V2O5(%), TiO2(%), Oxydes(%)

* V2O5 et TiO2 analysés sur le concentré de magnétite

0 10 20 30 m
Échelle 1 : 500

McKenzie Bay Resources Ltd

Projet: Lac Doré

Figure 7: Profil de forage DDH-06

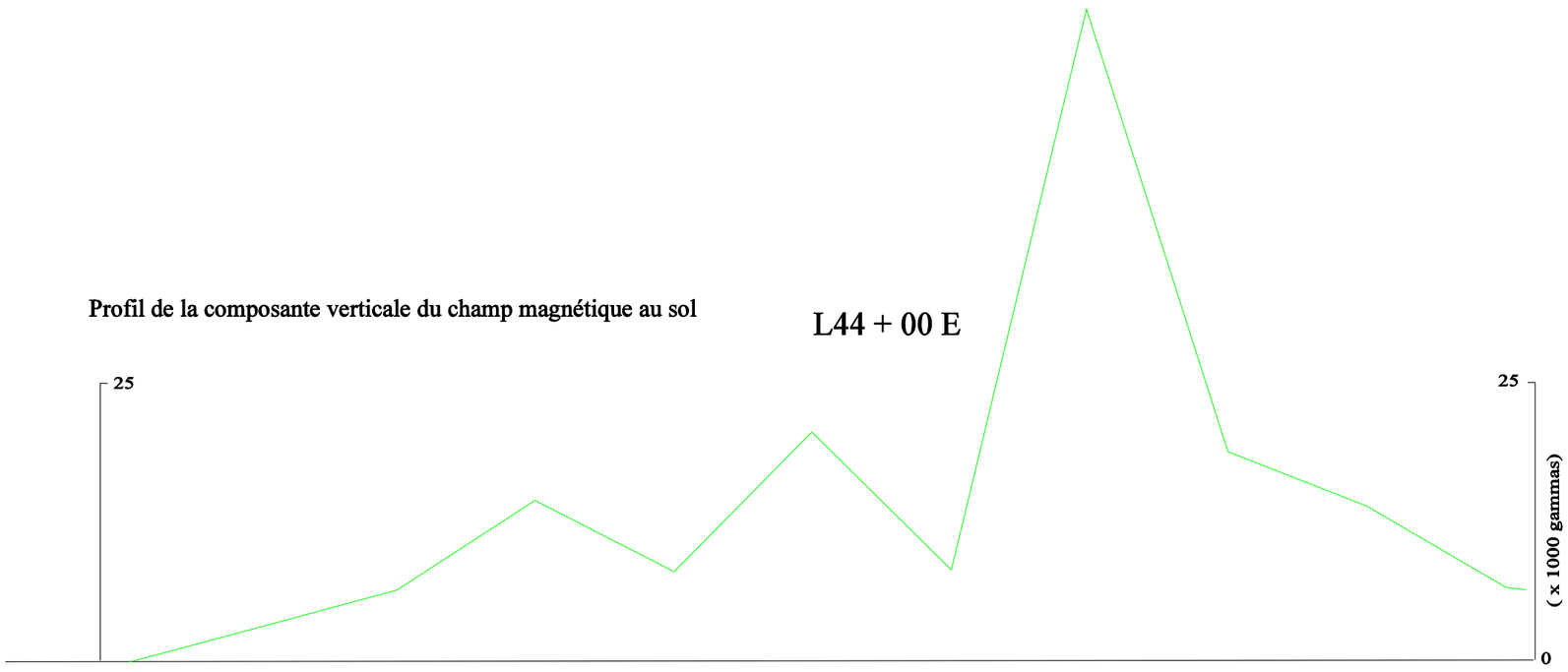
SNRC: 32H13
Claim: K-155181
Secteur: Nord-Est

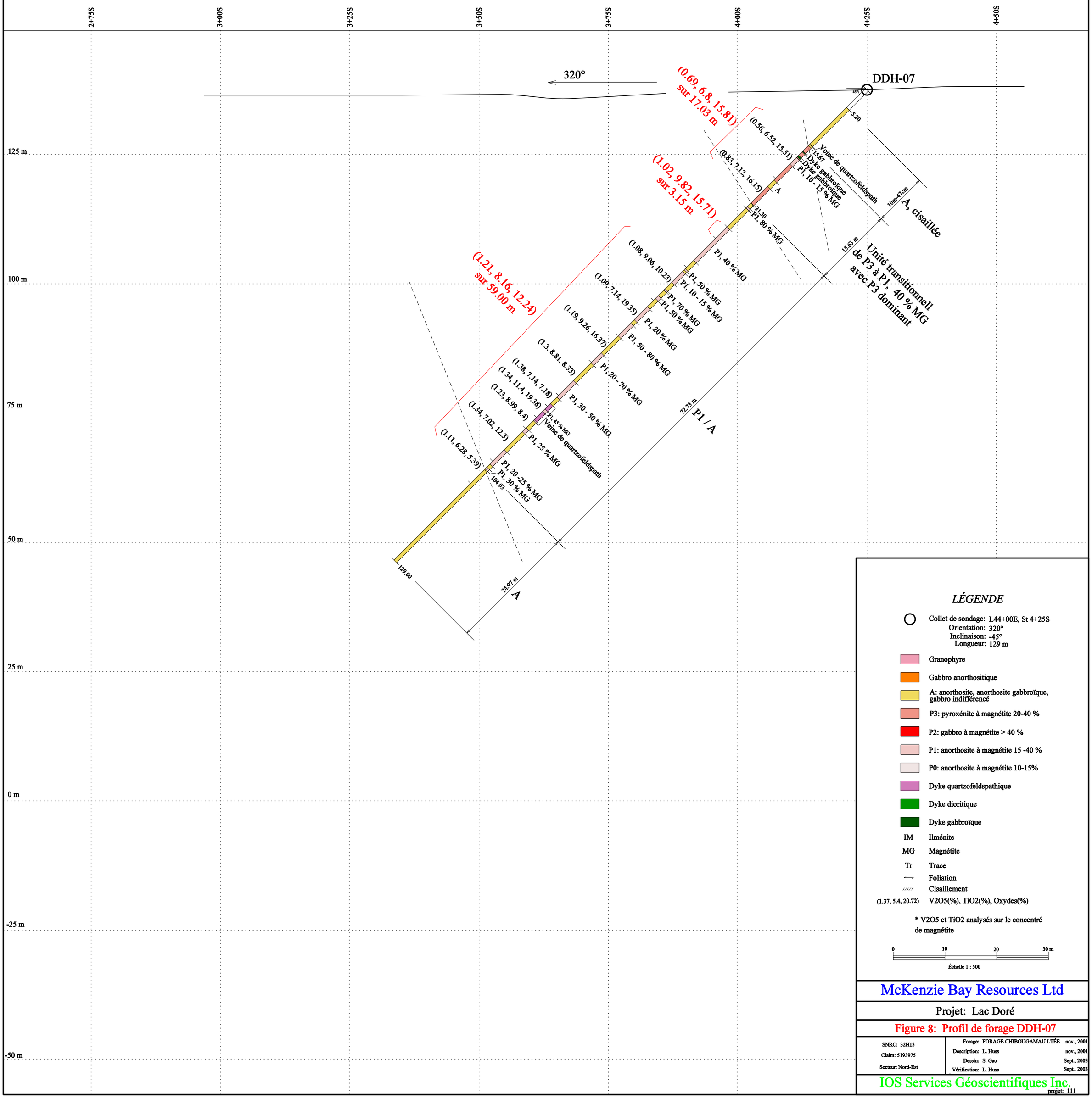
Forage: FORAGE CHIBOUGAMAU LTÉE nov., 2001
Description: L. Huss nov., 2001
Dessin: S. Gao Sept., 2003
Vérification: L. Huss Sept., 2003

IOS Services Géoscientifiques Inc.
projet: 111

Profil de la composante verticale du champ magnétique au sol

L44 + 00 E





LÉGENDE

Collet de sondage: L44+00E, St 4+25S
Orientation: 320°
Inclinaison: -45°
Longueur: 129 m

- Granophyre
- Gabbro anorthositique
- A: anorthosite, anorthosite gabbroïque, gabbro indifférencé
- P3: pyroxénite à magnétite 20-40 %
- P2: gabbro à magnétite > 40 %
- P1: anorthosite à magnétite 15 -40 %
- P0: anorthosite à magnétite 10-15%
- Dyke quartzofeldspathique
- Dyke dioritique
- Dyke gabbroïque
- IM Ilménite
- MG Magnétite
- Tr Trace
- Foliation
- Cisaillement
- (1.37, 5.4, 20.72) V2O5(%), TiO2(%), Oxydes(%)

* V2O5 et TiO2 analysés sur le concentré de magnétite

0 10 20 30 m

Échelle 1 : 500

McKenzie Bay Resources Ltd

Projet: Lac Doré

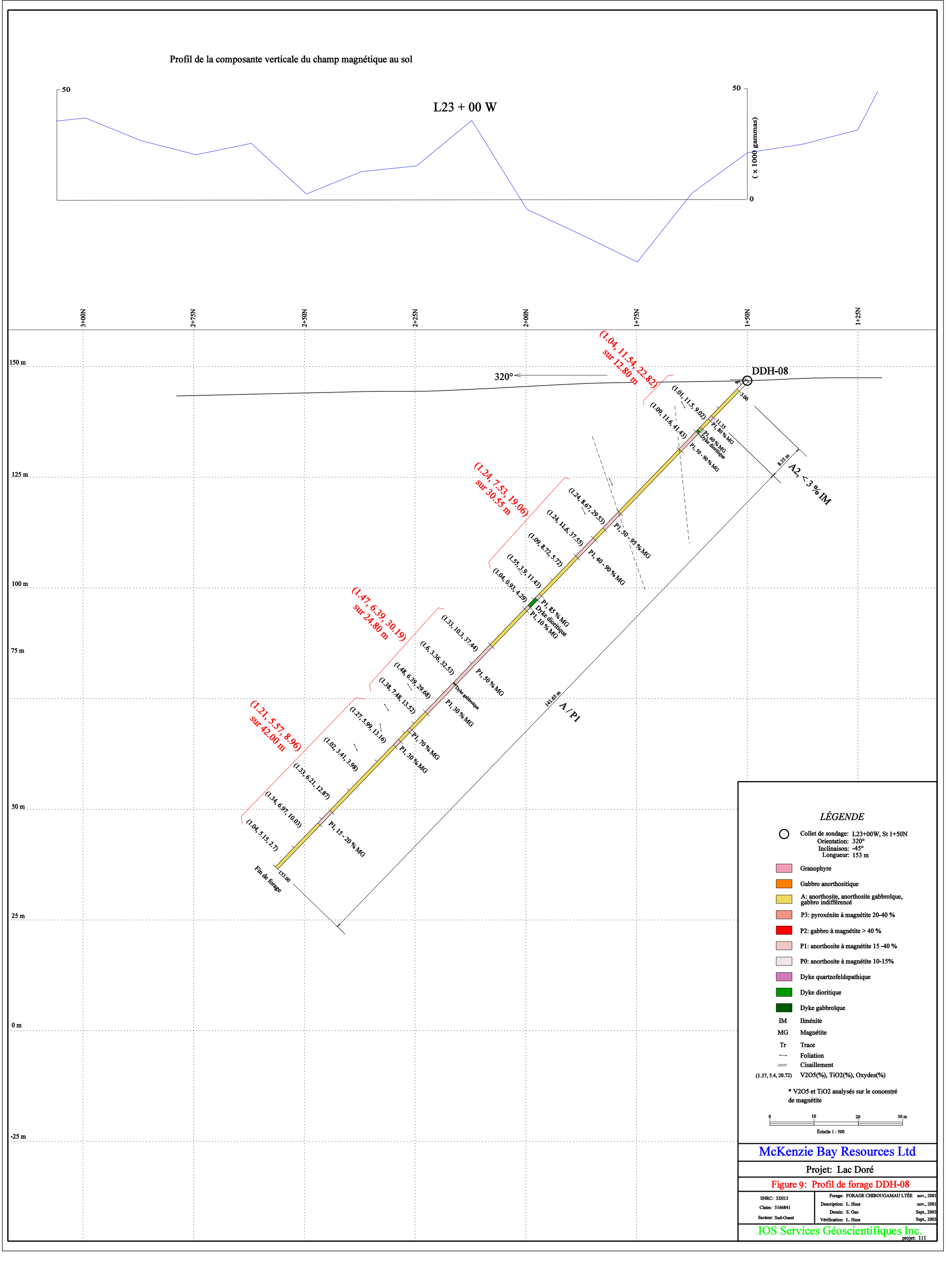
Figure 8: Profil de forage DDH-07

SNRC: 32H13	Forage: FORAGE CHIBOUGAMAU LTÉE nov., 2001
Claim: 5193975	Description: L. Huss nov., 2001
Secteur: Nord-Est	Dessin: S. Gao Sept., 2003
	Vérification: L. Huss Sept., 2003

IOS Services Géoscientifiques Inc.

projet: 111

Profil de la composante verticale du champ magnétique au sol



LÉGENDE

Collet de sondage: L23+00W, St 1+50N
Orientation: 320°
Inclinaison: -45°
Longueur: 153 m

- Granophyre
- Gabbro anorthositique
- A: anorthosite, anorthosite gabbroïque, gabbro indifférencé
- P3: pyroxénite à magnétite 20-40 %
- P2: gabbro à magnétite > 40 %
- P1: anorthosite à magnétite 15 -40 %
- P0: anorthosite à magnétite 10-15%
- Dyke quartzofeldspathique
- Dyke dioritique
- Dyke gabbroïque
- IM Ilménite
- MG Magnétite
- Tr Trace
- ⟷ Foliation
- ////// Cisaillement
- (1.37, 5.4, 20.72) V2O5(%), TiO2(%), Oxydes(%)

* V2O5 et TiO2 analysés sur le concentré de magnétite

0 10 20 30 m

Échelle 1 : 500

McKenzie Bay Resources Ltd

Projet: Lac Doré

Figure 9: Profil de forage DDH-08

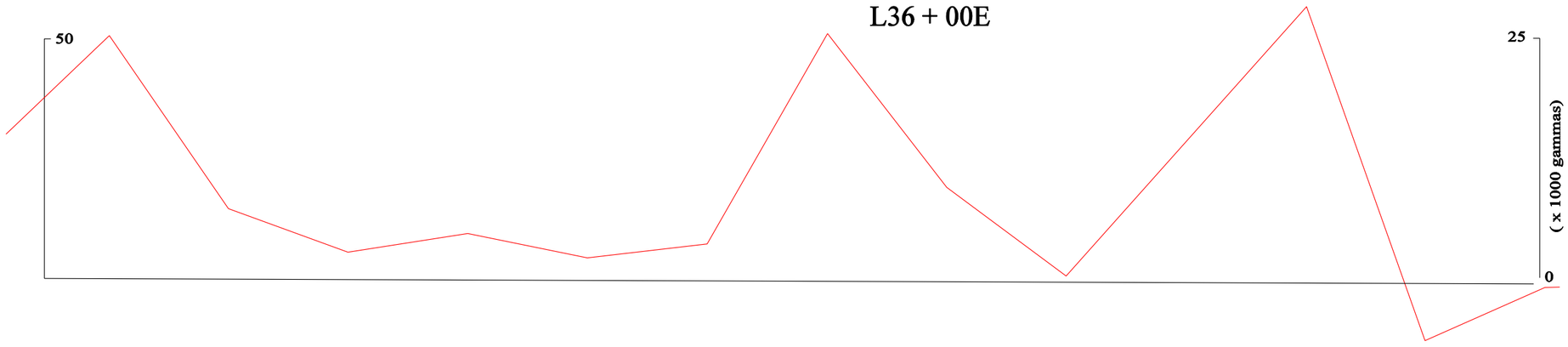
SNRC: 32H13
Claim: 5166841
Secteur: Sud-Ouest

