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CAMECO GOLD INC.
1999 EXPLORATION PROGRAM
EMPRESS PROJECT

SYINE TOWNSHIP AND SANTOY LAKE AREA
NORTHWESTERN ONTARIO
NTS 42D/15

December 1999

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SUMMARY

The Empress project is located approximately 100 kilometres west of Hemlo, and 15 kilometres northeast of Terrace Bay, in Syine township and Santoy Lake area, northwestern Ontario. The property consists of 16 contiguous unpatented mining claims (82 claim units) and one additional non-contiguous claim (1207882 - 4 units), for a total of 1376 ha.

The property lies within the Schreiber portion of the Schreiber-Hemlo greenstone belt of the Wawa Subprovince. It is predominantly underlain by mafic, and intermediate to felsic volcanic rocks and their derived schists. Several synvolcanic to hypabyssal intrusions of gabbroic to dioritic composition intruded these supracrustal rocks in the north part of the Empress property. To the south, late Archean granitic rocks of the Terrace Bay pluton were emplaced, followed by Proterozoic diabase dykes of the Marathon swarm.

The gold exploration program conducted by Cameco Gold Inc. (CGI) in 1999 consisted of linecutting, ground magnetic and IP surveys, mapping, stripping and trenching, lithogeochemical sampling, petrographic work, and relogging and sampling of historical drill core. The surveys were mostly performed on the south portion of the Empress property. The objectives were to i-) characterize and further assess the economic gold potential of the **Empress Structure**: a significant deformation corridor of historical economic significance, related to previous mining activity from the nearby Empress Gold Mine at the turn of the century, and ii-) to determine if the zone extends further along strike, and iii-) to define new gold mineralization targets.

CGI has indicated that the Empress Structure comprises a moderate to strongly sheared and altered deformation zone, at least 15 to 25 m wide, which extends east-northeasterly over a strike length in excess of 1.8 km. The structure is dominated at its core by a quartz-sericite±biotite±carbonate schist probably derived from highly altered interflow sediments, intruded by several generations of mafic to felsic dykes, quartz veining, and accompanied by up to 15% pyrite seams and disseminations, and trace amounts of chalcopyrite, galena, sphalerite, and molybdenite. Sampling by CGI demonstrate that **i-)** the Empress Structure can generate sustained and significant gold values (above 100 ppb) over widths in excess of 15 m, and **ii-)** gold assays above 1 g/t were obtained at several places along the structure from L1+00E up to 10+75E, extending the auriferous nature of this horizon from the old Empress Mine and across the Empress property over a strike length of at least 1.4 km, **iii-)** the highest assay results (up to 54.68 g/t) are generally associated with (but not restricted to) the quartz-sericite schist accompanied by pervasive quartz veining, pyrite, and trace amounts of base-metal minerals, and **iv-)** ICP data also indicates a general spatial association (although not consistently) between the gold and other elements such as Ag, Cu, Pb, Zn, As and Mo.

The intensity of the deformation and alteration, the widespread distribution of the gold within various rocks types including the later dykes, and the various elemental associations of the gold, suggest compositionally different and long lasting pulses of gold mineralization, capable of producing significant ore deposits with similarities to those of the Timmins and Hemlo gold camps.

Another gold occurrence referred to as the Zlatco Showing was discovered by CGI on the west portion of the property; Samples from sheared and silicified mafic volcanics rocks at this location yielded up to 6.7 g/t Au, and the area warrants further investigation. Other alteration and deformation zones observed in historical drill core present similar characteristics to the Empress Structure, and provide additional drill targets.

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1.0 INTRODUCTION

1.1 Location and Access

The Empress project is located approximately 100 km west of Hemlo and 15 km east of Terrace Bay, north of Jackfish Lake, near the north shore of Lake Superior. The property lies mostly in Syine Township, but extends within the Terrace Bay Municipal District to the southwest, and into the Santoy Lake area to the north. It is covered by NTS sheets 42D/15, and is centered about UTM coordinates 502000E and 5412500N (Zone 16U, NAD 27) - *see* Figure 1.

