

# GM 68021

TECHNICAL REPORT ON THE UPTON PROPERTY

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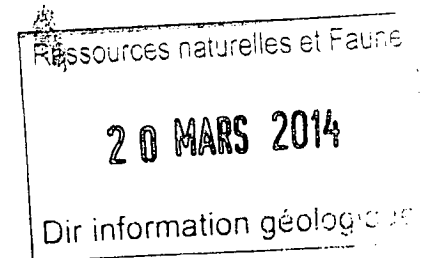
This document is an english translation of the report  
"Rapport technique sur la propriété Upton"  
originally written in french.

Technical Report on the Upton property, In accordance with National  
Instrument 43-101, Upton and Acton Township, Quebec, Canada

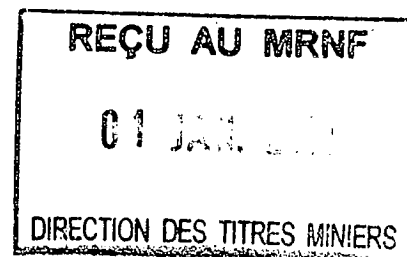
Submitted to  
Steven Lauzier

Rémi Charbonneau  
Ph.D., P. Geo, OGQ #290

April 5<sup>th</sup> 2013



**GM 68021**



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## Signature Page and Qualification

I, Rémi Charbonneau, P.Geo., Ph.D., do hereby certify that:

I reside at the 7667 Chateaubriand Street, Montreal, Quebec, Canada H2R 2M2 and I am currently Associate of Inlandsis Consultants s.e.n.c., located at the same address.

This certificate accompanies the report entitled "Technical Report on the Upton property, In accordance with National Instrument 43-101, Upton and Acton Township, Quebec, Canada" dated, March 11<sup>th</sup>, 2013.

I received a B.Sc. in Geology from the University of Montreal in 1986 and a Ph.D. degree in Glacial Geology in 1995 from the same institution. I have been working as a contract geologist in mineral exploration since 1995. I am an active Professional Geologist presently inscribed to the board of the *Ordre des Géologues du Québec*, permit # 290. I am a qualified person with respect to the Upton Property.

I visited the Property during the summer of 2012 and the winter of 2013 to directly observe a mineralized outcrop, and a drill rig present on the Property.

I am responsible for every items of the present Technical Report on the Upton Property. For that purpose I was assisted by Mr Steven Lauzier who prepared and initial version of Items 2 to 24, 27 and 28 as well as the figures and tables. Mr Mike Anderson assisted me in the interpretation of the geophysical works done on the property and for the recommendations relating to geophysics.


I fulfill the requirements set out in section 1.5 of the National Instrument 43-101 for an « independent qualified person » relative to the issuer.

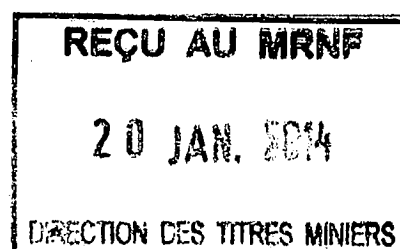
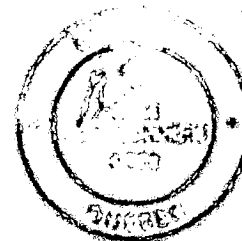
I have no prior involvement with the Upton Property which is the subject of this technical report.

I read and used National Instrument 43-101 and Form 43-101F1 (April 8, 2011 version) to make the present report in accordance with its specifications and terminology.

As of the date of this technical report, to the best of my knowledge, information and belief, the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

April 5<sup>th</sup>, 2013

  
Rémi Charbonneau  
Geologist, Ph.D.



1374583

## Assistants' curriculum vitae

I received a B.Sc. in Geology from the University of Quebec in 2010. I have been working as a contract geologist in mineral exploration since 2010 being involved in several gold projects, base metal projects and industrial minerals projects. I am an active Stage Geologist presently inscribed to the board of the *Ordre des Géologues du Québec*, permit # 1430. I am not a qualified person with respect to the Upton Property since I'm a stage geologist.

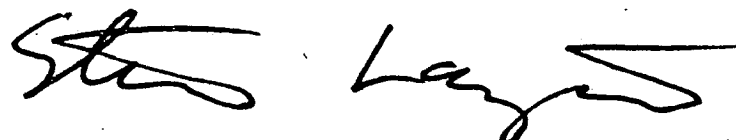
I initially claimed the Upton deposit area and subsequently claimed other area of interest around the Upton deposit claims. I then worked on the Property in 2009 for an initial gravity survey as a University project and in 2010 for a regional gravity survey since the property got optioned at the time by Pure Minerals Inc. I visited many outcrops in the Upton and Acton Vale area since 2009. I sold the claims to SL Exploration Inc, my private exploration/consultation company during 2011.

I'm currently the owner of SL Exploration Inc, the company that optioned the property to Canadian Mining Exchange. I'm also co-founder of Canadian Mining Exchange.

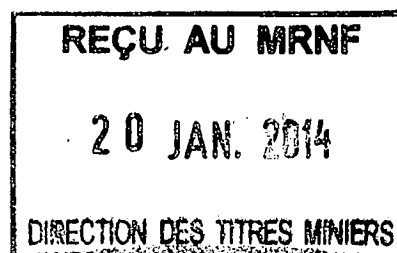
I assisted the qualified person for items 2 to 24, 27 and 28 as well as the figures and tables of the present Technical Report on the Upton Property under the supervision of the author: Remi Charbonneau.

I have no prior involvement with the Upton Property which is the subject of this technical report other than the one previously disclosed. I read and used National Instrument 43-101 and Form 43-101F1 (April 8, 2011 version) to prepare the present report in accordance with its specifications and terminology.

April, 5<sup>th</sup>, 2013



Steven Lauzier,  
Stage Geo, OGQ #1430



## Second author (assistant) qualification

I, Mike Anderson, P.Geo., do hereby certify that:

I reside at the 665 Rue Marie Victorin, Quebec, Canada J0L 2R0 and I am currently providing consulting services under the same name and address.

This certificate accompanies the report entitled "Technical Report on the Upton property, In accordance with National Instrument 43-101, Upton and Acton Township, Quebec, Canada" dated, March 6<sup>th</sup>, 2013.

I received a B.Sc. in Geology/Physics from the Dalhousie University of Montreal in 1993. I have been working as a contract geophysicist in mineral exploration since 1994. I am an active Professional Geophysicist licenced in Quebec, Alberta and Ontario (active).

My responsibilities include providing Mr Rémi Charbonneau and Steven Lauzier with an updated analysis and brief interpretation of the gravity survey performed in 2011. Additionally, I am assisting both of them with the interpretation of the geophysical works done on the property and for recommendations relating to geophysical techniques.

As of the date of this technical report, to the best of my knowledge, information and belief, the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

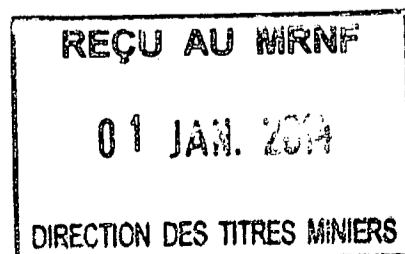


March 11<sup>th</sup>, 2013

<<Mike Anderson>>

Mike Anderson

Ph.D. P.Geo



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## **Item 1: Summary**

This report describes the exploration potential related to the Upton Property of the issuer. The data is mostly obtained from historical assessment exploration reports. This report is prepared to present the technical information related to the Upton property.

The property is made up of 30 claims for a total of 1587.86 ha. It is located 1.2 km NE of Upton in the Montérégie administrative region of southern Québec. Parts of the property's claims are subjected to a restriction that allows gold and silver exploration only; other metals being owned by land owners. Land option agreement over explored area allows securing the other minerals rights.

Work on the property was triggered by two copper mineralization exposed from quarrying. The exploration for copper by Upton Copper Ltd in 1965 leads to an induced polarisation survey that was drilled and resulted in zinc and galena mineralization. Further drilling of this mineralization resulted in the finding of a zinc-lead-copper deposit named the Upton deposit. Shell Canada undertook the project in 1973 and discovered that barite was present in the deposit. Robex Resources took the property in 1983 and increased the tonnage of the deposit. The company also tried to start an exploitation of the deposit. Geophysical and geochemical works were done by all company in the past and leave many untested exploration targets. Prospector Denis Kouri and Phelps Dodge Canada Corp were present in the area during Robex's presence and issued geophysical and geochemistry work over the property.

Robex Resources pre 43-101 estimated for the Upton deposit correspond to 959,530 metric tons at 46.5 wt % BaSO<sub>4</sub>, 1.94 wt % Zn, 0.59 wt % Pb, 0.15 wt % Cu, 0.11 wt % Cd, and 13.5 g/t Ag. Additional tonnage has been estimated to be 350,000 tons of comparable grades.

Fluid inclusions were studied along with C-O-S isotope data and resulted in the development of a Mississippi-Valley Type model for the genesis of the Upton deposit. The property was claimed to include all known rocks of the Upton Group in the area. This group, particularly his Upper member, shows the highest potential to host other Mississippi-Valley type deposit in the surrounding of the Upton deposit.

Many geophysical and geochemical anomalies remained untested on the property. A gravity survey done by Pure Minerals Inc revealed many gravity anomalies, including over the Upton deposit. Work recommendation for phase I include logging of cores, a till survey and a magnetism survey for a total budget of 36,700\$. A phase II drill campaign to test the targets generated by the phase I program is planned for a total budget of 136,000\$.

## **Item 2: Introduction**

The Company is a Canadian registered company listed on the TSX Venture Exchange under the ticker "COM". This company announced its initial public offering on February 2th 2012. The present report is prepared in compliance with the National Instrument 43-101 Policy guidelines to be used for a qualified transaction whereby the issuer (The Company) will acquire the option to the property from Canadian Mining Exchange in consideration of payments and shares in the Company. The Option includes work expenditures and payment in cash and/or/ shares over a three years period.

Historical data presented in this report were obtained from the "EXAMINE" database of the *Québec Ministère des Ressources Naturelles et de la Faune*, except otherwise specified.

The author visited the property during summer 2012 and winter 2013 for the purpose of preparing the present technical report by seeing the most significant mineralization at surface and to visualize the local infrastructure under the guidance of Steven Lauzier who assists the preparation of the present report. Mr Lauzier carried out a regional gravimetry survey on the property in 2011 and he visited the property on many occasion between 2009 and 2013 to look at outcrops, blocks and infrastructure.

### **Item 3: Reliance on Other Experts**

Most historical data are based on assessment files maintained by the Ministère des Ressources Naturelles (MRN). Although the authors of these past exploration reports and maps have made every possible attempt to accurately present the contained information, the present author cannot guarantee their accuracy, validity or completeness. Though the authors of these files might not all be qualified persons, according to actual National Policy 43-101, they are considered by the authors of this current report to have reported results in good faith and in accordance with the rules of the profession prevailing at that time. Land tenure information on mining claims was obtained from the GESTIM web site maintained by the MRN and accessed on January 20th, 2013.

### **Item 4: Property Description and Location**

The Upton Property is located in southern Québec, 1.2 km NE from the town of Upton (Figure 1). The area is depicted on the NTS map sheet 31H10 at 1:50 000 scale. The property is made up of 30 claims with a total surface 1587.86 ha (Appendix 1) of regular shape (Figure 2). The property lay on private land. Figure 3 show the general land usage of the property. Information on land owners has been found by contacting the municipality of Upton.

SL Exploration Inc optioned the Property to Canadian Mining Exchange, in which Steven Lauzier is co-founder. Finally, the Company is acquiring the Option to the Property from Canadian Mining Exchange.

No environmental liabilities are applicable to claim holders but future stage in exploration and mining activities will be carried out in conformity with environmental liabilities and social acceptability standard according high standard of the DGN Company.

According to land classification, a restriction on exploration activity affects 48% of the property, as depicted on Figure 4 The exploration restriction overlaps 763.2 ha, mostly on the southern half of the property. The restriction is a limitation to gold and silver exploration only (restriction #2925). The other minerals right are owned by the land owners due to historic reasons. Such restrictions are found elsewhere in Quebec, mostly in the Appalachians, where some mining concessions were conceded before 1880 (Gauthier, 1988).

The author believes that the restriction is a major concern since the rights to the minerals can only be obtained by buying the land. The land owner could refuse to sell his property and bloc future development. Having options to buy the lands can allow the Company to explore while knowing she'll be able to develop future discoveries. It is recommended to limit exploration to area where land purchase option agreement have been accepted and in zone without the mining restriction. A

land option agreement is currently in good standing between SL Exploration Inc and Martin Joubert. Mr Joubert is the owner of the land over the northern part of the Upton deposit. The land owner of the southern part of the Upton deposit refused to sign an option agreement until further work on the property is done.

Any work on the property requires the permission from private land owners. There are no other known significant factors and risks besides noted in the technical report that may affect access, title, or the right or ability to perform the recommended exploration program.

## **Item 5: Accessibility, Climate, Local Resources, Infrastructure and Physiography**

Access to the property is easy due to its location in developed areas of southern Quebec. From the nearby village of Upton, the Carrière range passes through the middle of the property in a north-south direction. From that range, the *chemin du cap* Road, Joubert Road, and Bochatay Road, the Lachaine Road and the 5<sup>th</sup>, 7<sup>th</sup>, 8<sup>th</sup> and 9<sup>th</sup> Range allow travelling around the property. The lots distribution is mostly oriented east-west and many farm roads are present with the same orientation which allows access all around the property by pick-up or all-terrain vehicles.

During winter the property remains accessible if snow removal is done on the farm roads. Frozen crop fields can also be run over without major impact. During summer, some lands must be avoided from working due to their use. Since crop rotation is present, it is possible to work lands as their use rotate. Precaution and planning must be done to optimize exploration work in the area.

The region is characterized by a humid continental climate. Access to the property was done during the spring, summer, autumn and winter. The proposed work program can be done through all year.

Local resources are available at the nearby cities of Upton, Acton Vale, Saint-Hyacinthe and Drummondville, located respectively at 3.7km, 11.8km, 32km and 35.9km along road from the center of the property. The elevation on the property ranges between 60 and 80m above sea level.

Surface rights are not necessary at this exploration stage of the property. However, authorization by the owner is necessary to access and to execute work on private lands. Options for surface rights should be negotiated with owners under mining restrictions explained under item 4 if exploration work is to be planned over such land.

Water is available on the southern part of the property from the Noire River. Two old quarries in the central and northern part of the Property hold significant amount of water if needed for exploration purpose. Small creek between farm lands can have sufficient water in them for drilling purpose. Local infrastructure includes water delivery trucks available all year long. Power, transportation and housing are available nearby and a local work force should be suitable to support a mining operation. The nearest railroad station is in Upton, 1.2 km southwest of the property.

## **Item 6: History**

Work on the property was triggered by two copper mineralization exposed from quarrying. The exploration for copper by Upton Copper Ltd in 1965 leads to an induced polarisation survey that was drilled and resulted in zinc and galena mineralization. Further drilling of this mineralization resulted

in the finding of a zinc-lead-copper deposit named the Upton deposit. Shell Canada undertook the project in 1973 and discovered that barite was present in the deposit. Robex Resources took the property in 1983 and increased the tonnage of the deposit. The company also tried to start production of the deposit. Geophysical and geochemical works were done by all company in the past and leave many untested exploration targets. Prospector Denis Kouri and Phelps Dodge Canada Corp were present in the area during Robex's presence and issued geophysical and geochemistry work over the property. In 2010, Steven Lauzier claimed the property and did a local and regional gravity survey that revealed more exploration targets.

Historical work description over the property is presented in six sub-sections (Item 6.1 to 6.6), each of which focusing on subsequent land owners of the property. It should be noted that from 1995 to 1999 the property was partly owned by Robex Resource in the deposit area, by prospector Denis Kouri in the surrounding area of Robex's property and by Phelps Dodge Canada Corp over the northern part of the Property. Their respective works are presented under item 6.5, 6.3 and 6.4. Geological descriptions of the various mineralizations were done through most exploration phase over the property and the deposit model changed through period of time. The most recent observations and model type are presented respectively under item 7 and item 8.

The start of mining exploration was triggered from the presence of two copper mineral occurrences exposed in quarry on the property. These are the Prince of Wales and Bissonnette Mine showings, located 2 miles north of Upton. They were worked on a modest scale in the 1840's (Baldwin, 1973, Dugas, 1965). Back in 1965, it is reported that the area has been prospected for copper and quarried for limestone for well over 120 years (Asbury, 1965).

The region was originally mapped by P.J. Lespérance between 1961 and 1962, for the Québec Department of Natural Resources. The whole property was mostly considered inside a limestone unit surrounded by sandstones, sates and conglomerate (Lespérance, 1963, Gaucher, 1995). The property was first staked for Albert and Denis Kouri on June 13th 1963 after having found copper mineralization on a roadcut (Farquharson, 1964, Asbury, 1965).

## **6.1 Upton Copper Ltd**

Upton Copper Ltd initiated a D.C. Induced Polarisation survey in the area of a copper showing in 1965. The survey resulted in many anomalies and one was drilled and encountered sphalerite and galena mineralization. Further drilling allowed discovering a zinc, lead, silver and coppering body. More exploration work was then done in the area to find other sulphide mineralization and include a soil geochemistry survey and a second DC IP survey. The exploration work leaves many untested targets over the property.

Upton Copper Ltd first purchased certain mining rights on the property and then bought the mining rights of Denis Kouri on July 14<sup>th</sup> 1965 (Asbury, 1965). The first drill work was done next to the Prince of Wales showing and resulted in poor copper mineralization (Dugas, 1965). A bulk sample resulted in 0.05% Cu, 0.01% Pb and 0.05 oz Ag/ton (Lachance, 1964). Various works were carried out during the summer 1964, including: 2629 m of diamond drilling, magnetometer, induced polarization and resistivity surveys and a limited amount of stripping (Asbury, 1965, Sutherland, 1965). These works allowed the identification of an ultramafic lava flow overlying an inverse fault bringing dolomites and shales Formations into contact under thick overburden (Gaucher, 1995).

Drill testing of an IP anomaly allowed discovering a zinc mineralized zone in a limestone unit on April 29<sup>th</sup> 1965 (Asbury, 1965, Sutherland, 1965). The mineralization is fine and the density of the rock is usually the only tool to know if there is mineralization or not (Dugas, 1965). As of September 1965, the zone holds about 250,000 tons grading 2.21% Zn, 0.48 oz Ag/ton, 0.07% Cd and 0.5% Cu and lead. The drillings were done 31.25 metres apart. It was still unknown at the time that barite was present in the zone. The used classification is not corresponding with mineral resources or mineral reserves. No characteristic of the ore extension between drill hole and at depth is given by Asbury and the tonnage classification is a pre-NI 43-101 estimation.