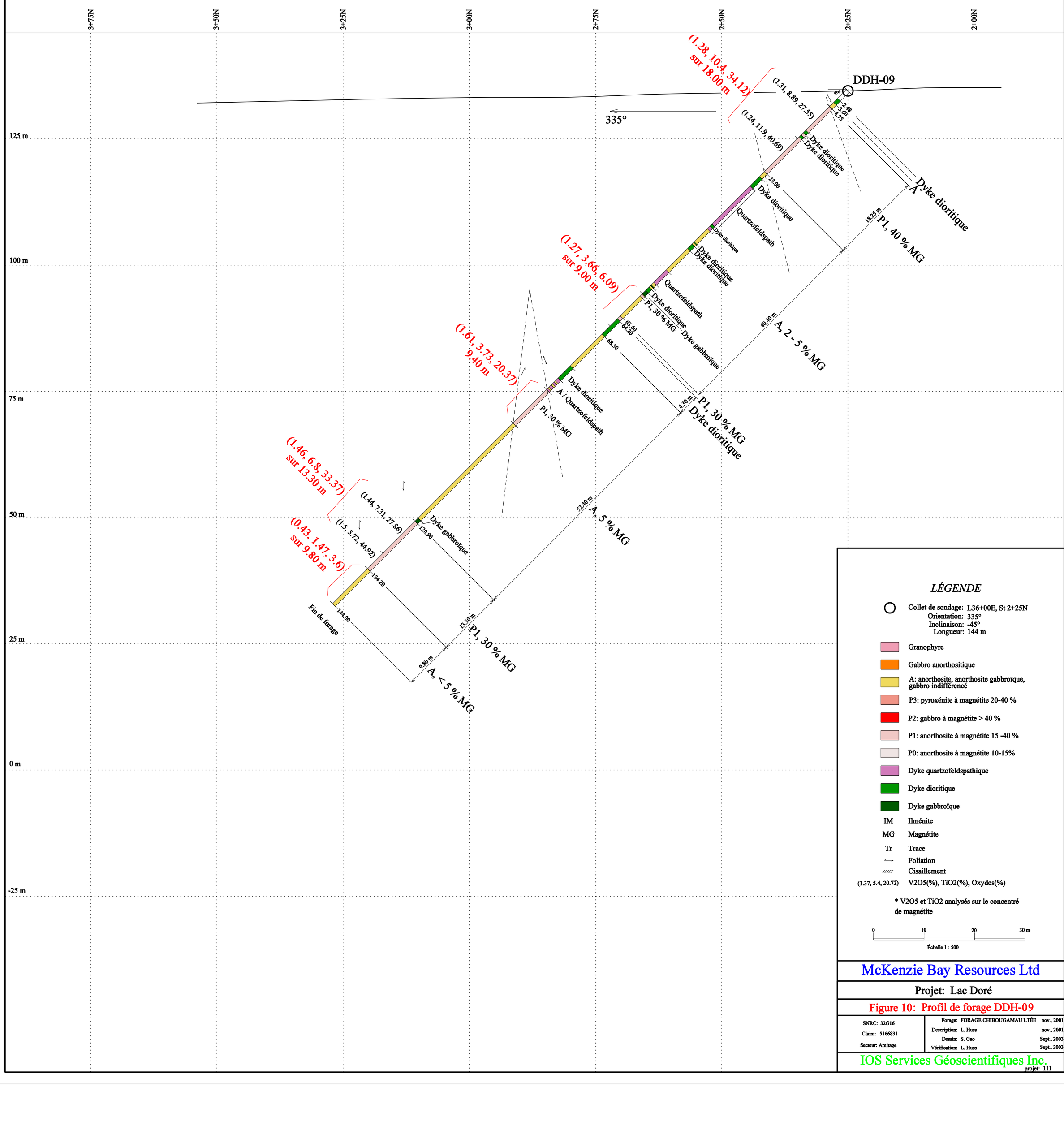
Forage: FORAGE CHIBOUGAMAU LTÉE nov., 2001
Description: L. Huss nov., 2001
Dessin: S. Gao Sept., 2003
Vérification: L. Huss Sept., 2003

IOS Services Géoscientifiques Inc.
projet: 111

Profil de la composante verticale du champ magnétique au sol

L36 + 00E





LÉGENDE

Collet de sondage: L36+00E, St 2+25N
Orientation: 335°
Inclinaison: -45°
Longueur: 144 m

- Granophyre
- Gabbro anorthositique
- A: anorthosite, anorthosite gabbroïque, gabbro indifférencé
- P3: pyroxénite à magnétite 20-40 %
- P2: gabbro à magnétite > 40 %
- P1: anorthosite à magnétite 15 -40 %
- P0: anorthosite à magnétite 10-15%
- Dyke quartzofeldspathique
- Dyke dioritique
- Dyke gabbroïque
- IM Ilménite
- MG Magnétite
- Tr Trace
- Foliation
- Cisaillement
- (1.37, 5.4, 20.72) V2O5(%), TiO2(%), Oxydes(%)

* V2O5 et TiO2 analysés sur le concentré de magnétite

0 10 20 30 m

Échelle 1 : 500

McKenzie Bay Resources Ltd

Projet: Lac Doré

Figure 10: Profil de forage DDH-09

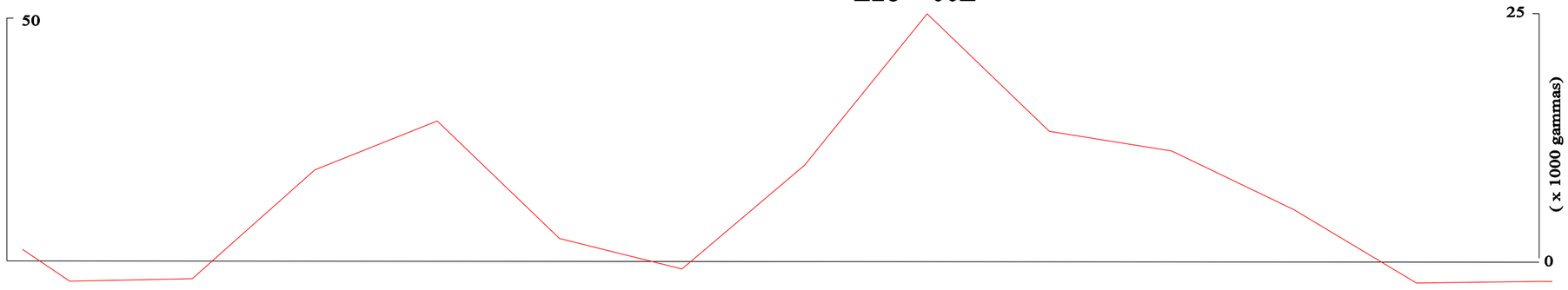
SNRC: 32G16
Claim: 5166831
Secteur: Amitage

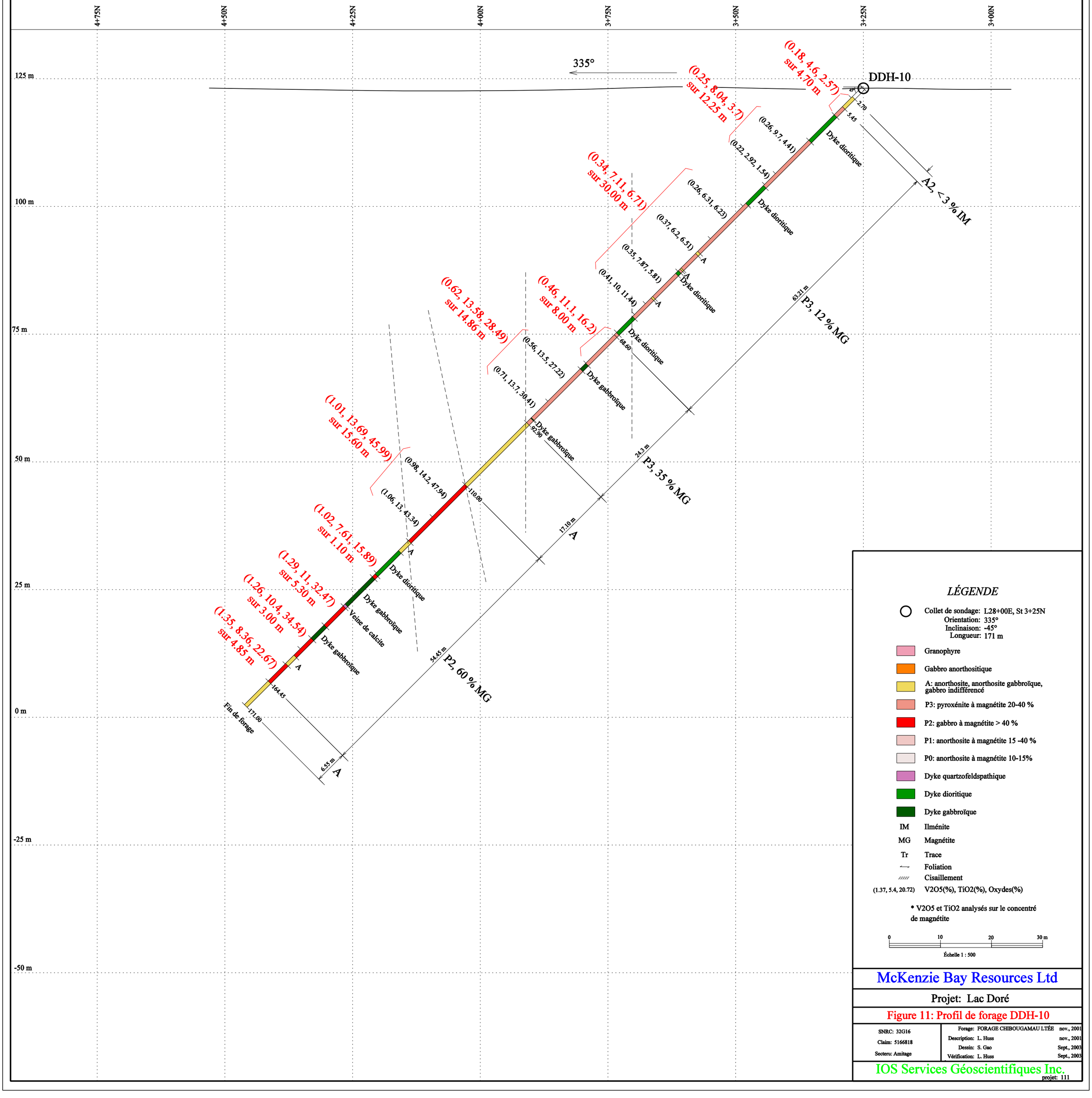
Forage: FORAGE CHIBOUGAMAU LTÉE nov., 2001
Description: L. Huss nov., 2001
Dessin: S. Gao Sept., 2003
Vérification: L. Huss Sept., 2003

IOS Services Géoscientifiques Inc.
projet: 111

Profil de la composante verticale du champ magnétique au sol

L28 + 00E





LÉGENDE

- Collet de sondage: L28+00E, St 3+25N
  Orientation: 335°
  Inclinaison: -45°
  Longueur: 171 m
- Granophyre
- Gabbro anorthositique
- A: anorthosite, anorthosite gabbroïque, gabbro indifférencé
- P3: pyroxénite à magnétite 20-40 %
- P2: gabbro à magnétite > 40 %
- P1: anorthosite à magnétite 15 -40 %
- P0: anorthosite à magnétite 10-15%
- Dyke quartzofeldspathique
- Dyke dioritique
- Dyke gabbroïque
- IM Ilménite
- MG Magnétite
- Tr Trace
- Foliation
- Cisaillement
- (1.37, 5.4, 20.72) V2O5(%), TiO2(%), Oxydes(%)

* V2O5 et TiO2 analysés sur le concentré de magnétite

0 10 20 30 m

Échelle 1 : 500

McKenzie Bay Resources Ltd

Projet: Lac Doré

Figure 11: Profil de forage DDH-10

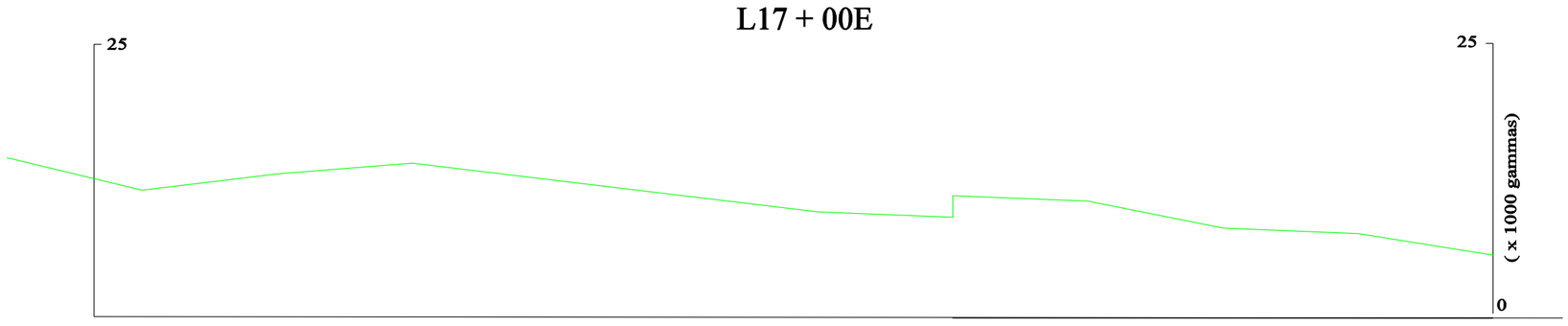
SNRC: 32G16	Forage: FORAGE CHIBOUGAMAU LTÉE nov., 2001
Claim: 5166818	Description: L. Huss nov., 2001
Secteru: Amitage	Dessin: S. Gao Sept., 2003
	Vérification: L. Huss Sept., 2003

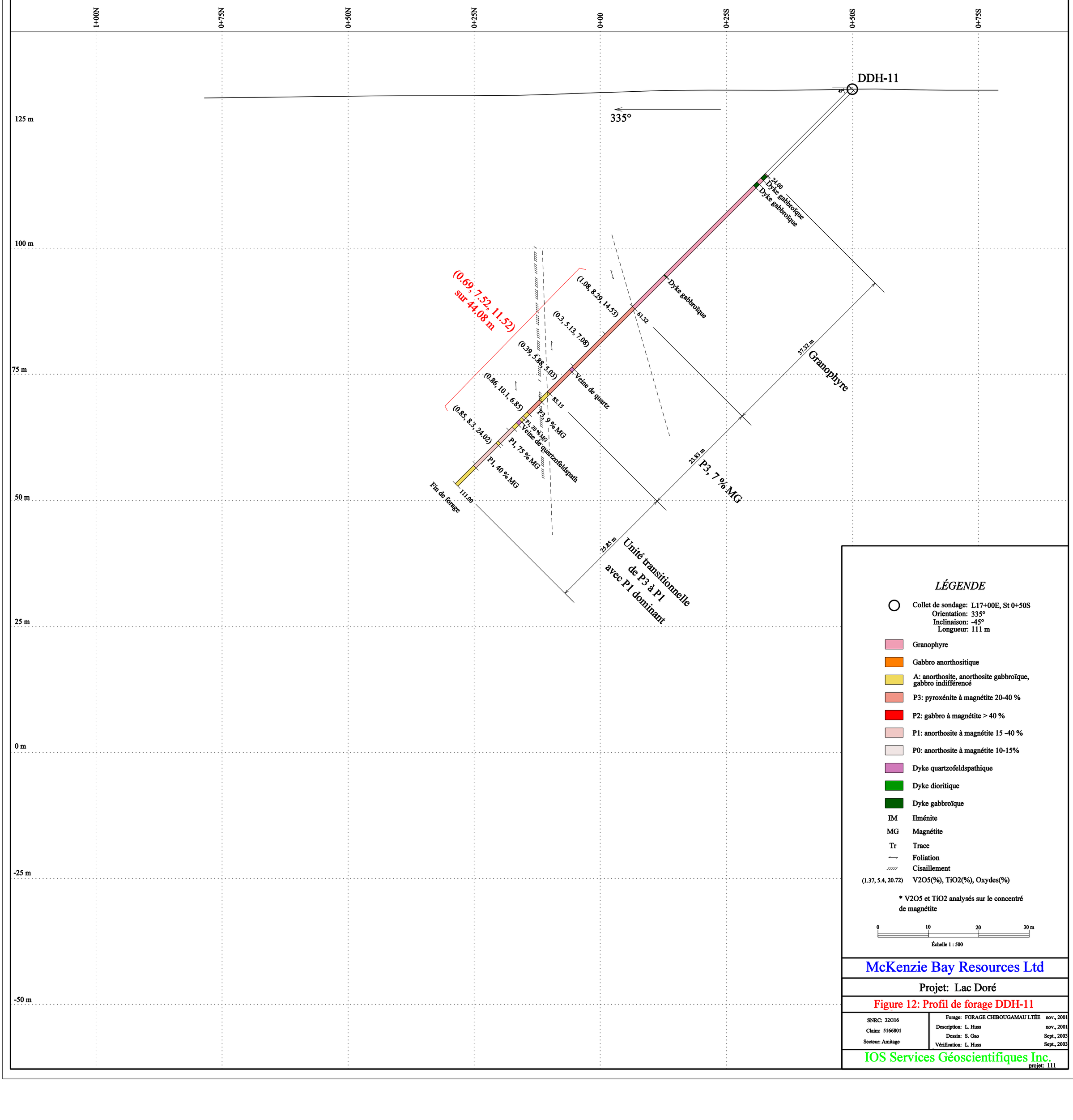
IOS Services Géoscientifiques Inc.

