

GM 55392

A REPORT ON A RECONNAISSANCE PROGRAMME IN THE LA GRANDE REGION, SUMMER 1995

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95-MN-04

**A REPORT ON A RECONNAISSANCE
PROGRAMME IN THE LA GRANDE REGION
SUMMER 1995**

Prepared for

**PHELPS DODGE CORPORATION OF CANADA, LIMITED
Suite 912, 120 Adelaide St. West, Toronto**

MRN - GÉOINFORMATION

1997

GM 55392

Bryan S. Osborne, M.Sc.
Consulting Geologist
190 de Normandie
St. Bruno, PQ. J3V 2C5

1 December 1995

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1.0 INTRODUCTION

1.0 INTRODUCTION

Following a compilation of the La Grande and adjoining regions, completed in February 1995, certain sectors were chosen for ground investigation as gold and base metal targets. Subsequently, in July 1995, a grant was awarded by the Quebec Ministry of Natural Resources to assist in funding the field assessment of six sectors along the La Grande and Opinaca valleys. This "Sakami Project" grant (95-MN-04) is part of program to assist mineral development in the Bay James region (the Moyen Nord).

Over the period July 18 to August 5 a three-man team visited and sampled a number of target areas along the La Grande (33F, G & H) and in the Opinaca region (33B & C). The team comprised:

Myles Johnson, Phelps Dodge Geologist
Bryan Osborne, Consulting Geologist
Chris Roussain, Field Assistant

Both Hydro Quebec's Le Moyne Camp and the town of Radisson were used as a base. Most areas were accessible by truck or boat although four days of Beaver support was required to gain access to certain sectors. More specifically, the areas visited and targets were (Figure 1):

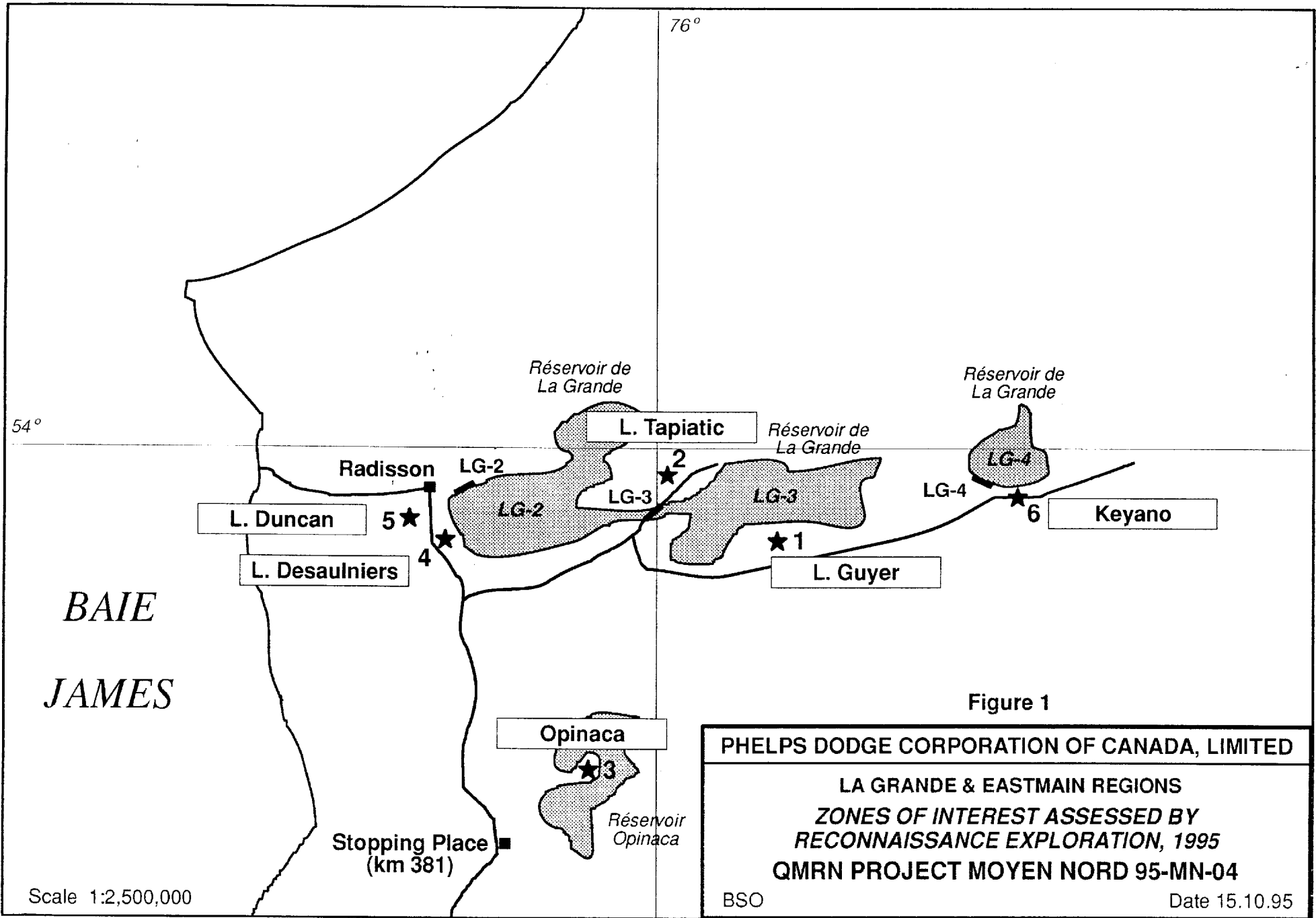
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| 1. Lac Guyer | Lupin-style Au, Komatiite hosted Cu, Ni, VMS |
| 2. Lac Tapiatic | Lupin-style Au, VMS |
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Following the identification of interesting geological environments for mineralization, coupled with encouraging initial assays, a return visit was made to the Lac Guyer and Lac Tapiatic areas during the period September 5 and 13. More detailed traverses and sampling were carried out in these areas from the Le Moyne camp.

A brief description is provided of each area in Section 2 with the principal observations and results. The sample descriptions and analyses are listed as Appendices A & B. Maps, with sample locations, are provided where appropriate.

Conclusions and recommendations stemming from the two field programs are provided under Section 3.

A recent description of the regional geology along La Grande and the mineral potential is provided by Chartrand and Gauthier (PRO 95-06) and this document should be referred to for a synopsis⁽¹⁾.



2.0 DESCRIPTION OF AREAS EVALUATED

2.1 Lac Guyer (33G-5, 6 & 11)

Lac Kristine, located more-or-less in the centre of the Lac Guyer region, is located 45 km southeast of the LG3 dam, on the south shore of the reservoir at 75° 25'W, 53°32'N. The general area of investigation extended from the Le Moyne camp (75°W) to beyond Lac Kukamaw (75°35'W) a distance of 40 km east-west. A Phelps Dodge subsidiary, Tyrone Mines, had explored the eastern extent of this area in the late 1950's and indeed an old grid dating from Tyrone's work was located. While the region was very isolated in the 1950's, excellent access is now provided by an all-weather gravel road running parallel along the greenstone belt. A 750 kV power line parallels the road. Numerous lakes also provide access by float plane (Figure 2).

The region was mapped by Sharma (1976)⁽²⁾ and is also covered by a stream sediment geochemical survey by Cockburn (1977)⁽³⁾. In 1982 St. Seymour completed a doctorate that studied the petrogenesis of the volcanic rocks Lac Guyer area, following detailed mapping of 2 x 4 km area dominated by komatiites⁽⁴⁾. A description of the Lac Guyer greenstone belt is also provided by St. Seymour and Francis (1988)⁽⁵⁾. The Lac Guyer volcanics have been dated at 2748 Ma (Ciesielski, 1993).

The area had been selected on the basis of the complex geology, anomalous stream sediment geochemistry and host rocks favourable to base-metal and gold mineralization.

A number of traverses were carried out across the area and the sample locations, significant analyses and key geological features are shown on Figure 2. A more detailed plan is provided for the Lac Kukamaw area where more extensive reconnaissance sampling was carried out (Figure 3).

2.1.1 Geology

The region is within the Lac Guyer greenstone belt, a volcanic sequence elongated some 120 km east-west and up to 10 km wide. The sector is metamorphosed to the amphibolite facies over most of the area although a greenschist core would appear to remain along the axis of the belt where the pile is thickened.

St. Seymour (19887) describes the belt as consisting of a succession of basalts overlain by felsic tuffs, rhyodacites and iron-formations that are in turn overlain by an upper sequence of basalt and komatiite. Extensive granodiorite plutons syntectonically intrude the volcanic succession.

This description was basically confirmed by work carried out this summer. The komatiites are more abundant and MgO-enriched than previously reported, with four samples running greater than 24% MgO (Samples 9802, 187116, 187120 and 187122). A well developed felsic tuff horizon was traced over a 30 km strike length and is likely more extensive than observed. At the western extremity of the area prospected it is some 200 m wide; at the eastern extremity it is well developed but of unknown width.

A centre of felsic volcanism occurs in the Lac de la Corvette area some 60 km to the east of Le Moÿne with coarse subaerial pyroclastics of rhyolites and rhyodacites (St. Seymour). During the 1995 field programme coarse-grained lapilli tuffs and an exhalite horizon, with associated chalcopyrite, have been observed (M. Gauthier) some 10 km northwest of Lac de la Corvette in an area formerly held by Tyrone Mines (PEM 151). This felsic pile is a likely continuation of the L. Guyer volcanic belt providing an overall strike length of at least 120 km, with proximal facies seemingly better developed to the east.

The anomalous copper values identified in the stream sediment survey by Cockburn (1977) in the LacGuyer area broadly coincide with the more felsic units (where chalcopyrite and malachite was also observed at two localities) or in association with komatiites and local Ni-anomalies.

The area has been isoclinally folded along an east-west axial trend; major shearing and associated foliation parallels this trend. According to St. Seymour, the sequence has been refolded along a more northerly axial trend giving rise to a basin and dome structural pattern. Intense N-S shearing was frequently noted, although quite local. Late northwesterly trending faults are also evident, both from the magnetic patterns and in exposures along the LG3 shoreline. In this same area an east-west mylonite zone, some tens of meters wide was observed. (Figure 3)

2.1.2 Mineralization

Rusty sulphide zones are commonplace and, on account of the extensive outcrop, are frequently observed to be related to narrow interflow chert or felsic units within the mafic volcanics. Such a chert zone to the south of Lac Guyer yielded 2950 ppb Au over a 30 cm wide unit (Sample 9842). This same sample is also markedly enriched in arsenic (298 ppm) and cadmium (> 100 ppm).

Another area is the zone of marked sulphide mineralization south of L. Andrea, with minor gold values as noted by Tyrone Mines in 1959⁽⁶⁾. This chert horizon, with local areas of brecciation and semi-massive to massive pyrite mineralization was traced along a 300 m strike length and sample but the highest value was only 65 ppb Au (Samples 9812-16 and 9819).

No major hydrothermal systems were localized in the area, however, quartz and quartz-feldspar porphyries are frequently observed commonly showing a halo of silification and sulphide enrichment.

In the area of Lac Kukamaw numerous quartz-feldspar porphyries were observed typically 30 m long (E-W) and 2 to 3 m wide. The QFPs are generally quite fresh but carry fine, disseminated euhedral pyrite, and commonly assay some 100 ppb Au. Surrounding these small felsic bodies are silicified zones with sulphides that also carry values frequently in the 250 to 500 ppb Au range, with values reported upto 790 ppb.

On the last of three days prospecting the Lac Kukamaw area an extensive felsic tuff unit was identified (at least 200 m wide) and a medium grained QFP at least 50 m wide was localised with malachite staining along fractures carrying chalcopyrite. A representative sample of the felsic tuff ran 35 ppb Au while the QFP ran 85 ppb and 484 ppm Cu (surprisingly low given the observed copper minerals).

While these assays are not particularly elevated, they do indicate a widespread presence of low levels of gold, locally associated with copper, in a generally unaltered felsic setting. If large hydrothermal systems can be identified in the area, then one could logically expect greater metal concentrations. Given the limited time spent prospecting the large Lac Guyer sector these results indicate that more systematic exploration is merited.

The regional stream sediment work carried out by Cockburn in 1977 also suggests that this sector merits more detailed work. To the west of L. Kukamaw anomalous Cu, Mo and Ba values were located along a 6 km strike length more or less coincident with trend of the felsic unit in this area. Other copper, nickel cobalt anomalies may be more closely related to komatiite-hosted sulphide zones such as immediately southwest of Lac Kristine and some 2 km south of Lac Andrea.

The iron formation observed and sampled to date has failed to yield any gold values of significance and appears to lack Lupin-style features.

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le 28 décembre, 1995

M. Pierre Marcoux
Coordonateur des programmes d'assistance
financière à l'exploration minière
Ministère des Ressources naturelles
5700, 4e Avenue Ouest
local A-206
Charlesbourg (Québec)
G1H 6R1

Cher M. Marcoux,

Objet: Rapport Final - MN-95-04

Vous trouverez ci-joint une copie du rapport final d'exploration pour le projet en rubrique tel que rédigé par M. Bryan Osborne.

Le formulaire de réclamation pour le projet MN-95-04 suivra bientôt.

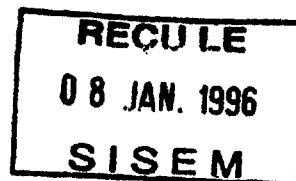
Nous demeurons à votre entière disposition pour toutes informations supplémentaires.

Espérant le tout à votre satisfaction, je vous prie d'agréer, Monsieur Marcoux, l'expression de mes sentiments les meilleurs.

PHELPS DODGE CORPORATION OF CANADA, LIMITED

Paul Chamois

Paul Chamois
Géologue de district
Est du Canada



Another sample of particular interest is a quartz-eye tuff, enriched in sulphides (5%) that assayed 125 ppb Au (Figure 2, UTM 5925199N, 483680N). Whole rock analysis indicates 65% SiO₂ and potassic enrichment. The sample (9003) was collected from a boulder, somewhat rounded within an area of mixed assemblage (andesite fragmentals, ultramafics and BIF) 2 km south of the La Grande Highway. An attempt to trace the source of the boulder eastwards was unsuccessful. A possible source could be the Lac de la Corvette felsic horizon some 60 km east or a western extension of this horizon. In any event the host lithology, potassic enrichment and auriferous nature of the sample merits more boulder tracing east of this point. Particular attention should be given to evaluating the Lac de la Corvette area in any subsequent field programme.

A zone of aquamarine (beryl) bearing quartz-biotite schist was located in the L. Kukamaw area (Figure 2, UTM 5924850N, 470520E). The aquamarine occurs as lustreous pale blue hexagonal crystals up to 0.5 cm long and 1 mm wide either along biotite enriched foliation planes, or clustered around quartz-augen. While it is doubtful that gem quality aquamarine exists, the site is of interest to mineral collectors.

2.2 Lac Tapiatic (33G-13)

The Lac Tapiatic area was selected on the basis of iron formation within a predominantly sedimentary sequence offering a potential Lupin-style mineralization. The area is covered by the La Grande Riviere East Map Sheet (No. 1878) at 1:100,000 by Sharma (1978). This map shows a number of such targets however, the L. Tapiatic sector was chosen as an area to investigate on the basis of ease of access.

An area encompassing L. Tapiatic and the LG3 reservoir northwest shoreline was visited by float plane July 28. Given the interesting geology encountered, a more complete traverse was made on September 11 along the gravel road serving the dyke structures northeastward from the LG3 dam over almost 15 km.

2.1.1 Geology

Sharma's map indicates the area to be of northeasterly trending metasedimentary rocks with minor bands of ultrabasic and basic units, commonly amphibolitic. Two preliminary traverses in the vicinity of L. Tapiatic indicate that the geology is a lot more complex and interesting than shown on the existing maps.