The author believes this historical estimate to be reliable since further estimate of larger tonnage were confirmed by other property owners (Shell and Robex Resources) and because it is coherent with the historic drill program intersections used for the estimate. Drilling and sampling of the same area could reproduce the historical estimate. The qualified person has not done sufficient work to classify the historical estimate as current mineral resources or mineral reserves. The issuer is not treating these historical estimates as current mineral resources or mineral reserves.

A soil geochemistry survey was done over the property in 1966 (Bischoff 1966a). The results show several areas anomalous in either copper, zinc or both. Soil samples were taken just under the vegetation, at 30 meters intervals along north-south lines spaced 122 m apart. The analysis method was hot extraction and colorimetric determination with "Dithizone". 2600 samples were taken and analyzed (Bischoff, 1966a). Background values for copper range to about 25 ppm while zinc background values range to about 50 ppm. Copper anomalies occur near outcrops, along with zinc anomalies. A consistent zinc anomaly occurs over the known zone of zinc mineralization. It extends westward beyond the erosional cut-off of the mineralization. A second and similar zinc anomaly occurs about 457 m south of the main zone. Finally a large east-northeast copper-zinc anomaly extending from 1585 m North to 1828 m North and from 457 m East to 914 m East was found during this period.

A D.C. Induced Polarization survey was done in 1966 by Upton Copper Limited on the property. The survey show a weak IP anomaly over their Main Zone which was being drilled at the moment. The readings suggest that the results over the deposit are largely caused by the associated graphite. Numerous areas of abnormal readings were obtained with the most significant designated as anomalies A to P (Bischoff, 1966b).

Anomaly A covers the known mineralization and is not very strong but definite and follows the known ore limits quite faithfully. The near edge of anomaly B was tested by hole 66/27 and 66/32 before its full extent was indicated. Minor pyrite and graphite are present in hole 66/27. Anomaly C is of small extent but is on strike with anomaly A. Anomaly D is a narrow zone trending through the old quarry where drill hole 66/34, Hole1, Hole2 and Hole3 were done. DDH2 encountered 0.49% Cu over 1.2 metres between 15 and 104 metres, The diorite dyke carrying disseminated magnetite was cut under the anomaly and may be the source of the anomaly. Anomaly E was drilled by drill hole 66/29 without finding the cause for the anomaly. Anomaly G is the largest and strongest found on the survey. Anomaly N occurs near a new quarry and coincides with a geochemical anomaly. It was being tested by drill hole 66/35 which resulted in 1.2 g/t silver over 1.7 metres. Anomaly J, L and M occur on the flank of the limestone, a similar context to anomaly A, covering the mineralization (Bischoff, 1966b.) A map of the anomalies is shown in Figure 5.

Drilling by Upton Copper takes place between 1964 and 1967 (Asbury, 1966, Baldwin, 1973). Appendix II shows the different holes done over the property, along with best intersections. The drill work done in the area is shown on Figure 6.

## 6.2 Shell Canada

Shell Canada inspected Upton Copper's log in 1973 and acquired the property. They also discovered that significant amount of barite was present in the known deposit. Further studies of the geological context and of the mineralization were done. The company did exploration work that wasn't declared to the ministry of mines which includes gravimetry, magnetism and drilling. Airborne input survey was declared and leaved untested exploration targets. The Québec ministry of mine initiated soil and stream sediment survey between 1971 and 1973 and well water survey 1978, which returned many anomalies unrelated to the Upton deposit that are still untested to date.

Shell Canada studied the previous drill core of Upton Copper Ltd during April and May 1973. They reanalyzed 28 intervals in four drill hole to obtain equivalent results (Baldwin, 1973). This study allowed them to find the sphalerite, galena, chalcopyrite and barite mineralization localized within a centimeter-laminated, crinoidal lime-grainstone facies which is equivalent to the outcropping Acton Vale Carbonate. On the north eastern fringe of the deposit, intermediate to basic volcanic tuffs and flows are interbedded with the mineralized grainstone. The mineralized body dips at approximately twenty-five degrees to the south-southeast. Ample room exist for continuation of the deposit or for the presence of related deposits. The genesis of the deposit is interpreted as volcanism providing (1) ocean bottom relief that allow crinoid bank development, thus producing a porous and reactive carbonate host rock for mineralization ; (2) periodic tectonic uplift to allow enhancement of both reservoir ad reactivity by leaching ; and (3) by providing the heavy metals and barite (Baldwin, 1973).

The indicated tonnage interpreted by Shell Canada is 1.1 million tons by using a volume of  $10^7$  cubic feet and specific gravity of 3.6. This tonnage may have already drilled and estimated by Upton Copper Ltd. It is reported that barite was not identified in the work done by Upton Copper. The average grade of the deposit is about 50% BaSO<sub>4</sub>, 2.5% Zn, 0.5% Pb and 0.1% Cd (Baldwin, 1973). The used classification is not corresponding with mineral resources or mineral reserves. No characteristic of the ore extension between drill hole and at depth is given by Baldwin and the tonnage classification is an estimation done pre-NI 43-101.

The author believes this historical estimate to be reliable since further estimate of larger tonnage were confirmed by Robex Resources and because it is coherent with the historic drill program intersections used for the estimate. Drilling and sampling of the same area could reproduce the historical estimate. The qualified person has not done sufficient work to classify the historical estimate as current mineral resources or mineral reserves. The issuer is not treating these historical estimates as current mineral resources or mineral reserves.

The gross value of the material was of 22\$ per ton with a 80% recovery. Shell Canada considers the economics of the body will depend upon the economics of barite. A preliminary report on barite was also done and included information about production, consumption and uses, grades and specifications and prices. The deposit is considered marginally economic due to its accessibility. The most interesting potential reside in a large zinc anomaly northwest from the Upton deposit, along with untested D.C. I.P. anomalies (Baldwin, 1973).

Shell Canada was in a final stage of a 9 year exploration program for oil and gas in the St-Lawrence Lowlands. All lease signed with land-owners also included mineral rights. Crown permits were also taken by Shell Canada which had over 2,000,000 acres in exploration rights in the Lowlands (Baldwin, 1973).

Shell Quebec Ltd did a gravity survey over their exploration permit for oil and gas in the county. They surveyed one east-west road that is located south of the property and no interpretation can be made except for the regional gravity gradient getting higher toward east (Shell Quebec Ltd, 1970). However, more data is available elsewhere in the area outside of the property.

During June 1973, gravity and magnetic surveys were carried out on the deposit area. A Worden gravity meter was used for gravimetry and a Sharpe MF-2 fluxgate magnetometer from Scintrex Surveys was used for the magnetic survey. Station spacing was 100' north-south and 300 east-west with four north-south lines completed. The gravity map shows the contours increase in a north-easterly direction. The anomaly seems to correspond to the volcanics underlying the zone and sweeping north east from the zone (Baldwin, 1973). It is understood that the limited gravity surveying completed over the Upton deposit gave inconclusive results (Cooke,1999). The magnetic contours are directly related to the underlying volcanics (Baldwin, 1973).

Shell Canada probably acquired the Upton Copper Limited minerals rights at a sheriff's sale in St. Liboire, Quebec, on July 18 (Baldwin, 1973). The results of a drill campaign in 1973 and 1974 were not made public (Cooke,1999). Geoterrex logged a few drill holes of the 1974 campaign for IP and resistivity and gamma ray neutrons logging was performed by Roke Oil Enterprises. A soil sample survey was obtained in 1974 and detailed mapping by Pierre Marcoux was also done in 1975. A well water sampling was carried out in 1975 (Castonguay, 1977). These work phases hasn't been declared to the MRN.

Shell Minerals flew the area in 1976 using Questor INPUT system and completed extensive IP covering 57 sq. km in 1977. This was followed by a drill program in the Acton Vale region, outside the property, and most of the IP anomalies tested directly on cores were attributed to disseminated to nodular pyrite and/or graphite within black shales. One test showed the source to be disseminated chalcopyrite, pyrite and sphalerite (Castonguay, 1977, Cooke,1999). It is unknown where this work was carried on but the drill work is said to have happened on the Acton area, although Acton and Upton can be considered in the same area.

Five axis of anomalous I.P. zones and three I.P. anomalies were found on the property. The axis are well explained by the presence of black shale beds with disseminated pyrite while other IP responses remain unexplained due to thick overburden coverage (Castonguay, 1977). Figure 8 show the anomalies on the property.

Litho geochemistry and petrography were done on two holes in the Upton area from the 1973-1974 programs and three from the 1977 drill program in the Acton Vale area. Good and definite Zn and Ba anomalies were obtained in holes where the Upton barite-base metals deposit is intersected. No other anomalous values were obtained (Castonguay, 1977). A structural map was compiled by SOQUIP in 1980 and shows the general structure of the basement rock. A general NE-SW orientation of faulting is present over all the property (Soquip, 1984). A well water survey was done in 1978 (Tremblay, 1978). The survey demonstrated a good copper correlation with the Upton deposit

(Cooke,1999). Copper anomalies are present south of the deposit and no other important anomalies are present except isolated anomalies in Cu, Pb, Mn, Fe, K, Na, Mg, Ca, Li and F.

#### 6.2.1. Mine service of Quebec between 1971 and 1978

During Shell Canada's presence in the area, the Ministry of mines initiated work over the Appalachians and part of that work was on the Property.

A regional survey with 3500 stream-sediments samples was collected in the area by the mine service of Quebec in 1971. A follow up was done in 1973. (Tremblay, 1975) After drying of a 0.5 kg sample, the minus 177 microns fraction was analysed for Cu, Zn, Pb, Ni, Co, Mn and U using atomic absorption following hot acid attack. Uranium was determined by paper chromatography. Three anomalous domain were present in the study and the choosing of anomalous values were depending of each different domain. Copper, nickel and cobalt anomalies are also present on the north-east of the Upton deposit (Tremblay, 1976). In respect to copper, zinc and lead, two streams shows anomalous values on the property, north of the Upton deposit Figure 7 show those anomalies.

The mine service of Quebec did a soil geochemistry survey in 1975. (Tremblay, 1976) 1262 samples were taken in the Acton Vale area, including 171 on the property. The samples were taken at a 75 centimeter depth in the C horizon. After drying, the samples were sieved to 177 microns and the fine fraction was analysed by atomic absorption after acid dilution for copper, zinc, lead, nickel, manganese and cobalt. Distribution curves for the results were done and allow determining the background population and the anomalous populations in the area (Tremblay, 1975). The results show 3 lead anomalies, 3 coincident copper-lead anomalies, 3 copper anomalies, 2 zinc anomalies. Two anomalous zones are more interesting since they show a glacial dispersion pattern. They consist of two anomalies elongated in a north south direction. The first one is located west and north-west of the Upton deposit and it named A. This zone is anomalous in zinc and copper, along with sporadic lead anomalies. The other anomalous zone is named B and is located north-east of the Upton deposit. It consists of a copper and zinc anomaly. The anomalous samples in Cu-Zn-Pb are shown in Figure 7.

### 6.3 Prospector Denis Kouri

Between 1995 and 1999, Denis Kouri worked in the area north of the Upton deposit owned by Robex Resources. A VLF and IP survey resulted in anomalies which were partly tested by one drill hole that explained the conductive anomaly from the presence of graphitic shale.

Prospector Denis Kouri's owned the northern part of the property from 1995 to 1999. Geophysical works including VLF and IP survey were carried out and a new occurrence of copper zinc mineralization was found on an outcrop. His work was contemporaneous with surrounding exploration by Phelps Dodge Corp (item 6.4) and further definition of the Upton Deposit by Robex Resources (item 6.5). Figure 9 shows a compilation of the work done on the property during that recent period.

In 1995, prospector Denis Kouri carried a prospection phase along with geological compilation of the past data. No outcrop was found on the prospector's property. A Mag-VLF combined survey was also done, along with a verification of anomalies by induced polarisation. The used instrument for the mag-VLF survey was a scintrex Omi-Plus with a precision of 1nT with reading every 12.5 metres over a 1,200 metres distance (Desrosier, 1999).



A strong magnetic anomaly corresponding to a high tension line was present. A small anomaly was detected on the south west of the survey. This anomaly could correspond to the extension of volcanic and ultramafic units located to the north-east. Another small anomaly is on line 0 à 1+00W. The VLF survey was done by using the Cutler station. This survey show very small variations except for the north-east of the surveyed area and the south-west region. No conductor was defined by the survey. The south-west anomaly is coincident with the magnetic anomaly, where an ultramafic unit is suspected. This ultramafic body could be the source of the nickel-copper anomaly in previous geochemical survey (Desrosier, 1999).

To follow up on these results, a 650 metres east-west induced polarisation survey was done in 1995. One anomaly, named PP-4, was present on line 0+25N/6+42E and is about 10 metres large. It is estimated that there's a 40% chance a drill hole would explain the anomaly. The hole would intersect a 10 metres large layer with 3% sulphides or graphite (Gaucher, 1995). The anomaly corresponds to the start of the magnetic anomaly and VLF response (Desrosier, 1999).

Induced Polarisation (IP) survey was done by Géosig Inc on August 20<sup>th</sup> 1999 over part of Denis Kouri's property 2km north of the Upton deposit. The equipment used was an ELREC-6 receiver, a TX-II (1,400 W) transmitter and a Kodiak 1900 W generator. The survey was done on part of lot 48 and contained 1,750 metres of surveyed lines. Two anomalies were found and named PP-1 and PP-2. PP-1 is a weak but well defined anomaly while PP-2 is very weak and badly defined (Simoneau, 1999).

A prospection phase in the area of the IP survey allowed sampling an outcrop which resulted in 0.61% Cu, 819 ppm Zn and 0.5 g/t Ag. No barium was found. This mineralisation is similar to the one found in the outcrop north of the deposit. A drill hole named KU 99-01 was implanted to test the IP anomaly named PP-1. Graphitic shale at surface could explain the anomaly. Some sphalerite was found between 53.70 and 54.7 metres and the hole samples show zinc and barium anomalies (Derosier, 1999). Table 1 resume the drill hole characteristics and result while Figure 6 show the drill hole area.

**Table 1. Drill hole characteristic of KU 99-01 on PP-1 (Derosier, 1999)**

Drill Hole	Year	East	North	Direction	Dip	Description
66593	1999	682125	5062578	N310	80	Mudshale

## 6.4 Phelps Dodge Corporation of Canada, Limited

Phelps Dodge Corporation of Canada, Ltds explored the area north of the Upton deposit which was owned by Robex Resources at that time, adjacent to Denis Kouri's claims. Phelps Dodge Corporation's focus was mainly on the Acton Vale area. Between 1997 and 1998, Phelps Dodge Corporation did prospection, helicopter-borne EM and VLF survey and a gravity survey. This resulted in many untested geophysical targets on the property.

Phelps Dodge Corporation of Canada, Ltd (PDC) worked in the Upton area on a regional scale while focusing on the nearby Acton Vale Copper Mineralization. PDC's property surrounded prospector Denis Kouri's claim blocs (Item 6.3) immediately north of Robex's property (Item 6.5).

Outcrops examination was done in 1997 and 1998 by Phelps Dodge. The only mineralization met is the "Upton North" showing, which correspond to the showing in the abandoned limestone quarry 1.5km north of the Upton deposit. The outcrop show indication of past work over the area since an old shallow prospect pit and trenches contained some veins-associated Cu mineralization. An extensive stratigraphic review was also done (Iannelli, 1998c). The observations were used by more recent studies and are presented under item 7. Phelps Dodge carried a regional EM and VLF survey, along with a gravity survey in 1997. Their exploration focus was mostly on the Acton Vale area, close to the Acton mine, the Maple Grove showing and the CPR showing presented under item 7.1.

#### Helicopter-borne EM and VLF survey

A regional helicopter-borne EM and VLF survey was done by Geoterrex-Dighem for PDC in 1997. A regional gravity survey was carried on by Sagax Inc of Val'Or, Quebec for PDC in December 1997. Those two surveys were done over PDC's Acton Vale property and part of that property now corresponds to the northern zone of the Company's Property.

The EM-VLF survey was conducted along lines 150m apart flown in a N145-N325 direction. The EM system used measures in-phase and quadrature components of the secondary electromagnetic field. The primary electromagnetic field was provided by the Cutler station. This survey resulted in many geophysical observations and anomalies outlined below. More details about data acquisition, treatment and results are to be found in Jagodits 1998.

The lowest magnetic domain (F domain) covers the Property. The most anomalous magnetic features in the survey was located NE of the Upton deposit and was named A domain, surrounded by the F domain. A suspected magnetic body in the A domain was delineated and named M1. The source of this anomaly is considered a flatly dipping mafic volcanic or intrusive body toward southeast. Two other suspected magnetic bodies are present and are located on the east and on the southern part of the property. Six conductor zones were outlined on the property and named CT1 to CT6. These conductors could correspond to graphitic black shales (Jagodits, 1998). Their features are noted Table 2.

**Table 2. Airborne conductive targets (Jagodits, 1998)**

Target	Priority, 1 to 3	Comments
CT1	1	Includes a 500 metres long feature indicated by five questionable bedrock conductors. A VLF-EM conductor is sub parallel and about 75 metres northwest of the HEM conductor.
CT2	3-2	The near surface rock should be the most conductive.
CT3	3-2	The near surface rock should be the most conductive. The target is open to the southwest.
CT4	2-1	
CT5	2-3	Conductive surface cover is indicated.
CT6	3	It is a small target. The near surface rock should be the most conductive.

Two VLF-EM poor conductor axis were mapped. The strike of the conductors is east-west and northeast-southwest. One helicopter-borne single line anomaly also superposes the suspected magnetic body and could be related to conductive bedrock. One surficial type anomaly could be caused by bedrock sources and is named SB. Many low (900Hz), medium (7200Hz) and high (56000 Hz) apparent resistivity contour are present on the property. These contours pattern could relate to

the underlying limestone lithology. Three resistive targets are on the property and are named R21 to R23. Their features are noted in Table 3. Two dike like magnetic anomaly in the southwest of the property (Jagodits, 1998)

**Table 3. Airborne resistivity targets (Jagodits, 1998)**

Target	Priority	Comments
R21	1	This target correlates with the Upton deposit. The magnetic anomaly may indicate magnetic volcanic rocks.
R22	2-1	Immediately north of R21. Lower apparent resistivities may be caused by shales.
R23	3	It is an extensive target area.