The south part of the property is transected by Trans-Canada Hwy 17, and is easily accessed via old logging and mining roads, which are now mostly reduced to ATV trails. An additional ATV trail was also developped during the CGI 1999 exploration program, and now provides excellent access to the southeast claims. The north portion of the property is more easily reached by helicopter.

1.2 Physiography

Topographic relief on Empress is fairly accentuated, with elevations ranging from 240 m to over 470 m above mean sea level. Steep hills and ridges are commonly flanked by rock cliffs and deep ravines, often occupied by beaver ponds and swamps which predominantly extend in an east-west direction. The Empress Hill (410 m above MSL), a dominant feature visible from Hwy 17, grades steeply to moderately into a large bog-swamp in the southwest portion of the property, where drainage is poorly developed but generally flows to the west into Sister Lakes, and then south towards Jackfish Bay. Airphotos and topographic maps however, indicate that most lakes and streams are preferentially emplaced along a regional system of cross-faults and joints which are oriented north-south and northwesterly. The elongated aspect of Christie Lake and its associated string of smaller water bodies is a good example of this (*see* Figure 1).

Vegetation is moderate, dominated by spruce, white birch, balsam fir, and little trembling aspen. Undergrowth is moderate to fairly thick, and consists of mountain maple and young conifers.

Low-lying areas in the southwest portion of the property, from the foot of Empress Hill and east towards Christie Lake were clear-cut by logging operations, and are now occupied by sparse white birch, young balsam fir, and moose maple.

There is a moderate amount of outcrop, but exposure is commonly masked by the undergrowth and by a cover of moss and detrital material.