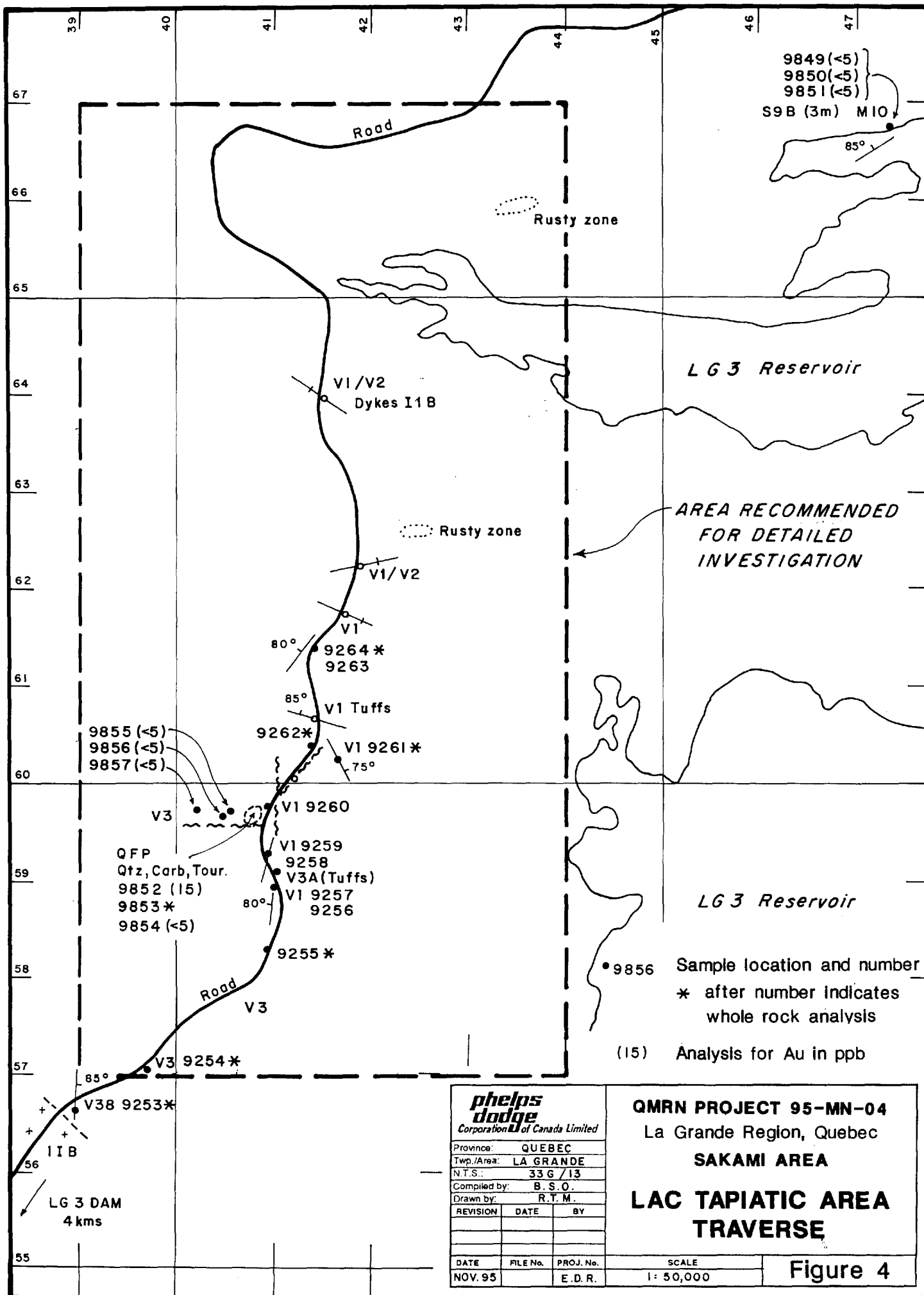
The road traverse northeasterly from the LG3 dam shows a pink feldspar-quartz-amphibole intrusion, fairly typical of the region, up to km 4.2. Thereafter, predominantly mafic to intermediate volcanic rocks are encountered to approximately km 9.0; over this 5 km distance the metamorphic grade changes from amphibolite to greenschist facies. The volcanics are locally enriched in epidote and chlorite as well as sulphides, largely pyrite, with insignificant gold values (samples 9253-9258). Minor copper values of 260 ppm were noted in Sample 9256. Prospecting along the south shore of L. Tapiatic suggests that this mafic to intermediate terrane extends in this area.

Good exposures of felsic to intermediate volcanic and volcanoclastic rocks are seen from km 9 to km 14.3 (Samples 9261-9264). The rocks are locally banded and some units show ignimbrite textures, particularly on the east side of L. Tapiatic. A massive ridge to the east of the road at km 10 exposes steep cliffs of rhyolite (9261). The rocks in this area are markedly enriched in iron relative to their SiO_2 composition.

The strike directions are highly variable although generally east-west and northeast to southwesterly trending.

In the area east of L. Tapiatic marked east-west and north-south ductile shearing is evident with zones of highly friable schists over several meters.

Of particular interest is a small quartz-feldspar-porphyry stock located on the southeast margin of the lake. Covering some 2 ha, the whole rock analysis indicates a highly sodic, quartz-rich intrusion (7.8% Na₂O and 70.92% SiO₂, Sample 9853). The stock shows quartz-veining, locally with abundant tourmaline, pyrite and carbonate alteration suggesting an appropriate setting for gold mineralization. Of the three samples collected (9852 to 9854), only one yielded a value of 15 ppb Au. The southern contact of the stock is an east-west striking mica-schist and north-south striking chlorite-schist was noted to the east suggesting a post-tectonic emplacement within the interstices of the orthogonal shears.



9849 (<5)
 9850 (<5)
 9851 (<5)
 S9B (3m) M10

LG 3 Reservoir

AREA RECOMMENDED FOR DETAILED INVESTIGATION

LG 3 Reservoir

• 9856 Sample location and number
 * after number indicates whole rock analysis
 (15) Analysis for Au in ppb

9855 (<5)
 9856 (<5)
 9857 (<5)

QFP
 Qtz, Carb, Tour.
 9852 (15)
 9853 *
 9854 (<5)

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 La Grande Region, Quebec
SAKAMI AREA
LAC TAPIATIC AREA TRAVERSE

SCALE
 1: 50,000

Figure 4

2.3 The Opinaca Belt (33B & C)

This region had been selected on the basis of a well-documented greenstone belt with minor gold and copper showings in the area of the Opinaca reservoir (Mineral Deposits Map M343). In particular, regional magnetic data and lake sediment geochemistry suggests that the greenstone belt extends eastward through the northern half of NTS 33B, although not shown on existing geological maps.

A number of geochemical targets, primarily gold and copper anomalies, were selected for investigation coincident with the supposed continuity of the greenstone belt (MB 94-41X). Two days were spent in an attempt to localise and sample supracrustal units that could host mineralization. After low flying over three target areas by Beaver in the northwest quadrant of NTS 33B and limited ground verification, it was concluded that the terrane is gneissic for the most part and lacking horizons favourable to mineralization. The specific areas prospected were L. Pisu (33B-11), L. Pukuch Kukames (33B 5 & 12) and L. Kamwakuskach (33B 5 & 12)

Given the disappointing geology in the region to the east, it was decided to visit the volcanic belt in the Opinaca reservoir that had been explored by Kennco (1976)⁽⁷⁾ and the SDBJ (1980 to 1982)^(8 & 9).

2.3.1 Geology

Mineral Deposits Map M343 (Lac Opinaca Sheet) shows an arcuate band of mafic flows, tuffs and paragneisses extending almost 30 km through 33C 8 and 9. Much of the area is now inundated by the reservoir but sufficient outcrop is exposed to allow for an evaluation of its mineral potential.

The region was flown by an airborne EM in survey in 1975 and 55 anomalies had been localized over a broad area.

According to Kennco, a north trending synform underlies the center of the Opinaca greenstone belt with felsic volcanics reported in the axial zone, flanked by andesite and metasediments.

On July 26 Kennco's Grid 1 was visited and an extensive zone of chlorite alteration (over 350 m wide) was sampled. The whole rock analyses (9829 to 36) suggest a tholeiitic basalt composition, with particularly high iron enrichment or metasomatism. Kennco states the area to be underlain by green siltstones and mudstones which is bizarre.

While abundant sulphides were observed no significant gold values were obtained. Likewise copper values (all less than 100 ppb) and silver values are not significant. The zone remains undrilled.

Kennco did drill two areas however, (Grids 5 & 7N & 7S) with five holes totalling 1800 ft. The holes encountered andesites, dacites and minor rhyolites all with significant zones of pyrite. Conductors were explained by banded sulphides (py & po) and graphitic chert (Grid 5) banded po and graphitic schists (7S) and banded po & py (7N). While assays for Cu, Zn and Ag are reported, and all less than .10%, no assays are given for gold.

In summary Kennco's work was very limited and failed to test the principal felsic pile. It was directed towards base metals and was by no means conclusive. They pulled out of their joint venture with the SDBJ in the late 70's.

In 1979 and 1980 the SDBJ carried out two drilling campaigns. In 1979 six short holes were drilled on Grids 21, 40, 42 and 46 totalling 554 ft. The most interesting hole, 79-42-1, reported 1609 ppb Au over 0.5 ft. within a siliceous breccia with 5-10% po, py and aspy and 1912 ppb Au over 0.6 ft. (context unclear). Only very limited sections of the holes were sampled. All holes

demonstrated a well developed, possibly proximal felsic pile, with abundant reference to sulphide mineralization.

In 1980 Grids 41, 49 and again Grid 42 were drilled with five holes totalling 468 m. Two holes tested either side of the former hole 79-42-1 but neither hole cut values greater than 565 ppb Au. The other holes on anomalies 41 and 49 hit a felsic pile, locally silicified and mineralized with up to 90 ppb Au over 5 ft. and a mixed felsic and mafic pile with no significant values respectively.

In conclusion, a number of EM conductors remain to be tested in this region although those along the central felsic zone and its flanks have been drilled by shallow holes. Given the number of anomalies drilled, and the low levels of Cu, Zn, Ag and Au encountered no strong recommendation can be made to acquire this area for more detailed evaluation although it remains one of the more developed felsic piles within the region.

With respect to the supposed eastern continuity of the Opinaca belt, no further work is recommended. The magnetic patterns typical of Archean supracrustals cannot be readily explained by the geology seen in the region. The geochemical anomalies may in part be explained by an inappropriate contouring technique whereby one or two high values appear to be extrapolated over an undue zone of influence.

2.4 L. Duncan (33F-05)

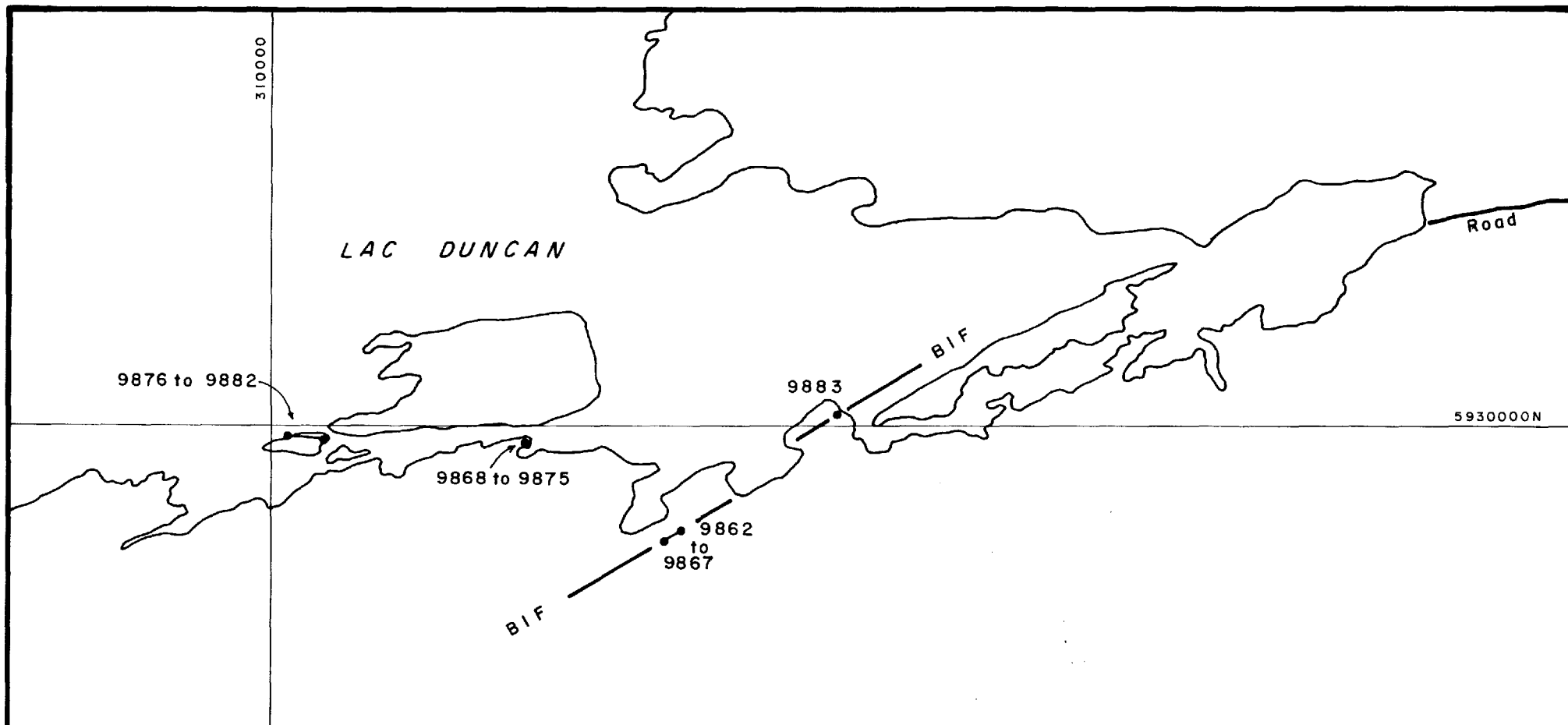
This zone was investigated primarily for iron-formation hosted gold mineralization associated with the deposits formerly outlined by Duncan Range Iron Mines. A number of localities were also sampled for possible base metals within felsic volcanics in the same area, immediately to the north of the iron formations. A total of twenty-three samples were collected along the southeastern shore of Lac Duncan (Figure 5)

Seven samples, 9862 to 9867 and 9883, were selected in close association with the iron formation particularly where sulphides in silica-enriched zones were evident. The iron formation is a well developed banded magnetite-quartz rock commonly highly deformed. However, the essential mineralized features at Lupin i.e. cross-cutting quartz-veins and associated sulphide enrichment was not observed. The best result was sample 9365 that yielded only 20 ppb Au, 1.9 g/t Ag, 594 ppm Cu and 2140 ppm Zn from a graphitic zone with quartz banding and fine disseminated sulphides.

A further fifteen samples were collected from a rusty, siliceous zone traced over a strike length of 2 km, approximately 1 km north of the iron formation. Samples 9868 to 9875 were collected on the south shore of Lac Duncan from a ridge with abundant disseminated and locally banded pyrite and pyrrhotite. The zone of sulphide mineralization here is contained within a highly siliceous unit, probably a narrow felsic interflow zone observed up to 15 m wide within a predominantly mafic flow and pyroclastic pile. A zone of pink garnet was observed over a few centimeters along the southern contact. The mafic rocks are chloritized and cross cut by a dioritic intrusive complex. The results of these samples were negative, both for precious and base metals.

An additional seven samples were collected on Tea Island, a small island more or less 2 km along strike from the above zone. The observed mineralization was similar to the zone observed on the south shore of Lac Duncan and the results equally disappointing.

Given the generally low level of precious metal and base metal values in this area, no further work is recommended.