projet: 111

Profil de la composante verticale du champ magnétique au sol

L17 + 00E





LÉGENDE

Collet de sondage: L17+00E, St 0+50S
Orientation: 335°
Inclinaison: -45°
Longueur: 111 m

- Granophyre
- Gabbro anorthositique
- A: anorthosite, anorthosite gabbroïque, gabbro indifférencé
- P3: pyroxénite à magnétite 20-40 %
- P2: gabbro à magnétite > 40 %
- P1: anorthosite à magnétite 15 -40 %
- P0: anorthosite à magnétite 10-15%
- Dyke quartzofeldspathique
- Dyke dioritique
- Dyke gabbroïque
- IM Ilménite
- MG Magnétite
- Tr Trace
- Foliation
- Cisaillement
- (1.37, 5.4, 20.72) V2O5(%), TiO2(%), Oxydes(%)

* V2O5 et TiO2 analysés sur le concentré de magnétite

0 10 20 30 m

Échelle 1 : 500

McKenzie Bay Resources Ltd

Projet: Lac Doré

Figure 12: Profil de forage DDH-11

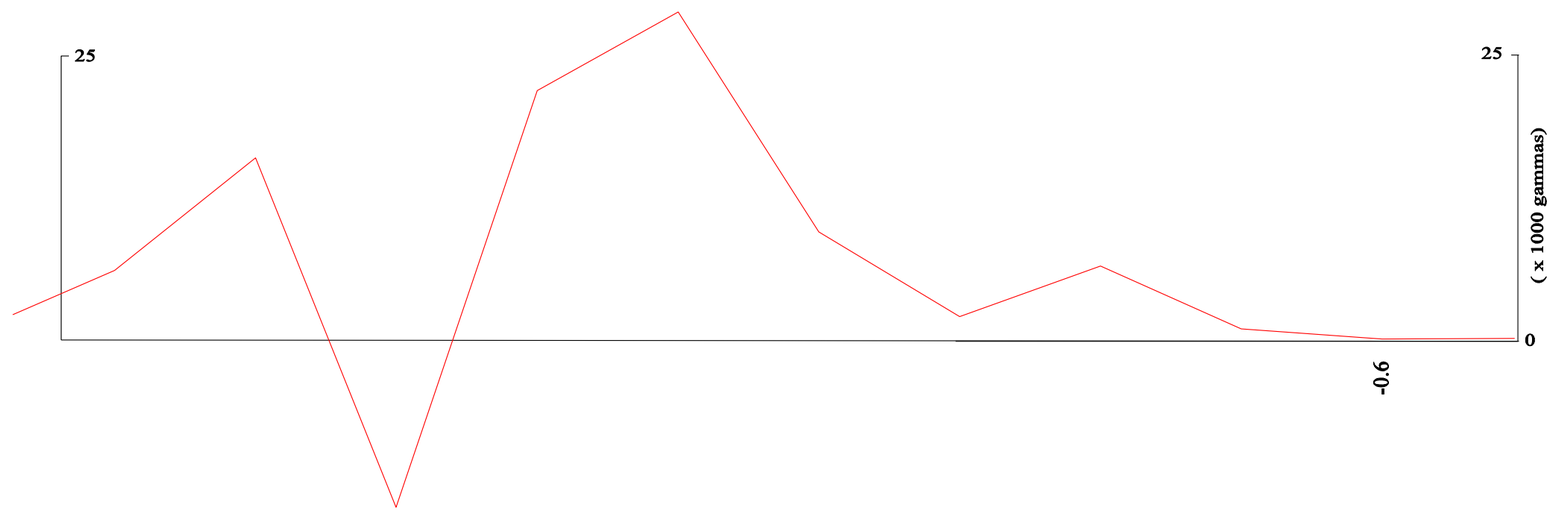
SNRC: 32G16
Claim: 5166801
Secteur: Amitage

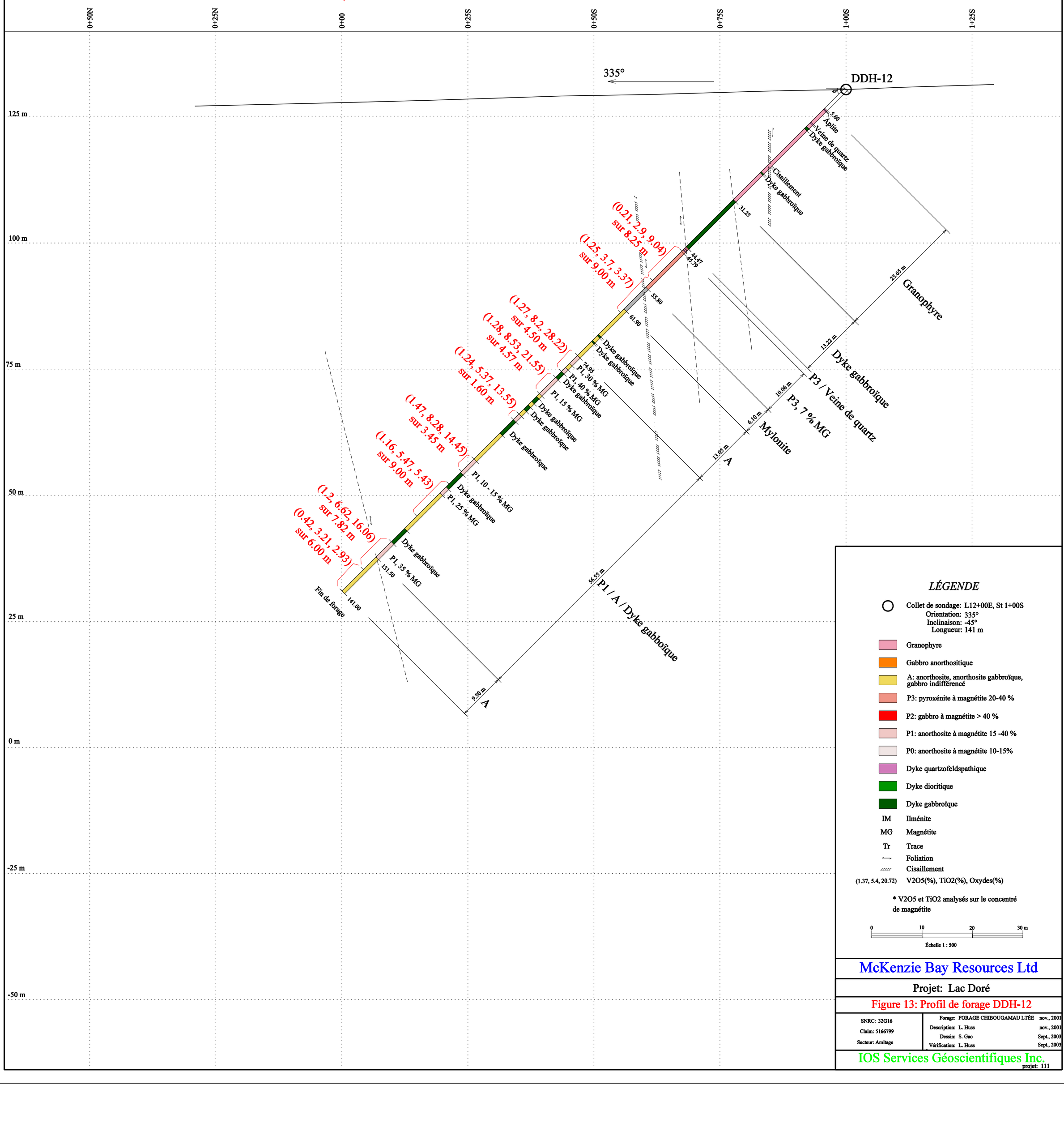
Forage: FORAGE CHIBOUGAMAU LTÉE nov., 2001
Description: L. Huss nov., 2001
Dessin: S. Gao Sept., 2003
Vérification: L. Huss Sept., 2003

IOS Services Géoscientifiques Inc.
projet: 111

Profil de la composante verticale du champ magnétique au sol

L12 + 00E





LÉGENDE

Collet de sondage: L12+00E, St 1+00S
Orientation: 335°
Inclinaison: -45°
Longueur: 141 m

- Granophyre
- Gabbro anorthositique
- A: anorthosite, anorthosite gabbroïque, gabbro indifférencé
- P3: pyroxénite à magnétite 20-40 %
- P2: gabbro à magnétite > 40 %
- P1: anorthosite à magnétite 15 -40 %
- P0: anorthosite à magnétite 10-15%
- Dyke quartzofeldspathique
- Dyke dioritique
- Dyke gabbroïque
- IM Ilménite
- MG Magnétite
- Tr Trace
- Foliation
- Cisaillement
- (1.37, 5.4, 20.72) V2O5(%), TiO2(%), Oxydes(%)

* V2O5 et TiO2 analysés sur le concentré de magnétite

0 10 20 30 m

Échelle 1 : 500

McKenzie Bay Resources Ltd

Projet: Lac Doré

Figure 13: Profil de forage DDH-12

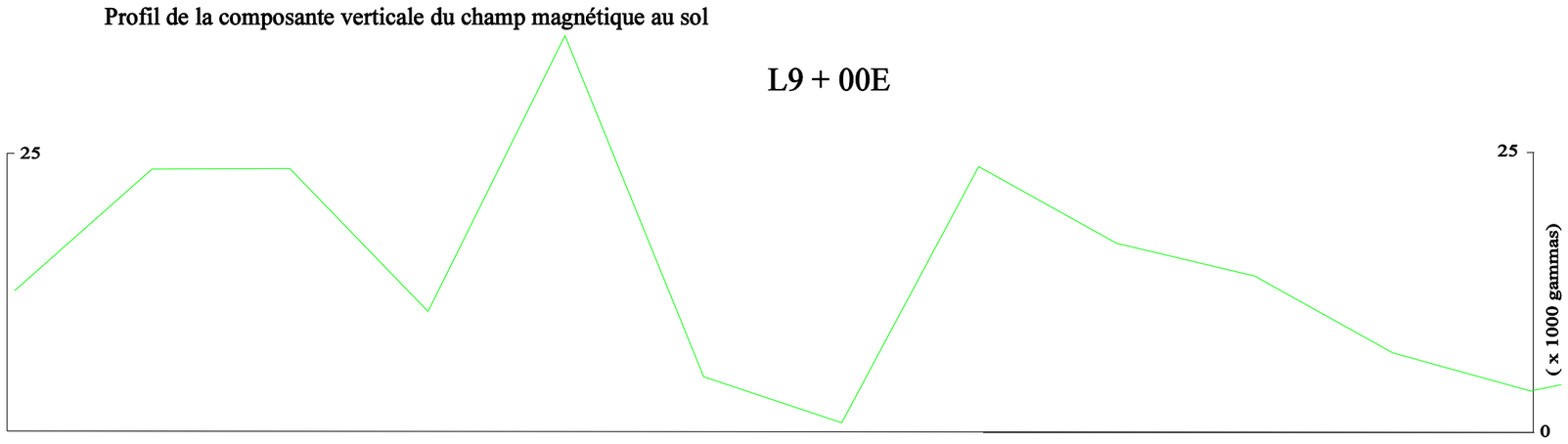
SNRC: 32G16
Claim: 5166799
Secteur: Amitage

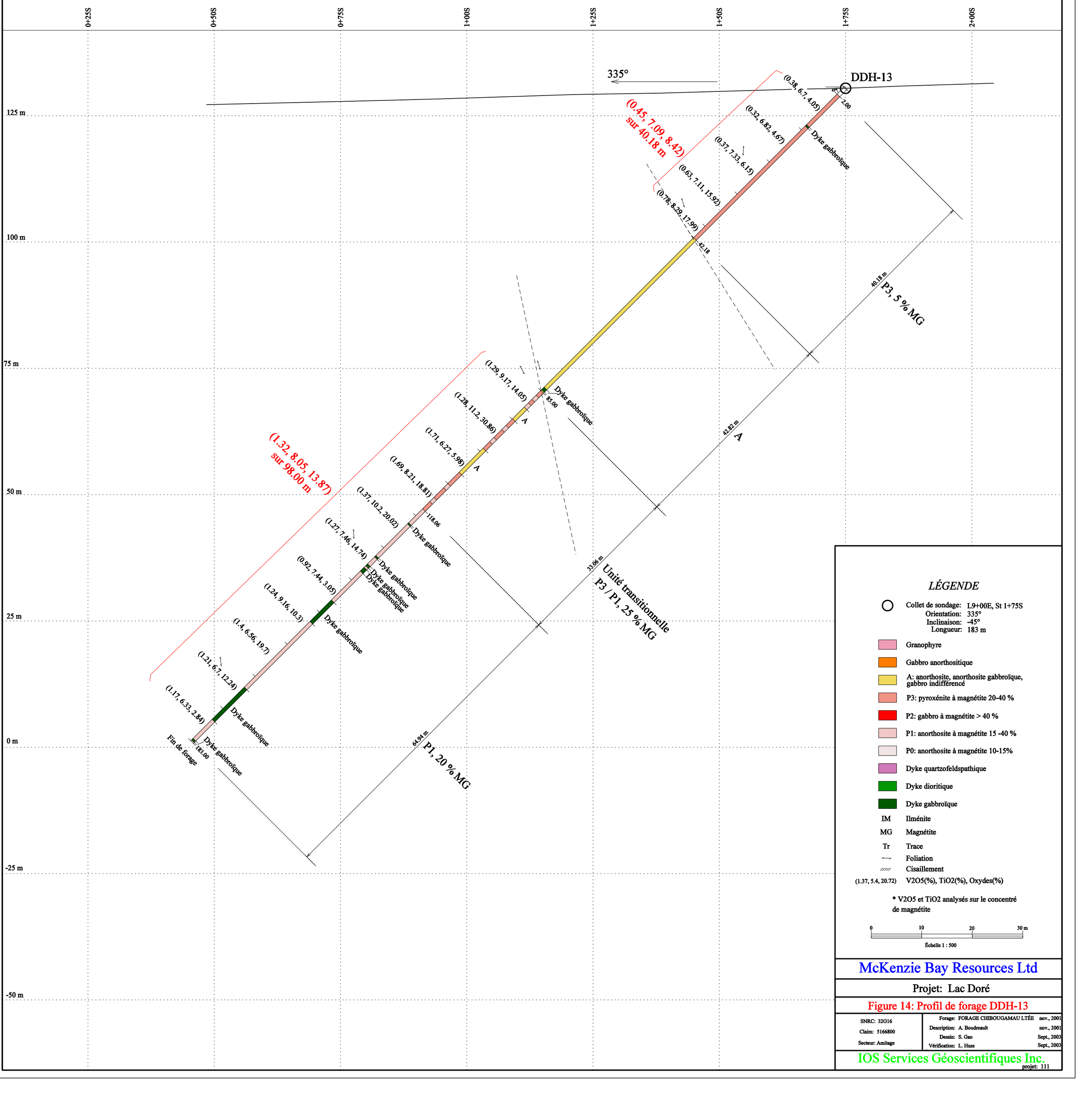
Forage: FORAGE CHIBOUGAMAU LTÉE nov., 2001
Description: L. Huss nov., 2001
Dessin: S. Gao Sept., 2003
Vérification: L. Huss Sept., 2003

IOS Services Géoscientifiques Inc.
projet: 111

Profil de la composante verticale du champ magnétique au sol

L9 + 00E





LÉGENDE

Collet de sondage: L9+00E, St 1+75S
Orientation: 335°
Inclinaison: -45°
Longueur: 183 m