#### Gravity survey

A regional gravity survey was done in 1997 and used stations at 50 metres interval along east-west range roads and north-south roads and highways. Some farm roads and trails were also used. Two CG-1 gravimetres made by Scintrex Limited of Concord, Ontario, were used to measure the vertical component of the gravitational field. Details of the acquisition, reduction and presentation of data are in Jagodits 1998. The survey only covered a small area of the property and 2 anomalies are present on the property, one is named RR7-G1 while the other is unnamed. RR7-G1 is of small amplitude and symmetrical. The source of the magnetic high, in the vicinity of the Upton North showing and the gravity anomalies remain largely unexplained. Figure 10 shows the various results from the geological work phase (Jagodits, 1998c).

## 6.5 Robex Resources

Robex Resources acquired the property in 1987 and worked on it until it's abandon in 2003. No work was declared to the ministry of natural resources but it is known that they did a few drill holes to upgrade the tonnage of the deposit and also did feasibility studies. The company tried to put the deposit in production but was halted by locals.

Exploration reports by Robex Resources were not deposited at statutory work depository held by the Ministry of Natural Resources . The events leading to the ownership and extent of their property are also unknown but it seems they acquired the property around 1987 and spent 2,500,000\$ on it until 1997 (Robex, 1997).

Mr Martin Joubert, owner of the land covering the northern part of the deposit informed the author that Robex had acquired all necessary land option agreement except for the one covering his farm lot. It is over this farm lot that the company currently have an option agreement, as explained under item 4.

Locals report that drilling was done on the property, along with a trench close to the Carriere range, which was used to produce a bulk sample for testing. Drill holes are reported in Paradis, 2004, since some samples were used for fluid inclusion analysis.

A feasibility study has been done in 1996 by Bumigène. Production cost, financial analysis, market conditions and the Upton production are all discussed in the study. The production was reported to be of 9.5 years at 26,500 short tons per year for the 4 first year and 50,000 tons per year from the

fifth year. The treatment would consist of crushing up to 80% passing 400 mesh, a flotation of sulphides, de separation and cleaner by flotation of a mix of zinc and lead, and finally, the floating of a barite concentrate (Baril, 1996). These information are present in an internal report, but the general conclusions shown here were made public in a press release. Robex received in 1997 from an independent industrial mineral market consultant (the firm Consortium of Sainte-Foy) a report canvassing the planned markets, the cost of putting the barite orebody into production and the profitability potential (Robex, 1997). This document is an internal report but the general conclusions were made public in a press release.

Robex tried to put in production the Upton deposit and requested to change the land status to the CPTAQ (Commision on agricultural land protection of Quebec) in 2001. (Lebulletin, 2001). It is only possible to request a land modification once at the CPTAQ and so Robex decided to desist their request (Trudel, 2001) since the municipality and Mr. Joubert was against the project.

It was decided by Robex to write off the property from its assets in financial year 2003 (Robex, 2005). The claims finally expired on an unknown date and Denis Kouri claimed the area in 2007. No work has been declared by Mr. Kouri.

## **6.6 SL Exploration Inc**

After Kouri's claims expired in 2009, Steven Lauzier claimed the present Property and performed a gravimetry survey in 2010 as a school project. After the success of the initial survey, a regional survey was carried on the property after it's been optioned to Pure Minerals Inc. Pure Minerals lost the option to acquire the property soon after the survey.

A regional and local gravity survey was carried over the property by SL Exploration Inc, supervised by Thermoroc Inc's geologist Alain Zubrzicky. The survey was done between June 17<sup>th</sup> 2010 and August 2<sup>th</sup> 2010. 467 topography and gravimetry stations have been measured around the immediate region of the Upton deposit, over a 3,6 km<sup>2</sup> surface. Intense heat caused problems with the gravimeter stability, which forced us to wait for better conditions to make sure our measures are stables. (Lauzier and Zubrzycki, 2010)

Two gravity anomalies (named A and B) show a pattern similar to the Upton deposit's gravity anomaly. The origin of the most interesting anomaly (anomaly A) could be located 65 meters under the surface if the composition of the rock is the same as the Upton deposit. The anomaly is composed of 5 stations and it could be created by a deposit of similar size than the Upton deposit. The position of this anomaly, to the southeast of Upton, makes it a very interesting target since this is the proposed path flow for mineralization fluid by Paradis, 2004. The second anomaly (anomaly B) shows a similar pattern to Upton and could be located 49 meters under the surface but is created by one station only. The 2010 gravity survey also reveal six other anomalies (named C to H) of lesser significance (Figure 14). Anomalies A and B were confirmed by a second gravity survey.

Drilling has been done during autumn 2012 over target A generated from the 2010 gravimetry survey. The drill program was performed by Les Forages Liégeois, a company partly owned by Alain Zubrizky, co-founder of CME. The drill is a Mobile B80 drill and drilled NQ diameter cores. Two holes were sink at 122 m and 125 m deep. The cores are still left for detailed examination and sampling. This work remained to be deposited as exploration assessment report to the MRN.

## **Item 7: Geological Setting**

The property was claimed to include all known rocks of the Upton Group in the area. The Upton group is a carbonate unit that holds the known copper and zinc mineralization in the area, including the Upton deposit. This group, particularly his Upper member, shows the highest potential to host other Mississippi-Valley type deposit in the surrounding of the Upton deposit. The Upton deposit's mineralization consists of barite and minor amounts of sphalerite, pyrite, galena and chalcopyrite. Fluid inclusions were studied along with C-O-S isotope data and resulted in the development of a Mississippi-Valley Type model for the genesis of the Upton deposit. The mineralization occurred during the Middle to Late Ordovician Taconian orogeny, and tectonic burial and compression is thought to have initiated the circulation of fluids, which would have been channeled through the sedimentary pile along thrust faults and vertical fractures and migrated into the confined crinoidal limestone.

The geology of the area evolved from a transition zone between a continental platform and a continental slope. Limestones, black shales, massive or amygdalitic volcanics, dioritic gabbro intrusions and ultramafics were mapped in the area. Siltstones and sandstones are also founds (Gaucher, 1995). Figure 11 show the geology of the studied area. Alkaline gabbroic and dioritic dikes and plutons of Middle to Late Ordovician age intruded the rocks of the Upton Group and the Granby nappe (Paradis, 2004).

The tectonic context shows a succession of tight folding and inverse faulting. A scally type structure is the result of this deformation (Gaucher, 1995). Three phases of deformation are recognized. D<sub>1</sub> and D<sub>2</sub> deformations were due to the emplacement of nappes during the Taconian orogeny in the Middle to Late Ordovician, and D<sub>3</sub> involved brittle deformation that postdated the emplacement of the nappes (Paradis, 2004).

### ***Item 7.1 : Stratigraphy***

#### **External Nappe Domain**

The studied area belongs to the external domain of the Quebec Appalachians which is made up of several imbricated Taconian nappes piled up in the inverse sequence of their ages and separated by major thrust faults. The stratigraphic sequence within each nappe is upright. To the west of the external Nappe domain, Cambro-Ordovician platformal succession of the St-Lawrence Lowlands are founds. The limit of the Nappe is the Logan's Line, which pass through the property and the Foulon fault zone on the southeast margin of the Nappe (Iannelli, 1998c).

#### **Granby Nappe**

The Granby Nappe, dominated by strata of the Shefford Group, represents the oldest sedimentary sequence in the area. It is Cambrian in age and is the overlying Nappe of the external domain (Iannelli, 1998c). The tectonostratigraphic relationship between the younger Upton Group and the older Shefford Group's most likely scenario is that the Upton succession occurs as semi-continuous belts exposed through erosional windows thrust within in the Granby Nappe. This is supported by the presence of thrust faults at the contacts between lithology of the Granby Nappe and the Upton Group, and similar strikes and dips of the Shefford and Upton groups. Field works also support this interpretation (Iannelli, 1998c, Paradis, 2004).

### Upton Group

The Upton group comprises a lower Ordovician limestone and shale dominated succession interbedded with minor siliciclastic, volcanic and tuffaceous units found within the Granby Nappe. The Upton Group is exposed as scattered outcrops the Shefford Group. Observations at the Acton Vale quarry show that the Upton Group consists of mainly massive, but locally thin bedded to brecciated and conglomeratic, fine-crystalline buff- to light-grey limestone with intermixed units of black to grey shale, and occasional basaltic flows and related tuffaceous layers.  $^{87}\text{Sr}/^{86}\text{Sr}$  values suggest an early Ordovician age for the Upton Group's limestone and a possible stratigraphic correlation with lower Ordovician Philipsburg succession of southern Quebec (Iannelli, 1998c, Paradis, 2004).

The Upton Group is interpreted to have a composite thickness of up to 350 metres in the Acton Vale quarry. In the project area, the thickest sequence was measured in a hole drilled at the Upton deposit (Iannelli, 1998c). The Upton group is capped by a thick 120 metres black dominated sequence.

### The three composing Members

Two main limestone units (Upper and Lower members) make up the Upton group along with a Middle member made of a shale-dominated succession. Co-genetic mafic dykes and plutons intrude strata of both the Upton Group and Shefford Group (Iannelli, 1998c).

The Lower limestone member is up to 140m thick, poorly fossiliferous with vein or stockwork related Cu+Zn+Pb+Ag mineralization as at the Acton Mine. The Acton Mine is presented under item 7.1. The limestones are intermixed with siliclastic, volcanic and intrusive rocks. Three carbonates and three siliclastic facies are found in this member. The carbonates are generally intensely recrystallized, giving rise to the grey massive limestones typical of most outcrops on the area (Iannelli, 1998c).

The Middle member is shale-dominated succession of 60 metre to 120 metres thickness. Planar laminated black to grey shale with intermixed beds of grey siltstone to sandstone make the member. The black shales are pyritic, siliceous and graphitic. Pyrite nodules and laminations are found in the shale and siltstone layers. Carbonate concretions and intermixed calcareous siltstone, basaltic and tuffaceous layers have also been observed in the Acton Vale quarry area (Iannelli, 1998c). The shale succession is interpreted as a black shale unit by Paradis and Lavoie, 1996.

The Upper limestone member is a bioclastic to massive limestone with vein related and stratabound Ba+Zn+Pb, Cu+Zn+Ag and Zn-dominated mineralization as at the Upton deposit (Cooke, 1999). This member is estimated to be 50 metres thick and it is found at the Upton deposit and at the Acton Vale quarry. At the Upton deposit, black calcareous shale is interbedded and also caps the bioclastic limestone. The Member contains at least one 34 metres thick succession of intermixed volcanic tuff and massive amygdaloidal basalt at the Acton Vale quarry (Iannelli, 1998c).

### Depositional history of the Upton group

The sedimentologic features of the Upton Group strata are interpreted as consistent with their formation in a fault-bounded trough within a shelf margin environment, at the passive margin of Laurentia. The shale-sandstone dominated assemblages of the Granby Nappe have characteristics of deposition on a continental rise (Iannelli, 1998c). Interpretation of the paleogeography in Cambrian to Early Ordovician times lead to the conclusion that the continental shelf and rise were those of the passive margin of Laurentia (Iannelli, 1998b). The trough origin is not known but it could correspond

to the Ottawa Graben and the structural implications for exploration is that the field work should focus on west-, northwest – and north-northwest – trending primary faults. Those structures would have outlined primary trough marine or sub-troughs or component half-graben. These structures are major site for hydrothermal fluid circulation during and after deposition and dewatering of the sediment piles (Iannelli, 1998c).

Another interpretation is that the deposition would be in a peritidal to shallow subtidal setting on a passive continental margin. The underlying cause for the fast transition from shallow inner shelf to deeper outer shelf (as interpreted for the sequence at Acton Vale quarry) is problematic with this interpretation (Iannelli, 1998c).

## **Item 7.2: Mineralization**

The property is inside a part of a zinc-lead-uranium belt in limestone of cambro-ordovician age within the Granby Nappe. This belt is part of the tectono-stratigraphic context known as the Nappes at the Appalachians Front (Gaucher, 1995, Derosier, 1999).

### **Upton deposit**

The most recent and accurate description of the mineralization is brought by Suzanne Paradis (Paradis et al 2004)'s studies on the Upton deposit. Most of the following text is a direct reproduction from her 2004 publication.

The Upton Ba-Zn-Pb deposit is hosted by the Early Ordovician crinoidal limestone of the Upton Group in the southern Quebec Appalachians. The Upton deposit has proven reserves (after dilution) of 959,530 metric tons at 46.5 wt % BaSO<sub>4</sub>, 1.94 wt % Zn, 0.59 wt % Pb, 0.15 wt % Cu, 0.11 wt % Cd, and 13.5 g/t Ag. Additional tonnage has been estimated to be 350,000 tons of comparable grades. This information is reported by Paradis (2004) to come from Industrial Minerals's august 2000 magazine, based on a Robex internal report done in 1988. The deposit has a minimum lateral dimension of 340m and a variable thickness of 0.5 to 20 metres (Paradis, 2004).

The used classification is not corresponding with mineral resources or mineral reserves. No characteristic of the ore extension between drill hole and at depth is given by the author of the estimation and the tonnage classification is an estimation done pre-NI 43-101.

The author believes this historical estimate to be reliable since further estimate of similar tonnage were confirmed by Shell Canada and because it is coherent with the historic drill program intersections used for the estimate by Shell Canada. Drilling and sampling of the same area could reproduce the historical estimate. The qualified person has not done sufficient work to classify the historical estimate as current mineral resources or mineral reserves. The issuer is not treating these historical estimates as current mineral resources or mineral reserves.

Mineralization consists of barite and minor amounts of sphalerite, pyrite, galena and chalcopyrite. Barite occurs as scattered fine-grained to coarse crystals and rosette-like clusters. Sulfides occur as fine-grained disseminations and aggregates along barite and calcite grain boundaries and along stylolite. Sphalerite has a honey yellow to dark brown color and occurs as disseminations, layered colloform growths, and aggregates of anhedral crystals (Paradis *et al.* 2004).

The paragenesis includes (1) development of secondary porosity ad precipitation of subhedral barite, bladed barite, and barite rosettes; (2) precipitation of fracture filling barite; (3) filling of fractures

and remaining voids in the limestone by a spary calcite; and (4) precipitation of sulfides, quartz, organic matter, and bitumen in the fractures and along the stylolite. Bedding-discordant tectonic stylolite crosscut all the above features. This suggest that most of the diagenesis and the barite and sulfide mineralization occurred prior to the attest phase of tectonic thrusting (D<sub>2</sub>) associated with the Taconian orogeny.

Fluid inclusions were studied in pre-barite syntaxial calcite overgrowths, in subhedral and bladed barite, and in post-barite calcite, sphalerite, and quartz. Results are present in Paradis, 2004.

Previous C-O-S isotope data and the fluid inclusion results propose that the Upton deposit was formed by mixing of two fluids, a marine water-dominated, SO<sub>4</sub><sup>2-</sup> - rich fluid, and an <sup>18</sup>O-enriched and <sup>87</sup>Sr-depleted basinal brine, which carried Ba, Zn, and Pb. Such basinal fluids would come from connate seawater or from the dissolution of evaporates. The metals were likely derived from fluids that interacted with basement or siliciclastic rocks in the deepest parts of the basin. The reduced sulfur required for the precipitation of sulfides was derived from the thermochemical reduction of sulfate by hydrocarbons. The late precipitation of sulfides after barite maybe related to the sluggishness of the sulfate reduction.

The mineralization occurred during the Middle to Late Ordovician Taconian orogeny, and tectonic burial and compression is thought to have initiated the circulation of fluids, which would have been channeled through the sedimentary pile along thrust faults and vertical fractures and migrated into the confined crinoidal limestone.

The metal-carrying fluids may have been derived from a deeper part of the basin to the southeast of the Upton deposit. They were likely driven northwest by tectonic deformation or topographic relief created by the Taconian orogeny. These fluids were channeled through the sedimentary pile along thrust planes and vertical fractures and migrated into the confined upper crinoidal limestone of the Upton Group.

**Figure 12 and Figure 13** show respectively the surface expression and a cross cut section of the deposit. More cross cut sections can be found in Gauthier, 1986.

#### Other mineralization

Upton North showing is a Zn-dominated vein style mineralization located 1.5 kilometres north of the Upton Deposit, in an old quarry 900 meters northeast of the junction of 7th range and Carriere Range (Derosier, 1999, Cooke, 1999).

The Upton Copper showing mineralization occurs as stringers of chalcopyrite associated with calcite veinlet in carbonates. The carbonate is a thickly bedded, locally fractured dolomitic limestone with scattered sandy, cherty and pyritic shale phases. The copper is epigenetic and seem derived by the nearby and underlying basaltic volcanics (Baldwin, 1973). Bornite, azurite and malachite are visible in a small quarry 300 meters north of the Upton deposit. It is historically named Prince of Wales Mine and a few tons of high grade copper ore were shipped in the 20<sup>th</sup> century. On lot 49, range 7, Bissonette's Mine also shipped copper ore (Schindler, 1966) to the Acton quarry's processing plan.

A small quarry is also present along range 7, 160 meters north from the junction of range 7 and Chemin du Cap.



## Item 8: Deposit Types

The Upton deposit most resembles the Mississippi Valley Types (MVT) deposits of the Central and Southeast Missouri MVT districts in its fluid inclusion characteristics (Paradis *et al.* 2004). The following text is adapted from Longuépée (2008) and resumes precisely the MVT context of the Appalachian.

MVT deposits usually form widespread metallogenic province which hold many world class districts. The Appalachian province is one of importance, where the mineralisation seems to be controlled by four paleoaquifers.

MVT deposits are commonly found in carbonate rock of cambrian to late carbonifer age. This period correspond to the Pangea accretion. The MVT deposits can be pre-, syn-, or post-deformation. It seems that the most favorable environment occurs in foreland of the orogenic front. The flexure of the crust due to thrust faulting results in normal fault that allow fluid transport.

Mineralization in MVT is discordant at the deposit scale and is stratabound at the district scale. MVT are usually hosted in dolostone and rarely in limestone. High porosity zones control the mineralization since this is where fluids can precipitate their metals. Five elements seem to control the MVT distribution: 1) pre-mineralization breccia, 2) faults and crack, 3) transition in sedimentary facies, 4) barrier reef and 5) basement topographic highs. In those environment exist a porosity contrast in the lithology.

The most common alteration found is the dissolution of the host rock due to acid production during fluids reactions which result in brecciation of the host rocks. Hydrothermal dolomitization is also common in MVT deposits. Mineralogy in MVT deposit is generally simple and made of sulfurs, mostly sphalerite, galena and pyrite. Barite is usually present in small quantity. One third of the deposits contain silver.