Sample No.	Au ppb	Cu ppm	Sample No.	Au ppb	Cu ppm
9862	<5	N/A	9873	<5	125
9863	10	N/A	9874	<5	63
9864	<5	23	9875	<5	100
9865	20	549	9876	<5	314
9866	<5	188	9877	<5	84
9867	<5	116	9878	<5	104
9868	<5	148	9879	<5	86
9869	<5	244	9880	<5	206
9870	<5	103	9881	15	149
9871	<5	43	9882	<5	184
9872	<5	171	9883	<5	11

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LAC DUNCAN AREA
LOCATION OF
SAMPLE SITES

SCALE
 1:50,000

Figure 5

2.5 L. Desaulniers (33F-12)

This sector was investigated to assess a zone of reported sheared felsic tuffs on the south shore of the LG2 reservoir and possible Lupin-style mineralization associated with iron formation in the area to the north of L. Desaulniers. (Figure 6)

The area of reported felsic tuffs along the shore of LG2 proved of questionable volcanic origin with a low sulphide content. A mylonite zone trending 100 Az is well developed and two samples were collected just north of this deformation zone. Sample 9858 could be a felsic tuff but contained no gold. Sample 9859, a schistose silicified zone within the mylonite likewise yielded no gold values.

Samples collected in the vicinity of the well developed 80 m wide iron formation of interbanded magnetite and quartzite were generally low in sulphides and lacking in cross cutting quartz veins. Sample 9884, typical of the iron formation, yielded no gold value although an adjacent quartz muscovite schist yielded a gold value of 20 ppb.

A rusty pyrite-pyrrhotite zone, located some 500 m south of the trace of the iron formation, was sampled (9887 to 9891) on account of a number of possible felsic tuffs or chert horizons, the development of QFP dykes and sulphide-enrichment within a silicified, predominantly mafic sequence.

Four siliceous units are developed over a 20 m wide zone striking 110 Az and dipping more or less vertically. Disseminated to massive pyrite and pyrrhotite is associated with these units but the five samples (9887 to 9891) failed to provide significant precious metal or base metal values.

On account of the poor values encountered in this area, no further work is recommended.

2.6 Keyano (33H)

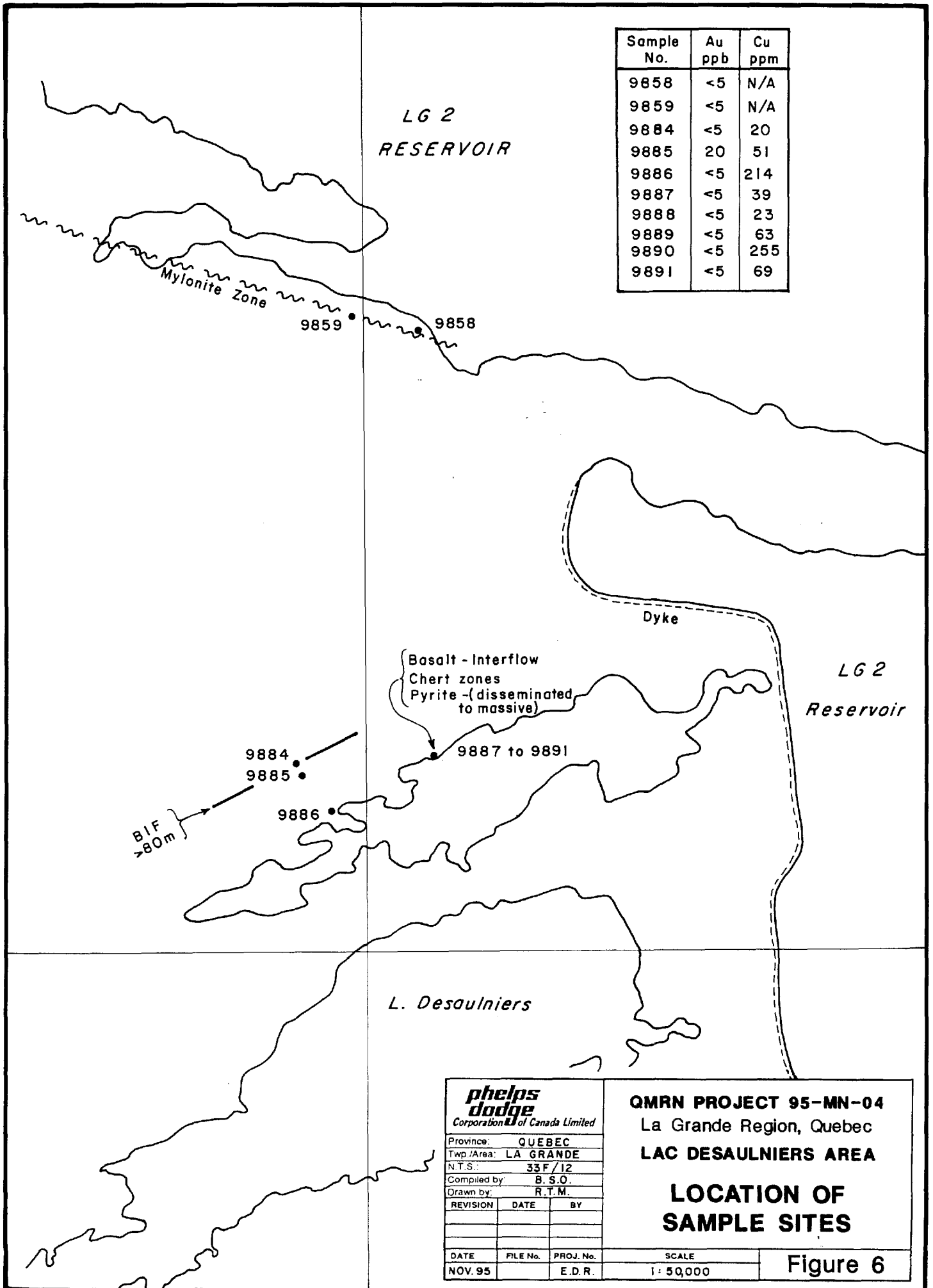
A marked positive magnetic anomaly is associated with a band of quartz-biotite sediments, approximately 1 km wide, trending easterly along the south shore of the LG4 reservoir. The area was considered prospective for Lupin-style gold mineralization.

A complete traverse was made across the supra-crustals here along UTM Easting 606000. Well-banded quartz biotite rocks predominate, locally with abundant garnet, suggesting an essentially sedimentary sequence. Narrow amphibolite units are also developed.

Banded magnetite-quartzite zones are also developed over tens of meters striking east or southeasterly and dipping 50 N.

The iron formation generally lacks the quartz-veining and sulphide-enrichment that is expected of Lupin-style mineralization. Three samples of more sulphide-enriched BIF were collected (9820 to 9822) but the best value was only 20 ppb Au. While further traverses would be required to confirm the full potential of the area, this reconnaissance work suggests the area to be one of low priority.

Sample No.	Au ppb	Cu ppm
9858	<5	N/A
9859	<5	N/A
9884	<5	20
9885	20	51
9886	<5	214
9887	<5	39
9888	<5	23
9889	<5	63
9890	<5	255
9891	<5	69



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NOV. 95		E.D.R.

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La Grande Region, Quebec
LAC DESAULNIERS AREA

**LOCATION OF
SAMPLE SITES**

DATE	FILE No.	PROJ. No.	SCALE
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Figure 6

3.0 CONCLUSIONS AND RECOMMENDATIONS

3.1 Conclusions and Recommendations

The available geological maps of the La Grande basin, while providing a good overview, leave plenty of room for identifying unexpected host horizons for potential mineralization. As a result, the region offers exceptional opportunities for basic mapping and prospecting. In addition, it is a region where geochemical methods can be used to full advantage.

Lac Guyer Area

The L. Guyer region was the most investigated during this summer's program and the few traverses across the area confirmed favourable geology for gold and base metals exploration. Factors that make this region interesting are a general abundance of sulphides, a well developed felsic pile juxtaposed with Mg-enriched komatiites and numerous porphyries. Generally the sulphide zones are barren but the porphyries frequently carry gold values of some 100 ppb Au and show silicified, sulphide-enriched haloes of gold mineralization with values frequently in the 250-500 ppb Au range, with the highest reported value of 790 ppb Au. Elsewhere cherty interflow units have been found to be mineralized with values of up to almost 3 g/t Au over 30 cm. The best copper value encountered was 0.5% Cu.

The stream sediment geochemical survey (Cockburn, 1977) covering much of the La Grande basin confirms the Lac Guyer area to be of interest and the anomalies reported may, in a broad sense, be related to horizons of favourable geology.

A further area of felsic volcanics apparently with proximal facies, has been reported in the area of Lac de la Corvette and merits field investigation.

It is recommended that a permit be applied for covering the L. Guyer volcanic belt over a strike length of some 32 km east-west and covering an area of some 150 km² (Figure 7). An airborne EM-Mag survey with line spacings at 100 m is recommended. A geochemical survey should also be carried out along lines blazed initially at 400 m.

Analysis of this data will allow for in-fill sampling at 200 or 100 m line spacings. While the 750 kV power line will limit the airborne survey to the south, it will provide a good access route and base line for the geochemical survey and subsequent geological mapping.

The estimated cost of a helicopter-borne EM and Magnetic survey at 100 m line spacings covering 1500 line km in the Lac Guyer area is \$100,000. A reconnaissance program should also be initiated in the Lac de la Corvette area to localise the extent and nature of the felsic volcanic pile here. If merited, the geochemical survey at 500 m spacing should be extended over this zone. It is recommended that a core permit (50 km²) be taken out over the area of coarse pyroclastics and chalcopryite mineralization identified in the Lac Chien de Boeuf area, northwest of Lac de la Corvette. Consideration should be given to incorporating this area into the proposed airborne EM-Mag survey at an additional cost of \$ 30,000 (500 line km, at 100 m line intervals).

Lac Tapiatic

This area has only been the subject of two days of investigation however the results are sufficiently encouraging to merit more detailed work.

An extensive felsic pile has been identified but time did not allow for mapping or any amount of significant sampling. As a result no information is available as to alteration zones or mineralization. However, a quartz-feldspar porphyry was also identified in the same general area that demonstrates hydrothermal alteration with quartz veining, pyrite, tourmaline and carbonate, typical of gold mineralization.

A programme of geological mapping, prospecting and geochemical traverses at 500 m intervals is strongly recommended for this area that can be reached either by the road serving the dykes or by boat along the LG3 reservoir. The area recommended for investigation is outlined on Figure 4 and covers some 50 km². Prospecting should also be considered over a wider area to the west, given the geological surprises already encountered in this sector.

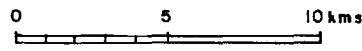
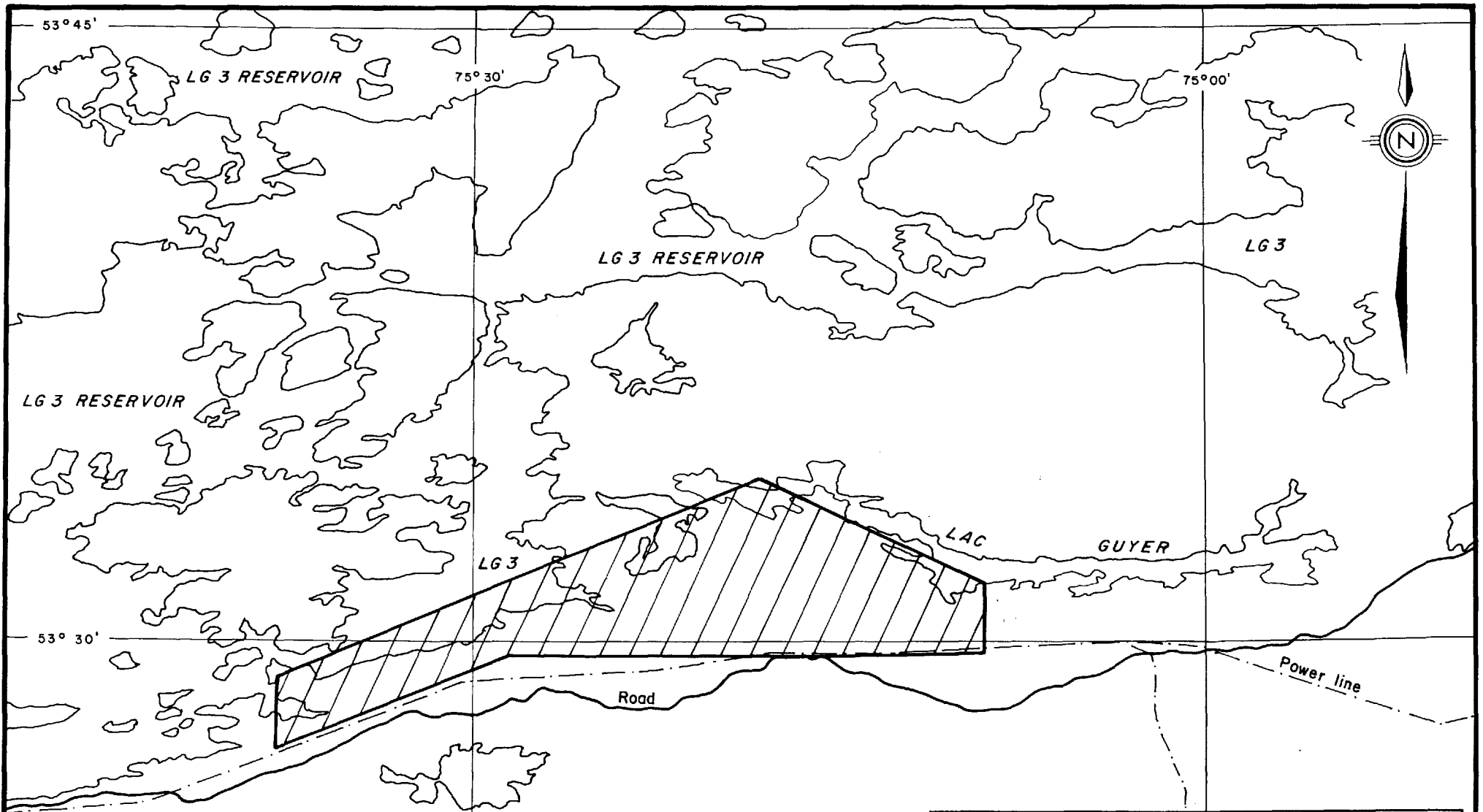
Opinaca Reservoir

The extrapolated continuity of the Opinaca greenstone belt eastward through NTS 33B proved elusive and no reasons could be found to account for the three lake sediment geochemical anomalies sought. It would appear that the geochemical data contouring method used by the QMNR here overstates the importance of single high values.

In the vicinity of the Opinaca Reservoir a well developed sulphide-enriched chlorite alteration zone of greater than 350 m width was systematically sampled but failed to provide significant precious metal or base metal values.

There would be some merit carrying out a compilation of all the work done in the Opinaca area with a view to selecting possible targets for more detailed investigation.

The other areas investigated in the L. Duncan and Keyano (LG4) sectors proved disappointing and no further work is recommended.



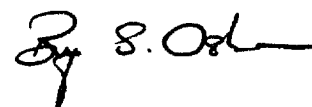
 Corporation of Canada Limited			QMRN PROJECT 95-MN-04 La Grande Region, Quebec LAC GUYER AREA RECOMMENDED PERMIT AREA			
Province: QUEBEC Twp./Area: LA GRANDE N.T.S.: 33 G Compiled by: B. S. O. Drawn by: R. T. M.			Figure 7			
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4.0 ACKNOWLEDGEMENTS

4.0 Acknowledgements

The author, on behalf of Phelps Dodge Corporation of Canada, Limited wishes to express appreciation to the Ministère des ressources naturelles du Québec for the support provided under the "Projet Moyen-Nord" that assisted in the partial funding of this project 95-MN-04.

Acknowledgements are also due to Hydro Québec, particularly to its personnel at the Le Moyne camp, whose support was so willingly provided while working in the Lac Guyer area.