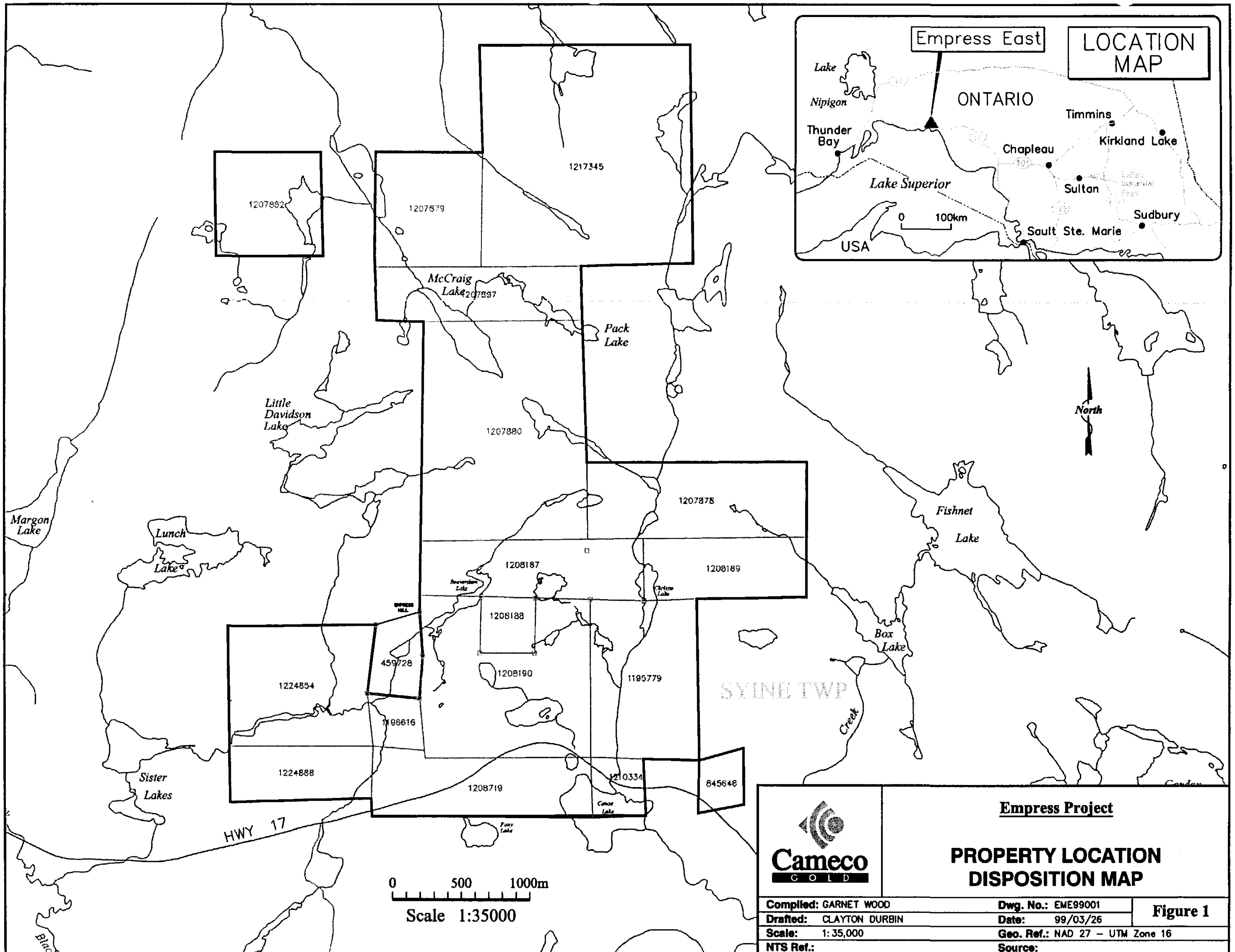
1.3 Cultural Features

Cultural features found on the property are mostly related to underground exploration at the Ursa Major Occurrence (claim 1207882) and to mining activity at the Empress Mine (claim 459728 - excluded from the Empress Project) in the early 1900's. The features include old adits and shafts, rock dams and steel water lines, cement foundations, waste dumps, trenches, casings, pipes, and various metal debris. These and more recent features such as trails, hunting cabins and cottages were also noted by CGI and are indicated on the geological map (*see* Map 1).

1.4 Property and Tenure

The property consists of 16 contiguous unpatented mining claims and one additional non-contiguous claim (1207882 - 4 units), for a total of 86 units covering 1376 ha. The claim group lies within the Terrace Bay and Geraldton M.N.R. administrative districts of the Thunder Bay Mining Division, and is represented on claim maps G634 (Syine Twp) and G612 (Santoy Lake area) - *see* Figure 1.

Cameco Corporation is working towards earning a 100% interest on 16 of the mining claims from prospectors George R. Daniels, Jon D. Ferguson, and Audrey Ferguson. An additional claim comprising 16 units (claim 1217345) is contiguous to the optioned block of claims, and is 100% owned by Cameco Corp. The claims are all in good standing and are listed in Table 1.
Mining claim 459728 (where the Empress Mine is located) is under lease and stands as an "inclusion" within the Empress claim block but is not part of CGI's property.



Empress Project

Cameco GOLD

PROPERTY LOCATION DISPOSITION MAP

Compiled:	GARNET WOOD	**Dwg. No.:**	EME99001	**Figure 1**
Drafted:	CLAYTON DURBIN	**Date:**	99/03/26	
Scale:	1:35,000	**Geo. Ref.:**	NAD 27 – UTM Zone 16	
NTS Ref.:		**Source:**		

Table 1 : List of Claims - Empress Project

Claim #	Rec Date	Area (ha)	Units	Twp
845646`	85-12-27	16	1	Syine
1195779	96-07-15	96	6	Syine
1196616	96-03-28	16	1	Syine
1207878	95-01-27	128	8	Syine
1207880	95-01-27	192	12	Syine
1208187	96-02-13	64	4	Syine
1208188	96-05-17	16	1	Syine
1208189	96-02-13	48	3	Syine
1208190	96-05-17	128	8	Syine
1208719	96-04-16	64	4	Syine
1210334	97-02-12	16	1	Syine
1224854	96-05-21	96	6	Syine
1224888	96-12-11	48	3	Syine
1207879	95-01-27	64	4	Santoy Lake
1207882	95-01-27	64	4	Santoy Lake
1207897	95-01-27	64	4	Santoy Lake
1217345	97-02-19	256	16	Santoy Lake
17 claims		1376 ha	86 units	

1.5 Previous Work

1.5-1 Government Surveys

The government geoscientific studies of the area date as far back as the middle of the 19th century and consist mostly of short annual reports published by the Ontario Bureau of Mines. Prior to 1953, no detailed geological mapping of the area had been published, and maps produced by the ODM in 1967 at a scale of 1 inch to 1/2 mile (Walker 1967) still remain the most pertinent geological reference to the Jackfish area. More recent mapping completed by the OGS (Carter 1988) does not extends beyond the west boundary of Syine Twp, and thereby does not include the Empress property. A regional magnetic and radiometric survey was also flown by the GSC in the 60's (1963? - 1:100,000), but the data only includes the western edge of the property.