Brines seem to contribute to the metal transport in fluid forming MVT deposits. The source of the metals and sulfur are uncertain and can be provided by many different sources. A mixing of fluids is the best scenario that allows the sulfur reduction necessary for the zinc and lead sulfides precipitation. Large-scale basinal fluid flow associated with orogenies has been related to the formation of Mississippi Valley Type (MVT) deposits in many parts of the Appalachian fold belt, from the East Tennessee to Newfoundland. In the Quebec Appalachian, no important MVT deposit has been found so far (Paradis *et al.* 2004).

The Upton deposit most resembles the MVT deposits of the Central and Southeast Missouri MVT districts in its fluid inclusion characteristics. The deposition of whether barite or Zn and Pb sulfides depend on what kind of fluid the Ba-Zn-Pb-rich brine first encountered. Therefore, significant MVT mineralization may be located to the southeast of northwest of Upton if the brine that formed the Ba-Zn-Pb deposit encountered an H<sub>2</sub>S-rich trap elsewhere along the flow path (Paradis *et al.* 2004). The Upton group have the potential to contain carbonate-hosted base metal type (Cooke, 1999).

Syngenetic, submarine exhalative and epigenetic models have been proposed to explain the mineralization (Iannelli, 1998b, Cooke, 1999). Regardless of the timing of the mineralization, a similarly favourable porous host that could be found elsewhere in the area with a much greater thickness may have been subjected to sulphide mineralization. If the barite mineralization didn't

precede the sulphide mineralization as in the Upton deposit, it is possible that such deposit would hold more sulphides since the original porosity wouldn't be severely decreased by barite (Cooke, 1999).

## **Item 9: Exploration**

No work was carried on by the issuer.

## **Item 10: Drilling**

No drilling has been carried on the Property by the issuer.

## **Item 11: Sample Preparation, Analyses and Security**

The issuer is to split drill core with visible mineralization and send one half for base metal and gold analysis, in one metre intervals. Random intersections in each lithology should also be sampled after splitting to help characterise them.

## **Item 12: Data Verification**

The data was obtained from an assessment report file and cannot be verified. However, the field visits carried out by the authors on the property allowed inspection of the geological context and the local infrastructure discussed under Item 5 and the lithological descriptions presented in Item 7. No samples were taken for analysis since most of the historical mineralization was found by drilling and no cores were left by previous owners. A visit on a known copper showing allowed direct observation of the mineralization of the Prince of Wales showing, as discussed under item 7.

Gravity measurements leading to identification of anomaly A and B were performed twice to confirm its validity. Assistant Mike Anderson verified the gravity data processing of the gravity survey show under item 9 and resulted with the same anomalies. He also processed the data further more to obtain a residual gravity map that also show similar gravity anomaly. The residual gravity is shown in Figure 15.

Mike Anderson verified part of the assessment report by reviewing number of documents dating back to 1966. Various geophysical techniques have been used at the property. The most relevant data is regional airborne data. Induced Polarization (IP) surveys were performed by Upton Copper on the property and in the surrounding area returned mixed results. In 1998, Phelps-Dodge was the prime contractor for an airborne geophysical survey and a regional ground gravity survey. The airborne methods included magnetism, VLF, EM and resistivity. The airborne magnetic data does show an anomaly north-east of the Upton deposit. The same large anomaly can be seen in the resistivity data. The airborne EM and VLF data were negatively affected by power lines in the area. CME performed a ground gravity survey in 2011. The residual gravity does show a corresponding anomaly with the one detected by the airborne magnetics and resistivity, shown in Figure 16.

## **Item 13: Mineral Processing and Metallurgical testing**

No mineral processing and metallurgical testing has been carried by the issuer.

## **Item 14: Mineral Resource Estimates**

No mineral resource estimates has been carried by the issuer.

## **Item 15: Mineral Reserve Estimates**

No mineral reserve estimates has been carried by the issuer.

## **Item 16: Mining Methods**

No mining methods analysis has been carried by the issuer.

## **Item 17: Recovery Methods**

No recovery methods tests have been carried by the issuer.

## **Item 18: Project Infrastructure**

No project infrastructure has been planned by the issuer at this time. The report discussed available infrastructures under Items 4, 5, and 6.

## **Item 19: Market Studies and Contracts**

No market studies and contracts have been carried by the issuer.

## **Item 20: Environmental Studies, Permitting and Social or Community**

No environmental studies, permitting and social or community impact studies has been carried by the issuer.

Discussions with the land owner on for which an option was acquired revealed that he known the mining industry and the risk of exploration. No land owner restricted the gravity work or drill work that was done by the current owner of the claim. The mayor was contacted before drilling occurs and he is also knowledgeable about mining since he was in office when Robex Resources was working on the property. He has no opposition to exploration as long as the land owners agree to the exploration we want to do on their property.

It was set clear to all local owners that the objective of the exploration work was to find bigger deposits, or, a district, that would correlate with the MVT model used for exploration. A better understanding of crop rotation will allow to better plan exploration phase with farmers.

## **Item 21: Capital and Operating Costs**

No capital and operating cost estimates have been carried by the issuer.

## **Item 22: Economic Analysis**

No economic analysis has been carried by the issuer.

## **Item 23: Adjacent Properties**

There is no other claim owner in the immediate area to the property.

## **Item 24: Other Relevant Data and Information**

No other relevant data or information is reported here with respect to the Upton Property.

## **Item 25: Interpretation and Conclusions**

### **Geophysics**

The source of the magnetic high, in the vicinity of the Upton North showing and the gravity anomalies remain largely unexplained. It is reported that ultramafics and volcanics are in the area but their relation with the Upton deposit is unknown. It is possible that this unit could create alteration and secondary porosity in the surrounding rocks and so are important for mineral deposition.

The IP surveys didn't correlate with the zinc content of the drill cores. IP anomalies could correspond to nodular and laminated pyrite or graphite in black shales. Airborne magnetism was successful in mapping various lithologies and identifying certain structures (Cooke, 1999).

### **Geochemistry**

Soil and stream sediment survey resulted in various anomalies all over the property, with two soil anomalous zone having a north-south direction, northwest of the Upton deposit. It is possible that the soil samples were taken in a till unit. Till has been encountered at many place on the property, during drilling or along roads. The origin of the anomalous soil could come from a mineralisation further north (up ice) of the anomalies instead of directly under the anomalies. The stream sediment anomalies also seem to show a source north of the soil anomalies.

### **Stratigraphy**

The stratigraphy of the Upton group allow place for more favorable environment for the deposition of MVT deposits. Because of the rhythmical nature of the sedimentation, additional grainstone bodies may exist stratigraphically lower or higher than that established thus far. The limestone unit allow for ample room (thickness) for the discovery of significant sized porosity fill sulphide deposit if sufficient sulphide bearing fluids were channelled into this area (Cooke, 1999).

Regardless of the timing of the mineralization if a similarly favourable porous host could be found elsewhere in the area with a much greater thickness, another sulphide deposit could be present. If the barite mineralization didn't precede the sulphide mineralization as in the Upton deposit, it is possible that such deposit would hold more sulphides sine the original porosity wouldn't be severely decreased by barite (Cooke, 1999).

The trough needed to obtain the lithological succession on the property origin is not known but could correspond to the Ottawa Graben and the structural implications for exploration is that the field work should focus on west-, northwest – and north-northwest – trending primary faults. Those structures would have outlined primary trough or sub-trough component of half-graben. These structures are major site for hydrothermal fluid circulation during and after deposition and dewatering of the sediment piles (Iannelli, 1998c).

## Item 26: Recommendations and Budget

A compilation and sampling of the 2012 drill work should be done. This phase is independent from other work on the property.

A till survey must be carried out on the property along east-west roads and on the two biggest soil anomalies with a 75 meter sampling mesh for a total of 8 kilometers. The till should be concentrated and sent for base metal analysis. A field follow-up on till results should be done, by sampling upstream of the till anomalies. The analysis of the concentrate would allow determining if minerals deposits or alteration zones were eroded by glaciers, without having contamination from the basement rocks. This would help finding a source to the soil sample anomalies north west of the Upton deposit. The till survey is non-contingent upon other results.

In addition to investigating these areas, recommendations include performing a ground magnetic survey over part of the property. A detailed ground magnetic survey would target underlain volcanics as well as structural features. A gravity survey would aid in gaining structural information but could also target higher density zones caused by galena and/or sphalerite mineralization. Electrical methods are limited due to agricultural features as well as graphite-rich shales. However, resistivity could prove useful in detecting and mapping areas containing limestone. In summary, the recommended methods are intended to better understand the carbonate sequence versus targeting mineralization.

The geophysical work is non-contingent of the till results, but it is suggested to execute geophysical work after the till survey is done since targets could be generated by the till survey. Magnetometer and VLF over one grid of 1 km on 10 east-west lines should be planned over five anomalous till area and/or gravimetric anomalies for a total of 50 km.

Subsequent drilling programs of 750 meters would verify the most interesting anomalies. The drilling program is contingent on confirmation by till or geophysical results.

### Item 26.1 Budget

**Table 4. Compilation of drilling and sampling budget, independent from other phases**

	Quantity	Cost per unit	Total cost
Senior Geophysicist	2 days	650\$	1,300\$
Junior Geologist	4 days	450\$	1,800\$
Documents	1	100\$	100\$
Mobilization/demobilization	1	1,500\$	1,500\$
Field work	3 days	1,500\$	4,500\$
Food and lodging	3 days	480\$	1,440\$
Report	1	2,000	2,000
		Total	12,640\$

**Table 5. Till survey and follow up budget (Phase I)**

	Quantity	Cost per unit	Total cost
Senior Geophysicist	2 days	650\$	1,300\$
Junior Geologist	7 days	450\$	3,150\$
Sample concentration	110	20\$	2,200\$
Samples analysis	110	31\$	3,410\$
KM	500	1\$	500\$
Food and lodging	2 days	350\$	700\$
Report	1	1,500	1,500
		Total	12,410\$

**Table 6. Magnetic and VLF survey follow up over gravity and till anomalies budget (phase I), in part contingent on phase I results**

	Quantity	Cost per unit	Total cost
Mobilization/demobilization	1	1,000\$	1,000\$
Field work	50 km	125\$	6,250\$
Food and lodging	5 days	480\$	2,400\$
Report	1	2,000	2,000
		Total	11,650\$

**Table 7. Drilling program (Phase II) contingent over phase I results**

	Quantity	Cost per unit	Total cost
Drilling	750 metres	100\$	75,000\$
Mobilization/demobilization	2	1,000\$	2,000\$
Water	25	500	12,500
Food and Lodging	25 days, 4-5 men	320\$	8,000\$
Samples analysis	150 samples	30\$	4,500\$
Core shack, Splitting machine	2 month	1,100\$	2,200\$
Technician	6 days	300\$	1,800\$
Junior Geologist	13 days	450\$	5,850\$
Senior Geologist	3 days	650\$	1,950\$
Report	1	3,500\$	3,500\$
Other (+/- 11%)			15,700\$
		Total	136,000\$

## Item 27: References

**Asbury, W. Nowers. 1965.** *Progress report on Upton Copper LTD, lots 51-53.* For Upton Copper LTD. GM16731. 12 pages, 1 plan.

**Asbury, W. Nowers. 1966.** *Assay results of drill-core samples.* For Upton Copper LTD. GM17540. 37 pages, 1 plan.

**Baldwin, A.B. 1973.** *Report recommending mineral exploration for 1973-1974 in an area located in the St. Lawrence Lowlands, province of Quebec.* For Shell Canada. GM39067. 32 pages.

**Baril, F.Bimugène, 1996.** *Description of a feasibility study.* Online.  
<http://www.bumigeme.com/projdetail-11.html>. 1 page.

**Bischoff, C.T. 1966a.** *Geochemical survey.* For Upton Copper Limited. GM17986. 5 pages, 1 plan.

**Bischoff, C.T. 1966b.** *DCIP survey.* For Upton Copper Limited. GM17990. 6 pages, 1 plan.

**Cooke, Craig M. 1999.** *Report on the 1999 summer diamond drilling program on the Acton property, Québec, NTS 31H/10, Project 291.* For Phelps Dodge Canada. GM57988. 76 pages, 1 plan.

**Castonguay, Jean. 1977.** *Summary report 1976-1977, Drilling report 1977, The St.Lawrence Lowland Project, Quebec – NTS 31H/10, Acton Township.* For Shell Canada. GM39066. 32 pages, 2 plans.

**Derosier, Christian. 1999.** *Résultats des travaux d'exploration sur le projet Upton-Acton, SNRC 31H/10.* By Christian Derosier Géologue-Conseil Inc for J. and D Kouri. GM57997. 22 pages, 2 plan.

**Farquharson, Stanley C. 1964.** *Property Report on Copper-Limestone prospect of Upton Copper LTD.* For Upton Copper LTD. GM15638. 8 pages.

**Gaucher, Edwin. 1995.** *Levé de polarisation provoquée, propriétés Kouri et Upton.* By Christian Derosier Géologue-Conseil Inc. GM54125. 25pages, 8 plans.

**Gauthier, Michel. 1986.** *Synthèse métallogénique de l'Estrie et de la Beauce (Secteur centre-ouest).* . Ministère de l'Énergie et des Ressources du Quebec. MB8646. 108 pages, 10 plans.

**Gauthier, Michel. 1988.** *Histoire des mines métalliques de l'Estrie-Beauce.* Ministère de l'Énergie et des Ressources du Quebec. PRO 88-07. 60 pages.

**Hinzer, Joe B. 1987.** *Acton Property, Acton Township, Province of Quebec, NTS: 31H10.* GM45805. For Thunderwood Explorations Ltd. 14 pages, 1 plan.

**Iannelli, Thomas R. 1998b.** *Report on the results of Phase II, Upton-Acton Vale project, southeastern Quebec (NTS 31H/10).* By TRI-EX Consultants Ltd for Phelps Dodge Corporation of Canada, Ltd. GM56289. 148 pages, 11 plans.

**Iannelli, Thomas R. 1998c.** *Results of recent field work on the Acton project, southeastern Quebec (NTS 31H/10).* By TRI-EX Consultants Ltd for Phelps Dodge Corporation of Canada, Ltd. GM57133. 213 pages, 8 plans.

**Jagodits, Francis L. 1998.** *Report on helicopter-borne magnetic-electromagnetic-vlf-em, and regional gravity surveys, Chaudière Project, ActonVale area, Acton and Upton townships, Québec, NTS 31H/10, Project 293.* Phelps Dodge Corporation of Canada Ltd. GM56287. 128 pages, 16 plans.

**Lachance, Paul H. 1964.** *Report on new property.* For Upton Copper Ltd. GM15123. 7 pages.

**Lauzier, Steven and Zubrzycki, Alain. 2010.** *Rapport de travaux d'un levé gravimétrique sur la propriété Upton.* GM66197. 66 pages.

**Lebulletin, 2001.** *L'agriculture ou la mine à Upton ?.* For Le Bulletin des agriculteurs. Online. <http://www.lebulletin.com/actualites/lagriculture-ou-la-mine-upton-15551>. 2 pages.

**Lespérance, Pierre J. 1963.** *Preliminary Report on Acton Area, Bagot and Shefford Counties.* Department of Natural Resources. RP496. 9 pages, 1 plan.

**Longuépée, Hugues. 2008.** *Stratégie d'exploration pour le zinc dans les Appalaches.* Projet 2007-09, Consorem. GM66591. 38 pages.

**Ministry of Natural Resources. 2012.** *Drilling in the 31H10 NTS sheet.* On the SIGEOM system, online. [http://sigeom.mrnf.gouv.qc.ca/signet/classes/11102\\_indexAccueil?l=f](http://sigeom.mrnf.gouv.qc.ca/signet/classes/11102_indexAccueil?l=f).

**Paradis, S., and Lavoie, D., 1996,** *Multiple-stage diagenetic alteration and fluid history of Ordovician carbonate-hosted barite mineralization, southern Quebec Appalachians:* *Sedimentary Geology*, v. 107, p. 121–139.

**Paradis, Suzanne, et al. 2004.** *Fluid inclusion and isotope evidence for the origin of the Upton Ba-Zn-Pb deposit, Quebec Appalachians, Canada.* *Scientific Communications, Economic Geology* Vol.99 pp.807-817. 11 pages.

**Robex, 1997.** *Consultant report renders Robex bullish on barite.* Press release. Online. <http://www.thefreelibrary.com/Consultant+Report+Renders+Robex+Bullish+on+Barite.-a019997604>. 1 page.

**Robex, 2005.** *Management report for the year ended December 31th, 2005.* Annual Financial Declaration. Online. <http://www.robexgold.com/en/pdf/mda-annuel-2005-Q4.pdf>. 17 pages.

**Schindler, N.R. 1966.** *A study of the mineral deposits and appraisal of the prospects for exploration in the eastern townships of Quebec.* 99 pages.

**Shell Quebec Limitée, 1970.** *Report on exploration activities on mineral exploration licence no.368 NTS 31-H.* GM26269. 51 pages.

**Simoneau, P. and Granger, B. 1999.** *Levé de Polarisation Provoquée, Propriété Kouri-Upton, Canton Acton, Région d'Upton SNRC 31H/10.* By Géosig Inc for Denis Kouri. GM57998. 8 pages, 4 plans.

**SOQUIP. 1980.** *Carte structural du socle (Basses Terres du St-Laurent).* DP-84-32. 29 plans.

**Tremblay, Robert L. 1975.** *Soil geochemistry Acton area.* Mineral deposits service, geochemistry division. ES23. 3 plans



**Tremblay, Robert L. 1976.** *St-Hyacinthe-Richmond Area Stream Sediment Geochemistry*. Mineral deposits service, geochemistry division. ES22. 34 pages, 8 plans.

**Tremblay, Robert L and Choinière, J. 1978.** *Géochimie des eaux souterraines, Région d'Acton Vale*. Mineral deposits service, geochemistry division. DPV566. 43 pages.

**Trudel, Bernard.** 2001. Décision dossier 314757. On the CPTAQ website's decision search tool. <http://www.cptaq.gouv.qc.ca>. 1 page.

**Sutherland, D.B.** 1965. Report on the induced polarization and resistivity survey, Upton Township, Quebec. For Upton Copper LTD. GM16369. 14 pages, 1 plan.