- Granophyre
- Gabbro anorthositique
- A: anorthosite, anorthosite gabbroïque, gabbro indifférencé
- P3: pyroxénite à magnétite 20-40 %
- P2: gabbro à magnétite > 40 %
- P1: anorthosite à magnétite 15 -40 %
- P0: anorthosite à magnétite 10-15%
- Dyke quartzofeldspathique
- Dyke dioritique
- Dyke gabbroïque
- IM Ilménite
- MG Magnétite
- Tr Trace
- Foliation
- Cisaillement
- (1.37, 5.4, 20.72) V2O5(%), TiO2(%), Oxydes(%)

* V2O5 et TiO2 analysés sur le concentré de magnétite

0 10 20 30 m

Échelle 1 : 500

McKenzie Bay Resources Ltd

Projet: Lac Doré

Figure 14: Profil de forage DDH-13

SNRC: 32G16
Claim: 5166800
Secteur: Amitage

Forage: FORAGE CHIBOUGAMAU LTÉE nov., 2001
Description: A. Boudreault nov., 2001
Dessin: S. Gao Sept., 2003
Vérification: L. Huss Sept., 2003

IOS Services Géoscientifiques Inc.

projet: 111

Profil de la composante verticale du champ magnétique au sol

L5 + 00 E

25

0

25

0

0+25N | 0+00 | 0+25S | 0+50S | 0+75S | 1+00S | 1+25S | 1+50S

335°

DDH-14

125 m

100 m

75 m

50 m

25 m

0 m

-25 m

-50 m

-75 m

45°

3.8

11

7.2 m

P3, 1 % MG

(0.26, 4.27, 4.61)
sur 36.00 m

(0.16, 1.82, 2)

21

(0.22, 2.94, 4.01)

10 m

A, Tr MG

(0.34, 4.84, 10.23)

(0.3, 7.46, 2.18)

49.5

28.5 m

P3

(1.25, 6.85, 9.36)
sur 6.00 m

(1.11, 4.34, 2.49)

(1.39, 9.35, 16.23)

71.84

(1.13, 10.38, 22.92)
sur 36.00 m

(1.2, 9.53, 31.68)

75

22.34 m

P3 - P2, cisaillée

(1.16, 9.29, 17.71)

P2, 30 % MG

Dyke gabbroïque

(1.07, 11, 16.78)

P2, 15 % MG

(1.09, 11.7, 25.51)

P2, 25 % MG

(1.12, 9.52, 16.8)
sur 4.20 m

P2, 30 % MG

P2, 40 % MG

Dyke gabbroïque

A, 1-2 % IM

P2, 30 % MG

Dyke gabbroïque

(1.25, 11.28, 28.09)
sur 11.34 m

(1.19, 11.7, 26.36)

P2, 50 % MG

Dyke gabbroïque

(1.3, 10.9, 29.63)

Dyke dioritique

P2, 40 % MG

(1.32, 6.56, 33.11)
sur 12.29 m

(1.29, 9.49, 35.17)

P2, 40 % MG

Dyke gabbroïque

(1.37, 9.67, 30.05)

P2, 55 % MG

172.95

97.95 m

P2 / A

(1.2, 5.15, 11.11)
sur 39.00 m

(1.32, 7.38, 14.75)

P1, 40 % MG

Dyke gabbroïque

(1.3, 6.85, 12.68)

P1, 25 % MG

(1.31, 6.9, 24.98)

P1, 40 % MG

197.80

24.85 m

P1

(0.48, 1.73, 4.74)

(1.18, 2.95, 1.7)

(1.41, 3.66, 8.65)

Dyke gabbroïque

(1.12, 3.44, 3.38)
sur 6.00 m

Dyke gabbroïque

(1.11, 1.94, 4.9)
sur 6.14 m

Dyke gabbroïque

24.85 m

P0, 5 % MG

246.14

Dyke gabbroïque

Fin de forage

267

20.86 m

Dyke gabbroïque

LÉGENDE

Collet de sondage: L5+00E, St 1+50S
Orientation: 335°
Inclinaison: -45°
Longueur: 267 m

- Granophyre
- Gabbro anorthositique
- A: anorthosite, anorthosite gabbroïque, gabbro indifférencé
- P3: pyroxénite à magnétite 20-40 %
- P2: gabbro à magnétite > 40 %
- P1: anorthosite à magnétite 15 -40 %
- P0: anorthosite à magnétite 10-15%
- Dyke quartzofeldspathique
- Dyke dioritique
- Dyke gabbroïque

IM Ilménite
MG Magnétite
Tr Trace
Foliation
Cisaillement
(1.37, 5.4, 20.72) V2O5(%), TiO2(%), Oxydes(%)

* V2O5 et TiO2 analysés sur le concentré de magnétite

0 10 20 30 m

Échelle 1 : 500

McKenzie Bay Resources Ltd

Projet: Lac Doré

Figure 15: Profil de forage DDH-14

SNRC: 32G12
Claim: 5166789
Secteur: Amitage

Forage: FORAGE CHIBOUGAMAU LTÉE nov., 2001
Description: L. Huss nov., 2001
Dessin: S. Gao Sept., 2003
Vérification: L. Huss Sept., 2003

IOS Services Géoscientifiques Inc.
projet: 111

Profil de la composante verticale du champ magnétique au sol

L23+00E

25 / 10 — 25 / 10 (x 1000 gammas)

34 24 28 26 22 28 31 28 9

2+25N 2+00N 1+75N 1+60N 1+50N 1+25N

320°

DDH-40

60°

200 m

2.8

Veine de carbonate

Gabbro anorthositique

Chloritisé avec carbonate

36.62 m

Gabbro, 1 - 5 % IM

	Fe2O3	TiO2	V2O5
57.2	12	0.7	

175 m

Dyke gabbroïque

Zone cisaillée, chloritisée

39.42

Dyke dioritique

	Fe2O3	TiO2	V2O5
	46.8	8.28	0.62
29 m			

60.4	11.6	0.79
58.7	11.2	0.78
43	8.05	0.57
50.2	8.68	0.63
35.7	5.84	0.44
56.9	10.3	0.78
46.1	7.94	0.64
37.7	5.86	0.49
33	5.17	0.44
44.1	7.58	0.64

150 m

46.36 m

P2, 40 % MG

85.78

Dyke gabbroïque

125 m

100.34

14.56 m

Gabbro, 2 % IM

118.2

118.8

100 m

17.86 m

Dyke dioritique

Veine de quartz

25.39 m

Anorthosite gabbroïque

Tr - 5 % MG

Dyke dioritique

144.19

75 m

150

Fin de forage

5.81 m

Dyke dioritique

LÉGENDE

Collet de sondage: L23+00E, 1+60N
Orientation: 320°
Inclinaison: -60°
Longueur: 150 m

- Anorthosite
- Gabbro anorthositique
- Gabbro
- P2: gabbro à magnétite > 40 %
- Dyke quartzofeldspathique
- Dyke dioritique
- Dyke gabbroïque

86201 Numéro d'échantillon — MG Magnétite
IM Ilménite — Tr Trace

Claim: K-155151

0 10 20 30 m

Échelle 1 : 500

SNC-LAVALIN projet: 014528-09101

agent pour

McKenzie Bay Resources Ltd

Projet: Lac Doré

Figure 2: Profil de forage DDH-40

SNRC: 32H13	Forage: FORAGE CHIBOUGAMAU LTÉE	oct., 2001
Canton: Rinfret	Description: A. Boudreault	oct., 2001
Dépôt: Est, Secteur 23+00E	Dessin: S. Gao	oct., 2001
	Vérification: A. Boudreault	oct., 2001

IOS Services Géoscientifiques Inc.

projet: 01-109

Profil de la composante verticale du champ magnétique au sol

L21+00E

50 / -50

59 | 12 | 22 | 14 | 31 | 31 | -23 | 6

(x 1000 gammas)

2+50N | 2+25N | 2+00N | 1+75N

Fe2O3 TiO2 V2O5

DDH-42

320°

200 m

175 m

150 m

125 m

75 m

Fe2O3	TiO2	V2O5
59.11	11.72	0.75

65 m

Fe2O3	TiO2	V2O5
37.46	6.22	0.49

81 m

59 63.6 12.6 0.72 45°
61.3 13.6 0.78
60.1 12.8 0.75
58.1 12.4 0.75
65.3 11.5 0.73
53.6 13.4 0.83
56 10.8 0.68
36.5 11.4 0.72
64 6.67 0.42
62.7 11.90 0.77
61.4 12.6 0.80
63.2 12.1 0.77
67 12.6 0.82
63.3 13.4 0.87
68.1 12.6 0.82
35.4 13.5 0.89
65.4 6.33 0.38
59.3 12.9 0.86
51.1 11.4 0.78
66.4 9.51 0.66
59.6 12.6 0.87
29.6 11.5 0.79
35.2 5.49 0.37
51.5 6.61 0.46
64.5 9.72 0.69
52.1 12.2 0.88
17.4 8.88 0.64
27.4 1.78 0.12
63.5 4.48 0.33
55.1 11.3 0.88
59.9 9.72 0.75
51.3 10.6 0.84
31 9.05 0.71
53.7 5.58 0.42
17 9.54 0.77
23.6 1.89 0.14
21.9 2.18 0.16
50.5 3.46 0.27
37.2 8.54 0.72
44.2 6.16 0.52
44 7.38 0.63
10.2 7.71 0.64
33.2 1.43 0.10
49.2 5.75 0.48
23.4 7.81 0.70
28.2 3.45 0.28
18.1 2.12 0.18
18.6 2.52 0.21
2.71 0.22

3.83

66.51 m

70.34

79.33 m

149.67

150

Anorthosite

Dyke diorítique

Dyke gabbroïque

Dyke gabbroïque

Dyke gabbroïque

Dyke gabbroïque

Dyke gabbroïque

Fin de forage

P2, 65 % MG

P1, 30 % MG

LÉGENDE

Collet de sondage: L21+00E, 1+50N
Orientation: 320°
Inclinaison: -45°
Longueur: 150 m

- Anorthosite
- P2: gabbro à magnétite > 40 %
- P1: anorthositite à magnétite 15 - 40 %
- Dyke dioritique
- Dyke gabbroïque

86213 Numéro d'échantillon

MG Magnétite

Claim: K-155121

0 | 10 | 20 | 30 m

Échelle 1 : 500

SNC-LAVALIN projet: 014528-09101

agent pour

McKenzie Bay Resources Ltd

Projet: Lac Doré

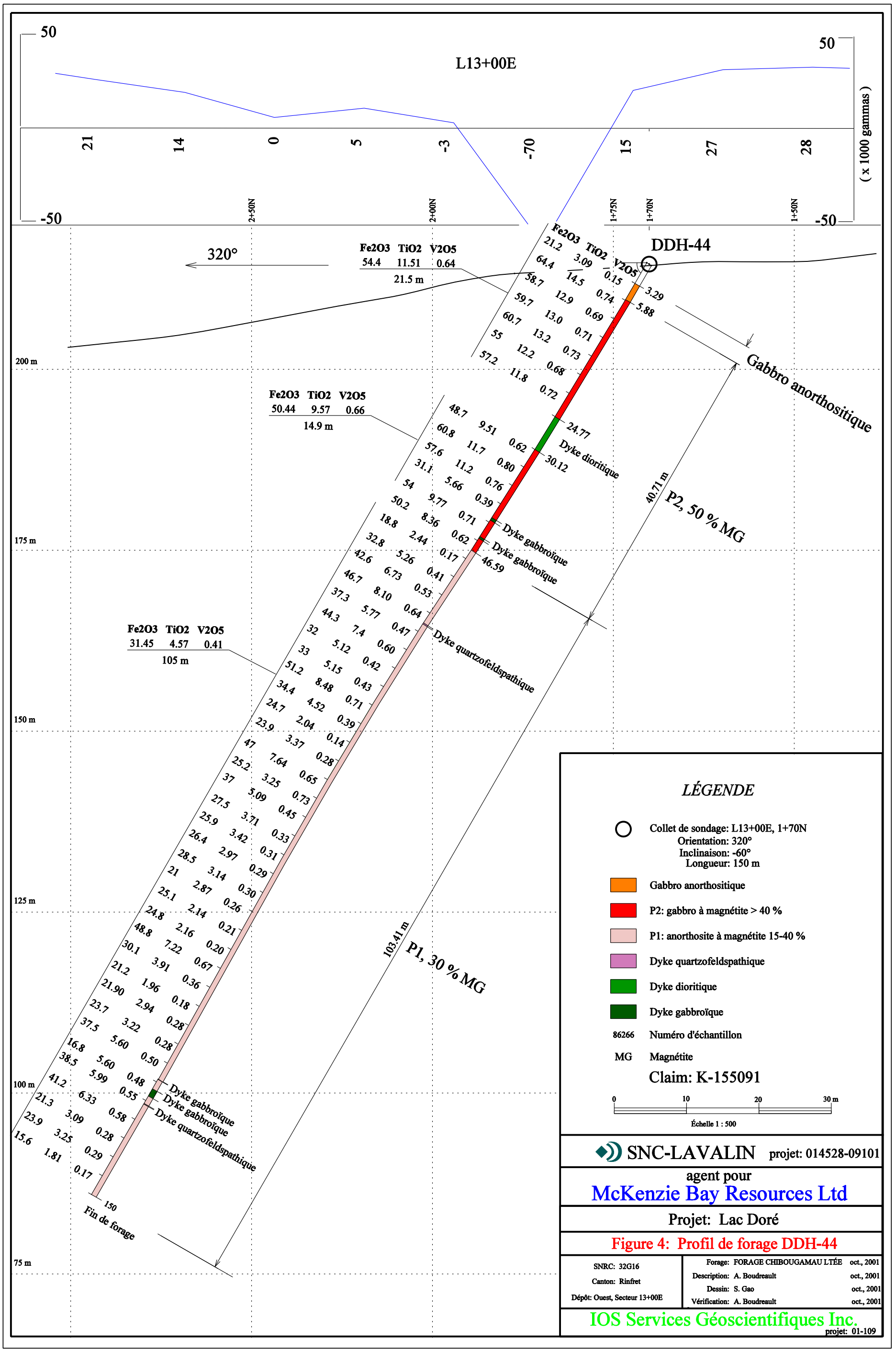
Figure 3: Profil de forage DDH-42

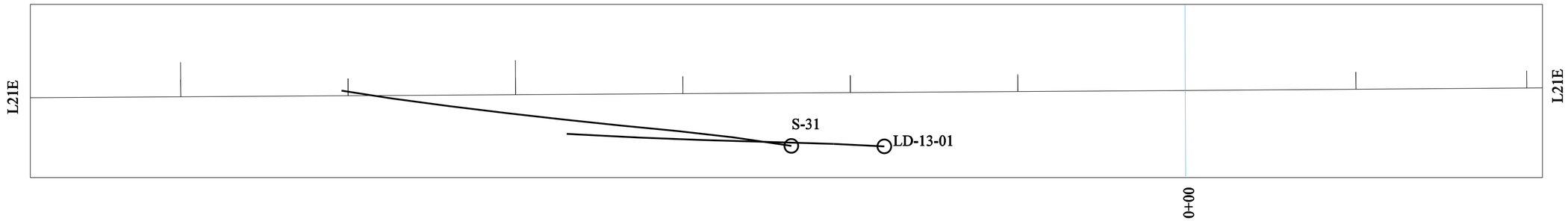
SNRC: 32H13
Canton: Rinfret
Dépôt: Est, Secteur 21+00E