Bryan S. Osborne
Consulting Geologist
1 December 1995

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APPENDIX A
SAMPLE DESCRIPTIONS

APPENDIX A - SAKAMI PROJECT

Sample No.	W/R	Sample Description	Au ppb	Cu ppm	UTM N ¹	UTM E
LE MOYNE S						
9801	*	Andesite fragmental. Silica enriched. Clasts to 30 cm. Minor sulphide.			5925187	483888
9802	*	Medium-grained biotite-qtz rock, schistose.			5925143	483730
9803	*	Fine to medium-grained. White to light grey, rusty weathering. Qtz and minor fe-mgs. Qtz-eyes. Banded, schistose. Cross-cut by qtz-veins. 5% disseminated sulphides.	125		5925202	483621
9804	*	Fine-grained, dark green to black with enstatite (?) phenocrysts. Magnetic. Local spinifex texture.			5927846	487480
9805	*	Fine-grained, banded pyx-rich rock (peridotite ?). Slightly magnetic. Disseminated blebs of sulphide.	5	232	5927945	487543
9806		Fine-grained, finely laminated qtz-rich rock. Sulphide along partings.	10		5928430	487463
9807		Fine-grained quartzite. Minor disseminated sulphide.			5928415	487544
9808		Fine-grained quartzite. 1-2% disseminated sulphide.			5928425	487544
9809		Fine-grained quartzite with muscovite partings. 1-2% fine disseminated sulphide.	20		5928326	487873
9810		Fine-grained quartzite with v. fine fe-mgs (biotite ?). Fine disseminated pyrite and minor chalcopyrite.	35	4980	5927269	479419
9811		Fine-grained quartzite, heavily rust stained. 1-2% disseminated pyrite.		145	5927390	479292
9812		Very rusty weathering chert with semi-massive pyrite.	10	115	5928675	478515

APPENDIX A - SAKAMI PROJECT

Sample No.	W/R	Sample Description	Au ppb	Cu ppm	UTM N ¹	UTM E
LE MOYNE S.						
9813		Massive pyrite.	50	69	5928673	478522
9814		Massive pyrite.	20	55	5928671	478511
9815		Chert with sulphide (py). Banding cross-cut by qtz-veining.			5928636	478615
9816		Chart with sulphide (py). Banding cross-cut by qtz-veining. Pyrite constitutes 50% of volume.	30		5928618	478618
9817		Fine-grained amphibole-biotite schist, quite massive. Cordierite (?) porphyroblasts to 2 mm. Magnetic Abundant v. fine sulphide.			5928755	478301
9818		Qtz-pyrite rock. Qtz-cherty in appearance. Pyrite exceed qtz in volume, semi-massive.			5928742	478310
9819		Qtz-pyrite rock. Qtz-cherty in appearance. Pyrite exceed qtz in volume, semi-massive. Qtz-veining	65		5928669	478330
KEYANO						
9820		Fine to medium grained qtz-magnetite (BIF). Minor garnet and biotite.	5		5963885	606270
9821		Qtz-magnetite-sulphide rock (80-17.5-2.5%). Banded. Minor biotite.	10		5963919	606232
9822		Qtz-magnetite-sulphide-grunerite/biotite rock (80-15-2.5-2.5%). Banded.	20		5964000	606182
LAC GUYER W						
9823		Qtz-amphibole schist, rusty roughly and nodular, clasts.	365		5927250	463435

APPENDIX A - SAKAMI PROJECT

Sample No.	W/R	Sample Description	Au ppb	Cu ppm	UTM N ¹	UTM E
LAC GUYER W						
9824		Boulder. Pale-green qtz-amphibole-pyrite rock (65-30-5%). Disseminated, often euhedral pyrite, slightly banded.	470		5927250	463437
9825		Boulder. Qtz-amphibole-pyrite. Banded and magnetic. 3% pyrite.	10		5927065	463417
9826		Qtz-feldspar-biotite (80-15-5%) (QFP). Rusty. Slightly banded. Very little visible sulphide.	70		5926950	463425
9827		Boulder. Fine-grained qtz-biotite schist (95-5%) with 2.5% pyrite well banded rock with sulphide along partings. Psammite.	20		5926818	463436
LAC PISU						
9828	*	Boulder. Green and nodular. Pyx.-olivine-garnet rock (garnetiferous peridotite). Coarse phenocrysts with silver sheen (bronzite). Abundant boulders of this rock in area but source not located.			5838000	472200
OPINACA RESERVOIR						
9829	*	Very fine-grained chloritic rock. Rusty weathering, slight banding but massive. Likely an amphibolitized basalt. Fine disseminated sulphide.	15	82	5817679	406552
9830	*	Very fine-grained chloritized meta-basalt. Slightly schistose clasts in outcrop. Rusty weathering.			5817560	406631
9831		Fine-grained, very chloritic with visible amphiboles. Banded locally with pyrrhotite. Qtz-veined.		69	5817535	406630
9832	*	Fine-grained chloritic rock. Rusty, although little sulphide. Clasts. Similar to 9829.		65	5817606	406664

APPENDIX A - SAKAMI PROJECT

Sample No.	W/R	Sample Description	Au ppb	Cu ppm	UTM N ¹	UTM E
9833	*	Fine-grained chloritized meta-basalts. Possibly silicified. Rusty-weathering but little sulphide evident.			5817524	406778
9834	*	Fine-to-medium grained, chloritized meta-basalt or tuff. Banded, almost schistose. Fine qtz-veining with abundant sulphide along veins.		99	5817332	406856
9835	*	Fine-grained, very chloritized rock (very dark green to black). Meta-basalt (?). Abundant sulphide (po) along infrequent qtz-infilled partings.		78	5847320	406863
9836	*	Fine-grained, very chloritized dark green to black rock (meta-basalt). Rusty-weathering but little sulphide.		59	5817367	406902
L KRISTINE E						
9837		Magnetite-qtz (60-40%). Cut by qtz-veins with euhedral pyrite crystals to 5 mm.			5932089	482611
9838		Medium-grained qtz-amphibole (70-30%) rock. Minor disseminated sulphide. Slight-schistosity.			5931964	482602
9839	*	Fine-grained, very pale green schist. Qtz-rich, pink weathering (i.e. + feldspar) with mica-partings. No visible sulphide.			5931960	482582
9840		Medium to coarse-grained qtz-feldspar-amphibole rock (granite). Locally enriched in pyrite and minor chalcopyrite.	45	140	5931610	482628
9841	*	Medium to coarse grained qtz-feldspar rock with minor ferro-magnesian minerals (amphibole or biotite). Granophyric texture. Minor sulphide.		59	5931800	482250

APPENDIX A - SAKAMI PROJECT

Sample No.	W/R	Sample Description	Au ppb	Cu ppm	UTM N ¹	UTM E
L KRISTINE E						
9842		Fine to medium grained qtz-rich rock (chert). Banded. Abundant disseminated pyrite. Probably an interflow exhalite unit. Note high As and Cd values (298 ppm and > 100 ppm).	2950	71	5932024	482284
9843		Medium-grained qtz-amphibole rock. Same horizon as 9842. Slightly schistose. 5% disseminated pyrite.	170	140	5932025	482310
9844		Fine-grained amphibolite interbanded with qtz-feldspar sulphide units (some 1 cm thick).	75	120	5932020	482310
9845		Boulder. Medium-grained amphibolite-biotite schist with disseminated sulphide.		238	5933150	481330
9846		Fine-grained pale-green qtz-amphibole rock. 2.5% disseminated sulphide (py + minor chalcopyrite). Silicified. Banded felsic tuffs or sediments.		441	5934550	476150
9847		Fine to medium-grained qtz-feldspar-amphibole rock. Cross-cut by qtz-feldspar-pyrite veining.			5934860	475500
9848		Fine-grained qtz-feldspar-biotite (?) salt and pepper texture. Sericitized. Possibly a psammite. Minor sulphide.			5934850	475400
LG3 N SHORE						
9849		Fine to medium grained qtz-biotite schist. Rusty weathering. Magnetic.			5966844	447318
9850		Medium to coarse-grained qtz-amphibole schist (almost gneissic). Magnetic. Abundant banded pyrite associated with pale-green amphibole layers.			5966845	447310

APPENDIX A - SAKAMI PROJECT

Sample No.	W/R	Sample Description	Au ppb	Cu ppm	UTM N ¹	UTM E
LG3 N SHORE						
9851	*	Fine-grained qtz-amphibole-magnetic-sulphide rock (45-45-5-5%). Banded and magnetic.			5966850	447420
L TAPIATIC						
9852		Medium-grained qtz-feldspar porphyry (QFP) slightly fractured with coarse (0.5 cm) euhedral pyrite along fissures. Spotted with carbonate alteration.	15		5959730	440862
9853		Medium-grained QFP. Fractures with infilling of quartz and tourmaline upto 1 cm wide along fissures. Abundant euhedral pyrite. Spotted with carbonate alteration.			5959720	440766
9854		Medium-grained QFP. Fractures with infilling of quartz and tourmaline upto 1 cm wide along fissures. Abundant euhedral pyrite. Spotted with carbonate alteration and locally along fissures.			5959810	440762
9855		Boulder. Fine-grained greenish qtz-mica schist (? mylonitic and fuchsitic). Rusty weathering. Pyrite along fissures. Spotted with carbonate alteration.			5959751	440560
9856		Fine-grained qtz-biotite (?) - magnetite rock. Massive yet rusty weathering.			5959700	440500
9857		Fine-grained qtz-biotite (?) - magnetite rock. Abundant disseminated sulphide in matrix.			5959820	440210
L JANJANDASHI						
9858	*	Fine to medium grained qtz-amphibole-feldspar rock. Banded. Minor sulphide, chloritized.			5946357	330723

APPENDIX A - SAKAMI PROJECT

Sample No.	W/R	Sample Description	Au ppb	Cu ppm	UTM N ¹	UTM E
L JANJANDASHI						
9859		Fine to medium grained qtz-feldspar-amphibole rock. Massive. Minor sulphide.			5946665	329880
L DUNCAN						
9860		Medium-grained pink feldspar-amphibole rock (diorite). Euhedral pyrite (4%). Slightly schistose and chloritized.		118	5936400	324276
9861		Magnetite-quartz (75-25%) BIF. Very highly deformed.		150	5932955	323146
9862		Magnetite-quartz BIF.			5929150	313480
9863		Graphite schist, very rusty weathering.	10		5929130	313490
9864		Graphite schist with qtz-banding and fine disseminated pyrite.			5929128	313490
9865		Graphite schist with pyrite banding (10% by volume).	20	549	5928940	313300
9866		Qtz-vein with graphitic schist inclusions. Euhedral pyrite (5%).		188	5928940	313302
9867		Fine-grained qtz-femg. rock carrying disseminated sulphide. Cut-by qtz-veining with euhedral pyrite.		116	5928945	313295
9868		Fine-grained siliceous rock (qtz and biotite). Conchoidal fracture. Magnetic. Abundant disseminated sulphides.		148	5929726	312220
9869		Qtz-biotite rock with fine disseminated sulphide (2%). Magnetic.		244	5929711	312220

APPENDIX A - SAKAMI PROJECT

Sample No.	W/R	Sample Description	Au ppb	Cu ppm	UTM N ¹	UTM E
L DUNCAN						
9870		Chert. Nodular and conchoidal fracture. Fine disseminated sulphide.		103	5929909	312188
9871		Very fine-grained qtz-biotite rock. Fine disseminated sulphide.			5929842	312160
9872		Fine-grained qtz-feldspar-femg. rock (? dacite). Silicified. Magnetic. Abundant banded and disseminated sulphide (po).		171	5929859	312121
9873		Fine-grained qtz-feldspar-femg. rock (? dacite). Disseminated sulphide.		125	5929745	312172
9874		Fine-grained qtz-feldspar-femg. rock (? dacite). More mafic. Pink garnets and clasts. Disseminated sulphide.		63	5929840	312135
9875		Very fine grained siliceous rock. Nodular and rusty weathering. Qtz veining and impregnations. Disseminated sulphide.		100	5929900	312164
TEA ISLAND						
9876		Fine-grained siliceous rock. Slightly chloritized. Disseminated sulphide (in part magnetic).		314	5930000	310450
9877		Fine-grained siliceous rock. Very hard and chloritized. Disseminated sulphide.		84	5929858	310537
9878		Fine-grained qtz-feldspar-amphibole with coarser grained amphibole horizons. Banded. Disseminated and banded sulphide.		104	5929910	310361

APPENDIX A - SAKAMI PROJECT

Sample No.	W/R	Sample Description	Au ppb	Cu ppm	UTM N ¹	UTM E
TEA ISLAND						
9879		Fine-grained siliceous rock. Massive to fissile. Disseminated sulphide.		86	5929900	310300
9880		Fine grained siliceous rock. Very hard and silicified. Disseminated sulphide.		206	5929877	310250
9881		Fine-grained very siliceous rock. Banded with biotite layers (quartzite with pelite layers ?). Rusty weathering. Sulphide along partings.	15	149	5929860	310090
9882		Fine-grained qtz-feldspar-amphibole rock. Nodular and rusty weathering. Abundant disseminated and banded sulphide (py & po).	5	184	5929860	310000
L DESAULNIERS						
9883		Chert with qtz-veining parallel to weak bedding. Adjacent to BIF. Pyrite along bedding planes.			5930070	314780
9884		Qtz-magnetite (BIF). Graphitic with minor disseminated sulphide (1 to 2%). Very hard.			5941940	329335
9885		Qtz-biotite schist adjacent to BIF. Minor disseminated sulphide.	20	51	5941800	329450
9886		Fine grained dark green amphibolite. Local zones of disseminated sulphide (po)			5941410	329660

(1) Field GPS readings (Northings sometimes spurious)

APPENDIX A - SAKAMI PROJECT

Sample No.	W/R	Sample Description	Au ppb	Cu ppm	UTM N ¹	UTM E
L DESAULNIERS						
9887		Very fine grained siliceous rock with minor femgs. Locally enriched in magnetite. Abundant disseminated sulphide. Locally semi-massive to massive.			5941995	330735
9888		Very fine grained siliceous rock with minor femgs. Locally enriched in magnetite. Abundant disseminated sulphide. Locally semi-massive to massive.			5941990	330740
9889		Very fine grained siliceous rock with minor femgs. Locally enriched in magnetite. Abundant disseminated sulphide. Locally semi-massive to massive.		63	5941998	330732
9890		Very fine grained siliceous rock with minor femgs. Locally enriched in magnetite. Abundant disseminated sulphide. Locally semi-massive to massive.		255	5941997	330750
9891		Very fine grained siliceous rock with minor femgs. Locally enriched in magnetite. Abundant disseminated sulphide. Locally semi-massive to massive.		69	5942010	330740
L KUKAMAW						
9252		Coarse qtz-feldspar rock (QFP). Secondary qtz veining. Disseminated euhedral pyrite (1%).	15		5927219	463440

APPENDIX A - SAKAMI PROJECT

Sample No.	W/R	Sample Description	Au ppb	Cu ppm	UTM N ¹	UTM E
L KUKAMAW						
187124	*	Fine-grained qtz rock (sacharoidal texture), minor bands of amphibole. Could be QP. Disseminated pyrite 2.5%.			5927144	463315
187125		Very rusty qtz-amphibole rock with pyrite on fractures.	240	146	5927141	463316
187126		Medium-grained qtz-amphibole rock (55-45%). 2.5% disseminated pyrite.	150	152	5927137	463317
187127		Fine qtz rock with minor amphibole (saccharoidal texture). 3% disseminated pyrite. Local concentrations along fractures.	135	289	5927135	463319
187128		Fine-grained qtz-amphibole rock. 2.5% disseminated pyrite.	200	325	5927140	463005
187129		Amphibole-qtz rock (60-40%). Medium-grained. Banded. 2.5% disseminated pyrite.		129	5926930	463194
187130		Coarse grained amphibole qtz rock. Schistose. Rusty 2% pyrite.	10	85	5926930	463200
187131		Amphibolite. Fine to medium-grained. 10% quartz. 2% disseminated pyrite.	75	191	5926920	463170
187132		Banded medium-grained qtz-amphibole rock (50-50%). 2% disseminated pyrite.	85	134	5926920	463172
187133	*	Coarse qtz-porphyry (boulder). Minor feldspar ? Distinctive inclusions of pale yellowish qtz phenocryst (to 1 cm) with mica? 1-2% disseminated pyrite. Also veined with qtz and fine dusting of pyrite.	145		5926930	463135