## Item 28: Figures

Figure 1. Localisation of the property

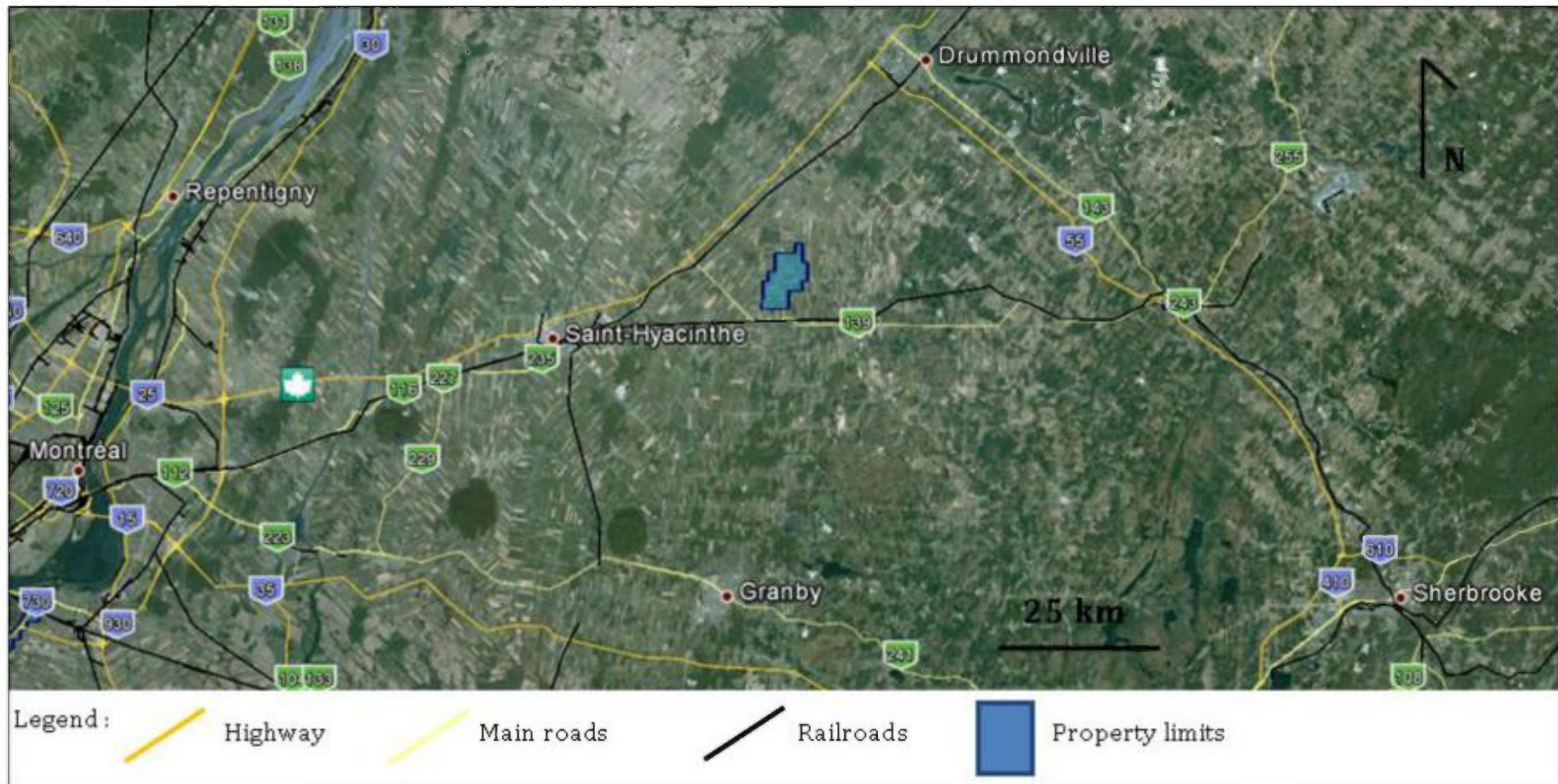


Figure 2. Claims on the property (Coordinates are in UTM NAD83 Zone 18.

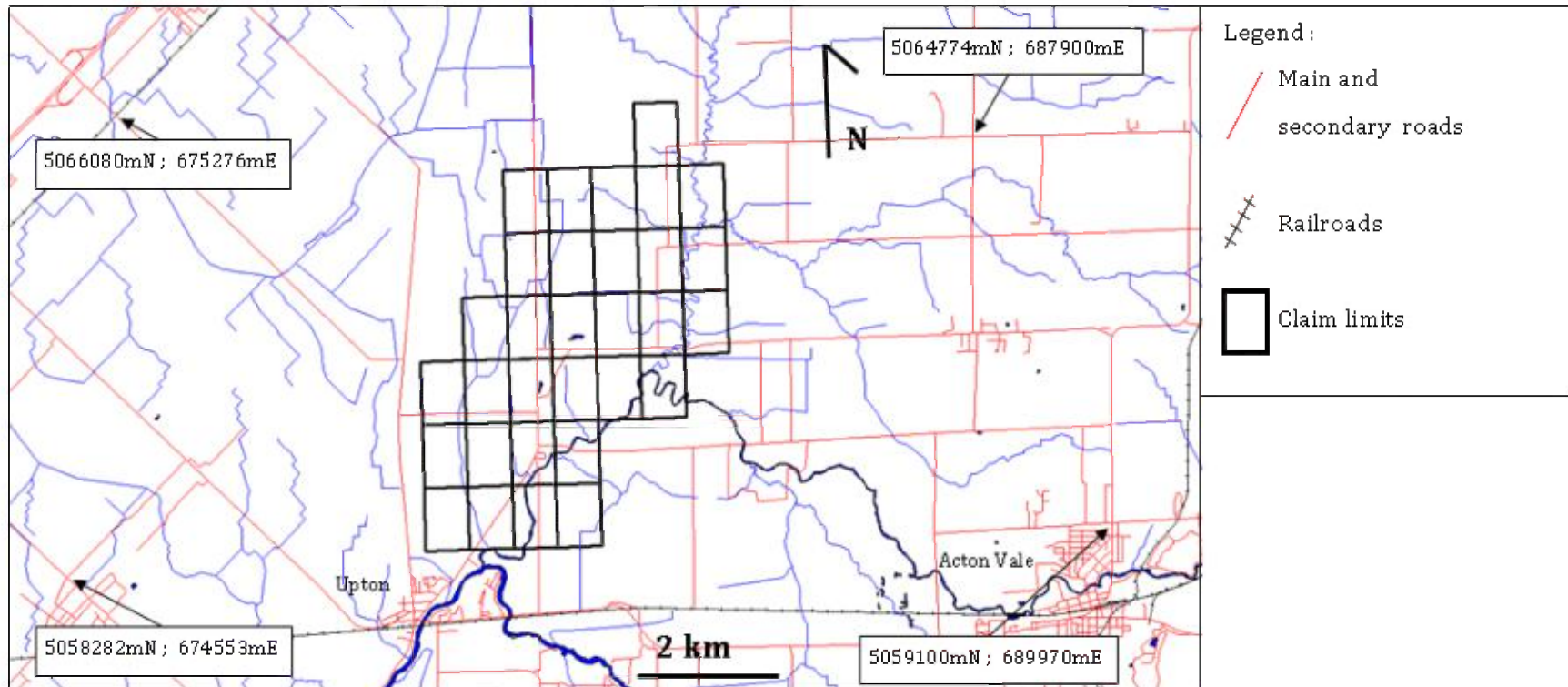


Figure 3. Land usage over the property



Figure 4. Exploration restrictions

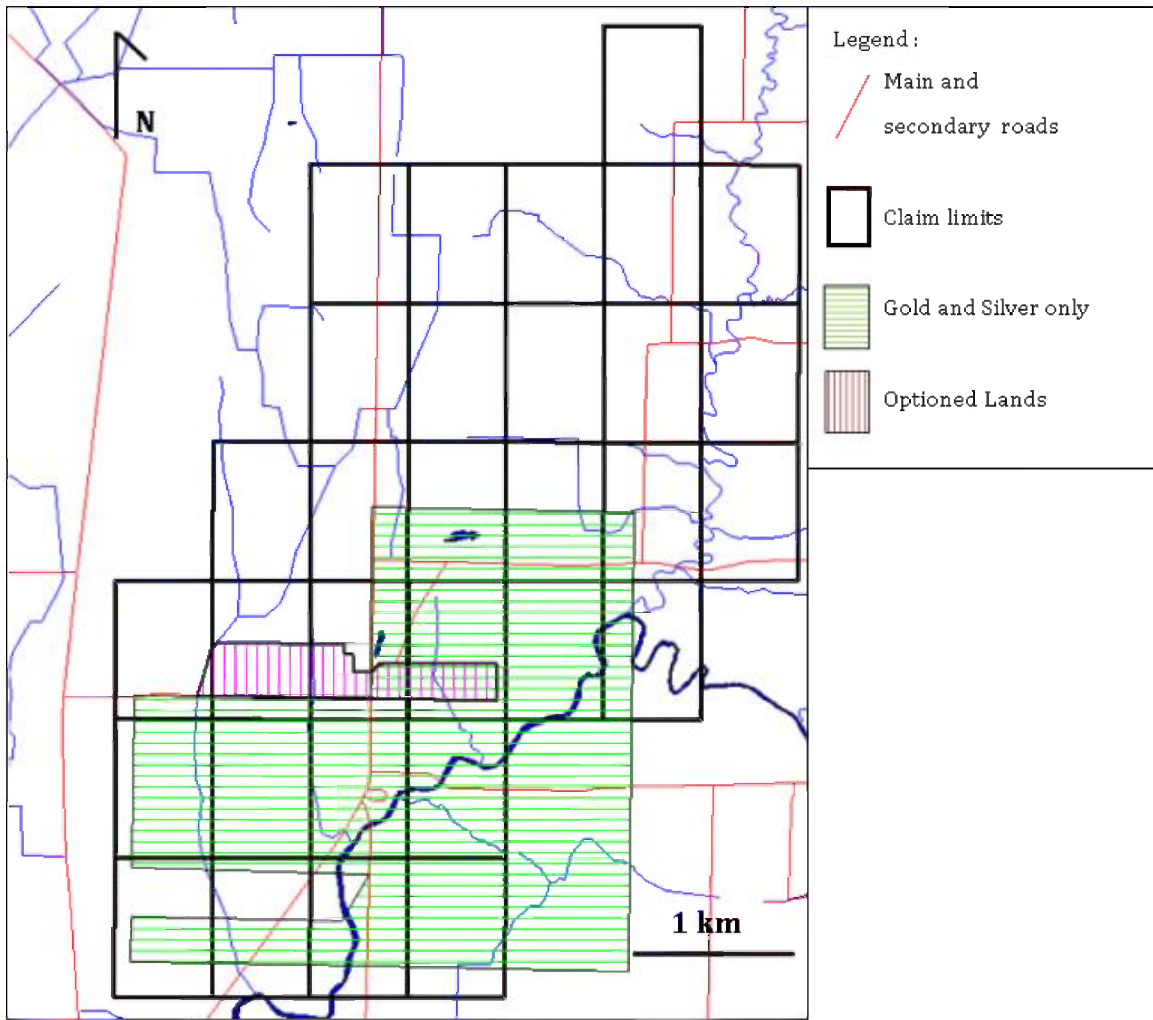


Figure 5. Upton Copper Ltd's D.C. I.P. anomalies (Bischoff, 1966b)

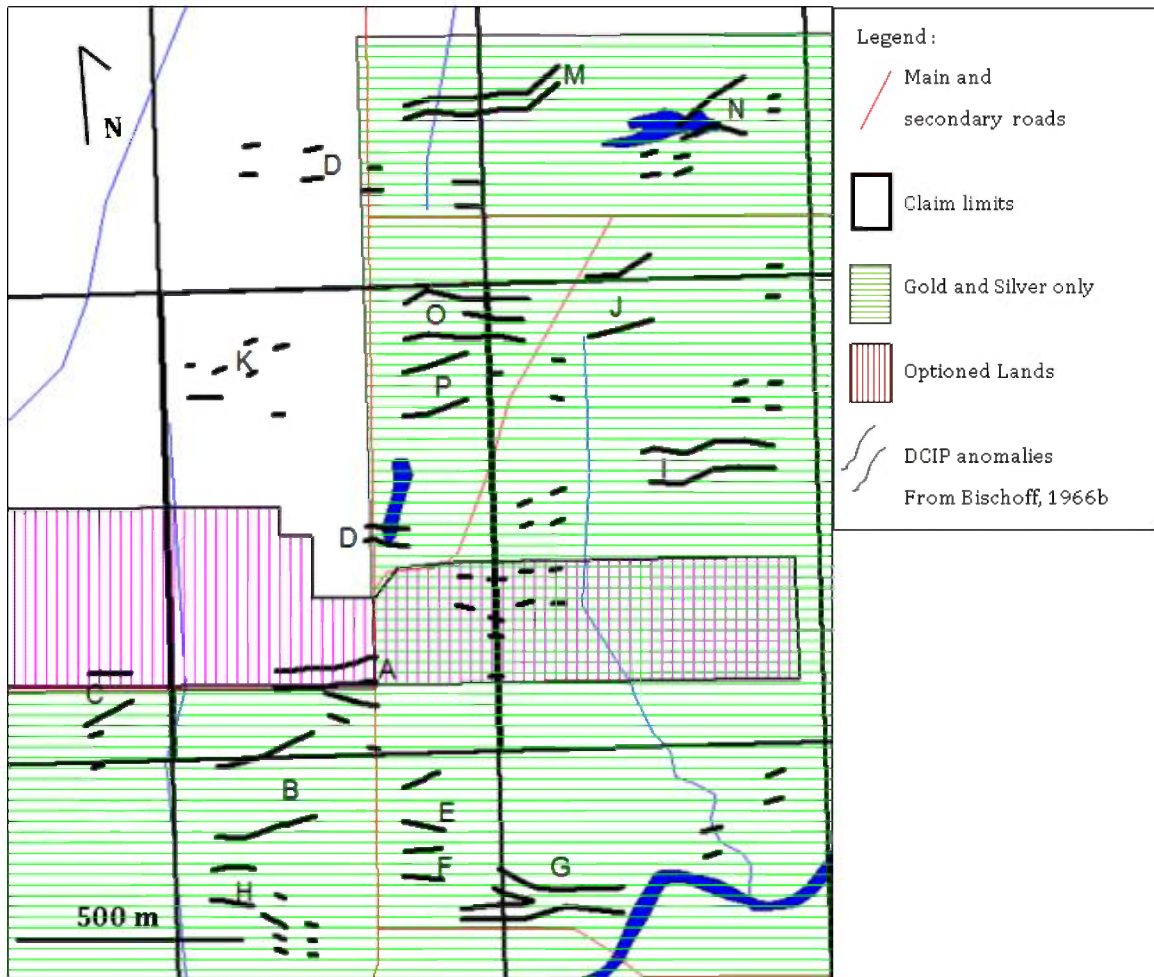


Figure 6. Drill work on the Upton property and the Upton deposit location(MRN, 2012)

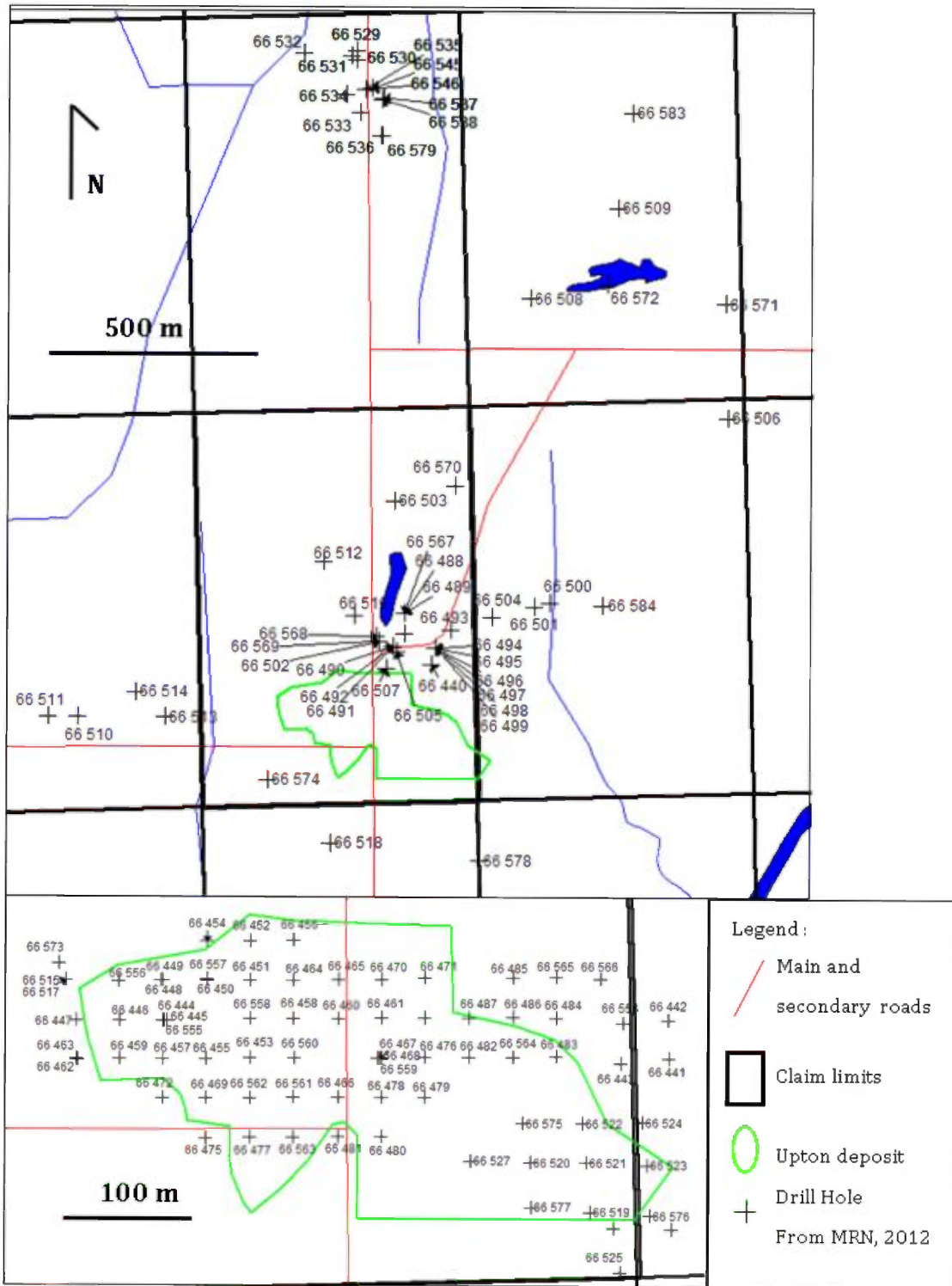


Figure 7. Geochemical anomalies in stream sediment and soil (Tremblay, 1975 and 1976)