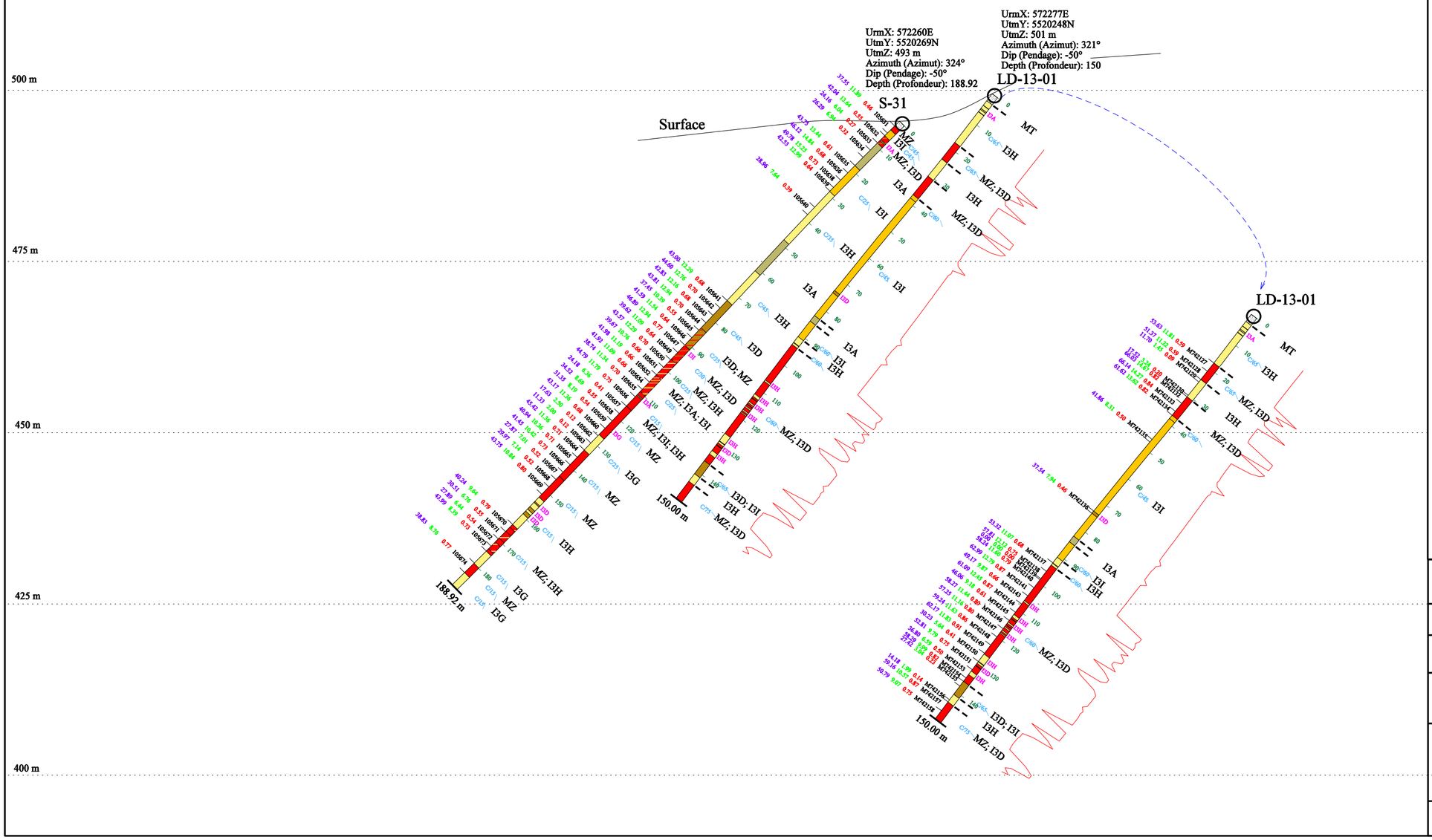
Forage:	FORAGE CHIBOUGAMAU LTÉE	oct., 2001
Description:	A. Boudreault	oct., 2001
Dessin:	S. Gao	oct., 2001
Vérification:	A. Boudreault	oct., 2001

IOS Services Géoscientifiques Inc.

projet: 01-109


50
-50
L13+00E
21
14
0
5
-3
-70
15
27
28
(x 1000 gammas)
2+50N
2+00N
1+75N
1+70N
1+50N
320°
Fe2O3 TiO2 V2O5
54.4 11.51 0.64
21.5 m
DDH-44
200 m
175 m
150 m
125 m
100 m
75 m
Fe2O3 TiO2 V2O5
50.44 9.57 0.66
14.9 m
Fe2O3 TiO2 V2O5
31.45 4.57 0.41
105 m
Gabbro anorthositique
Dyke dioritique
Dyke gabbroïque
Dyke quartzofeldspathique
40.71 m
P2, 50 % MG
103.41 m
P1, 30 % MG
150
Fin de forage
LÉGENDE
Collet de sondage: L13+00E, 1+70N
Orientation: 320°
Inclinaison: -60°
Longueur: 150 m
Gabbro anorthositique
P2: gabbro à magnétite > 40 %
P1: anorthosite à magnétite 15-40 %
Dyke quartzofeldspathique
Dyke dioritique
Dyke gabbroïque
86266 Numéro d'échantillon
MG Magnétite
Claim: K-155091
0 10 20 30 m
Échelle 1 : 500
SNC-LAVALIN projet: 014528-09101
agent pour
McKenzie Bay Resources Ltd
Projet: Lac Doré
Figure 4: Profil de forage DDH-44
SNRC: 32G16
Canton: Rinfret
Dépôt: Ouest, Secteur 13+00E
Forage: FORAGE CHIBOUGAMAU LTÉE oct., 2001
Description: A. Boudreault oct., 2001
Dessin: S. Gao oct., 2001
Vérification: A. Boudreault oct., 2001
IOS Services Géoscientifiques Inc.
projet: 01-109





LEGEND (LÉGENDE)

- MT — Overburden (Mort-terrain)
- I3A — Gabbro
- I3D — Ferrogabbo
- I3G — Anorthosite
- I3H — Gabbroic anorthosite (Anorthosite gabbroïque)
- I3I — Anorthositic gabbro (Gabbro anorthositique)
- MZ — Mineralization zone (Zone de minéralisation)
- I4B — Pyroxenite (Pyroxénite)
- I1H — Granophyre
- VN — Vein (Veine)

- Fault zone (Zone de faille)
- I3A — Secondary lithology (Lithologie secondaire)
- S1/45 — Foliation/Core ange
- C: Contact
- CS: Cisaillement (Shear zone)
- S0: Bedding (Litage)
- J: Fracture
- Y Dyke
- 37.54 7.94 0.46 — Fe2O3(%), TiO2(%), V2O5(%)
- M742139 — Sample number (Numéro d'échantillon)
- 20 — Hole depth (Profondeur)
- Geological contact (Contact géologique)
- Magnetisme

0 20 40 m

VANADIUMCORP RESOURCE INC.

991 | Project (Projet): Vanadium

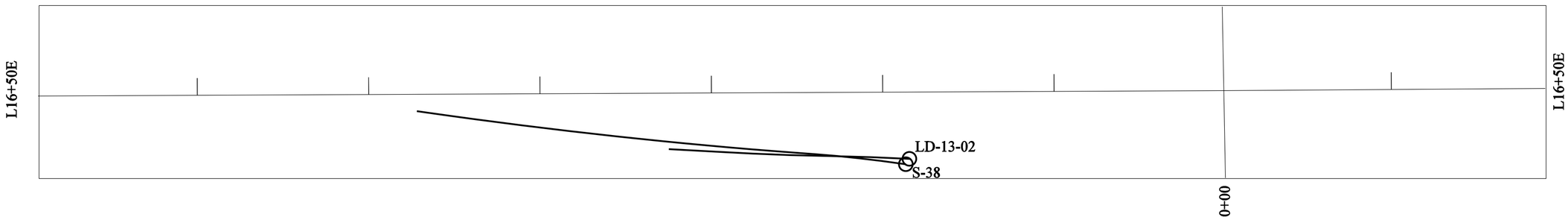
Section LD-13-01

NTS(SNRC: 32G16
UTM, Zone18, Nad83

DDH: Chibougamau
Geologist (Géologue): G. Ivanov
Drawing (Dessin): Sanmei Gao
Date: Jun (Jui)., 2014

ios services GÉOSCIENTIFIQUES

Grennady Ivanov, P. Geo



UrmX: 571925E
UtmY: 5519965N
UtmZ: 496 m
Azimuth (Azimut): 324°
Dip (Pendage): -60°
Depth (Profondeur): 256.1 m

UrmX: 571927E
UtmY: 5519965N
UtmZ: 496 m
Azimuth (Azimut): 321°
Dip (Pendage): -60°
Depth (Profondeur): 150

500 m
475 m
450 m
425 m
400 m
Surface
S-38
LD-13-02
256.1 m
150.00 m
MT
I3A
I3I
I3I; I3H
I3H
I3D; MZ
I3G
MZ
C45\
C40\
C20\
MZ; I3D

LEGEND (LÉGENDE)

- MT — Overburden (Mort-terrain)
- I3A — Gabbro
- I3D — Ferrogabbro
- I3G — Anorthosite
- I3H — Gabbroic anorthosite (Anorthosite gabbroïque)
- I3I — Anorthositic gabbro (Gabbro anorthositique)
- MZ — Mineralization zone (Zone de minéralisation)
- I4B — Pyroxenite (Pyroxénite)
- I1H — Granophyre
- VN — Vein (Veine)

- Fault zone (Zone de faille)
- I3A — Secondary lithology (Lithologie secondaire)
- S1/45 — Foliation/Core ange
- C: — Contact
- CS: — Cisaillement (Shear zone)
- S0: — Bedding (Litage)
- J: — Fracture
- Y — Dyke
- 37.54 7.94 0.46 — Fe2O3(%), TiO2(%), V2O5(%)
- M742139 — Sample number (Numéro d'échantillon)
- 20 — Hole depth (Profondeur)
- Geological contact (Contact géologique)
- Magnetisme

0 20 40 m

VANADIUMCORP RESOURCE INC.

991 Project (Projet): Vanadium

Section LD-13-02

NTS(SNRC: 32G16
UTM, Zone18, Nad83

DDH: Chibougamau
Geologist (Géologue): G. Ivanov
Drawing (Dessin): Sanmei Gao
Date: Jun (Jui)., 2014

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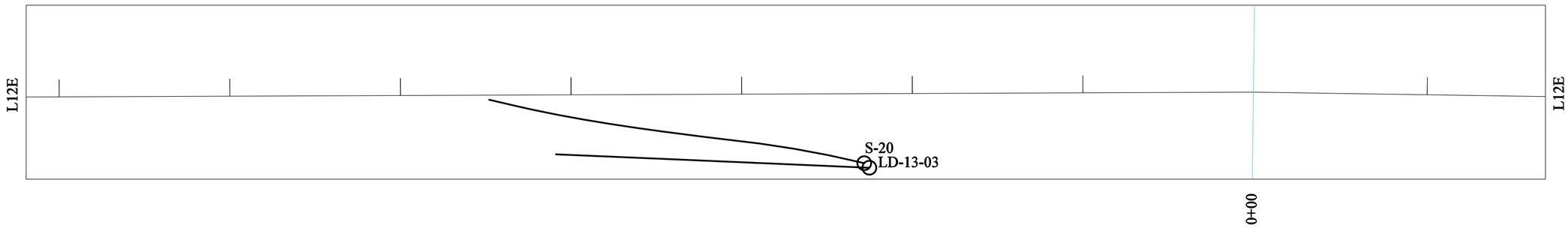
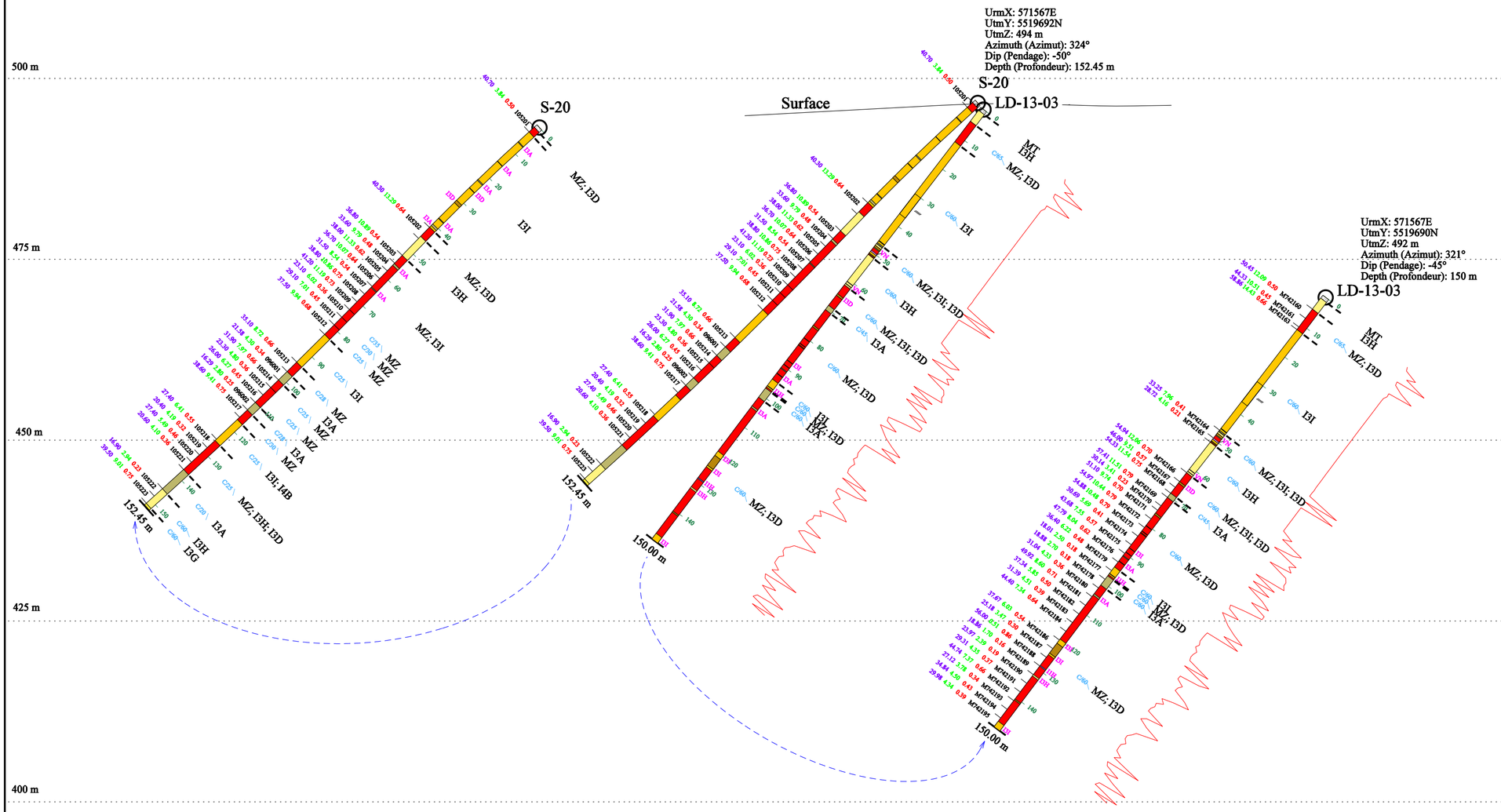
Grennady Ivanov, P. Geo





LEGEND (LÉGENDE)

MT	Overburden (Mort-terrain)
I3A	Gabbro
I3D	Ferrogabbo
I3G	Anorthosite
I3H	Gabbroic anorthosite (Anorthosite gabbroïque)
I3I	Anorthositic gabbro (Gabbro anorthositique)
MZ	Mineralization zone (Zone de minéralisation)
I4B	Pyroxenite (Pyroxénite)
I1H	Granophyre
VN	Vein (Veine)

- Fault zone (Zone de faille)
- I3A — Secondary lithology (Lithologie secondaire)
- S1/45 — Foliation/Core ange
- C: — Contact
- CS: — Cisaillement (Shear zone)
- S0: — Bedding (Litage)
- J: — Fracture
- Y — Dyke

37.54 7.94 0.46 — Fe2O3(%), TiO2(%), V2O5(%)

M742139 — Sample number (Numéro d'échantillon)

20 — Hole depth (Profondeur)

- Geological contact (Contact géologique)
- Magnetisme

0 20 40 m

VANADIUMCORP RESOURCE INC.