APPENDIX A - SAKAMI PROJECT

Sample No.	W/R	Sample Description	Au ppb	Cu ppm	UTM N ¹	UTM E
L KUKAMAW						
197134	*	Basalt (v. mafic to ultramafic).			5926800	480000
197135		Fine-grained amphibole-qtz rock. Banded. Very rusty. 5% banded pyrite.	140	366	5927250	463490
197136		V. fine-grained qtz rock (QP) with fine disseminated sulphide 2%.	55	135	5927150	463529
197137		Fine-grained qtz-amphibole (80-20%). Bluish. Banded (qtz-flooded ?). Disseminated and banded sulphide 5%. Boulder with cpy located nearby.	345	376	5927220	464070
187138		Medium to coarse grained rusty qtz-amphibole rock. 4% disseminated sulphide.	85	62	5927300	464169
187139		Fine-grained qtz-amphibole (80-20%). Abundant disseminated sulphide (4%).	60		5927297	464166
187140		Fine-grained amphibolite. Patchy qtz-veining (greenish). Abundant fine disseminated and banded sulphide.	80	309	5927293	464164
187141		Fine-grained qtz-amphibolite. Banded with fine sulphide along banding (3%). Almost gneissic texture.	60	197	5927300	464205
187142		Medium-grained qtz-amphibole rock. Slightly banded. Disseminated sulphide (2%).	115	168	5927290	464240
187143		Fine qtz-amphibole rock. Qtz-veining (2 mm). Disseminated pyrite (2%).	790	95	5927221	463440

APPENDIX A - SAKAMI PROJECT

Sample No.	W/R	Sample Description	Au ppb	Cu ppm	UTM N ¹	UTM E
L KUKAMAW						
187144		Coarse qtz-pyrite-amphibole rock. 10% coarse pyrite. Intermixed with fine-grained QFP.	100		5927220	463440
187145		Fine-grained qtz-amphibole rock. Slight banding. V. fine sulphide.	120	71	5927222	463440
187146		Qtz-amphibole. Variable grain size (fine to coarse). Qtz has pale greenish colouration. Disseminated pyrite (2.5%).	560	107	5927221	463440
187147		Fine-grained qtz-feldspar rock (QFP). Thin qtz-veining (2 mm). Disseminated fine euhedral pyrite (1%). Dusting of pyrite (v. fine) on secondary qtz-veins.	80		5927240	463425
187148		Very hard, siliceous rock. Only small chips obtained for sample. Disseminated sulphide.	180	300	5927240	463435
187149		Qtz-amphibole schist, rusty vuggey and nodular, clasts.	275		5927250	463437
187150		Boulder. Pale-green qtz-amphibole-pyrite rock (65-30-5%). Disseminated, often euhedral pyrite, slightly banded.	285		5927250	463435
BASALT RIDGE						
187120	*	Massive, medium grained mafic rock (largely amphibole matte-greenish). Olivine in matrix? No feldspars or qtz i.e. ultramafic.			5927030 ¹	486970

(1) Field GPS readings (Northings sometimes spurious)

APPENDIX A - SAKAMI PROJECT

Sample No.	W/R	Sample Description	Au ppb	Cu ppm	UTM N ¹	UTM E
BASALT RIDGE						
187121	*	Pelite or volcanoclastic rock with large (1.5 cm) crystals of white elongate laths (sillimanite or andalusite). (? interflow sed).			5927020 ¹	486965
187122	*	Mafic to ultramafic tuff (? spinifex texture underens). Banded.			5927025 ¹	486965
187123	*	Pyroxenite, rust stained.			5927020 ¹	486980
LE MOYNE						
187114		Qtz-amphibole - minor almandine - qtz-veined. Minor sulphide.			5925700	493050
187115		Fine-grained slightly banded, qtz-amphibole (80-20%). Fine to medium grained disseminated sulphide (2%). ? Meta-dacite.			5925470	493010
187116	*	V-fine grained. Serpentinized peridotite. No visible sulphide.			5925320	493000
187117		Fine-grained siliceous rock. Banded. Disseminated sulphide (3%). Qtz-veined.	15		5925360	498250
187118		Medium grained. Qtz amphibolite with greenish tinge (? epidote). Quite silicified and abundant sulphide (10%).			5925360	498250
187119		Fine-grained. Mafic rock with concordant epidote veining (upto 5 cm wide). Qtz-veining (to 1 cm wide) discordant with sulphides and epidote.	10	418	5925270	498080

(1) Field GPS readings (Northings sometimes spurious)

APPENDIX A - SAKAMI PROJECT

Sample No.	W/R	Sample Description	Au ppb	Cu ppm	UTM N ¹	UTM E
L KRISTINE						
187109		Medium-grained. Amphibole-olivine rock. Massive. Approaching spinifex texture. Minor sulphide (1%).		282	5930520	486780
187110	*	Fine-grained qtz-feldspar, banded rock. Cross-cut by qtz-veins and minor epidote. Pink weathering in outcrop. Likely a felsic tuff. No visible sulphide.			5930130	486300
187111		Fine-grained pale green amphibolite (? tremolite). Almost schistose. Disseminated medium grained sulphide (2%).		392	5930700	485630
187112		Medium-grained. Qtz-feldspar-amphibole (20-40-40%). Epidote veining. Disseminated sulphide (1%).			5930350	485610
187113	*	Medium-grained amphibolite, quite massive. ? Residual spinifex texture. Disseminated sulphide (1-2%).		59	5930750	486200
L KUKAMAW						
9265		Medium to coarse grained. Qtz-feldspar-amphibole (? grunerite). Pyrite and chalcocite (?) coatings.	10		5927290	463060
9266		Fine to medium grained schistose qtz-amphibole rock (grunerite). Accessory garnet. Abundant pyrite (5-10%).	85		5927170	462780
9267	*	Fine-grained qtz-amphibole (80-20%) rock. Disseminated sulphide (1-2%). Epidote veining. Banded with mica on schistosity planes.			5926560	462050

APPENDIX A - SAKAMI PROJECT

Sample No.	W/R	Sample Description	Au ppb	Cu ppm	UTM N'	UTM E
L KUKAMAW						
9268	*	Fine-grained amphibolite. Banded (? mafic tuff). Epidote veining. No visible sulphide.			5926320	462090
9269		Very rusty boulder. Qtz-sulphide breccia (fine qtz-amphibole clasts in coarse qtz veining). 25% sulphide.	90	116	5926430	462080
9270		Medium-grained qtz-feldspar rock (sheared felsic tuff or QFP). 1-2% disseminated sulphide.	35		5926650	462940
9271		Medium-grained qtz-feldspar rock (QFP). 2.5% sulphide, including chalcopyrite (malachite staining locally). Slight schistosity. No sign of sulphide on outcrop surface.	85	484	5926730	462970
L TAPIATIC						
9253	*	V-fine-grained qtz-feldspar + biotite or amphibole. Epidotized/chloritized. Intermediate flow? No sulphide.			5956620	438950
9254	*	Fine-grained amphibolite, chloritized. Mafic to ultramafic flow. Fine disseminated sulphide. Magnetic.			5957050	439700
9255	*	Fine-grained amphibole-feldspar rock. Schistose. Intermediate flow.	10	69	5958280	440930
9256		Medium-grained amphibole schist with feldspar. Chloritized and silicified. 5% disseminated sulphide.	5	52	5959000	441000

APPENDIX A - SAKAMI PROJECT

Sample No.	W/R	Sample Description	Au ppb	Cu ppm	UTM N ¹	UTM E
L TAPIATIC						
9257		Medium-grained amphibole schist with feldspar. Chloritized and silicified. 5% disseminated sulphide.		260	5959000	441000
9258		Fine-grained amphibolite schist. Cross-cut by epidote boundins with sulphide infilled extension gashes. Sulphide semi-massive (5%).	10	145	5959130	441040
9259	*	Fine-grained qtz-feldspar rock (v. little femgs.). Conchoidal fracture. Pale greenish-grey on fresh surfaces. No visible sulphide.			5959300	440930
9260		Qtz-feldspar-amphibole rock. Chloritized. Disseminated euhedral pyrite crystal (to 2 mm) 5%. Highly magnetic (magnetite). Banded.	15	382	5959760	440920
9261	*	Fine-grained qtz-feldspar-amphibole rock. Banded. Dacite tuff.			5960250	441650
9262	*	Fine-grained qtz-feldspar-amphibole rock. Banded zones (to 2 mm) feldspar and amphiboles. Dacite tuff.			5960390	441400
9263		Medium grained qtz-feldspar-amphibole rock. Banded tuff.		358	5961400	441400
9264	*	Medium grained qtz-feldspar-amphibole rock. Banded tuff with concentrations of py along partings.			5961400	441400

APPENDIX B
ANALYTICAL CERTIFICATES



Laboratoires Chemex Ltee.

Essayeurs * Geochimistes * Chimistes Analytique

175 Boul, Industriel C.P. 284, Rouyn
Quebec, Canada J9X 5C3
PHONE: 819-797-1922 FAX: 819-797-0106

To: PHELPS DODGE CORP. OF CANADA LTD.

120 ADELAIDE ST. W., STE. 912
TORONTO, ON
M5H 1T1

Project: SAKAMI
Comments: ATTN: PAUL CHAMOIS CC: BRYAN OSBORNE

Page Number : 1-A
Total Pages : 1
Certificate Date: 09-AUG-95
Invoice No. : 19523507
P.O. Number :
Account : MWG

CERTIFICATE OF ANALYSIS A9523507

SAMPLE	PREP CODE	Au ppb FA+AA	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm
LK 1	201 229	< 5	< 0.2	1.09	< 2	10	< 0.5	2	0.12	< 0.5	4	50	8	1.22	< 10	< 1	0.07	< 10	0.35	75
LK 2	201 229	< 5	< 0.2	0.49	< 2	< 10	< 0.5	< 2	0.23	< 0.5	1	26	7	0.87	< 10	< 1	0.02	< 10	0.12	45
LK 3	201 229	< 5	< 0.2	1.19	< 2	10	< 0.5	< 2	0.13	< 0.5	2	33	7	1.16	< 10	1	0.03	< 10	0.14	45
LK 4	201 229	< 5	< 0.2	1.66	< 2	10	< 0.5	< 2	0.15	< 0.5	3	38	6	2.03	< 10	< 1	0.04	< 10	0.21	55
LK 5	201 229	< 5	< 0.2	1.15	< 2	10	< 0.5	< 2	0.19	< 0.5	1	33	8	1.15	< 10	< 1	0.03	10	0.17	50
LK 6	201 229	< 5	< 0.2	2.00	< 2	10	< 0.5	< 2	0.18	< 0.5	< 1	42	6	1.79	< 10	1	0.01	10	0.12	40
LK 7	201 229	< 5	< 0.2	0.81	4	< 10	< 0.5	4	0.17	< 0.5	2	25	4	0.78	< 10	1	0.02	< 10	0.18	50
LK 8	201 229	20	< 0.2	0.92	8	< 10	< 0.5	< 2	0.26	< 0.5	2	33	7	1.03	< 10	< 1	0.02	10	0.12	40

CERTIFICATION: *Hart B. ...*



Laboratoires Chemex Ltee.

Essayeurs * Geochimistes * Chimistes Analytique
 175 Boul. Industriel C.P. 284, Rouyn
 Quebec, Canada J9X 5C3
 PHONE: 819-797-1922 FAX: 819-797-0106

To: PHELPS DODGE CORP. OF CANADA LTD.

120 ADELAIDE ST. W., STE. 912
 TORONTO, ON
 M5H 1T1

Project : SAKAMI
 Comments: ATTN: PAUL CHAMOIS CC: BRYAN OSBORNE

Page Number : 1-B
 Total Pages : 1
 Certificate Date: 09-AUG-95
 Invoice No. : 19523507
 P.O. Number :
 Account : MWG

CERTIFICATE OF ANALYSIS A9523507

SAMPLE	PREP CODE	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
LK 1	201 229	< 1	< 0.01	12	240	< 2	< 2	1	7	0.10	< 10	< 10	27	< 10	8
LK 2	201 229	< 1	0.01	6	480	2	2	1	7	0.05	< 10	< 10	17	< 10	2
LK 3	201 229	< 1	< 0.01	7	310	< 2	2	1	5	0.09	< 10	< 10	26	< 10	4
LK 4	201 229	< 1	< 0.01	8	440	< 2	4	1	7	0.12	< 10	< 10	47	< 10	8
LK 5	201 229	< 1	< 0.01	7	340	< 2	2	1	8	0.12	< 10	< 10	32	< 10	6
LK 6	201 229	< 1	< 0.01	4	380	< 2	< 2	2	8	0.09	< 10	< 10	29	< 10	4
LK 7	201 229	< 1	< 0.01	6	130	< 2	2	1	10	0.14	< 10	< 10	25	< 10	8
LK 8	201 229	< 1	0.01	6	520	< 2	2	1	10	0.09	< 10	< 10	21	< 10	2

CERTIFICATION: *[Handwritten Signature]*



Laboratoires Chemex Ltee.

Essayeurs * Geochimistes * Chimistes Analytique
 175 Boul. Industriel C.P. 284, Rouyn
 Quebec, Canada J9X 5C3
 PHONE: 819-797-1922 FAX: 819-797-0106

To: PHELPS DODGE CORP. OF CANADA LTD.

120 ADELAIDE ST. W., STE. 912
 TORONTO, ON
 M5H 1T1

Page Number : 1-A
 Total Pages : 1
 Certificate Date: 09-AUG-95
 Invoice No. : 19523509
 P.O. Number :
 Account : MWG

Project : SAKAMI
 Comments: ATTN: PAUL CHAMOIS CC: BRYAN OSBORNE

CERTIFICATE OF ANALYSIS A9523509

SAMPLE	PREP CODE		Au ppb	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm
	FA+AA																				
9801	205	226	< 5	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9802	205	226	< 5	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9803	205	226	125	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9804	205	226	< 5	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9805	205	226	5	< 0.2	4.20	< 2	140	< 0.5	< 2	2.55	< 0.5	23	197	232	2.62	< 10	3	0.21	< 10	1.23	160
9806	205	226	10	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9807	205	226	< 5	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9808	205	226	< 5	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9809	205	226	20	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9810	205	226	35	9.2	1.68	348	20	< 0.5	8	0.61	1.0	7	162	4980	3.28	< 10	< 1	0.15	< 10	1.12	165
9811	205	226	< 5	< 0.2	2.29	76	< 10	< 0.5	6	1.50	< 0.5	28	80	145	4.41	< 10	< 1	0.13	< 10	1.48	430
9812	205	226	10	0.4	2.03	22	40	< 0.5	< 2	0.49	0.5	10	185	115	6.67	< 10	< 1	0.16	10	1.49	435
9813	205	226	50	< 0.2	< 0.01	220	10	< 0.5	< 2	0.03	0.5	41	156	69	>15.00	< 10	< 1	0.04	< 10	0.03	15
9814	205	226	20	< 0.2	0.36	206	90	< 0.5	4	0.09	< 0.5	10	185	55	11.45	< 10	< 1	0.25	< 10	0.34	60
9815	205	226	< 5	0.2	1.31	50	70	< 0.5	< 2	0.72	< 0.5	6	124	37	3.83	< 10	< 1	0.27	< 10	0.76	190
9816	205	226	30	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9817	205	226	< 5	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9818	205	226	< 5	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9819	205	226	65	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9820	205	226	5	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9821	205	226	10	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9822	205	226	20	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9823	205	226	365	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9824	205	226	470	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9825	205	226	10	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9826	205	226	70	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9827	205	226	20	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

CERTIFICATION: Hart Buehler



Laboratoires Chemex Ltee.