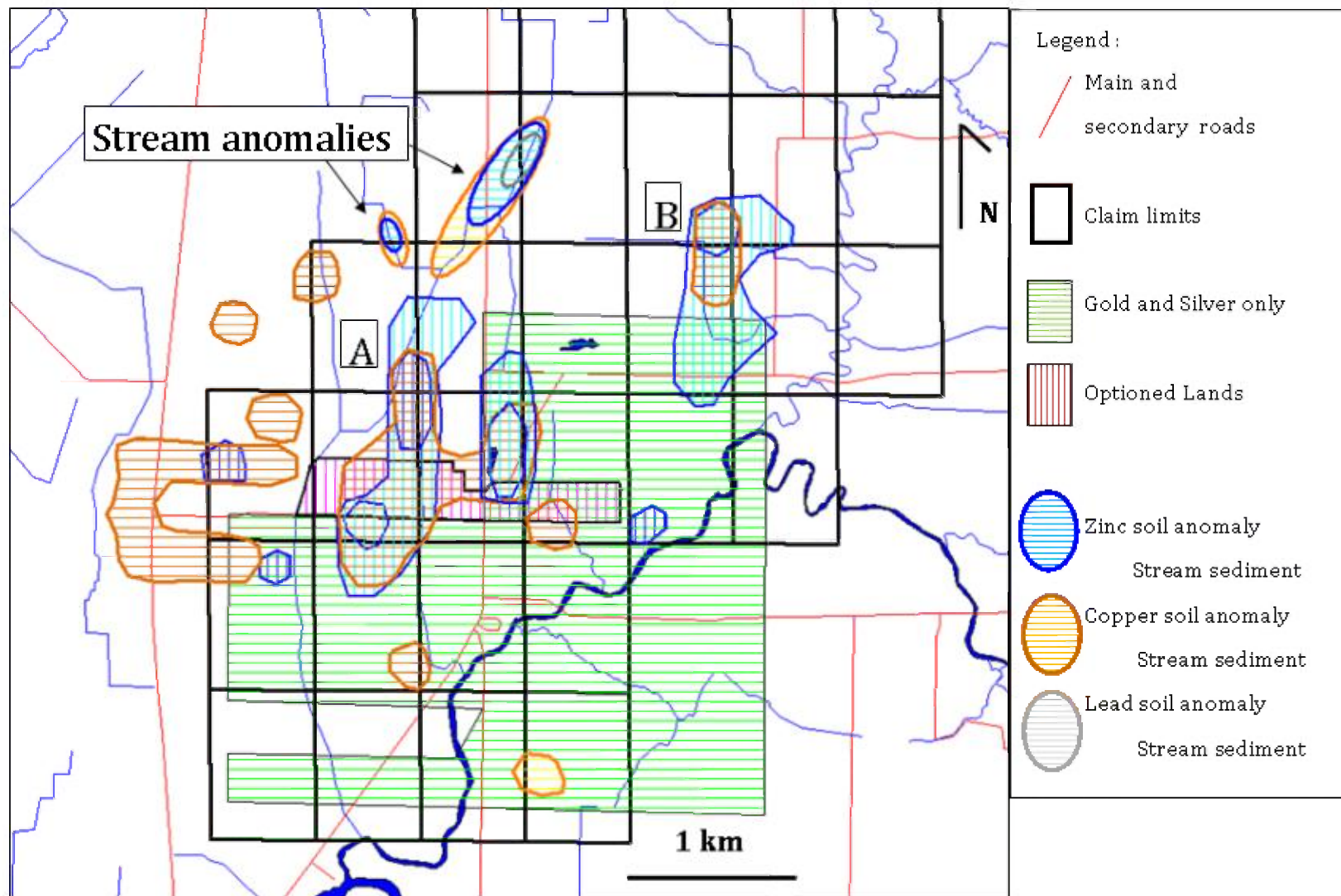




Figure 8. I.P. anomalies by Shell Minerals, 1976 (Castonguay, 1977)

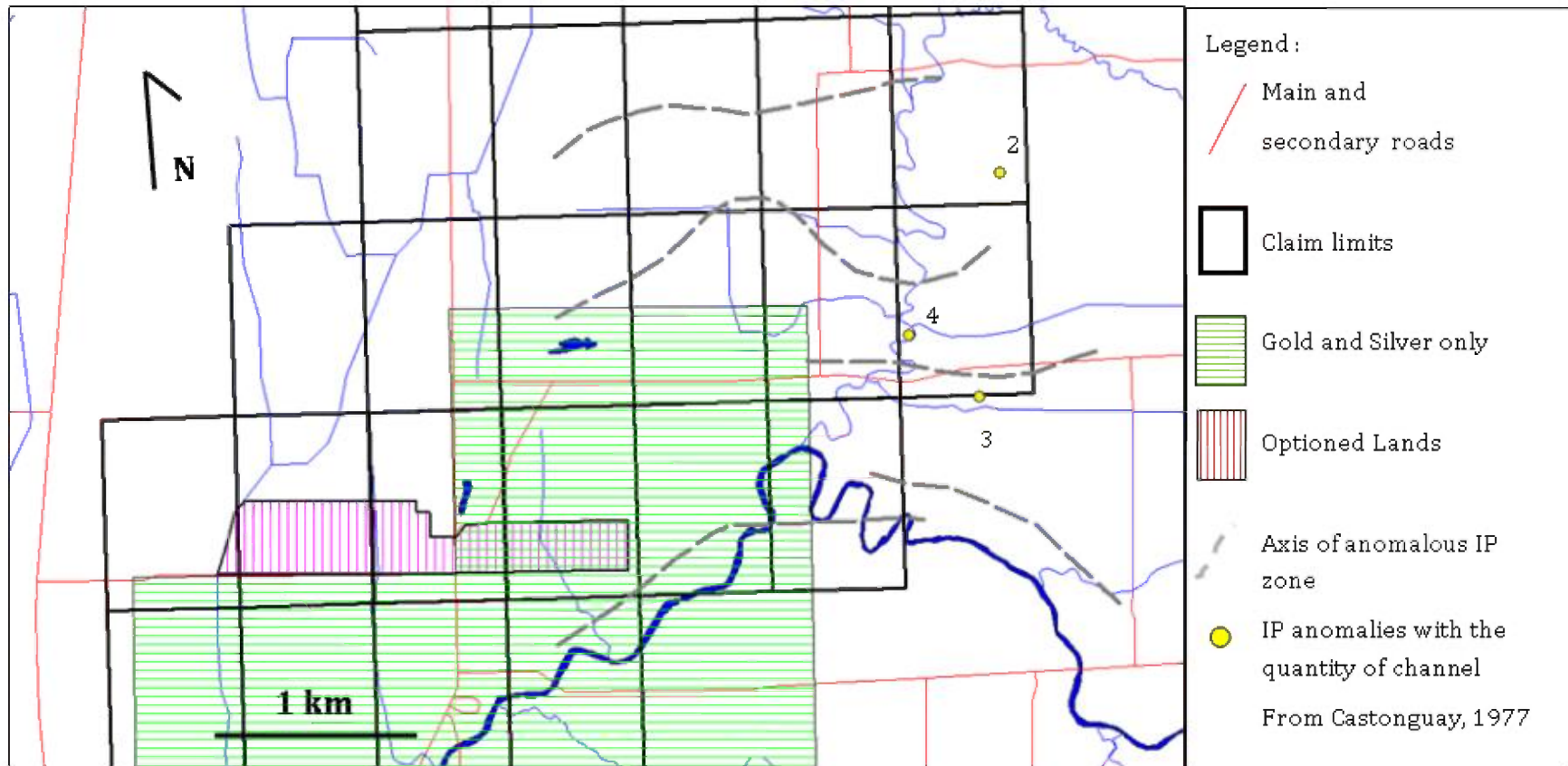


Figure 9. IP anomalies on Denis Kouri's property, 1995 to 1999 (Desrosier, 1999)

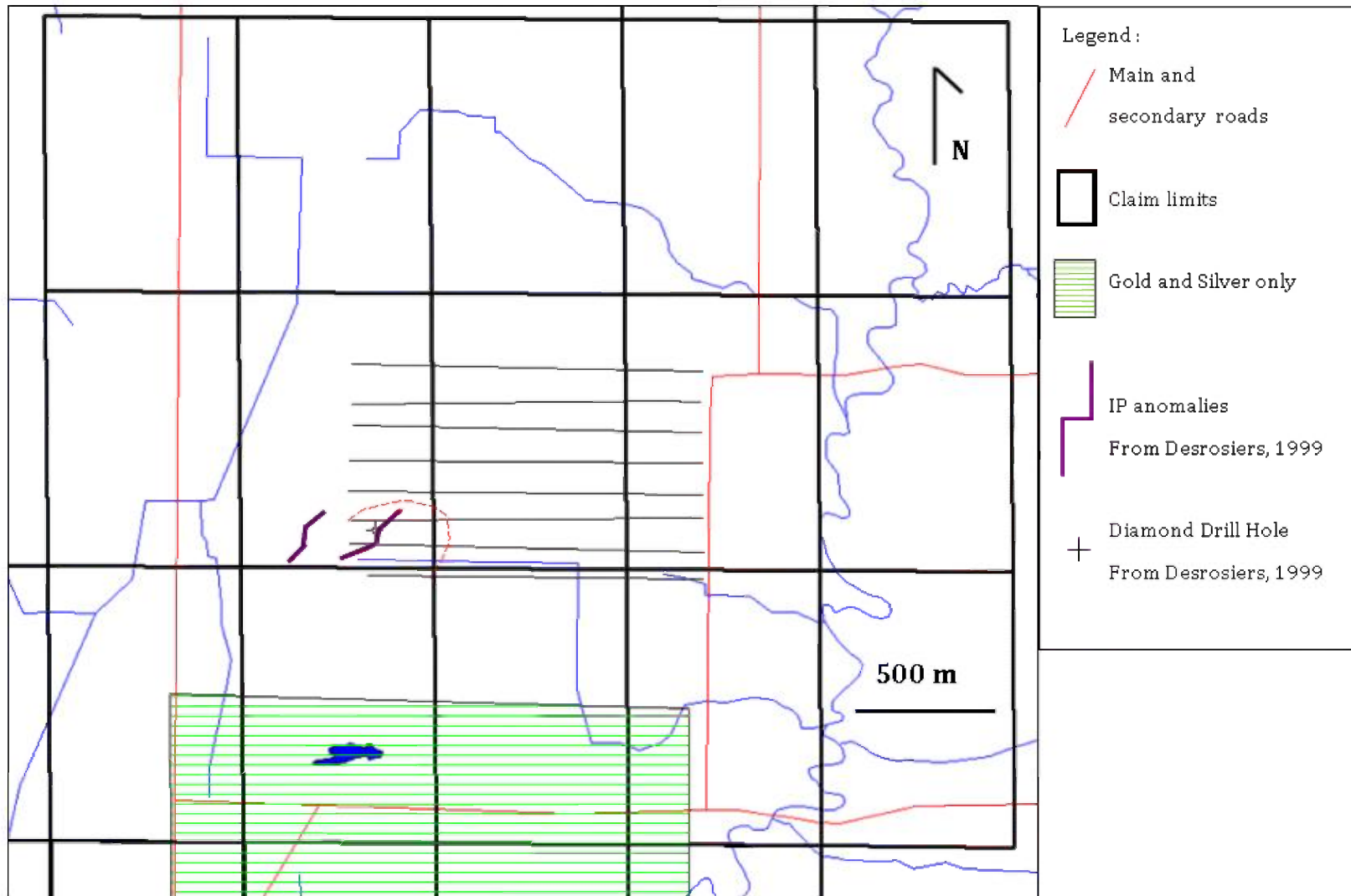


Figure 10. Geophysical compilation of Phelps Dodge Corp, 1997 (Jagodits, 1998)

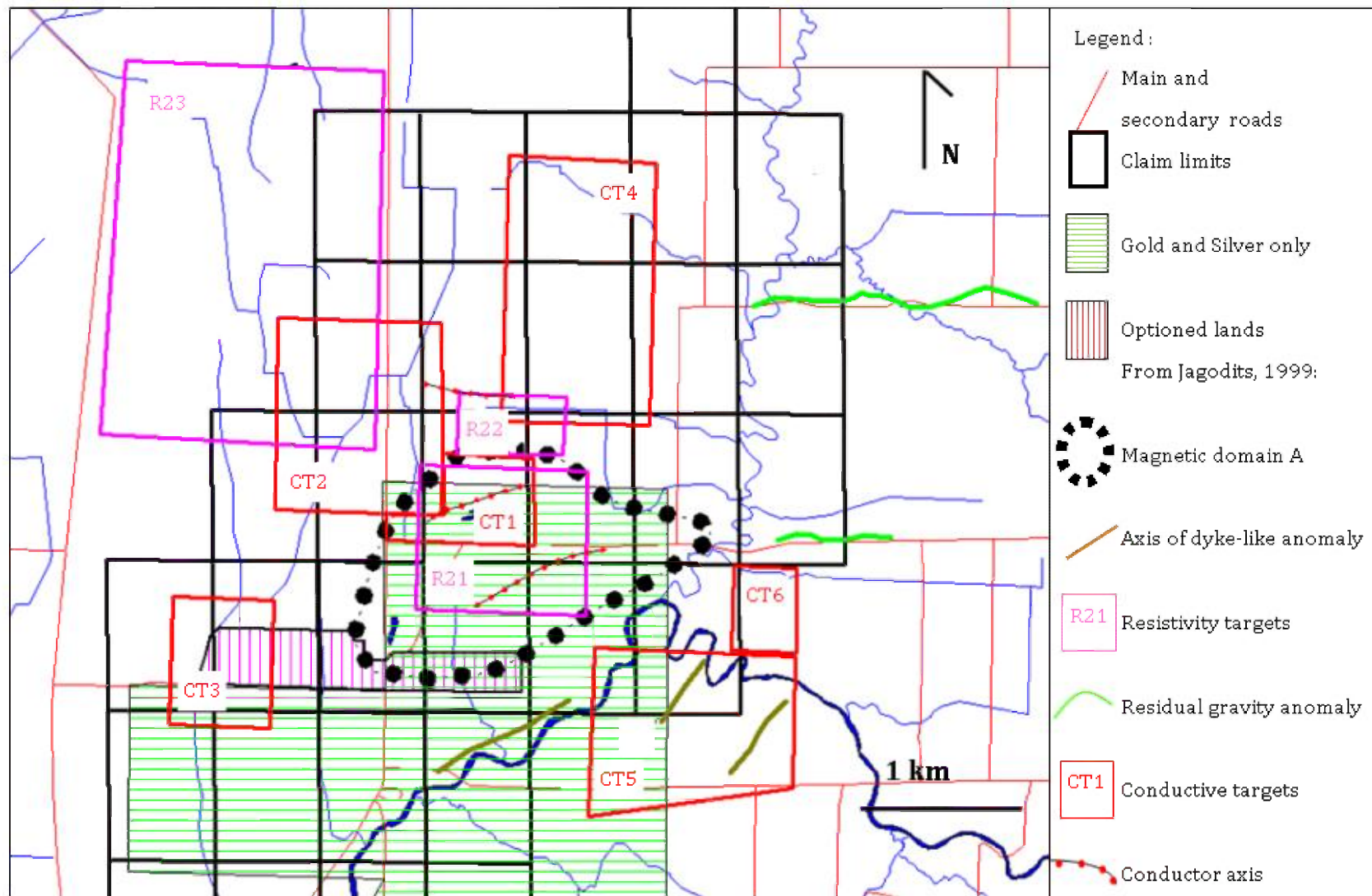


Figure 11. Interpretation of the geology in the Upton - Acton Vale area (Paradis ad Lavoie, 1996)

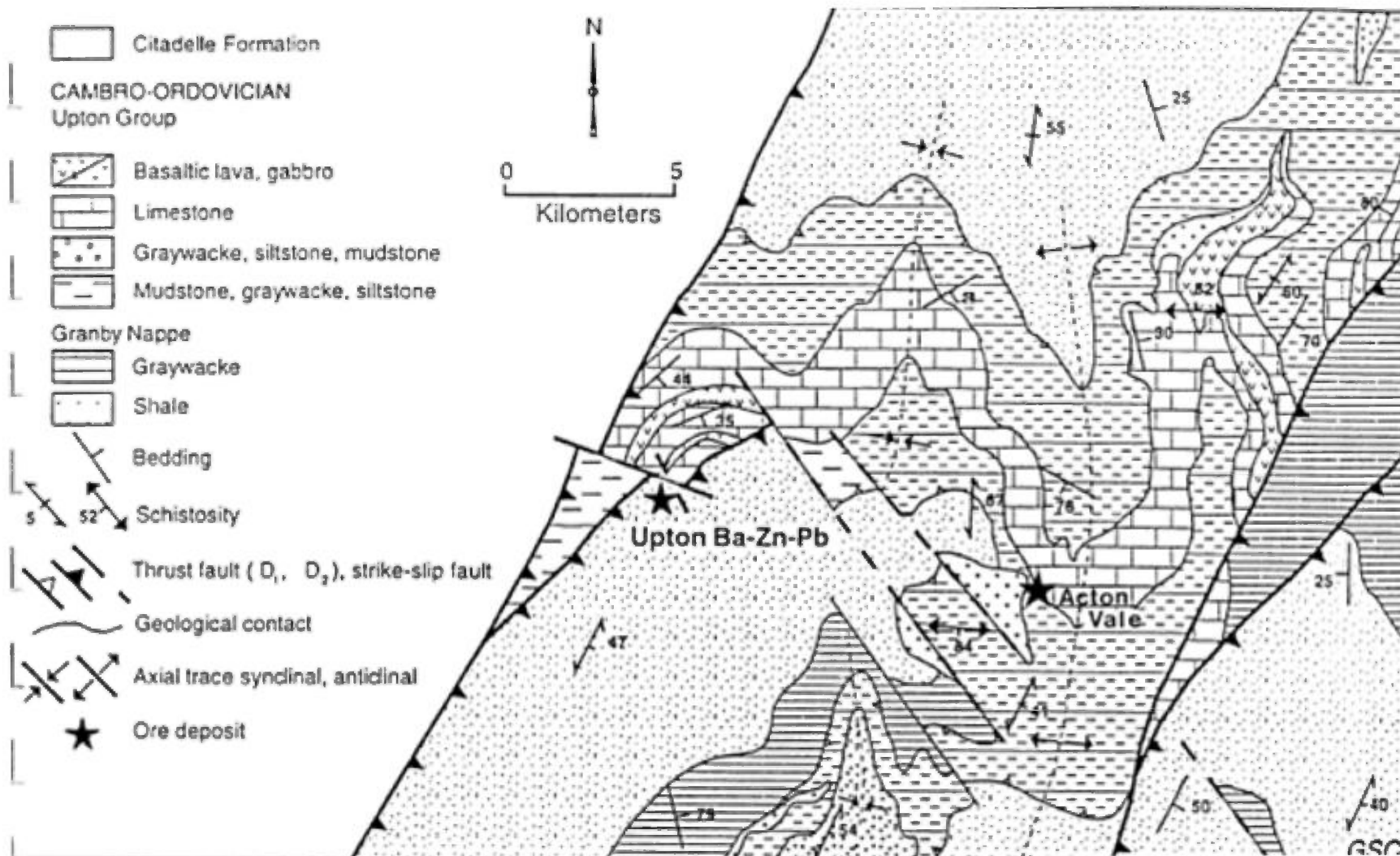


Figure 12. Surface expression of the Upton deposit (Gauthier, 1986)