A thorough compilation of all mineral occurences in the Nipigon and Marathon area has been undertaken by the OMNDM in 1983, and is being continuously updated by the Resident Geologist District Office (Schnieders et al. 1996).

The OGS has been conducting a series of Quaternary mapping and sampling programs since 1993 in order to assess the diamond potential of the Kapuskasing Structural Zone and the Trans-Superior Tectonic Zone; As part of this ongoing program, stream sediments, till and rock samples collected from the Empress property and the surroundings are being analysed for kimberlite and massive sulphide indicator minerals and for their gold content, with the results to be published in year 2000 (Morris 1999).

1.5-2 Exploration History

Geological interest within the Schreiber-Hemlo District began in 1851 with the discovery of Canada's first molybdenite occurrence in the Terrace Bay area. This was soon followed by an exploration rush which persisted almost continuously until the 1930's, leading to several discoveries such as the Zenith Zn-Cu-Ag deposit in the Big Duck Lake area (1879-84), the Empress Au mine in the Jackfish area (1896-99), and the North Shore Au mine in Schreiber (discovered in 1898). The discovery of the Hemlo Au deposit in 1981 led to another flurry of exploration activity, which resulted in the discovery of the Winston Lake Zn-Cu deposit in 1982. Over the past decade, exploration has been rather limited and mostly focused towards gold (*see* Economic Geology - section 6.0).

Gold exploration in the vicinity of the Empress project was sparked by the development of the Empress Mine at the turn of the century, and work history is summarized below from assessment files.

1895: In June of that year, an Indian brought a sample of gold ore to the attention of **Donald and Peter McKellar** of Fort William. Three mining claims were staked, two of which correlate with still active surface rights claim R.567 and R.569.

1895 - 1900: The **Empress Gold Mining Company** was incorporated, and various test shafts, adits and pits were sunk on a series of gold-bearing veins. A 10-stamp mill was erected, and 112 ounces of gold were produced from 1100 tons of ore (calculated aver. of 0.1 oz/t or 3.5 g/t Au). Operations were eventually shut down due to lack of funds.

1896 - 1901: The **Ursa Major gold prospect**, also referred to as the "**Siville**" property, was discovered in 1896, less than 4 km north of the Empress Mine. Some massive quartz veins up to 15 ft wide are reported and are said to carry high-grade gold values. The discovery was investigated by the **Jackfish Bay Syndicate Mining Company Ltd.**, and at least three shafts were sunk, but work ceased in 1901. The corresponding claims were staked, cancelled, and restaked several times with nearly no work being done until 1983. The occurrence in now included within the Empress project, under claim 1207882.

1901 - 1921: The **Czarina Gold Mines Co. of Ontario Ltd.** was incorporated, and the Empress Mine was re-examined by an American syndicate.

1936 - 1937: The **Empress Consolidated Gold Mines Ltd.** was incorporated and signed an option agreement with Czarina Gold Mines in order to extensively re-evaluate the Empress mine. Dozens of trenches now found on the Empress claim block can be attributed to this period of activity.

1938: The old mill and other structures relating to the Empress Mine were disassembled and the metal sold as scrap.

1967 - 1978: The mining location of the old Empress Mine became open, the property was restaked by W. Stachiw, and was later brought to lease (active claim TB 459728).