VANADIUMCORP

991 | Project (Projet): Vanadium

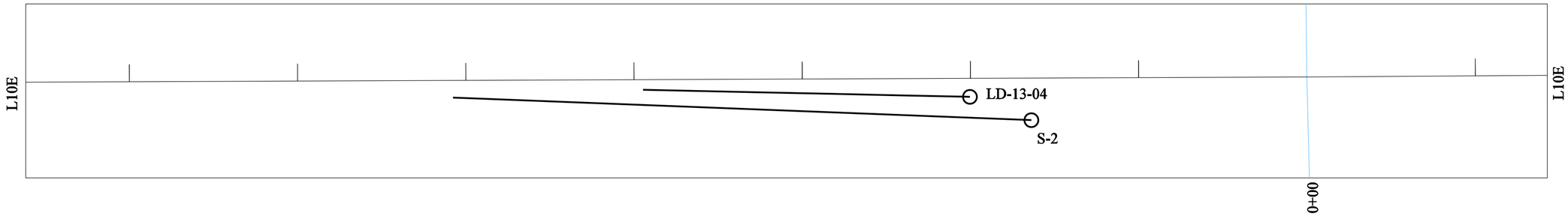
Section LD-13-03

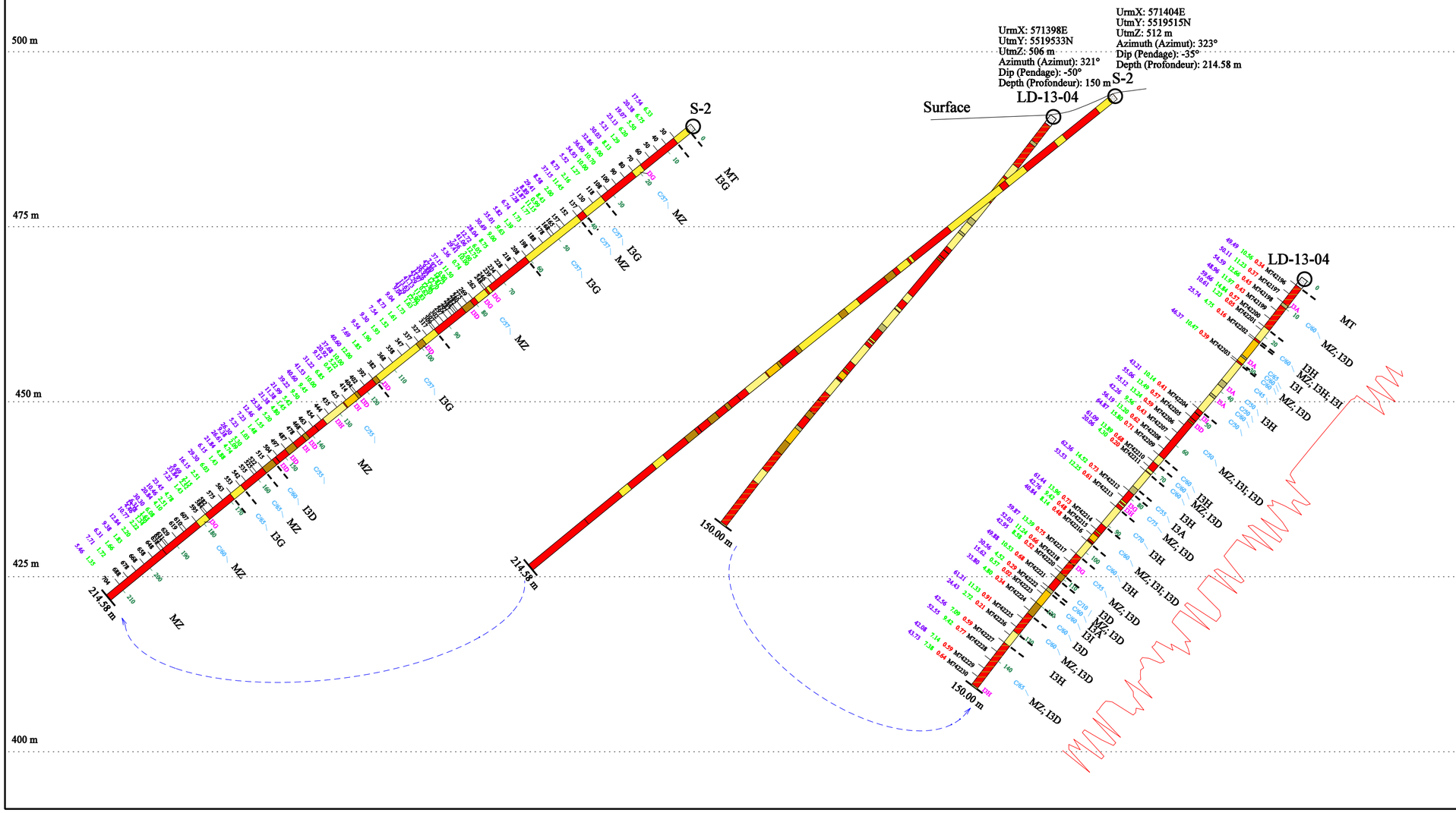
NTS(SNRC: 32G16
UTM, Zone18, Nad83

DDH: Chibougamau
Geologist (Géologue): G. Ivanov
Drawing (Dessin): Sanmei Gao
Date: Jun (Jui)., 2014

ios services GÉOSCIENTIFIQUES

Grennady Ivanov, P. Geo





LEGEND (LÉGENDE)

MT	Overburden (Mort-terrain)
I3A	Gabbro
I3D	Ferrogabbo
I3G	Anorthosite
I3H	Gabbroic anorthosite (Anorthosite gabbroïque)
I3I	Anorthositic gabbro (Gabbro anorthositique)
MZ	Mineralization zone (Zone de minéralisation)
I4B	Pyroxenite (Pyroxénite)
I1H	Granophyre
VN	Vein (Veine)

- Fault zone (Zone de faille)
- I3A — Secondary lithology (Lithologie secondaire)
- S1/45 — Foliation/Core ange
- C: Contact
- CS: Cisaillement (Shear zone)
- S0: Bedding (Litage)
- J: Fracture
- Y Dyke
- 37.54 7.94 0.46 — Fe2O3(%), TiO2(%), V2O5(%)
- M742139 — Sample number (Numéro d'échantillon)
- 20 — Hole depth (Profondeur)
- Geological contact (Contact géologique)
- Magnetisme

0 20 40 m

VANADIUMCORP RESOURCE INC.

991 | Project (Projet): Vanadium

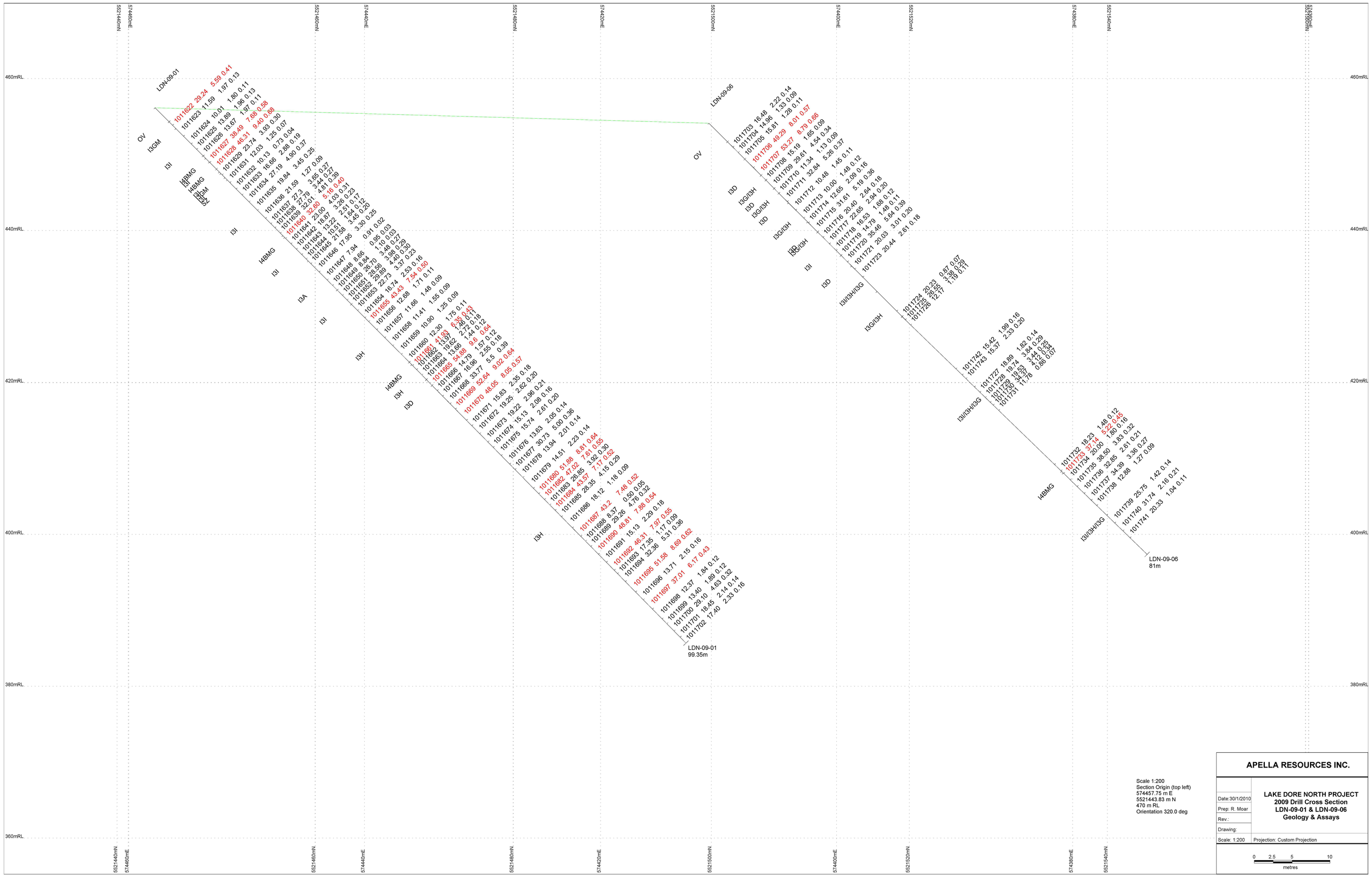
Section LD-13-04

NTS(SNRC: 32G16
UTM, Zone18, Nad83

DDH: Chibougamau
Geologist (Géologue): G. Ivanov
Drawing (Dessin): Sanmei Gao
Date: Jun (Jui)., 2014

ios services GEOSCIENTIFIQUES

Grennady Ivanov, P. Geo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574480mE
5521460mN
574440mE
5521480mN
574420mE
5521500mN
574400mE
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574380mE
5521540mN
574360mE
5521560mN
460mRL
440mRL
420mRL
400mRL
380mRL
360mRL
LDN-09-01
OV
I3GM
I3I
I4BMG
I4BMG
I3H
I3M
I3Z
I3I
I4BMG
I3I
I3A
I3I
I3H
I4BMG
I3H
I3D
1011622 29.24 5.59 0.41
1011623 11.59 1.97 0.13
1011624 10.01 1.80 0.11
1011625 13.89 1.96 0.13
1011626 13.67 1.97 0.11
1011627 38.49 7.68 0.58
1011628 46.31 9.40 0.68
1011629 23.74 3.93 0.30
1011631 12.03 1.25 0.07
1011632 10.13 0.73 0.04
1011633 16.66 2.86 0.19
1011634 27.19 4.90 0.37
1011635 19.84 3.45 0.25
1011636 21.59 1.27 0.09
1011637 27.3 3.65 0.27
1011638 27.73 3.44 0.27
1011639 32.01 4.81 0.39
1011640 32.60 5.16 0.40
1011641 23.00 4.03 0.31
1011642 18.87 3.26 0.23
1011643 13.22 2.51 0.17
1011644 10.51 1.64 0.12
1011645 21.58 3.45 0.25
1011646 17.95 3.30 0.25
1011647 7.94 0.91 0.02
1011648 8.66 0.95 0.03
1011649 8.84 1.10 0.03
1011650 36.70 5.48 0.27
1011651 28.56 4.40 0.29
1011652 29.89 3.98 0.27
1011653 22.73 4.40 0.30
1011654 16.74 3.37 0.23
1011655 43.43 2.53 0.16
1011656 12.68 7.64 0.50
1011657 11.66 1.71 0.11
1011658 11.41 1.48 0.09
1011659 10.90 1.55 0.09
1011660 12.30 1.75 0.11
1011661 41.83 6.35 0.43
1011662 13.97 1.46 0.11
1011663 19.62 2.72 0.18
1011664 13.66 2.44 0.16
1011665 54.88 9.6 0.64
1011666 14.79 2.72 0.18
1011667 16.96 2.55 0.12
1011668 33.77 5.5 0.39
1011669 52.64 9.02 0.64
1011670 48.05 8.05 0.57
1011671 15.83 2.35 0.18
1011672 19.25 2.62 0.20
1011673 19.22 2.96 0.21
1011674 15.13 2.08 0.16
1011675 15.74 2.61 0.20
1011676 13.63 2.05 0.14
1011677 30.73 5.00 0.36
1011678 13.94 2.01 0.14
1011679 14.51 2.23 0.14
1011680 51.88 8.81 0.64
1011682 47.02 7.61 0.55
1011683 26.85 3.92 0.30
1011684 43.57 7.17 0.52
1011685 28.35 4.15 0.29
1011686 18.12 1.18 0.09
1011687 43.2 7.48 0.52
1011688 8.37 0.50 0.05
1011689 29.26 4.76 0.32
1011690 48.81 7.88 0.54
1011691 15.13 2.29 0.18
1011692 46.31 7.97 0.55
1011693 17.35 1.17 0.09
1011694 32.36 5.31 0.36
1011695 51.58 8.69 0.62
1011696 13.71 2.15 0.16
1011697 37.01 6.17 0.43
1011698 12.37 1.84 0.12
1011699 13.40 1.89 0.12
1011700 29.10 4.63 0.32
1011701 18.45 2.14 0.14
1011702 17.40 2.33 0.16
LDN-09-01
99.35m
LDN-09-06
OV
I3D
I3G/I3H
I3D
I3G/I3H
I3D
I3G/I3H
I3G/I3H
I3I
I3D
I3I/I3H/I3G
I3G/I3H
1011703 16.48 2.22 0.14
1011704 14.96 1.33 0.09
1011705 15.81 1.28 0.11
1011706 49.29 8.01 0.57
1011707 53.27 8.79 0.66
1011708 15.19 1.65 0.09
1011709 29.61 4.54 0.34
1011710 11.34 1.13 0.09
1011711 32.84 5.26 0.37
1011712 10.48 1.45 0.11
1011713 10.00 1.48 0.12
1011714 12.65 2.09 0.16
1011715 31.61 5.19 0.36
1011716 20.40 2.64 0.18
1011717 22.65 2.94 0.20
1011718 16.53 1.68 0.12
1011719 14.79 1.48 0.11
1011720 35.46 5.84 0.39
1011721 20.03 3.01 0.20
1011723 20.44 2.61 0.18
1011724 20.23 0.87 0.07
1011725 26.55 3.98 0.29
1011726 12.11 1.19 0.11
1011727 15.42 1.99 0.16
1011728 19.74 2.33 0.20
1011729 19.59 1.52 0.14
1011730 34.57 3.84 0.29
1011731 11.78 3.44 0.35
4.12 0.34
0.86 0.07
1011732 18.23 1.48 0.12
1011733 37.14 5.22 0.45
1011734 20.00 1.80 0.16
1011735 38.50 3.83 0.32
1011736 32.85 2.61 0.21
1011737 34.39 3.36 0.27
1011738 12.88 1.27 0.09
1011739 25.75 1.42 0.14
1011740 31.74 2.16 0.21
1011741 20.33 1.04 0.11
I3I/I3H/I3G
I4BMG
I3I/I3H/I3G
LDN-09-06
81m
Scale 1:200
Section Origin (top left)
574457.75 m E
5521443.83 m N
470 m RL
Orientation 320.0 deg
APELLA RESOURCES INC.
LAKE DORE NORTH PROJECT
2009 Drill Cross Section
LDN-09-01 & LDN-09-06
Geology & Assays
Date:30/1/2010
Prep: R. Moar
Rev.:
Drawing:
Scale: 1:200
Projection: Custom Projection
0 2.5 5 10
metres

574440mE
5521320mN
574420mE
5521340mN
574400mE
5521360mN
5521380mN
574380mE
5521400mN
5521420mN