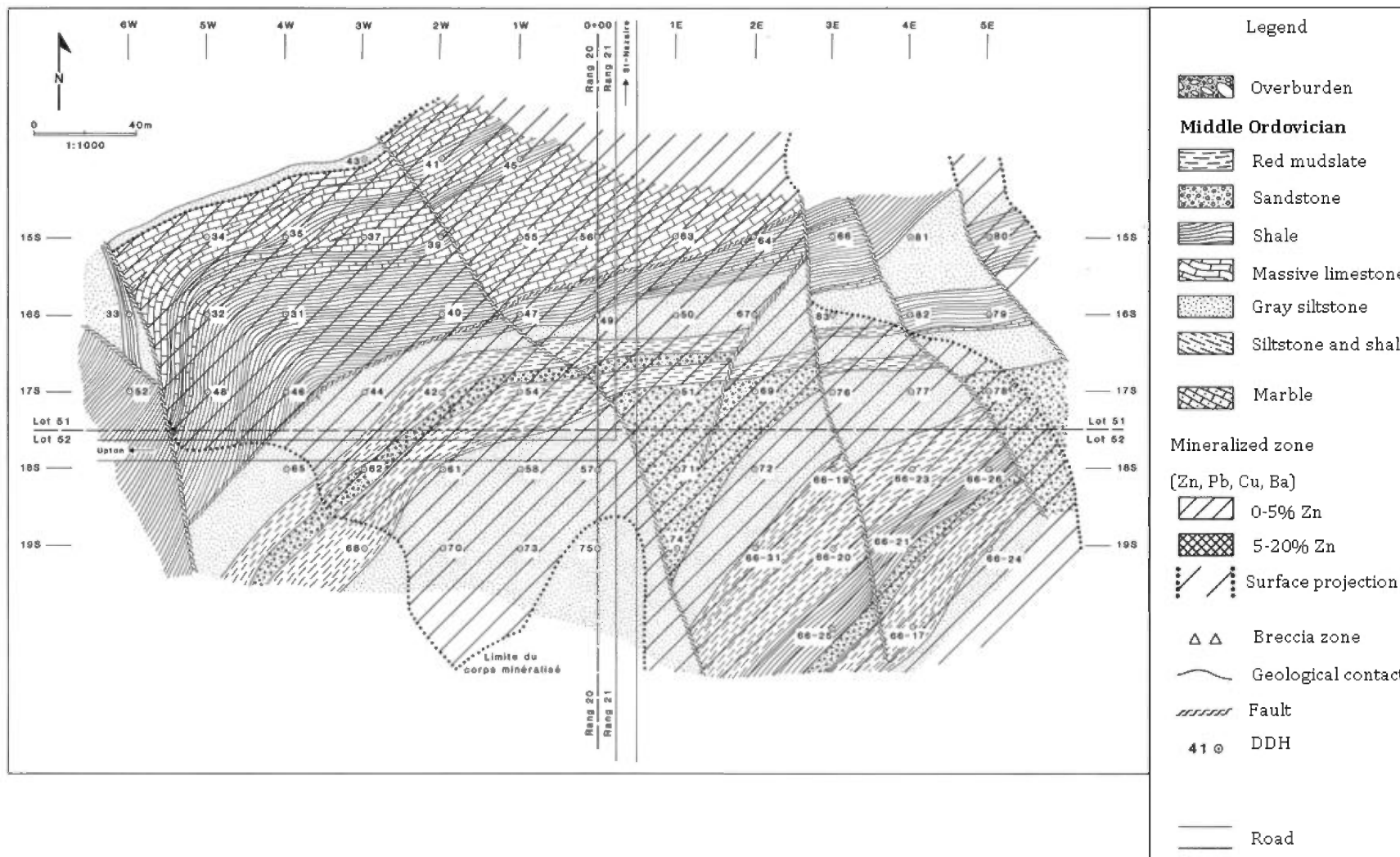


Figure 13. Cross cut section of the Upton deposit (Gauthier, 1986)

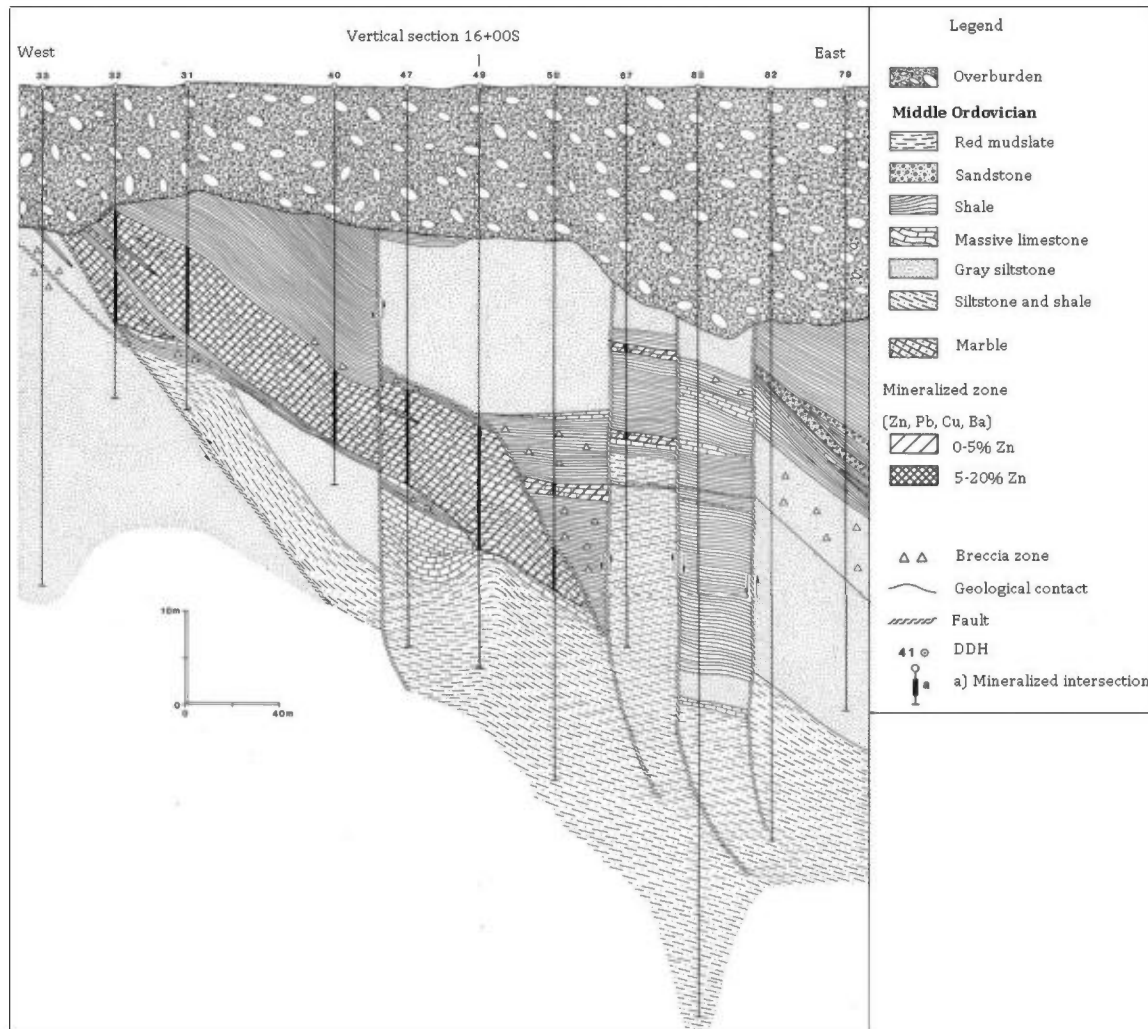
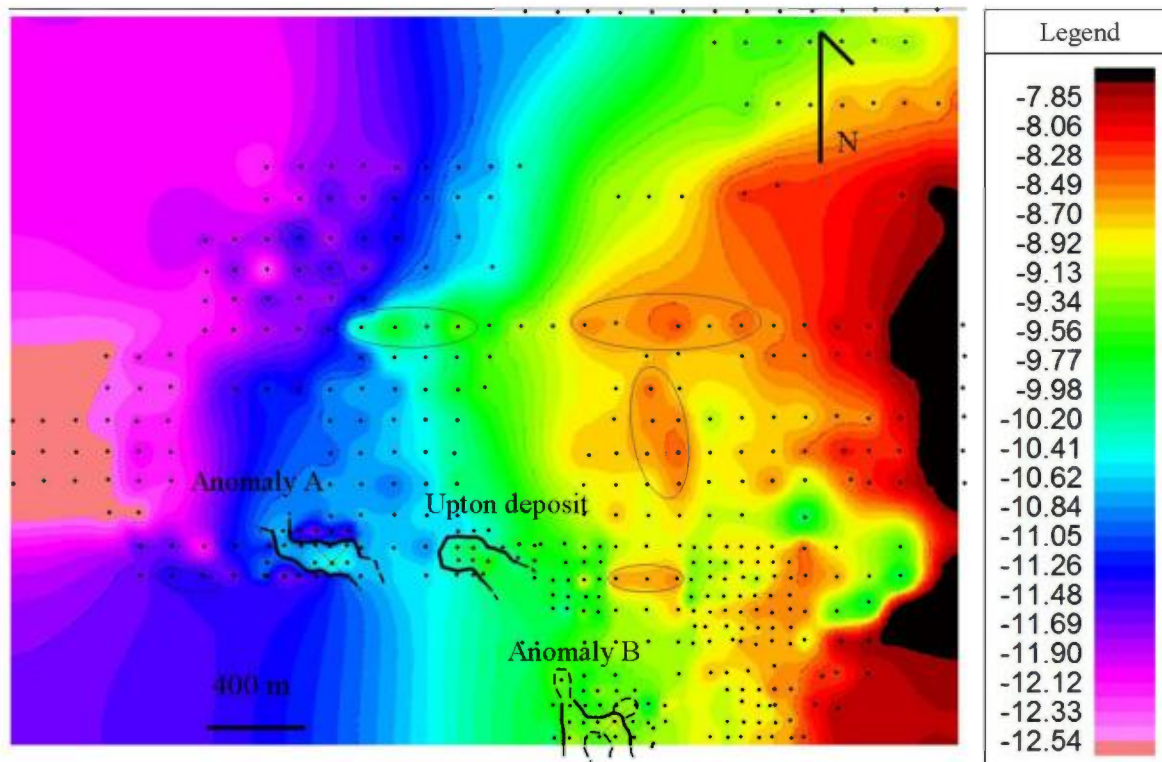


Figure 14. Complete Bouguer anomalies from 2010 exploration work




Upton Project  
Complete Bouguer anomaly without  
the base station  
Prepared by Thermoroc Inc.   
6409 2e avenue Montreal H1Y  
tel.:514-523-7712

Figure 15. Residual gravity with drill hole location (two left symbol) and deposit location (third symbol), from Mike Anderson

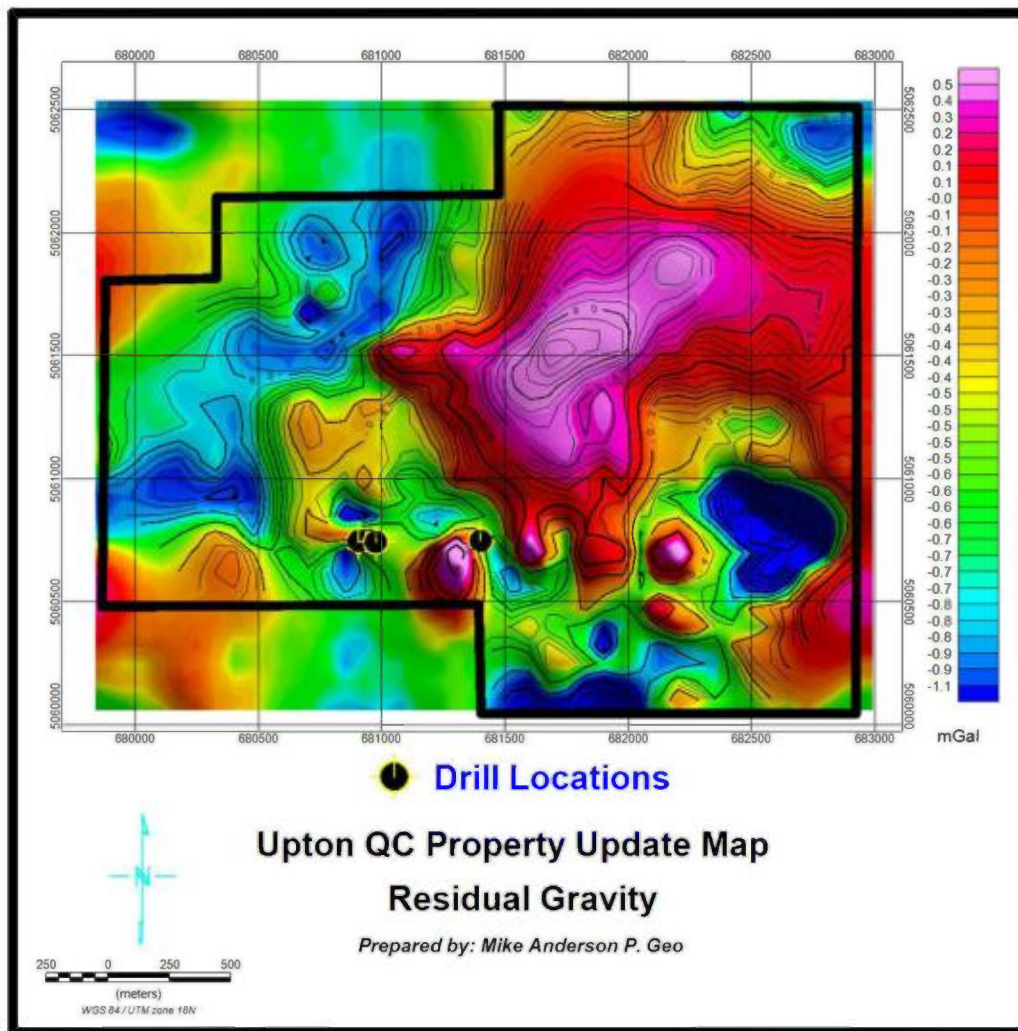
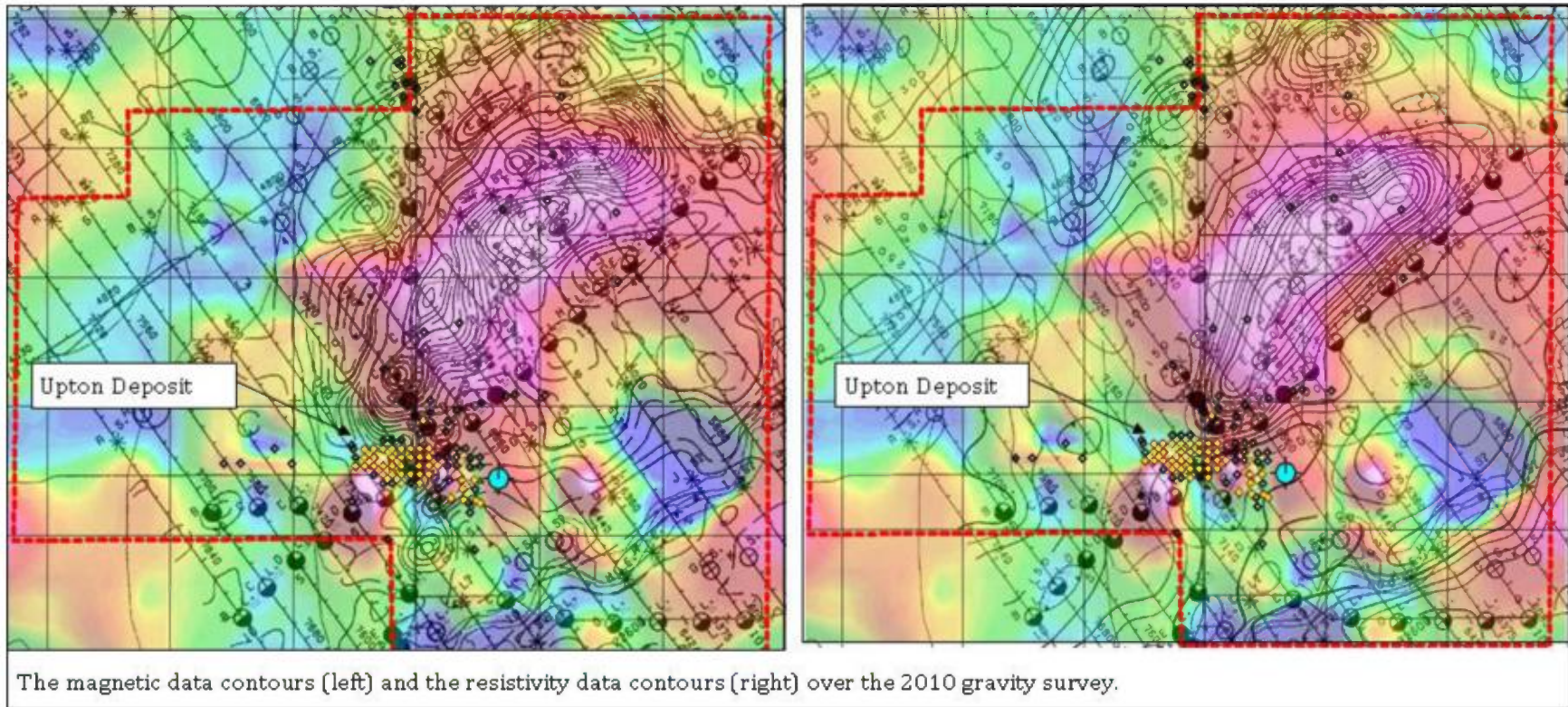