1982 - 1983: A large group of claims staked by J. Skalesky in 1981 and 1982, which included the Ursa Major property, were transferred to **Micham Exploration Inc.** The claim hosting the Empress Mine was also optioned. Ground and airborne EM and magnetometer surveys were conducted, followed by geological mapping, trenching, rock and soil sampling (B-horizon), and IP surveys over selected areas. The work was carried-out under the supervision of **David R. Bell Geological Services Inc.** "The results defined the Empress Structure, a series of moderate to strong IP anomalies and Au, Cu, Zn anomalies coincident with quartz veining in the area of the Empress Mine adit and extending east onto the present day Empress property" (Drost 1998).

1984 - 1987: Bell Geological Services conducted a diamond drilling program in 1984 consisting of 1557 m (5106 ft) in 12 holes, testing various anomalies detected in the vicinity of the Ursa Major occurrence (486 m in 4 holes), the Empress Mine (587 m in 4 holes), and along the Empress Structure (483 m in 4 holes). The most encouraging results included 44.23 g/t over 0.61 m (ddh 441-84-8), the presence of visible gold in ddh 441-84-1, and several subeconomic intersections hosted by a "carbonatized sericitic shear" coincident with the Empress Structure. Another follow-up program further testing the Empress Structure was completed in 1987 (1674 m in 10 holes); The drill logs for this last program were submitted for assessment with the MNDM, but the corresponding report and assay results were never filed.

1988 - 1990: The property remained inactive for several years. Micham Exploration entered into financial difficulties, was renamed Micham Resources Inc. in December 1990, and the claims eventually became open.

1995 - 1997: The current Empress claim block was staked by prospectors George Daniels, and Audrey and Jon Ferguson.

1997 - 1998: The property was optioned by **Landis Mining Corporation** (LIS-ASE; 50%) and **McArthur Minerals Inc.** (a private Ontario corp; 50%) in 1997. Following recommendations by M. Lavigne (Matawin Mineral Exploration) recognizing the gold potential of the property, approximately 20 km of linecutting, ground magnetics and VLF-EM surveys were completed in July of 1997, on portions of claims 1208187, 1208188 and 1208190. This was followed by a humus soil survey (347 samples), and by geological mapping and prospecting under the supervision of **SDA Geological Services Ltd.** The survey results indicated that the auriferous Empress Structure was approximately 800 m long, as a "splayed portion of a system of altered and weakly sulphide mineralized structures which traverses a portion of the Empress East Property for 1.7 km east of the Empress Mine lease." (SDA 1998). A diamond drilling program comprising 700 m in 6 holes was recommended but never carried-out. The option agreement was dropped by Landis Mining and McArthur Minerals in March of 1998, due to various factors including market conditions.

1998: Following a property exam by Ike A. Osmani (CGI) in July of 1998, the claim block was eventually optioned by **Cameco Corporation.**

1.6 The 1999 Exploration Program - Empress Project

1.6-1 Objectives

The objectives of the 1999 exploration program on Empress were: 1) to assess the gold potential of the Empress Structure by providing a better understanding of the nature of the alteration, mineralization, and of the controlling factors on this auriferous zone; 2) to determine if the zone extends further along strike, and 3) to find new gold mineralization while concentrating efforts within the south portion of the property.

1.6-2 Work Done/Methodology

The 1999 summer exploration program consisted of linecutting, ground magnetics, geological mapping, stripping and trenching, channel sampling, lithogeochemical (assay and whole rock) and petrographic studies, followed by an IP survey, and relogging and resampling of old drill core. The various surveys cover selective portions of the property, mostly located in the southern half and on claim 1217345 located to the north. The linecutting, magnetometer, and the IP surveys are being filed for assessment separately, and only brief reference to those activities and results will be mentionned in this report. The details of each surveys are summarized in chronological order below, and are indicated in Table 3.

1) Linecutting and magnetometer surveys - West grid

Approximately 16 km of lines were cut and covered by a magnetic survey in the southwest portion of the property. The lines, now referred to as the "west-grid", were cut on a 100 m spacing, with picket stations established every 25 m. The baseline ties-on to the pre-existing grid cut for Landis Mining Corp. and McArthur Minerals Inc. in July of 1997. Reconciliation of the lines with topographic features and GPS readings suggest that the baseline of the east-grid trends at 054 degrees, whereas the baseline on the west-grid is oriented at approximately 56.5 degrees. Most of the lines were also covered by a Total Field magnetic survey, with readings taken every 12.5 m. The work was contracted by Gibson and Associates of Sault Ste.Marie and was completed between January 8 and February 1, 1999; The initial survey was to cover a larger portion of the property, but due to excessive snow, rugged topography and other difficulties, work was suspended and never resumed. This work was filed and approved for assessment in July of 1999.