Essayeurs * Geochimistes * Chimistes Analytique

175 Boul. Industriel C.P. 284, Rouyn
Quebec, Canada J9X 5C3
PHONE: 819-797-1922 FAX: 819-797-0106

To: PHELPS DODGE CORP. OF CANADA LTD.

120 ADELAIDE ST. W., STE. 912
TORONTO, ON
M5H 1T1

Project: SAKAMI
Comments: ATTN: PAUL CHAMOIS CC: BRYAN OSBORNE

Page Number : 1-B
Total Pages : 1
Certificate Date: 09-AUG-95
Invoice No. : 19523509
P.O. Number :
Account : MWG

CERTIFICATE OF ANALYSIS

A9523509

SAMPLE	PREP CODE	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
9801	205 226	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9802	205 226	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9803	205 226	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9804	205 226	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9805	205 226	< 1	0.11	66	410	< 2	< 2	8	184	0.12	< 10	< 10	106	< 10	22
9806	205 226	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9807	205 226	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9808	205 226	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9809	205 226	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9810	205 226	4	0.04	7	280	82	8	18	12	0.19	< 10	< 10	66	< 10	560
9811	205 226	< 1	0.08	39	340	4	6	10	9	0.23	< 10	< 10	98	< 10	116
9812	205 226	1	0.06	42	1470	< 2	4	13	23	0.21	< 10	< 10	103	< 10	156
9813	205 226	< 1	< 0.01	34	80	22	28	1	1	0.01	< 10	< 10	4	< 10	34
9814	205 226	2	0.03	16	550	26	12	2	10	0.11	< 10	< 10	44	< 10	34
9815	205 226	3	0.02	15	250	< 2	2	1	5	0.06	< 10	< 10	16	< 10	124
9816	205 226	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9817	205 226	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9818	205 226	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9819	205 226	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9820	205 226	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9821	205 226	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9822	205 226	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9823	205 226	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9824	205 226	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9825	205 226	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9826	205 226	----	----	----	----	----	----	----	----	----	----	----	----	----	----
9827	205 226	----	----	----	----	----	----	----	----	----	----	----	----	----	----

CERTIFICATION:

Hart Bickler



Laboratoires Chemex Ltee.

Essayeurs * Geochimistes * Chimistes Analytique

175 Boul, Industriel C.P. 284, Rouyn
Quebec, Canada J9X 5C3
PHONE: 819-797-1922 FAX: 819-797-0106

To: PHELPS DODGE CORP. OF CANADA LTD.

120 ADELAIDE ST. W., STE. 912
TORONTO, ON
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Certificate Date: 09-AUG-95
Invoice No. : 19524224
P.O. Number :
Account : MWG

Project :

Comments: ATTN: PAUL CHAMOIS CC: BRYAN OSBORNE

CERTIFICATE OF ANALYSIS

A9524224

SAMPLE	PREP CODE	Au ppb FA+AA										
9828	205 226	< 5										
9829	205 226	15										
9830	205 226	< 5										
9831	205 226	< 5										
9832	205 226	< 5										
9833	205 226	< 5										
9834	205 226	< 5										
9835	205 226	< 5										
9836	205 226	< 5										
9837	205 226	< 5										
9838	205 226	< 5										
9839	205 226	< 5										
9840	205 226	45										
9841	205 226	< 5										
9842	205 226	2950										
9843	205 226	170										
9844	205 226	75										
9845	205 226	< 5										
9846	205 226	< 5										
9847	205 226	< 5										
9848	205 226	< 5										
9849	205 226	< 5										
9850	205 226	< 5										
9851	205 226	< 5										
9852	205 226	15										
9853	205 226	< 5										
9854	205 226	< 5										
9855	205 226	< 5										
9856	205 226	< 5										
9857	205 226	< 5										
9858	205 226	< 5										
9859	205 226	< 5										
9860	205 226	< 5										
9861	205 226	< 5										

CERTIFICATION:

Delia J. ...



Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

5175 Timberlea Blvd., Mississauga
Ontario, Canada L4W 2S3
PHONE: 905-624-2806 FAX: 905-624-6163

To: PHELPS DODGE CORP. OF CANADA LTD.

120 ADELAIDE ST. W., STE. 912
TORONTO, ON
M5H 1T1

Project : SAKAMI
Comments: ATTN: PAUL CHAMOIS CC: BRYAN OSBORNE

Page Number : 1
Total Pages : 1
Certificate Date: 15-AUG-95
Invoice No. : 19524298
P.O. Number :
Account : MWG

CERTIFICATE OF ANALYSIS

A9524298

SAMPLE	PREP CODE	Au ppb AFS	Pt ppb AFS	Pd ppb AFS							
9805	244 --	6	< 5	6							

CERTIFICATION: _____

Hart Biele



Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

5175 Timberlea Blvd., Mississauga
Ontario, Canada L4W 2S3
PHONE: 905-624-2806 FAX: 905-624-6163

To: PHELPS DODGE CORP. OF CANADA LTD.

120 ADELAIDE ST. W., STE. 912
TORONTO, ON
M5H 1T1

Project: SAKAMI
Comments: ATTN: PAUL CHAMOIS CC: BRYAN OSBORNE

Page Number : 1
Total Pages : 1
Certificate Date: 15-AUG-95
Invoice No. : 19524301
P.O. Number :
Account : MWG

CERTIFICATE OF ANALYSIS

A9524301

SAMPLE	PREP CODE	Au ppb AFS	Pt ppb AFS	Pd ppb AFS	Ni ppm						
9828	299 --	< 4	< 10	4	350						

CERTIFICATION:

Hart Balle



Laboratoires Chemex Ltee.

Essayeurs * Geochimistes * Chimistes Analytique

175 Boul. Industriel C.P. 284, Rouyn
 Quebec, Canada J9X 5C3
 PHONE: 819-797-1922 FAX: 819-797-0106

To: PHELPS DODGE CORP. OF CANADA LTD.

120 ADELAIDE ST. W., STE. 912
 TORONTO, ON
 M5H 1T1

Page Number : 1
 Total Pages : 1
 Certificate Date: 15-AUG-95
 Invoice No. : I9524923
 P.O. Number :
 Account : MWG

Project :

Comments: ATTN: PAUL CHAMOIS CC: BRYAN OSBORNE

CERTIFICATE OF ANALYSIS

A9524923

SAMPLE	PREP CODE		Au ppb FA+AA									
9862	205	226	< 5									
9863	205	226	10									
9864	205	226	< 5									
9865	205	226	20									
9866	205	226	< 5									
9867	205	226	< 5									
9868	205	226	< 5									
9869	205	226	< 5									
9870	205	226	< 5									
9871	205	226	< 5									
9872	205	226	< 5									
9873	205	226	< 5									
9874	205	226	< 5									
9875	205	226	< 5									
9876	205	226	< 5									
9877	205	226	< 5									
9878	205	226	< 5									
9879	205	226	< 5									
9880	205	226	< 5									
9881	205	226	15									
9882	205	226	5									
9883	205	226	< 5									
9884	205	226	< 5									
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9886	205	226	< 5									
9887	205	226	< 5									
9888	205	226	< 5									
9889	205	226	< 5									
9890	205	226	< 5									
9891	205	226	< 5									

CERTIFICATE BY *Adriana Alexandra*



Laboratoires Chemex Ltee.

Essayeurs * Geochimistes * Chimistes Analytique

175 Boul, Industriel C.P. 284, Rouyn
Quebec, Canada J9X 5C3
PHONE: 819-797-1922 FAX: 819-797-0106

To: PHELPS DODGE CORP. OF CANADA LTD.

120 ADELAIDE ST. W., STE. 912
TORONTO, ON
M5H 1T1

Project :

Comments: ATTN: PAUL CHAMOIS CC: BRYAN OSBORNE

Page Number : 1
Total Pages : 1
Certificate Date: 16-AUG-95
Invoice No. : I9524228
P.O. Number :
Account : MWG

CERTIFICATE OF ANALYSIS

A9524228

SAMPLE	PREP CODE	Al2O3 % XRF	CaO % XRF	Cr2O3 % XRF	Fe2O3 % XRF	K2O % XRF	MgO % XRF	MnO % XRF	Na2O % XRF	P2O5 % XRF	SiO2 % XRF	TiO2 % XRF	LOI % XRF	TOTAL %
9828	299 --	6.59	7.01	0.23	9.21	0.13	24.13	0.14	0.51	0.20	49.77	0.36	0.78	99.06
9829	299 --	12.93	9.44	0.02	16.99	0.52	4.54	0.55	1.32	0.11	51.42	1.24	0.88	99.96
9830	299 --	11.62	10.12	0.03	20.87	0.41	5.71	0.64	1.05	0.10	47.00	1.16	0.99	99.70
9832	299 --	11.59	9.16	0.02	16.91	0.37	3.65	0.43	1.55	0.10	53.05	1.16	1.81	99.80
9833	299 --	12.18	8.85	0.02	17.73	0.57	4.54	0.54	1.80	0.12	51.42	1.33	0.82	99.92
9834	299 --	13.17	7.73	0.03	16.03	1.26	4.38	0.34	3.58	0.11	49.78	1.27	1.52	99.20
9835	299 --	12.51	9.10	0.02	16.60	0.79	4.11	0.40	2.23	0.12	50.71	1.37	0.98	98.94
9836	299 --	12.95	10.93	0.02	19.10	0.95	5.04	0.44	1.81	0.12	45.63	1.40	0.80	99.19
9839	299 --	12.42	0.49	0.01	1.54	2.57	0.61	< 0.01	4.53	0.05	73.53	0.14	1.16	97.05
9841	299 --	14.45	2.11	0.01	3.33	1.36	0.88	0.03	5.49	0.08	70.28	0.35	0.83	99.20
9853	299 --	13.92	0.47	0.02	1.62	0.23	0.44	< 0.01	7.84	0.06	70.92	0.17	0.86	96.55
9858	299 --	15.66	4.43	0.02	4.25	1.46	1.62	0.05	4.46	0.12	65.63	0.47	0.80	98.97

CERTIFICATION:

Handwritten signature



Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

5175 Timberlea Blvd., Mississauga
Ontario, Canada L4W 2S3
PHONE: 905-624-2806 FAX: 905-624-6163

To: PHELPS DODGE CORP. OF CANADA LTD.

120 ADELAIDE ST. W., STE. 912
TORONTO, ON
M5H 1T1

Project :

Comments: ATTN: PAUL CHAMOIS CC: BRYAN OSBORNE

Page Number : 1
Total Pages : 1
Certificate Date: 11-SEP-95
Invoice No. : I9526644
P.O. Number :
Account : MWG

CERTIFICATE OF ANALYSIS

A9526644

SAMPLE	PREP CODE	Ba ppm	Rb ppm	Sr ppm	Nb ppm	Zr ppm	Y ppm				
9828	244 --	15	4	84	< 2	54	8				
9829	244 --	90	8	92	< 2	90	22				
9830	244 --	95	12	16	< 2	72	18				
9832	244 --	100	12	100	< 2	93	20				
9833	244 --	145	20	94	2	96	20				
9834	244 --	125	62	66	< 2	84	22				
9835	244 --	95	28	98	< 2	96	22				
9836	244 --	60	20	56	2	87	20				
9839	244 --	470	70	92	6	114	4				
9841	244 --	625	46	532	4	99	10				
9853	244 --	490	6	424	12	111	4				
9858	244 --	465	46	326	6	132	8				

CERTIFICATION: Hunt Becker



Laboratoires Chemex Ltee.

Essayeurs * Geochimistes * Chimistes Analytique

175 Boul. Industriel C.P. 284, Rouyn
Quebec, Canada J9X 5C3
PHONE: 819-797-1922 FAX: 819-797-0106

To: PHELPS DODGE CORP. OF CANADA LTD.

120 ADELAIDE ST. W., STE. 912
TORONTO, ON
M5H 1T1

Page Number : 1-A
Total Pages : 1
Certificate Date: 18-AUG-95
Invoice No. : I9524227
P.O. Number :
Account : MWG

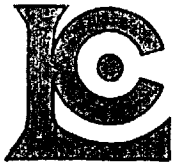
Project :

Comments: ATTN: PAUL CHAMOIS CC: BRYAN OSBORNE

CERTIFICATE OF ANALYSIS A9524227

SAMPLE	PREP CODE	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm	Mo ppm
9828	299 229	< 0.2	0.27	< 2	10	< 0.5	< 2	0.48	< 0.5	17	139	38	0.87	< 10	< 1	0.02	< 10	1.51	85	3
9829	299 229	< 0.2	2.57	< 2	20	< 0.5	2	2.41	< 0.5	20	76	82	4.43	< 10	< 1	0.12	< 10	1.08	1255	< 1
9830	299 229	< 0.2	2.22	< 2	30	< 0.5	< 2	2.38	< 0.5	8	68	34	4.93	< 10	< 1	0.12	< 10	1.26	1370	4
9831	299 229	< 0.2	1.75	< 2	20	< 0.5	< 2	1.90	< 0.5	16	66	69	5.05	< 10	< 1	0.11	< 10	0.96	1280	1
9832	299 229	< 0.2	1.24	< 2	30	< 0.5	6	1.51	< 0.5	10	77	65	4.33	< 10	< 1	0.07	< 10	0.60	775	< 1
9833	299 229	< 0.2	1.64	8	20	< 0.5	2	1.70	< 0.5	17	57	46	4.24	< 10	< 1	0.10	< 10	0.87	1020	< 1
9834	299 229	< 0.2	1.64	< 2	< 10	< 0.5	< 2	1.58	< 0.5	29	45	99	4.66	< 10	< 1	0.15	< 10	0.93	825	< 1
9835	299 229	< 0.2	1.85	< 2	10	< 0.5	8	2.26	< 0.5	27	62	78	4.64	< 10	< 1	0.17	< 10	0.94	1035	< 1
9836	299 229	< 0.2	1.83	< 2	< 10	< 0.5	4	2.45	< 0.5	10	47	59	4.42	< 10	< 1	0.22	< 10	1.05	1000	< 1
9837	299 229	< 0.2	1.14	< 2	10	< 0.5	10	0.18	< 0.5	2	143	24	>15.00	10	< 1	0.02	< 10	0.79	235	< 1
9840	299 229	0.6	0.31	12	30	< 0.5	10	0.40	< 0.5	8	182	140	1.49	< 10	< 1	0.10	< 10	0.08	110	25
9841	299 229	< 0.2	0.75	< 2	120	< 0.5	< 2	0.33	< 0.5	7	112	59	2.15	< 10	< 1	0.40	30	0.49	210	< 1
9842	299 229	11.2	0.29	298	< 10	< 0.5	10	0.14	>100.0	54	597	71	4.98	< 10	< 1	0.05	< 10	0.19	90	< 1
9843	299 229	2.6	1.58	4	< 10	< 0.5	6	1.39	1.0	35	124	140	5.39	< 10	< 1	0.26	< 10	0.55	225	3
9844	299 229	1.4	0.98	< 2	10	< 0.5	6	1.28	0.5	31	105	120	4.22	< 10	< 1	0.08	< 10	0.59	290	< 1
9845	299 229	< 0.2	1.37	2	10	< 0.5	6	1.54	< 0.5	26	216	238	6.66	< 10	< 1	0.19	< 10	1.03	515	3
9846	299 229	< 0.2	1.69	< 2	70	< 0.5	4	2.07	1.0	37	150	441	3.99	< 10	< 1	0.18	< 10	1.06	465	2
9847	299 229	< 0.2	0.90	< 2	20	< 0.5	4	1.04	< 0.5	3	84	28	2.03	< 10	< 1	0.12	< 10	0.28	220	2
9848	299 229	< 0.2	0.72	< 2	60	< 0.5	2	0.13	< 0.5	2	94	25	2.14	< 10	< 1	0.40	< 10	0.36	185	4
9852	299 229	< 0.2	0.15	< 2	400	< 0.5	4	0.20	< 0.5	2	115	7	1.00	< 10	< 1	0.01	< 10	0.12	75	< 1
9853	299 229	< 0.2	0.16	< 2	470	< 0.5	< 2	0.26	< 0.5	2	101	17	0.91	< 10	< 1	0.03	< 10	0.12	70	< 1
9854	299 229	< 0.2	0.09	< 2	40	< 0.5	4	0.15	< 0.5	4	129	4	0.73	< 10	< 1	< 0.01	< 10	0.05	65	1
9855	299 229	< 0.2	0.52	< 2	40	< 0.5	4	0.47	< 0.5	1	106	9	1.63	< 10	< 1	0.11	< 10	0.22	95	1
9856	299 229	< 0.2	1.55	8	230	< 0.5	14	0.63	< 0.5	8	150	39	9.53	< 10	< 1	0.76	< 10	0.48	200	< 1
9857	299 229	< 0.2	2.55	< 2	340	< 0.5	6	0.17	< 0.5	9	134	26	13.95	< 10	< 1	1.57	< 10	0.83	260	< 1
9860	299 229	< 0.2	1.31	< 2	30	< 0.5	10	4.78	< 0.5	38	119	118	5.28	< 10	< 1	0.10	< 10	1.60	995	3
9861	299 229	< 0.2	0.07	< 2	< 10	< 0.5	6	0.20	< 0.5	5	124	150	>15.00	< 10	< 1	0.04	< 10	0.10	50	< 1

CERTIFICATION: 



Laboratoires Chemex Ltee.