Figure 16. The magnetic data contours (left) and the resistivity data contours (right) over the 2011 gravity survey, from Mike Anderson



## Appendix I – Claim List

Claim number	Ownership	Expiry date	Area (ha)
CDC2198631	100% Steven Lauzier	2014/01/10	60.15
CDC2198632	100% Steven Lauzier	2014/01/10	60.15
CDC2198633	100% Steven Lauzier	2014/01/10	60.14
CDC2198634	100% Steven Lauzier	2014/01/10	60.14
CDC2198635	100% Steven Lauzier	2014/01/10	60.14
CDC2198636	100% Steven Lauzier	2014/01/10	60.14
CDC2198637	100% Steven Lauzier	2014/01/10	60.13
CDC2198638	100% Steven Lauzier	2014/01/10	60.13
CDC2198639	100% Steven Lauzier	2014/01/10	60.13
CDC2198640	100% Steven Lauzier	2014/01/10	60.13
CDC2198641	100% Steven Lauzier	2014/01/10	60.13
CDC2198642	100% Steven Lauzier	2014/01/10	60.13
CDC2198788	100% Steven Lauzier	2014/01/11	60.13
CDC2198789	100% Steven Lauzier	2014/01/11	60.13
CDC2198790	100% Steven Lauzier	2014/01/11	60.13
CDC2198791	100% Steven Lauzier	2014/01/11	60.13
CDC2198792	100% Steven Lauzier	2014/01/11	60.13
CDC2198793	100% Steven Lauzier	2014/01/11	60.12
CDC2198794	100% Steven Lauzier	2014/01/11	60.12
CDC2198795	100% Steven Lauzier	2014/01/11	60.12
CDC2198796	100% Steven Lauzier	2014/01/11	60.12
CDC2215885	100% Steven Lauzier	2014/04/18	60.13
CDC2215886	100% Steven Lauzier	2014/04/18	60.12

CDC2215887	100% Steven Lauzier	2014/04/18	60.11
CDC2215888	100% Steven Lauzier	2014/04/18	60.11
CDC2215889	100% Steven Lauzier	2014/04/18	60.11
CDC2215890	100% Steven Lauzier	2014/04/18	60.11
CDC2215892	100% Steven Lauzier	2014/04/18	60.10
CDC2233596	100% Steven Lauzier	2014/05/11	60.15
CDC2233597	100% Steven Lauzier	2014/05/11	60.15

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## Appendix II – Upton Copper Ltd Drill program between 1964 and 1967 (Coordinates are in UTM NAD83 Zone 18) (MRN, 2012)

Drill Hole	East	North	Direction	Dip	Mineralization (grade /		Description
					core length (metres)		
66497	681626	5060944	Vertical	90	0,44%Cu/1,5		Limestone,dolomitized[Vein]calcite/Conglomerate/Sandstone
66504	681761	5061015	Vertical	90			Marble/Mudshale/Siltstone
66506	682316	5061485	Vertical	90			Mudshale-Marble-Sandstone/Mudshale
66546	681473	5062258	Vertical	90			Limestone[Vein]calcite
66568	681488	5060971	East	40			Limestone,dolomitized[Vein]calcite
66570	681672	5061324	N030	45			Marble-Siltstone-Mudshale
66572	682030	5061798	N330	45			Marble-Limestone/Mudshale-Mudslate
66489	681554	5061024	N025	60			Limestone[Vein]calcite/Siltstone
66491	681526	5060946	Vertical	90			Limestone,dolomitized/Mudstone/Conglomerate
66493	681663	5060987	N295	60	0,31%Cu/1,4		Limestone,dolomitized-Limestone/Mudshale
66495	681626	5060944	N205	45			Mudshale,Graphite,Pyrite
66498	681626	5060944	N205	62			Limestone,dolomitized
66499	681626	5060945	N205	62			Limestone,dolomitized/Mudshale,Pyrite
66500	681898	5061049	Vertical	90			Mudshale[Vein]calcite
66501	681862	5061041	Vertical	90			Siltstone/Limestone/Mudshale/Sandstone
66502	681493	5060960	N195	45			Marble-Mudshale,Hematite
66503	681530	5061288	West	45			Marble-Limestone-Siltstone-Mudshale
66505	681536	5060935	N350	50			Marble/Mudshale
66507	681512	5060896	East	60			Mudslate-Mudshale-Marble
66584	682020	5061045	Vertical	90			Limestone-Mudshale-Mudstone/Mudshale-Wacke
66509	682053	5061977	Vertical	90			Mudslate,Hematite+-Mudshale-Siltstone
66488	681554	5061024	N205	60	0,49%Cu/1,2		Limestone,dolomitized/Mudstone/Intraformational conglomerate
66490	681526	5060947	N295	60	1,44%Cu/1,2		Limestone,Bornite,Chalcopyrite

66492	681526	5060946	N205	45	0,6%Cu/1,8	Limestone,dolomitized[Vein]QZ,calcite
66494	681626	5060945	N295	60		Limestone[Vein]calcite-Limestone,dolomitized Limestone,dolomitized/Mudstone
66496	681626	5060944	N205	45	0,4%Cu/1,5	Limestone,dolomitized/Carbonate Chert/Mudshale/Sandstone
66545	681472	5062258	Unknown	45	1,1%Cu/0,9	Limestone/Conglomerate
66567	681554	5061024	N295	60		Limestone,dolomitized[Vein]calcite
66569	681493	5060960	N015	30		Marble
66583	682087	5062201	Vertical	90		Peridotite[massive]-Mudshale-Trachyte
66456	681436	5060871	Vertical	90		Siltstone[Vein]calcite/Mudshale
66458	681436	5060804	Vertical	90	20,9g/tAg/7 2,4%Zn/7 13,7g/tAg/15,1	Mudshale,Pyrite/Limestone,Sulphides/Siltstone
66460	681474	5060804	Vertical	90	2,4%Zn/15,1	Mudshale/Limestone,Sulphides/Siltstone
66557	681362	5060837	Vertical	90	9,3g/tAg/5,9 3,3%Zn/5,9	Limestone,Sulphides/Siltstone/Mudshale
66559	681511	5060771	Vertical	90	6,2g/tAg/0,8 1,6%Zn/0,8 ; 9,02g/tAg/9,9	Mudshale/Siltstone/Limestone,Sulphides/Sandstone
66555	681326	5060803	East	65	1,9%Zn/9,9 21,7g/tAg/9,4	Mudshale/Siltstone/Limestone,Sphalerite
66556	681287	5060836	Vertical	90	2,7%Zn/3 19,3g/tAg/11	Limestone,Sulphides/Mudshale[Breccia]Sulphides
66558	681399	5060804	Vertical	90	19,7g/tAg/7,8 2,3%Zn/4,7	Limestone,Sulphides,Chalcopyrite/Mudshale/Siltstone
66560	681437	5060771	Vertical	90	7,8g/tAg/8,2 3%Zn/8,2	Limestone,Sulphides/Mudshale/Mudslate/Siltstone
66562	681399	5060737	Vertical	90	19g/tAg/3 1,5%Zn/3	Siltstone/Mudshale/Limestone,Sulphides/Mudslate
66462	681252	5060769	Vertical	90		Siltstone-Mudshale
66464	681436	5060837	Vertical	90	14,3g/tAg/19,8 5,6%Zn/9,8	Limestone,Sulphides
66466	681474	5060738	Vertical	90	8,1g/tAg/1,5	Mudshale,Pyrite,Graphite/Mudslate/Limestone,Sulphides,Sphalerite

66469	681362	5060737	Vertical	90	2,5%Zn/0,9 16,2g/tAg/8,8	Mudshale/Limestone,Sulphides/Siltstone
66471	681548	5060839	Vertical	90	1,9%Zn/8,8	Mudshale/Limestone,Sulphides,Chalcopyrite
66473	681548	5060805	Vertical	90	1,8%Cu/1,1 1,9%Zn/1,1	Limestone[Breccia][Vein]calcite
66475	681362	5060703	Vertical	90	1,4%Zn/1,4	Siltstone/Mudslate/Sandstone
66477	681399	5060704	Vertical	90		Mudslate/Siltstone/Limestone/Mudshale/Sandstone
66450	681362	5060838	Vertical	45	15,7g/tAg/6,3 2,54%Zn/6,3	Mudshale/Siltstone/Limestone,Sulphides
66451	681399	5060837	Vertical	90	8,9g/tAg/5,3 1,5%Zn/5,3	Limestone,Sulphides-Mudshale
66452	681399	5060870	Vertical	90		Mudshale/Limestone[Breccia]/Siltstone
66453	681399	5060771	Vertical	90	43g/tAg/5,5 4,3%Zn/5,5	Limestone,Sulphides/Mudshale/Sediment[Breccia]
66454	681362	5060870	Vertical	90		Mudshale/Siltstone
66455	681362	5060770	Vertical	90	28,6g/tAg/3,2 2,8%Zn/3,2	Mudshale/Siltstone/Limestone,Sulphides
66457	681325	5060770	Vertical	90	15,6g/tAg/1,8 1%Zn/1,8	Siltstone-Limestone,Sulphides-Mudshale
66459	681288	5060770	Vertical	90	15,6g/tAg/1,8 1,6%Zn/1,8	Mudshale/Limestone,Sulphides
66461	681511	5060805	Vertical	90	6,7g/tAg/5,2 1,8%Zn/5,2	Limestone,Sulphides/Mudshale[Breccia],Limestone[FG]/Siltstone
66463	681251	5060770	East	45	10g/tAg/12,6 2,6%Zn/2,6 1,5%Cu/2,1	Mudshale/Limestone,Sulphides,Sphalerite
66465	681474	5060838	Vertical	90	1,6%Zn/16,5	Limestone,Sulphides/Mudshale/Siltstone
66467	681509	5060771	West	52	21,2g/tAg/4,7 1,9%Zn/4,7	Mudshale/Siltstone/Limestone,Sulphides/Sandstone
66468	681508	5060771	West	66	10,3g/tAg/2,1 4,4%Zn/2,1	Mudshale/Limestone,Sulphides/Siltstone/Sandstone

66470	681511	5060838	Vertical	90	4,7g/tAg/8,1	Mudshale/Limestone,Sulphides/Siltstone
66472	681325	5060737	Vertical	90		Siltstone/Mudslate/Mudshale
66474	681548	5060805	Vertical	90	1,7%Zn/1,1	Mudshale/Limestone,Sulphides/Limestone/Siltstone
66476	681548	5060772	Vertical	90	13,4g/tAg/7,7	Limestone,Sulphides/Mudshale/Siltstone/Mudslate
66478	681511	5060738	Vertical	90	3,3%Zn/7,7	Limestone/Siltstone/Mudshale/Sandstone
66445	681325	5060803	Vertical	90	16,8g/tAg/7,8	Mudshale/Limestone,Sulphides
66447	681251	5060803	Vertical	90	2,8%Zn/7,8	Siltstone/Mudshale[LE]
66449	681323	5060837	West	45	14,6g/tAg/9,2	Limestone,Sulphides/Mudshale/Siltstone[Vein]calcite
66444	681328	5060803	East	45	1,84%Zn/6	Mudshale/Siltstone/Limestone
66446	681288	5060803	Vertical	90	14,5g/tAg/13,3	Limestone,Sulphides/Mudshale
66448	681325	5060837	Vertical	90	2,5%Zn/13,3	Siltstone-Mudshale/Limestone,Sulphides
66571	682309	5061753	West	45	2,6%Zn/4,4	Sandstone/Mudslate/Marble/Limestone
66561	681436	5060738	Vertical	90	17,3g/tAg/4,9	Mudshale/Limestone/Siltstone/Mudslate
66532	681310	5062338	Unknown	99	17,3g/tAg/11	Limestone,Sulphides/Mudshale
66534	681412	5062243	Unknown	99	2,59%Zn/5,5	Siltstone-Mudshale/Limestone,Sulphides
66536	681493	5062146	Unknown	99	13,2g/tAg/6 2,6%Zn/6	Sandstone/Mudslate/Marble/Limestone
66508	681849	5061764	Vertical	45	14,3g/tAg/5 1,14%Zn/5	Mudshale/Limestone,Sulphides/Siltstone/Mudslate
66515	681242	5060837	N225	50		Limestone,dolomitized-Diorite[Fine Grained]
66517	681242	5060837	Unknown	99	1,2g/tAg/1,7	Mudshale-Mudshale[Breccia]
66519	681689	5060641	Vertical	90	10,3g/tAg/13	Mudshale[Breccia]/Mudshale/Limestone,
66521	681686	5060683	Unknown	80	3,1%Zn/5,4	Sulphides-Fault Breccia-Volcanic[IU]
66523	681737	5060681	Vertical	84	11,5g/tAg/7,1	Mudshale/Siltstone/Limestone,Sphalerite,Galena/Sandstone
					2,8%Zn/7,1	Mudshale/Mudshale[Breccia]/Limestone,Sulphides/Sandstone

66525	681715	5060590	Vertical	86	Mudshale,Pyrite/Siltstone/Sandstone/Limestone
66527	681587	5060684	Vertical	90	Mudshale/Siltstone/Sandstone/Limestone,Sulphides
66530	681436	5062322	Unknown	99	
66538	681495	5062230	Vertical	90	Mudshale,Pyrite,Carbonate-Tectonic Breccia,Chalcopyrite,Pyrite Limestone
66554	681716	5060801	Vertical	85	Limestone[Breccia]/Mudshale,Pyrite/Limestone
66564	681623	5060772	Vertical	90	Siltstone/Mudshale/Limestone,Sulphides/Mudslate
66566	681697	5060839	Unknown	99	
66574	681235	5060633	Vertical	90	Mudshale/Mudshale,Graphite/Siltstone/Sandstone,Pyrite
66576	681740	5060638	Vertical	90	Mudshale/Siltstone/Limestone,Sulphides/Sandstone
66578	681735	5060445	Vertical	90	Mudshale,Graphite/Mudshale/Siltstone/Sandstone
66479	681548	5060738	Vertical	90	Mudshale/Siltstone/Mudslate/Limestone,Sulphides/Sandstone
66481	681474	5060705	Vertical	90	Sandstone/Siltstone-Mudshale
66483	681660	5060773	Vertical	90	Siltstone/Limestone,Sulphides/Sandstone/Mudshale
66485	681623	5060839	Vertical	90	Mudshale/Siltstone/Limestone[Breccia]
66487	681585	5060805	Vertical	90	Mudshale/Limestone,Sulphides/Siltstone
66480	681511	5060705	Vertical	90	Sandstone/Siltstone/Limestone,Sulphides/Sediment[Breccia]
66482	681585	5060772	Vertical	90	Limestone,Sulphides/Siltstone/Mudslate/Mudshale
66510	680784	5060781	Vertical	90	Mudshale/Siltstone/Mudshale[Breccia]/Fault Breccia
66516	681436	5061020	Vertical	56	Limestone-Mudshale,Magnetite-Mafic Volcanic-Diorite- Volcanic[U]Magnetite
66518	681383	5060485	Vertical	90	Mudshale/Sandstone/Siltstone
66520	681638	5060683	Vertical	90	Mudshale[Breccia]/Mudshale-Limestone,Sphalerite,Galena
66522	681682	5060716	Vertical	89	Mudshale/Mudshale,Graphite/Limestone,Sulphides,Sphalerite
66524	681733	5060717	Unknown	82	Mudshale/Sandstone/Limestone,Sulphides
66526	681709	5060627	Vertical	90	Mudshale/Mudshale,Graphite/Siltstone/Limestone,Sulphides /Sandstone



66528	681758	5060627	Vertical	90	8,7g/tAg/0,8	Mudshale/Mudshale,Graphite/Siltstone/
66529	681437	5062343	Vertical	45	2,5%Zn/0,8	Limestone,Sulphides/Sandstone
66531	681422	5062331	Unknown	99		Limestone,Pyrite,Chalcopyrite-Mudshale[Breccia]-Limestone[Breccia]
66533	681444	5062199	Vertical	90		Mudshale,Graphite/Mudshale[Breccia]/
66535	681456	5062253	Vertical	90		Limestone,Sulphides/Sandstone
66537	681500	5062234	Unknown	45		Mudshale[Breccia]-Mudshale-Limestone[Breccia],Sulphides
66484	681660	5060805	Vertical	90		Mudshale,Graphite[massive]-Limestone-Mafic Volcanic-Graphite
66486	681623	5060806	Vertical	90		Mudshale,Pyrite/Sandstone/Siltstone/Limestone,Sulphides
66441	681756	5060771	Vertical	90		Mudshale/Siltstone/Limestone,Sulphides
66443	681715	5060767	Vertical	90		Sediment[Breccia]Pyrite,Sphalerite,Gl/Limestone/Mudshale
66439	681554	5060977	Vertical	90		Sediment[Breccia]/Mudshale/Siltstone-Limestone
66440	681618	5060904	N045	45		Limestone,Pyrite
66442	681755	5060804	Vertical	90		Sediment[Breccia]/Limestone/Mudshale
66573	681236	5060851	Vertical	90		Limestone/Mudshale/Mudshale[Breccia]/Limestone/Sandstone
66575	681631	5060716	Vertical	90		Mudshale,Pyrite
66577	681639	5060645	Unknown	81	17,4g/tAg/2,2	Mudshale/Mudshale[Breccia]
66579	681496	5062146	Vertical	90	3,3%Zn/1	Mudshale/Siltstone/Limestone,Sulphides/Sandstone
66563	681436	5060704	Vertical	90	15,6g/tAg/3,2	Mudshale,Graphite[Breccia]/Siltstone-Sediment(Mafic Volcanic)-
66565	681660	5060840	Vertical	90	1,9%Zn/3,2	Dolomite[Breccia]
66511	680715	5060780	East	63		Mudshale/Limestone,Sulphides/Siltstone/Mudshale/Sediment[Breccia]
66513	680992	5060779	Vertical	90		Mudshale/Siltstone/Limestone,Sulphides/Sediment[Breccia]-Marble
66512	681365	5061145	East	45		Mudshale/Siltstone/Mudshale,Graphite/Quartz Sandstone/Sandstone
66514	680922	5060838	Vertical	90		Fault Breccia-Mudshale/Siltstone/Mudshale,Graphite
66593	682125	5062578	N310	80		Ultramafic Volcanic[Chlorite]-Tectonic Breccia-Mafic Intrusive- Ultra Mafic Intrusive-Diorite-Mafic Volcanic
						Mudshale/Siltstone/S[Breccia]/Mudshale,Graphite
						Mudshale