460mRL
440mRL
420mRL
400mRL
380mRL
360mRL

LDN-09-02

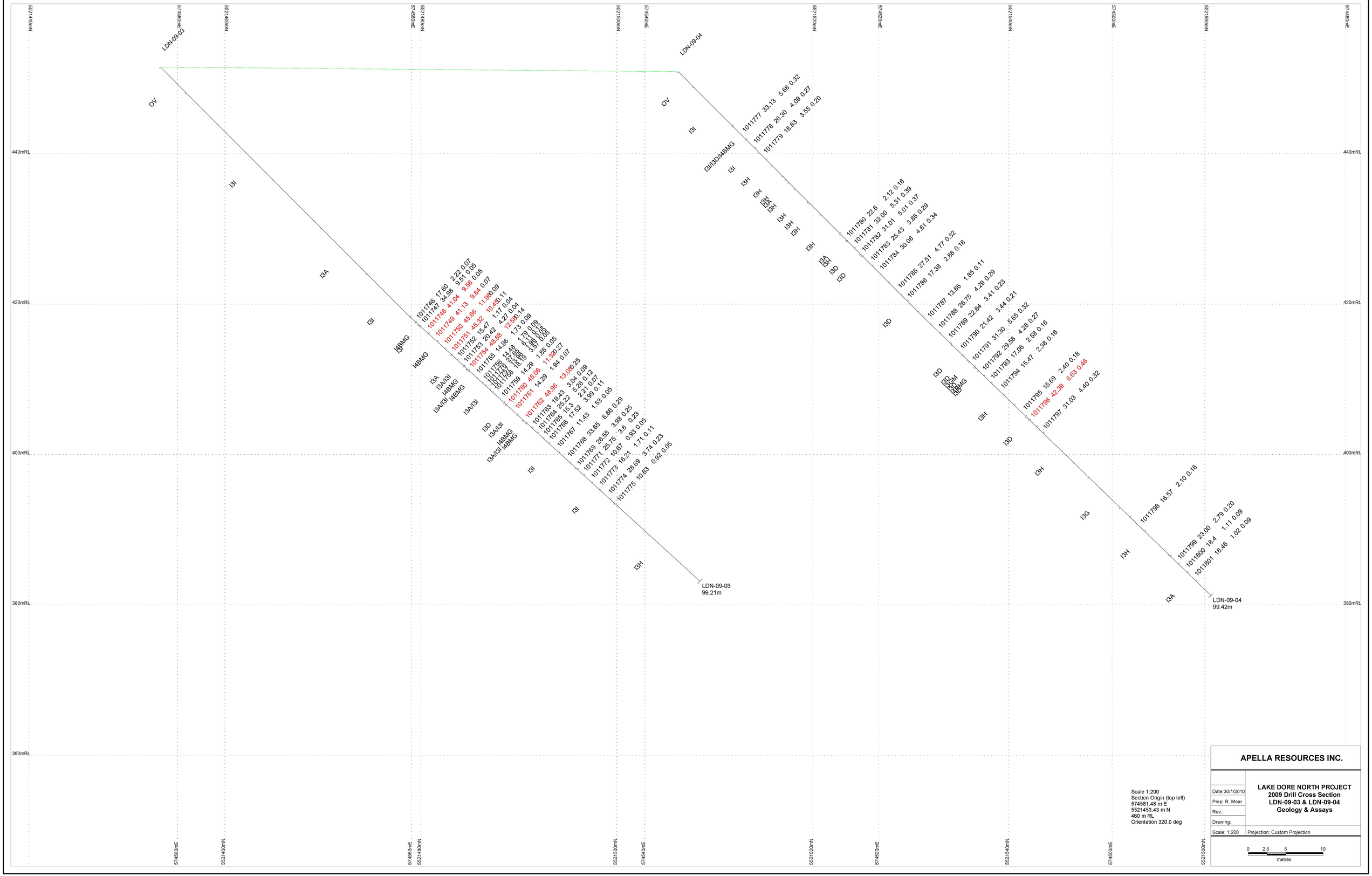
OV
I4BMG
I3A
I3I
I3A
I3I
1011601 18.84 3.61 0.05
1011602 32.52 9.00 0.09
1011603 35.82 9.56 0.13
1011604 20.39 4.80 0.08
1011605 22.19 5.04 0.08
1011606 25.57 6.11 0.11
I4BMG
I3I
I3A
I3I
I3A
I3I
I3G
I3I
I4BMG
I3I
I3A
I3I
I3A
I3I
I4BMG
I3I
I4BMG
I3I
1011607 12.34 1.97 0.06
1011608 18.77 4.45 0.10
1011609 29.59 8.37 0.22
1011610 13.31 2.62 0.06
1011611 13.48 2.23 0.06
1011612 26.02 7.26 0.21
1011613 14.99 2.54 0.12
1011617 13.76 1.79 0.09
1011614 10.51 1.32 0.05
1011615 52.00 14.770.50
1011616 11.69 1.64 0.06
1011618 48.94 14.770.50
1011619 11.02 0.96 0.04
I3I
I4BMG
I3I
1011620 26.72 6.53 0.35
1011621 24.58 4.08 0.24
SZ
I3I
SZ
I4BMG
LDN-09-02
99.35m

Scale 1:200
Section Origin (top left)
574428.82 m E
5521326.14 m N
465 m RL
Orientation 320.0 deg

APELLA RESOURCES INC.

Date:30/1/2010	**LAKE DORE NORTH PROJECT** **2009 Drill Cross Section** **LDN-09-02** **Geology & Assays**
Prep: R. Moar	
Rev.:	
Drawing:	
Scale: 1:200	Projection: Custom Projection

0 2.5 5 10
metres


5521440mN
5521460mN
5521480mN
5521500mN
5521520mN
5521540mN
5521560mN
574580mE
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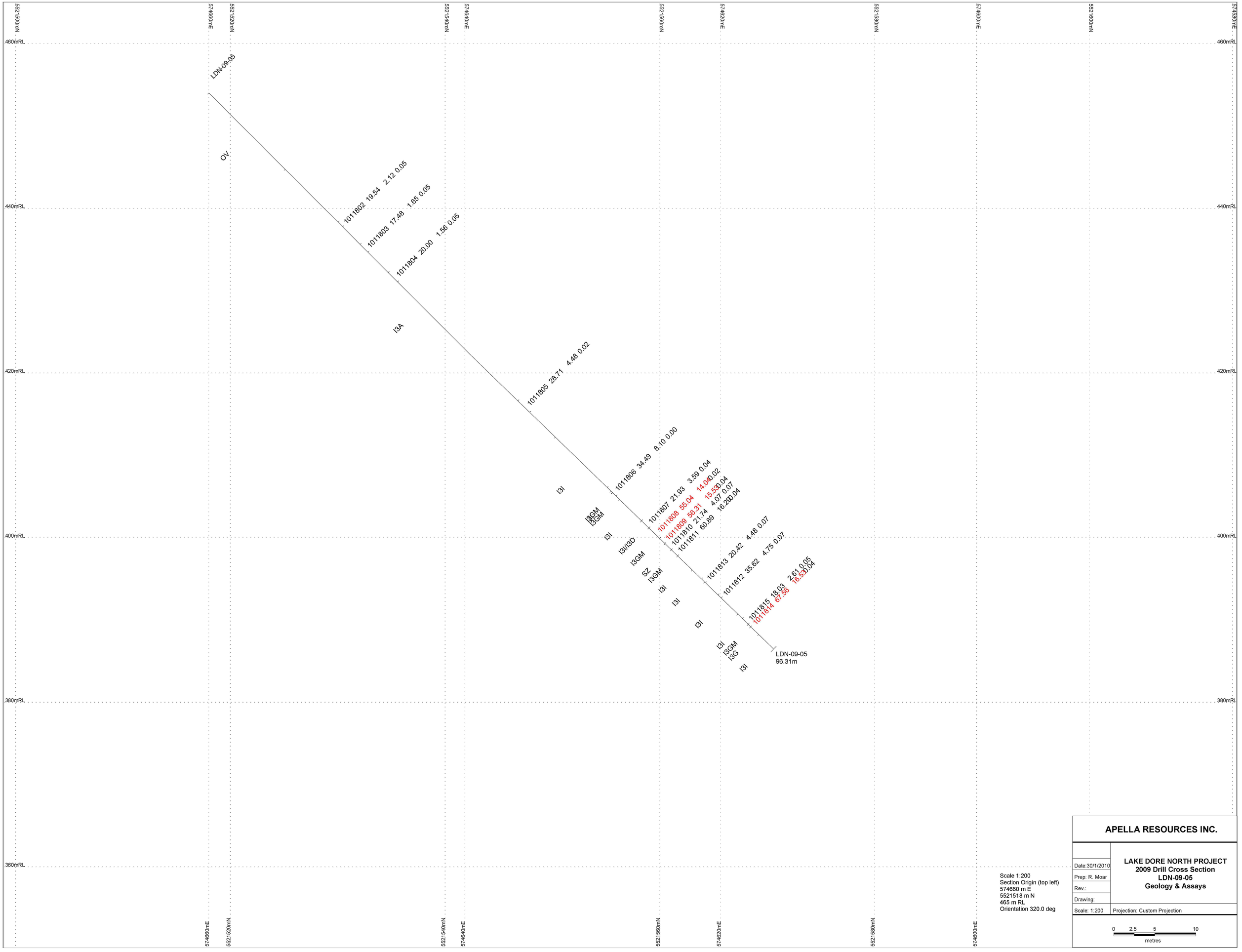
574540mE
574520mE
574500mE
574480mE
440mRL
420mRL
400mRL
380mRL
360mRL
LDN-09-03
LDN-09-04
OV
I3I
I3A
I3H
I3D
I3G
I4BMG
I3A/I3I
I3A/I3I I4BMG
I3I/I3D/I4BMG
1011746 17.60 2.22 0.07
1011747 34.98 9.51 0.05
1011748 41.04 9.55 0.05
1011749 41.13 9.84 0.07
1011750 45.66 11.94 0.09
1011751 45.32 10.45 0.11
1011752 15.47 20.42 1.17 0.04
1011753 48.88 4.27 0.04
1011754 12.58 0.14
1011755 14.96 1.73 0.09
1011756 14.48 1.79 0.09
1011757 14.98 6.11 0.05
1011758 18.19 3.57 0.05
1011759 14.29 1.85 0.05
1011760 45.06 11.20 0.27
1011761 14.29 1.94 0.07
1011762 48.96 13.09 0.25
1011763 19.43 3.04 0.09
1011764 25.22 5.26 0.12
1011765 15.3 2.21 0.07
1011766 17.52 3.99 0.11
1011767 11.43 1.53 0.05
1011768 33.65 6.66 0.29
1011769 26.65 3.98 0.25
1011771 25.75 3.8 0.23
1011772 10.67 0.93 0.05
1011773 16.21 1.71 0.11
1011774 28.69 3.74 0.23
1011775 10.63 0.92 0.05
1011777 33.13 5.68 0.32
1011778 26.30 4.09 0.27
1011779 18.83 3.55 0.20
1011780 22.6 2.12 0.16
1011781 32.00 5.31 0.39
1011782 31.01 5.01 0.37
1011783 25.43 3.85 0.29
1011784 30.06 4.61 0.34
1011785 27.51 4.77 0.32
1011786 17.38 2.88 0.18
1011787 13.66 1.85 0.11
1011788 26.75 4.29 0.29
1011789 22.64 3.41 0.23
1011790 21.42 3.44 0.21
1011791 31.30 5.65 0.32
1011792 29.58 4.28 0.27
1011793 17.06 2.58 0.16
1011794 15.47 2.38 0.16
1011795 15.69 2.40 0.18
1011796 42.39 6.63 0.46
1011797 31.03 4.40 0.32
1011798 16.57 2.10 0.16
1011799 23.00 2.79 0.20
1011800 18.4 1.11 0.09
1011801 18.46 1.02 0.09
LDN-09-03
99.21m
LDN-09-04
99.42m
Scale 1:200
Section Origin (top left)
574581.48 m E
5521453.43 m N
460 m RL
Orientation 320.0 deg
APELLA RESOURCES INC.
LAKE DORE NORTH PROJECT
2009 Drill Cross Section
LDN-09-03 & LDN-09-04
Geology & Assays
Date:30/1/2010
Prep: R. Moar
Rev.:
Drawing:
Scale: 1:200
Projection: Custom Projection
0 2.5 5 10
metres

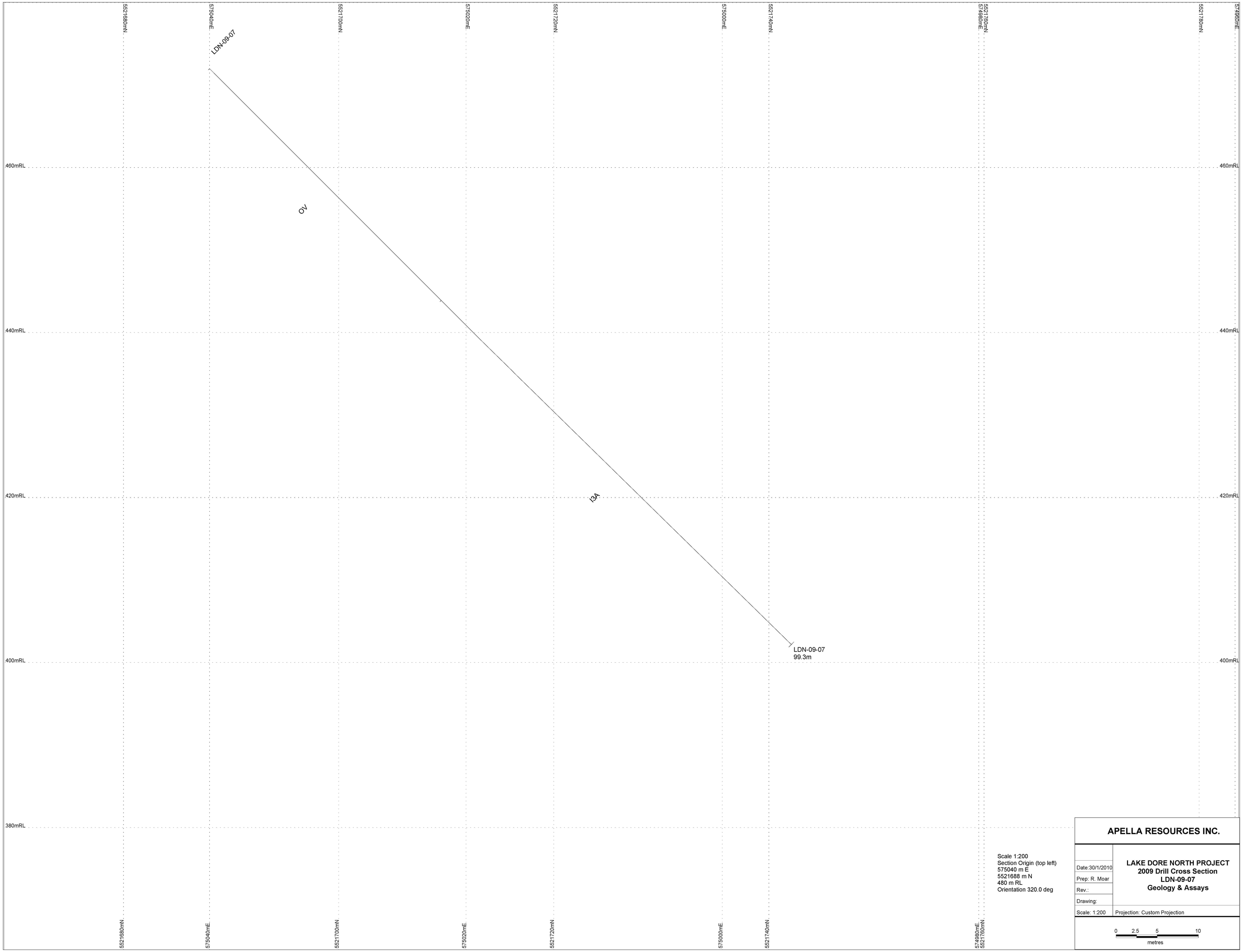


Scale 1:200
Section Origin (top left)
574660 m E
5521518 m N
465 m RL
Orientation 320.0 deg

APELLA RESOURCES INC.