Essayeurs * Geochimistes * Chimistes Analytique

175 Boul. Industriel C.P. 284, Rouyn
Quebec, Canada J9X 5C3
PHONE: 819-797-1922 FAX: 819-797-0106

To: PHELPS DODGE CORP. OF CANADA LTD.

120 ADELAIDE ST. W., STE. 912
TORONTO, ON
M5H 1T1

Page Number :1-B
Total Pages :1
Certificate Date: 18-AUG-95
Invoice No. :19524227
P.O. Number :
Account :MWG

Project :

Comments: ATTN: PAUL CHAMOIS CC: BRYAN OSBORNE

CERTIFICATE OF ANALYSIS

A9524227

SAMPLE	PREP CODE	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
9828	299 229	0.02	292	680	< 2	< 2	1	12	0.01	< 10	< 10	7	< 10	6
9829	299 229	0.30	22	420	< 2	4	17	29	0.15	< 10	< 10	123	10	64
9830	299 229	0.27	6	350	2	4	16	7	0.14	< 10	< 10	112	10	58
9831	299 229	0.24	23	400	< 2	4	15	4	0.08	< 10	< 10	111	10	48
9832	299 229	0.14	10	420	2	4	11	8	0.22	< 10	< 10	83	< 10	26
9833	299 229	0.17	23	500	< 2	4	12	7	0.13	< 10	< 10	101	10	44
9834	299 229	0.13	32	460	< 2	4	14	3	0.28	< 10	< 10	123	10	34
9835	299 229	0.22	27	490	2	4	17	4	0.29	< 10	< 10	131	10	36
9836	299 229	0.21	6	370	< 2	4	18	4	0.27	< 10	< 10	135	10	38
9837	299 229	< 0.01	4	660	< 2	16	2	13	0.02	< 10	< 10	28	< 10	12
9840	299 229	0.01	8	160	14	2	1	18	0.02	< 10	< 10	7	< 10	16
9841	299 229	0.06	3	290	< 2	2	4	15	0.13	< 10	< 10	31	< 10	20
9842	299 229	0.01	266	120	1080	2	8	3	0.18	< 10	< 10	67	10	8070
9843	299 229	0.05	60	360	78	6	2	7	0.35	< 10	< 10	94	30	118
9844	299 229	0.07	44	740	4	6	7	21	0.35	< 10	< 10	86	20	62
9845	299 229	0.12	74	920	4	6	6	29	0.11	< 10	< 10	42	10	76
9846	299 229	0.01	55	300	2	4	8	29	0.13	< 10	< 10	64	10	658
9847	299 229	0.05	7	650	< 2	2	5	99	0.15	< 10	< 10	50	< 10	26
9848	299 229	0.03	6	300	2	2	3	6	0.11	< 10	< 10	21	< 10	50
9852	299 229	0.08	6	270	2	< 2	< 1	26	< 0.01	< 10	< 10	7	< 10	12
9853	299 229	0.08	6	280	2	2	< 1	27	< 0.01	< 10	< 10	7	< 10	12
9854	299 229	0.08	4	240	2	< 2	< 1	16	< 0.01	< 10	< 10	2	< 10	6
9855	299 229	0.03	2	220	< 2	< 2	1	10	0.11	< 10	< 10	4	< 10	8
9856	299 229	0.10	17	360	< 2	10	4	11	0.12	< 10	< 10	50	< 10	24
9857	299 229	0.02	17	540	6	8	4	14	0.17	< 10	< 10	62	< 10	72
9860	299 229	0.01	31	310	< 2	6	3	30	0.28	< 10	< 10	135	10	50
9861	299 229	< 0.01	11	680	< 2	18	1	9	0.01	< 10	< 10	37	< 10	2

CERTIFICATION:

Paul Chamois



Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

5175 Timberlea Blvd., Mississauga
Ontario, Canada L4W 2S3
PHONE: 905-624-2806 FAX: 905-624-6163

To: PHELPS DODGE CORP. OF CANADA LTD.

120 ADELAIDE ST. W., STE. 912
TORONTO, ON
M5H 1T1

Project: SAKAMI
Comments: ATTN: PAUL CHAMOIS CC: BRYAN OSBORNE

Page Number : 1
Total Pages : 1
Certificate Date: 21-AUG-95
Invoice No. : I9524925
P.O. Number :
Account : MWG

CERTIFICATE OF ANALYSIS A9524925

SAMPLE	PREP CODE	Al2O3 % XRF	CaO % XRF	Cr2O3 % XRF	Fe2O3 % XRF	K2O % XRF	MgO % XRF	MnO % XRF	Na2O % XRF	P2O5 % XRF	SiO2 % XRF	TiO2 % XRF	LOI % XRF	TOTAL %
9868	299 --	14.51	12.51	0.06	14.55	1.60	4.06	0.44	1.56	0.04	44.12	0.77	5.62	99.84
9870	299 --	14.26	8.19	0.06	13.28	0.94	3.72	0.28	1.91	0.07	54.03	0.82	2.43	99.99

CERTIFICATION: Hart Buchler



Laboratoires Chemex Ltee.

Essayeurs * Geochimistes * Chimistes Analytique

175 Boul. Industriel C.P. 284, Rouyn
Quebec, Canada J9X 5C3
PHONE: 819-797-1922 FAX: 819-797-0106

To: PHELPS DODGE CORP. OF CANADA LTD.

120 ADELAIDE ST. W., STE. 912
TORONTO, ON
M5H 1T1

Page Number :1-A
Total Pages :1
Certificate Date: 24-AUG-95
Invoice No. : I9524924
P.O. Number :
Account : MWG

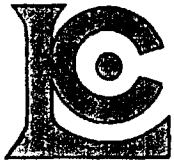
Project : SAKAMI
Comments: ATTN: PAUL CHAMOIS CC: BRYAN OSBORNE

CERTIFICATE OF ANALYSIS

A9524924

SAMPLE	PREP CODE		Ag	Al	As	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	Hg	K	La	Mg	Mn	Mo
			ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm	%	ppm	ppm
9864	299	229	< 0.2	0.55	16	30	< 0.5	< 2	0.12	0.5	12	165	23	2.31	< 10	1	0.24	< 10	0.18	90	1
9865	299	229	1.8	0.24	136	30	< 0.5	2	0.14	5.0	77	44	549	7.47	< 10	< 1	0.14	< 10	0.03	35	7
9866	299	229	0.4	0.05	22	< 10	< 0.5	< 2	0.06	< 0.5	13	180	188	2.91	< 10	< 1	0.01	< 10	0.02	205	< 1
9867	299	229	0.2	0.10	90	10	< 0.5	< 2	0.02	< 0.5	41	143	116	4.87	< 10	< 1	0.04	< 10	0.03	30	2
9868	299	229	< 0.2	1.54	6	10	< 0.5	< 2	1.52	< 0.5	36	65	148	6.49	< 10	< 1	0.09	< 10	0.18	220	< 1
9869	299	229	< 0.2	1.80	< 2	80	< 0.5	2	0.12	< 0.5	19	150	244	5.34	< 10	< 1	1.08	< 10	1.08	610	1
9870	299	229	< 0.2	2.26	6	30	< 0.5	< 2	1.75	< 0.5	32	109	103	4.16	< 10	< 1	0.13	< 10	0.45	175	< 1
9871	299	229	< 0.2	1.69	4	10	0.5	< 2	1.52	< 0.5	7	67	43	3.64	< 10	< 1	0.10	10	0.54	300	1
9872	299	229	0.2	1.91	10	40	< 0.5	6	0.61	< 0.5	44	267	171	7.08	< 10	< 1	0.84	< 10	1.31	465	< 1
9873	299	229	< 0.2	4.15	12	60	< 0.5	< 2	1.95	< 0.5	46	266	125	6.39	< 10	< 1	0.30	< 10	1.13	255	< 1
9874	299	229	< 0.2	1.46	68	130	< 0.5	< 2	0.30	< 0.5	28	255	63	4.65	< 10	< 1	0.71	< 10	0.56	180	< 1
9875	299	229	< 0.2	4.93	16	30	< 0.5	< 2	3.17	< 0.5	34	63	100	3.95	< 10	< 1	< 0.01	< 10	0.12	90	< 1
9876	299	229	0.2	1.57	< 2	30	< 0.5	< 2	1.31	< 0.5	40	75	314	4.79	< 10	< 1	0.10	< 10	0.47	210	< 1
9877	299	229	< 0.2	5.66	2	10	< 0.5	2	3.40	< 0.5	32	55	84	5.12	< 10	< 1	0.08	< 10	0.87	230	< 1
9878	299	229	< 0.2	2.22	< 2	10	< 0.5	< 2	1.88	< 0.5	17	115	104	4.34	< 10	< 1	0.16	< 10	0.70	870	< 1
9879	299	229	0.4	0.70	6	20	< 0.5	< 2	0.20	0.5	9	171	86	5.06	< 10	< 1	0.11	< 10	0.41	190	2
9880	299	229	0.2	1.35	< 2	10	0.5	2	0.98	1.0	27	175	206	6.09	< 10	< 1	0.27	< 10	0.60	380	1
9881	299	229	0.2	0.86	2	< 10	< 0.5	< 2	0.84	0.5	12	86	149	5.17	< 10	< 1	0.06	< 10	0.15	255	1
9882	299	229	< 0.2	1.81	14	20	< 0.5	< 2	1.90	< 0.5	37	142	184	6.04	< 10	< 1	0.28	< 10	0.59	435	< 1
9883	299	229	< 0.2	0.24	< 2	30	0.5	< 2	2.22	< 0.5	1	22	11	4.34	< 10	< 1	0.10	< 10	0.06	95	< 1
9884	299	229	< 0.2	1.58	8	240	0.5	< 2	0.91	< 0.5	4	53	20	>15.00	< 10	< 1	1.44	< 10	0.74	230	< 1
9885	299	229	< 0.2	2.16	2	110	< 0.5	2	0.19	< 0.5	9	285	51	4.79	< 10	< 1	0.45	< 10	1.43	360	1
9886	299	229	< 0.2	1.48	< 2	30	< 0.5	2	1.44	< 0.5	17	80	214	4.31	< 10	< 1	0.24	< 10	0.77	1220	6
9887	299	229	< 0.2	0.44	2	10	< 0.5	< 2	0.13	< 0.5	1	84	39	2.99	< 10	< 1	0.17	< 10	0.07	55	< 1
9888	299	229	< 0.2	1.39	4	< 10	< 0.5	2	0.08	< 0.5	16	113	23	5.78	< 10	< 1	0.04	< 10	1.12	535	3
9889	299	229	0.2	1.69	14	< 10	< 0.5	2	0.44	< 0.5	21	135	63	5.62	< 10	< 1	0.13	10	1.90	700	< 1
9890	299	229	< 0.2	0.69	< 2	< 10	< 0.5	< 2	0.90	0.5	39	129	255	3.26	< 10	< 1	0.02	< 10	0.04	80	< 1
9891	299	229	0.2	0.79	< 2	50	< 0.5	< 2	0.21	1.5	20	121	69	3.10	< 10	< 1	0.27	< 10	0.49	120	1

CERTIFICATION: Paul Chamois



Laboratoires Chemex Ltee.

Essayeurs * Geochimistes * Chimistes Analytique

175 Boul, Industriel C.P. 284, Rouyn
Quebec, Canada J9X 5C3
PHONE: 819-797-1922 FAX: 819-797-0106

To: PHELPS DODGE CORP. OF CANADA LTD.

120 ADELAIDE ST. W., STE. 912
TORONTO, ON
M5H 1T1

Project : SAKAMI
Comments: ATTN: PAUL CHAMOIS CC: BRYAN OSBORNE

Page Number : 1-B
Total Pages : 1
Certificate Date: 24-AUG-95
Invoice No. : I9524924
P.O. Number :
Account : MWG

CERTIFICATE OF ANALYSIS

A9524924

SAMPLE	PREP CODE	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
9864	299 229	< 0.01	23	120	14	2	< 1	10	0.03	< 10	< 10	7	< 10	168
9865	299 229	0.02	128	240	88	< 2	1	2	0.02	< 10	< 10	8	< 10	2140
9866	299 229	< 0.01	29	270	4	< 2	< 1	1	< 0.01	< 10	< 10	2	< 10	38
9867	299 229	0.02	65	40	48	< 2	< 1	3	0.02	< 10	< 10	4	< 10	34
9868	299 229	0.05	87	180	2	< 2	1	12	0.09	< 10	< 10	31	< 10	36
9869	299 229	0.02	68	380	4	< 2	6	5	0.13	< 10	< 10	55	< 10	212
9870	299 229	0.15	84	290	4	< 2	3	29	0.05	< 10	< 10	58	< 10	54
9871	299 229	0.02	17	280	10	< 2	1	12	0.08	< 10	< 10	21	< 10	44
9872	299 229	0.06	157	230	2	< 2	11	6	0.13	< 10	< 10	122	< 10	132
9873	299 229	0.44	155	220	4	< 2	3	31	0.09	< 10	< 10	104	< 10	96
9874	299 229	0.06	113	340	2	< 2	5	10	0.19	< 10	< 10	136	< 10	36
9875	299 229	0.50	138	190	4	< 2	< 1	67	0.04	< 10	< 10	15	< 10	20
9876	299 229	0.06	94	250	< 2	< 2	2	10	0.15	< 10	< 10	43	< 10	108
9877	299 229	0.26	86	230	4	2	1	41	0.04	< 10	< 10	26	< 10	38
9878	299 229	0.11	47	200	< 2	< 2	6	18	0.12	< 10	< 10	67	< 10	42
9879	299 229	0.04	19	190	22	< 2	6	8	0.15	< 10	< 10	100	< 10	136
9880	299 229	0.04	74	280	10	< 2	4	7	0.19	< 10	< 10	85	< 10	248
9881	299 229	0.01	25	190	8	< 2	2	9	0.18	< 10	< 10	45	< 10	126
9882	299 229	0.03	99	260	6	< 2	6	17	0.18	< 10	< 10	96	< 10	222
9883	299 229	< 0.01	3	710	4	< 2	< 1	157	< 0.01	< 10	< 10	6	< 10	12
9884	299 229	< 0.01	13	820	4	< 2	3	147	0.08	< 10	< 10	31	< 10	28
9885	299 229	0.01	32	290	2	< 2	3	7	0.19	< 10	< 10	114	< 10	66
9886	299 229	0.17	26	560	2	< 2	8	12	0.19	< 10	< 10	95	< 10	68
9887	299 229	0.03	3	160	4	2	< 1	11	0.10	< 10	< 10	8	< 10	40
9888	299 229	0.03	11	430	2	< 2	8	4	0.21	< 10	< 10	71	< 10	54
9889	299 229	0.04	45	960	6	< 2	8	6	0.20	< 10	< 10	84	< 10	84
9890	299 229	< 0.01	72	180	2	< 2	2	16	0.18	< 10	< 10	34	< 10	172
9891	299 229	0.01	37	540	2	< 2	1	8	0.09	< 10	< 10	21	< 10	500

CERTIFICATION: *Stan Bachelier*



Laboratoires Chemex Ltee.