2) Reconnaissance mapping and litho-geochemical sampling

Reconnaissance geological mapping at a scale of 1:2500 was done intermittently over the period of June 15 to August 30 1999. The survey was focussed primarily in proximity of the old trenches and pits and along selective lines across portions of the Empress Structure. The west-grid of the property however, was entirely covered by the mapping. In all, 25 kilometres of line were mapped by CGI geologist J. Samson, field assistant Louis Perron, and contractor-geologist Zlatco Durdevic (Geodigital Services of Timmins).

During the process of mapping, 130 grab samples were also collected and sent to Chemex Labs Ltd., of Thunder Bay, Ont. All of them were analyzed for gold by fire assay using a 30 g sample charge and AA (atomic absorption) finish. When results indicated greater than 10,000 ppb Au, the samples were re-analysed by fire assay pre-concentration method, followed by gravimetric finish. Two grab samples selected by CGI and were also checked for "nugget effect" using the pulp metallic gold assay method. Furthermore, double checks and routine quality control procedures were also systematically performed by the lab.

Ten (10) samples were analysed for trace elements using nitric aqua regia digestion and ICP spectrometry, and 60 samples were analysed through XRF spectrometry for whole rock and other trace element geochemistry; Eleven (11) of those were further analysed for rare earth elements (REES).

The various analyses were completed in order to determine gold content, their elemental associations, and to assist in identifying rock types, alterations, and in characterizing the parental derivation of various rocks. The raw data is included in this report, but geochemical manipulations and interpretations will be completed at a later time.

The sample descriptions are given in Appendix 1, and their location is shown on the geological maps (see Map 1 to 7). Analytical results are tabulated in Appendix 1 to 4 and within Table 4 and 5. The certificates of analyses are included in Appendix 5.

3) Surface stripping and trenching, detailed mapping and channel sampling

Surface stripping, trenching, and channel sampling was carried out at eight locations on the property, in the vicinity of 1+00E, 2+50E, 6+00E, 9+00E, 10+75E, and 15+00E, and two other smaller areas were also quickly investigated (on L2+00E, and near 8+25E). Those sites were selected either because they were hosting alteration and/or mineralization or because they had been previously trenched (in the 1930's) and appeared coincident with the location of the Empress Structure. The excavation work was contracted through Belham Ltd. of Kaministiquia (Steve Hamer), and involved the use of an HS 40 "Superhoe walking excavator" from July 5 to 15, 1999. Washing and channel sampling (308 samples) was carried out intermittently by Louis Perron (CGI), by contractor Ron Tweedie (July 5 to 15, 1999), and by contractor-geologist Zlatco Durdevic (Geodigital Services of Timmins - August 1 to August 30, 1999). Detailed mapping at a scale of 1:100 was concurrently completed by the author.

The 308 channel samples collected were sent out to Chemex Labs Ltd., in Thunder Bay, Ontario. All samples were analyzed for gold by fire assay, and 10 were further tested for coarse gold (pulp metallic assay method). Four samples were analysed by ICP, twenty four were analysed for whole-rock chemistry, and nine were further analysed for REES.

The reasons for sampling and the analytical techniques used by the laboratory are the same as the ones brieftly discussed in the "mapping section" above. The details of the procedures used by the labs are further indicated on the certificates of analyses (Appendix 5).

A brief description of the stripped areas and the results are discussed within this report.

4) Petrographic study

Twenty-eight samples from Empress were selected and sent to Dr. Eva Schandl (GE Consult) for petrographic examination in October of 1999. The objectives of the study were to describe the mineralogy, textures, alteration and deformation, in the hope of identifying the protolith of the rocks, and to identify gold and its associations. The results of this work will often be referred to within this report, and Dr. Schandl's report is included as Appendix 6. The field sample descriptions and their location are given in Table 6.