Date:30/1/2010	**LAKE DORE NORTH PROJECT** **2009 Drill Cross Section** **LDN-09-05** **Geology & Assays**
Prep: R. Moar	
Rev.:	
Drawing:	
Scale: 1:200	Projection: Custom Projection

0 2.5 5 10
metres

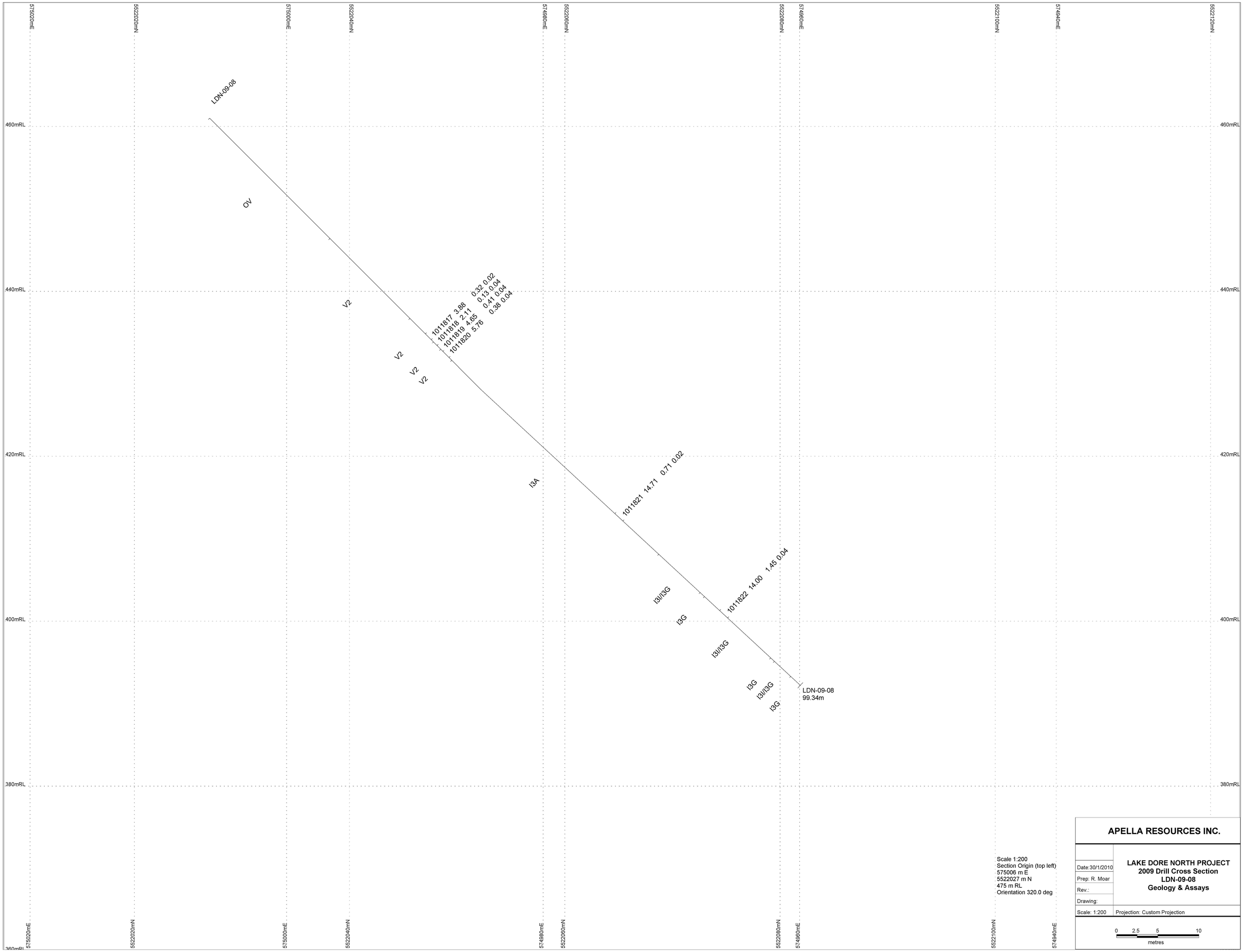


Scale 1:200
Section Origin (top left)
575040 m E
5521688 m N
480 m RL
Orientation 320.0 deg

APELLA RESOURCES INC.

Date:30/1/2010	**LAKE DORE NORTH PROJECT** **2009 Drill Cross Section** **LDN-09-07** **Geology & Assays**
Prep: R. Moar	
Rev.:	
Drawing:	
Scale: 1:200	Projection: Custom Projection

0 2.5 5 10
metres



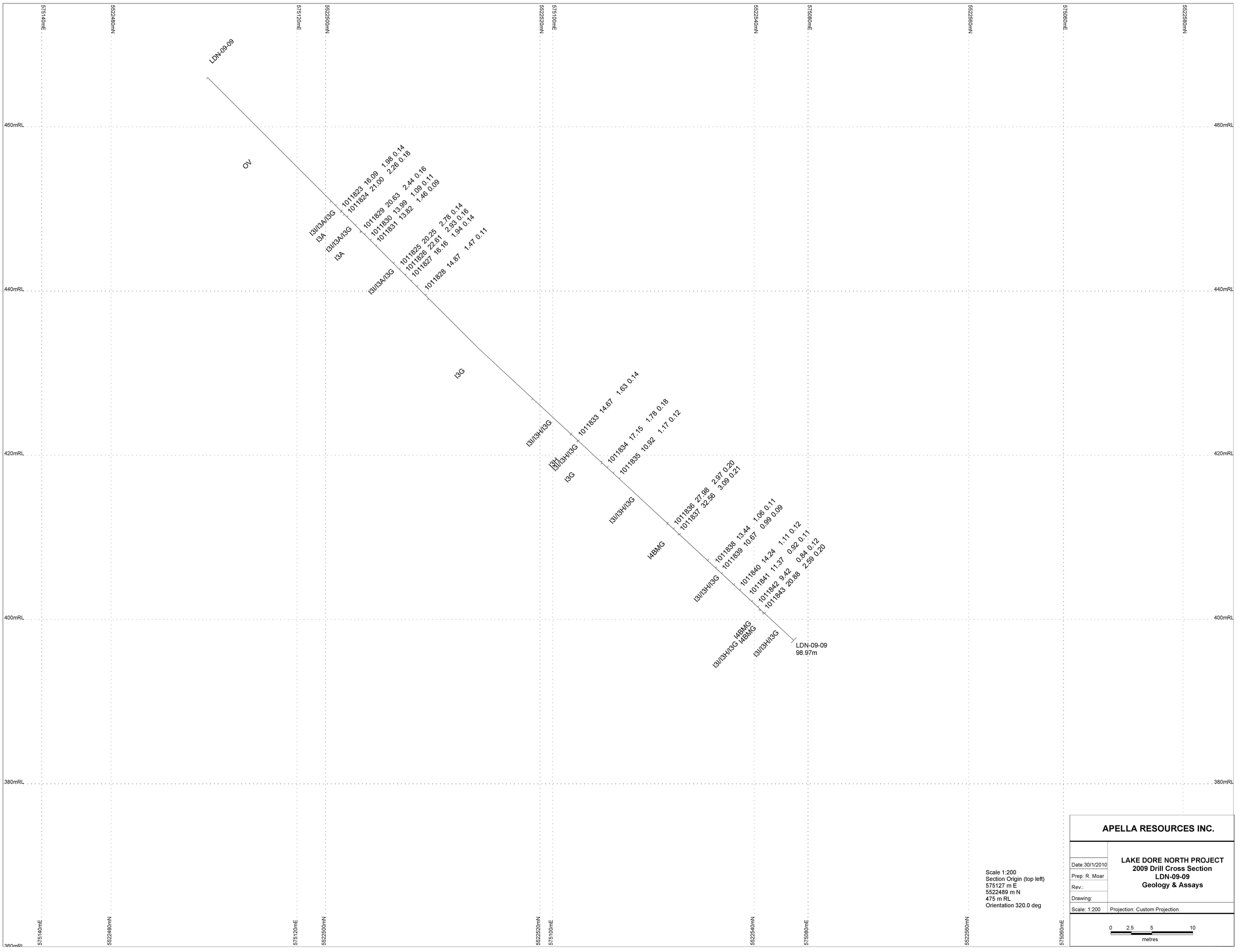
Scale 1:200
Section Origin (top left)
575006 m E
5522027 m N
475 m RL
Orientation 320.0 deg

APELLA RESOURCES INC.

LAKE DORE NORTH PROJECT
2009 Drill Cross Section
LDN-09-08
Geology & Assays

Date:30/1/2010	
Prep: R. Moar	
Rev.:	
Drawing:	
Scale: 1:200	Projection: Custom Projection

0 2.5 5 10
metres


575140mE
5522480mN
575120mE
5522500mN
5522520mN
575100mE
5522540mN
575080mE
5522560mN
575060mE
5522580mN
460mRL
440mRL
420mRL
400mRL
380mRL
360mRL
LDN-09-09
OV
I3I/I3A/I3G
I3A
1011823 16.09 1.98 0.14
1011824 21.00 2.26 0.18
I3I/I3A/I3G
I3A
1011829 20.63 2.44 0.16
1011830 13.99 1.09 0.11
1011831 13.82 1.46 0.09
I3I/I3A/I3G
1011825 20.25 2.78 0.14
1011826 22.61 2.83 0.16
1011827 16.16 1.94 0.14
1011828 14.67 1.47 0.11
I3G
I3I/I3H/I3G
1011833 14.67 1.63 0.14
I3H
I3I/I3H/I3G
I3G
1011834 17.15 1.78 0.18
1011835 10.92 1.17 0.12
I3I/I3H/I3G
1011836 27.98 2.97 0.20
1011837 32.56 3.09 0.21
I4BMG
1011838 13.44 1.06 0.11
1011839 10.67 0.99 0.09
I3I/I3H/I3G
1011840 14.24 1.11 0.12
1011841 11.37 0.92 0.11
1011842 9.42 0.84 0.12
1011843 20.88 2.59 0.20
I4BMG
I3I/I3H/I3G I4BMG
I3I/I3H/I3G
LDN-09-09
98.97m
Scale 1:200
Section Origin (top left)
575127 m E
5522489 m N
475 m RL
Orientation 320.0 deg
APELLA RESOURCES INC.
Date:30/1/2010
Prep: R. Moar
Rev.:
Drawing:
LAKE DORE NORTH PROJECT
2009 Drill Cross Section
LDN-09-09
Geology & Assays
Scale: 1:200
Projection: Custom Projection
0 2.5 5 10
metres

5523120mN 575560mE 5523140mN 575540mE 5523160mN 5523180mN 575520mE 5523200mN 575500mE 5523220mN 575480mE

460mRL
440mRL
420mRL
400mRL
380mRL
360mRL

LDN-09-10

OV

I3A

GY

1011844	15.41	1.84	0.02		
1011845	14.38	1.33	0.02		
1011846	10.15	0.62	0.02		
1011847	10.23	0.79	0.02		
1011848	9.21	0.43	0.02		
1011849	16.62	1.88	0.00		
1011850	16.82	1.95	0.00		
1011851	11.24	0.84	0.02		
1011852	12.21	0.56	0.02		
1011853	20.98	2.41	0.02		

I3A

I3A

I3A

I3I/I3H

I3A

LDN-09-10
123.4m

Scale 1:200
Section Origin (top left)
575557 m E
5523138 m N
465 m RL
Orientation 320.0 deg

APELLA RESOURCES INC.

LAKE DORE NORTH PROJECT
2009 Drill Cross Section
LDN-09-10
Geology & Assays

Date:30/1/2010	
Prep: R. Moar	
Rev.:	
Drawing:	
Scale: 1:200	Projection: Custom Projection

0 2.5 5 10
metres

TRENCH MAP LEGEND

LITHOFACIES COLOR CODES

- PYROXENITE
- MAGNETITE BEARING PYROXENITE AND GABBRO (P2)
- GABBRO
- ILMENITE GABBRO
- ANORTHOSITIC GABBRO
- GABBROIC ANORTHOSITE
- ANORTHOSITE
- GRANOPHYRE
- APLITE
- PEGMATITE
- DIORITIC DYKE
- COARSE GABBROIC DYKE

LITHOFACIES

I4B	PYROXENITE	I2J	DIORITE	I1F	APLITE
I3A	GABBRO	I1D	TONALITE	T1C	FAULT GOUGE
I3I	ANORTHOSITIC GABBRO	I3B	DIABASE	T2	MYLONITE
I3G	ANORTHOSITE	I1G	PEGMATITE		
I3H	GABBROIC ANORTHOSITE	I1H	GRANOPHYRE		

MINERALS

CL	CHLORITE
EP	EPIDOTE
FP	FELDSPAR
IM	ILMENITE
MG	MAGNETITE
PG	PLAGIOCLASE
PX	PYROXÈNE

STRUCTURES, TEXTURES AND OTHERS

AL	IRREGULATED CLUSTERS	[GG]	COARSE GRAINS
AP	APHANITIC	[HK]	HETEROGENEOUS
BR	BRECCIATED	[HJ]	HOMOGENEOUS
CU	CUMULATE	SA	LAYERED
DI	DISSEMINATED	[MA]	MASSIVE
EN	ENCLAVE	[MX]	MÉLANOCRATIC
FA	FRACTURED	NO	NODULAR
GW	DENSIMETRIC GRADATION	OI	OÏKOCRYSTIC
[GF]	FINE GRAINS	PI	PHENOCRYSTIC
[GM]	MEDIUM GRAINS	SO	SUBOPHITIC
		VQ	QUARTZ VEIN

SYMBOLS

- MAGMATIC BRECCIA
- SHEARED
- ENCLAVE
- FOLIATED
- FINE GRAINS
- MEDIUM GRAINS
- COARSE GRAINS
- GRANULAR
- HETEROGENEOUS
- HOMOGENEOUS
- LENS
- THIN LAYER (1-10cm)
- MEDIUM LAYER (10-25cm)
- LARGE LAYER (>25cm)
- MASSIVE
- OPHITIC
- PEGMATITIC
- PORPHYRY
- PORPHYRITIC
- SCHISTOSE
- FAULT STRIATION
- VEIN
- BLASTED AREA
- UNMAPPED AREA WATER AND/OR MUD
- CHANNEL TRACE
- SURVEYED GRAVEL ROAD

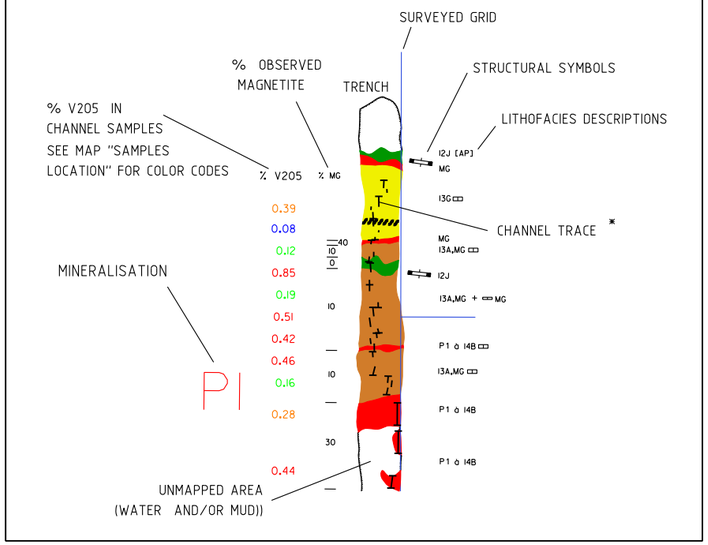
STRUCTURAL SYMBOLS

- BEDDING; VERTICAL, INCLINED, UNDETERMINATED
- SCHISTOSITY; VERTICAL, INCLINED, UNDETERMINATED
- DYKE; VERTICAL, INCLINED, UNDETERMINATED
- VEIN; UNDETERMINATED
- SHEARED ZONE
- MYLONITIC BANDING; VERTICAL
- MINERAL LINEATION
- FOLIATION
- AXIAL PLAN; UNDETERMINATED

MINERALISATION

- P0 ANORTHOSITE LOCALLY WITH LAYERED MAGNETITE (10-15%): **WEAK MINERALIZATION**
- P1 GABBRO, PYROXENITE WITH LAYERED MAGNETITE (15-40%): **INTERMEDIATE MINERALIZATION**
- P2 PYROXENITE-GABBRO WITH >40% LAYERED MAGNETITE-ILMENITE : **STRONG MINERALIZATION**
- P3 PYROXENITE WITH 20-40% LAYERED ILMENITE-MAGNETITE: **WEAK MINERALIZATION**

EXEMPLE:



* CHANNEL TRACES OF SOME TRENCHES WERE NOT MAPPED.
THESE TRENCHES ARE: 24+00W TO 14+00W
13+50E, 15+50E
16+50E, 24+50E
} PARTIALLY