Essayeurs * Geochimistes * Chimistes Analytique

175 Boul. Industriel C.P. 284, Rouyn
Quebec, Canada J9X 5C3
PHONE: 819-797-1922 FAX: 819-797-0106

To: PHELPS DODGE CORP. OF CANADA LTD.

120 ADELAIDE ST. W., STE. 912
TORONTO, ON
M5H 1T1

Project: SAKAMI
Comments: ATTN:PAUL CHAMOIS CC:BRYAN OSBORNE

Page Number : 1
Total Pages : 1
Certificate Date: 13-AUG-95
Invoice No. : 19523510
P.O. Number :
Account : MWG

CERTIFICATE OF ANALYSIS A9523510

SAMPLE	PREP CODE	Al2O3 % XRF	CaO % XRF	Cr2O3 % XRF	Fe2O3 % XRF	K2O % XRF	MgO % XRF	MnO % XRF	Na2O % XRF	P2O5 % XRF	SiO2 % XRF	TiO2 % XRF	LOI % XRF	TOTAL %
9801	299 --	16.02	3.66	0.11	7.44	1.90	3.00	0.11	3.81	0.27	60.43	0.63	2.28	99.66
9802	299 --	14.78	5.50	0.05	9.47	2.21	4.38	0.14	3.86	0.16	55.75	0.90	1.96	99.16
9803	299 --	13.88	2.08	0.04	7.72	3.46	1.26	0.44	0.80	0.09	64.95	0.45	4.28	99.45
9804	299 --	3.09	0.65	0.97	15.52	0.04	32.76	0.18	0.04	0.02	35.44	0.11	10.63	99.45
9805	299 --	13.10	8.10	0.18	14.65	0.59	10.19	0.21	0.44	0.09	49.02	1.20	1.88	99.65

CERTIFICATION: *John A. B. Schiller*



Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
 5175 Timberlea Blvd., Mississauga
 Ontario, Canada L4W 2S3
 PHONE: 905-624-2806 FAX: 905-624-6163

To: PHELPS DODGE CORP. OF CANADA LTD.

120 ADELAIDE ST. W., STE. 912
 TORONTO, ON
 M5H 1T1

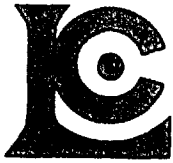
Page Number :1
 Total Pages :2
 Certificate Date: 03-OCT-95
 Invoice No. :19529047
 P.O. Number :
 Account :MWG

Project : SAKAMI
 Comments: ATTN: PAUL CHAMOIS CC: BRYAN OSBORNE CC: FAX

CERTIFICATE OF ANALYSIS A9529047

SAMPLE	PREP CODE	Au ppb FA+AA	As ppm	Ag ppm	Co ppm	Cu ppm	Fe %	Mn ppm	Mo ppm	Ni ppm	Pb ppm	Zn ppm			
9252	205 226	135	4	< 0.5	3	14	0.96	105	7	4	6	32			
9255	205 226	10	2	< 0.5	33	69	6.85	800	< 1	34	< 2	78			
9256	205 226	5	1	< 0.5	28	52	3.74	440	< 1	149	< 2	54			
9257	205 226	< 5	2	< 0.5	23	260	6.89	365	< 1	4	< 2	26			
9258	205 226	10	1	< 0.5	46	145	3.00	685	< 1	42	2	14			
9260	205 226	15	250	< 0.5	54	382	>15.00	510	< 1	83	10	78			
9261	205 226	< 5	1	< 0.5	12	23	2.65	275	< 1	12	< 2	50			
9263	205 226	< 5	2	< 0.5	21	358	13.75	315	< 1	34	4	30			
9265	205 226	10	2	0.5	11	26	3.05	45	134	33	22	10			
9266	205 226	85	4	2.0	14	24	3.28	55	10	11	14	6			
9267	205 226	< 5	1	< 0.5	10	16	2.68	495	< 1	7	4	96			
9269	205 226	90	1	1.0	10	116	9.62	95	< 1	30	4	6			
9270	205 226	35	2	< 0.5	4	46	1.29	220	< 1	9	< 2	18			
9271	205 226	85	1	< 0.5	4	484	0.96	60	4	7	< 2	20			
187109	205 226	< 5	2	< 0.5	25	282	1.08	90	1	155	< 2	10			
187110	205 226	< 5	1	< 0.5	11	16	3.88	595	< 1	18	< 2	62			
187111	205 226	< 5	2	< 0.5	36	392	10.35	1320	20	14	< 2	92			
187112	205 226	< 5	2	< 0.5	16	30	3.16	365	< 1	35	2	66			
187113	205 226	< 5	1	< 0.5	25	59	2.62	185	< 1	208	< 2	30			
187114	205 226	< 5	4	< 0.5	10	19	3.22	405	< 1	8	< 2	46			
187115	205 226	< 5	2	< 0.5	6	9	2.17	410	1	4	2	38			
187117	205 226	15	60	< 0.5	70	36	13.75	165	2	21	6	44			
187118	205 226	< 5	18	< 0.5	31	14	2.28	465	1	38	6	238			
187119	205 226	10	1	< 0.5	173	418	9.22	445	< 1	182	< 2	36			
187123	205 226	< 5	2	< 0.5	13	173	2.06	145	< 1	9	2	10			
187125	205 226	240	2	< 0.5	31	146	4.58	575	< 1	49	4	48			
187126	205 226	150	1	0.5	33	152	3.88	420	< 1	42	2	30			
187127	205 226	135	1	1.0	25	289	4.58	295	2	27	< 2	40			
187128	205 226	200	2	1.0	36	325	5.73	280	6	27	8	24			
187129	205 226	< 5	1	< 0.5	43	129	4.57	495	< 1	35	< 2	42			
187130	205 226	10	2	< 0.5	46	85	4.26	350	< 1	48	2	62			
187131	205 226	75	2	< 0.5	47	191	5.70	430	< 1	48	< 2	46			
187132	205 226	85	2	< 0.5	54	134	4.62	390	< 1	34	< 2	76			
187133	205 226	145	4	< 0.5	< 1	1	0.54	5	< 1	2	2	< 2			
187135	205 226	140	1	2.5	56	366	3.78	315	< 1	19	< 2	24			
187136	205 226	55	2	< 0.5	18	135	3.87	405	1	19	2	56			
187137	205 226	345	1	2.0	61	376	9.03	205	11	96	4	20			
187138	205 226	85	1	< 0.5	33	62	3.52	270	< 1	41	2	26			
187139	205 226	60	1	< 0.5	13	25	3.85	75	< 1	9	18	12			
187140	205 226	80	2	< 0.5	48	309	4.03	380	< 1	53	< 2	30			

CERTIFICATION: _____



Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
 5175 Timberlea Blvd., Mississauga
 Ontario, Canada L4W 2S3
 PHONE: 905-624-2806 FAX: 905-624-6163

To: PHELPS DODGE CORP. OF CANADA LTD.

120 ADELAIDE ST. W., STE. 912
 TORONTO, ON
 M5H 1T1

Page Number : 2
 Total Pages : 2
 Certificate Date: 03-OCT-95
 Invoice No. : 19529047
 P.O. Number :
 Account : MWG

Project : SAKAMI

Comments: ATTN: PAUL CHAMOIS CC: BRYAN OSBORNE CC: FAX

CERTIFICATE OF ANALYSIS

A9529047

SAMPLE	PREP CODE	Au ppb FA+AA	As ppm	Ag ppm	Co ppm	Cu ppm	Fe %	Mn ppm	Mo ppm	Ni ppm	Pb ppm	Zn ppm			
187141	205 226	60	2	< 0.5	30	197	3.56	325	< 1	31	2	30			
187142	205 226	115	1	0.5	40	168	4.94	175	< 1	77	4	26			
187143	205 226	790	2	2.5	29	95	5.95	560	< 1	61	8	162			
187144	205 226	100	4	0.5	6	17	1.92	245	< 1	6	6	50			
187145	205 226	120	2	1.0	26	71	5.67	520	< 1	16	< 2	58			
187146	205 226	560	1	1.0	31	107	4.27	415	< 1	45	4	54			
187147	205 226	80	2	0.5	3	30	1.20	115	4	5	4	12			
187148	205 226	180	1	1.5	54	300	6.01	305	45	61	2	36			
187149	205 226	275	4	2.0	26	38	4.37	375	1	36	14	66			
187150	205 226	285	4	2.5	25	41	4.11	330	1	34	22	76			

CERTIFICATION: _____



Laboratoires Chemex Ltee.

Essayeurs * Geochimistes * Chimistes Analytique
 175 Boul. Industriel C.P. 284, Rouyn
 Quebec, Canada J9X 5C3
 PHONE: 819-797-1922 FAX: 819-797-0106

To: PHELPS DODGE CORP. OF CANADA LTD.

120 ADELAIDE ST. W., STE. 912
 TORONTO, ON
 M5H 1T1

Page Number :1
 Total Pages :1
 Certificate Date: 12-OCT-95
 Invoice No. :19529056
 P.O. Number :
 Account :MWG

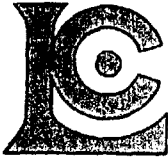
Project : SAKAMI
 Comments: ATTN: PAUL CHAMOIS CC: BRYAN OSBORNE CC: FAX

CERTIFICATE OF ANALYSIS

A9529056

SAMPLE	PREP CODE	Al2O3 %	CaO %	Cr2O3 %	Fe2O3 %	K2O %	MgO %	MnO %	Na2O %	P2O5 %	SiO2 %	TiO2 %	LOI %	TOTAL %	Ba ppm	Rb ppm	Sr ppm	Nb ppm	Zr ppm	Y ppm
		XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	%					
9255	299 --	13.01	7.93	0.04	15.02	0.67	5.17	0.19	2.13	0.14	49.46	1.39	4.04	99.19	120	18	222	2	84	24
9261	299 --	15.32	2.69	0.01	4.28	1.19	1.53	0.04	5.36	0.09	67.46	0.39	0.85	99.21	320	34	154	6	105	8
9267	299 --	14.92	2.81	0.02	4.60	3.04	1.49	0.08	3.85	0.30	65.38	0.50	1.78	98.77	990	102	482	12	195	28
9271	299 --	14.41	1.99	0.02	1.48	0.66	0.77	< 0.01	5.43	0.04	72.98	0.15	1.23	99.16	260	12	422	4	69	4
187109	299 --	13.34	12.36	0.14	11.88	0.85	9.40	0.22	0.83	0.04	47.35	0.56	2.23	99.20	90	38	118	< 2	39	12
187110	299 --	15.16	2.56	0.01	6.33	1.95	0.97	0.10	4.24	0.11	65.99	0.48	1.45	99.35	585	70	316	8	153	14
187113	299 --	11.18	9.02	0.24	13.01	0.28	15.51	0.19	1.26	0.04	44.85	0.66	3.21	99.45	165	8	30	4	51	14
187123	299 --	12.34	9.18	0.01	14.56	0.17	5.52	0.17	2.82	0.14	51.60	1.41	1.15	99.07	50	4	70	6	120	32
187133	299 --	12.44	0.23	0.02	0.91	3.23	0.08	< 0.01	4.93	0.01	76.50	0.04	0.80	99.19	640	62	96	12	63	20

CERTIFICATION:



Laboratoires Chemex Ltee.

Essayeurs * Geochimistes * Chimistes Analytique

175 Boul, Industriel C.P. 284, Rouyn
Quebec, Canada J9X 5C3
PHONE: 819-797-1922 FAX: 819-797-0106

To: PHELPS DODGE CORP. OF CANADA LTD.

120 ADELAIDE ST. W., STE. 912
TORONTO, ON
M5H 1T1

Project : SAKAMI
Comments: ATTN: PAUL CHAMOIS CC: BRYAN OSBORNE CC: FAX

Page Number : 1
Total Pages : 1
Certificate Date: 12-OCT-95
Invoice No. : 19529045
P.O. Number :
Account : MWG

CERTIFICATE OF ANALYSIS

A9529045

SAMPLE	PREP		Al2O3 %	CaO %	Cr2O3 %	Fe2O3 %	K2O %	MgO %	MnO %	Na2O %	P2O5 %	SiO2 %	TiO2 %	LOI %	TOTAL %	Ba ppm	Rb ppm	Sr ppm	Nb ppm	Zr ppm	Y ppm
	CODE		XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	%						
9251	208	226	14.66	2.17	0.02	1.29	1.08	0.59	< 0.01	4.57	0.04	73.63	0.17	1.16	99.38	210	24	438	4	75	6
9253	208	226	14.49	2.99	0.05	8.13	2.12	3.83	0.07	4.43	0.16	60.57	0.50	1.89	99.23	605	56	472	6	117	14
9254	208	226	11.56	1.40	0.03	25.23	1.95	1.91	0.13	1.15	0.13	54.89	0.42	0.70	99.50	385	80	130	2	81	6
9259	208	226	16.81	4.07	0.01	4.73	2.50	1.90	0.06	4.30	0.11	62.45	0.49	1.63	99.06	595	66	584	4	87	10
9262	208	226	14.20	6.62	0.06	8.09	3.44	5.97	0.12	3.21	0.36	55.20	0.56	1.27	99.10	780	82	472	4	84	14
9264	208	226	15.94	3.93	0.04	5.92	2.62	3.09	0.08	3.91	0.13	61.76	0.45	1.03	98.90	795	66	626	4	93	12
9268	208	226	12.99	9.25	0.04	16.35	0.58	6.14	0.29	2.93	0.09	48.03	1.28	0.98	98.95	100	16	192	2	63	24
187120	208	226	6.22	3.79	0.34	11.00	0.05	25.28	0.13	0.04	0.02	46.27	0.38	5.99	99.51	15	4	< 2	2	27	6
187121	208	226	14.01	9.40	0.05	13.07	0.17	7.39	0.18	3.40	0.09	50.36	0.97	0.67	99.76	50	2	86	4	78	24
187122	208	226	6.41	4.61	0.35	11.03	0.04	24.52	0.17	0.06	0.01	45.68	0.38	5.65	98.91	10	2	< 2	4	27	8
187116	208	226	2.25	3.40	1.36	10.79	0.03	32.74	0.26	0.01	0.01	32.43	0.09	15.93	99.30	20	2	6	2	12	4
187124	208	226	13.47	4.95	0.03	8.27	2.92	2.75	0.10	3.52	0.17	59.28	0.76	2.90	99.12	360	60	298	6	123	14
187134	208	226	8.92	9.55	0.26	13.30	0.13	16.05	0.22	1.19	0.05	47.01	0.64	1.93	99.25	15	2	24	2	39	12

CERTIFICATION:



GM 55392

Programme d'exploration minière

du Moyen-Nord

REÇU LE
16 JAN. 1998

Volet 2

Rapport d'exploration

Pour : PHELPS DODGE CORP. LTD

Projet : SAKAMI

95-MN-04

SNRC : 32B/12, 33F/12, 32G/11, 12, 33H/14

Canton —

Date : DEC 95