5) Induced polarisation survey

A dipole-dipole chargeability/resistivity program was completed on selected lines ranging from 800W to 1500E across the property, for a total of 8.8 km surveyed. The survey was completed from October 14 to 18, 1999, by Val D'Or Sagax, from Quebec. The work will be filed with the MNDM separately, and results will not be discussed within this report.

6) Relogging and resampling of historical drill core

Over 3200 m (10594 ft in 22 holes) of drill core was recovered by Micham Exploration in 1984 and 1987 from the Ursa Major occurrence, the Empress Mine, and from other areas contained within the current boundaries of the Empress project. The core is now being stored at the MNDM Core Library in Thunder Bay, and is available for consultation. During the period of October 15 to 23, 1999, CGI has relogged drill holes 4410-87-1 to 87-10, hole 441-84-7, and parts of 84-8 (65% missing core - no samples taken, no logs), for a total of over 1800 m in 12 holes. The mineralized intersections noted in 1987 were previously split by Micham Exploration, but the assays were never submitted to the MNDM, and CGI therefore resampled those intervals. Drill hole 84-7 was also resampled in order to evaluate the quality and reliability of previously submitted results. A total of 532 samples were collected by CGI personnel from October 20 to October 30, 1999, by "quartering" the BQ-size core using a diamond blade rock-saw. The drill holes were tied to the current Empress grid using old maps showing the relative emplacement of the holes with respect to topographic features, and by locating several drill hole collars in the field; The accuracy of their positions on the geological map (Map 1) is estimated to be within 15 m. Drill logs, gold and ICP results are appended, and the observations will be briefly discussed throughout this report (see Appendices 7 and 8, and Table 7).

7) Linecutting and magnetometer surveys - Claim 1217345

Over 17 km of linecutting and ground magnetics was completed on claim 1217345, located in the north end of the property. Work was completed by Lunik Explorer Reg'd of Rouyn-Noranda (Que.) between November 9 to November 18 1999, and the report has been filed for assessment in December 1999.

Table 2 Summary of work completed by CGI in 1999 - Empress Project.

***LINECUTTING AND MAG SURVEY - WEST GRID** - 100 m line spacing.	- approx. 16 km
GEOLOGICAL MAPPING - selective areas along the Empress Stucture, and all of the newly cut west-grid.	- approx. 25 km
SURFACE STRIPPING AND TRENCHING - L100E, L200E, L250E, L600E, L8+25E, L900E, L1075E, and L1500E.	- 8 locations
LITHOLOGICAL SAMPLING - 130 grab samples (incl. 60 whole-rock analyses. -308 channel samples (incl.25 whole-rock analyses.	- 438 Au assays, 84 wr, 20 REES, 18 ICP, 12 screen-assays
PETROGRAPHIC STUDY - 28 polished thin sections. - 4 microprobe analyses.	- 28 samples
***DIPOLE-DIPOLE IP SURVEY** - portions of L800W, L500W, L100E, L200E, L400E, L500E, L600E, L700E, L900E, L1100E, and L1500E. - a = 25 m, n = 1 to 6.	- 8.8 km
RELOGGING AND RESAMPLING OF HISTORICAL DRILL CORE - 441-84-7 and parts of 84-8, and 4410-87-1 to 87-10. - 532 samples from quartered BQ-core, analysed for Au and ICP.	- over 1800 m in 12 holes - 532 analyses for Au and ICP
***LINECUTTING AND MAG SURVEY -CLAIM 1217345** - 100 m line spacing.	17.598 km

* Worked filed for assessment separately from this report.

2.0 GEOLOGY

2.1 Regional Geology

The Archean rocks of the Schreiber-Hemlo greenstone belt of the Wawa Subprovince extend along the north shore of Lake Superior, from Schreiber in the west to White River in the east (*see* Figure 2). The belt is separated in two arms by the Trans-Superior Tectonic Zone, a north-trending structural feature along which the Killala Lake and the Coldwell Alkaline Complexes were emplaced (Middle Proterozoic - 1.0-1.2 Ga, Sage and Watkinson 1995). The Empress property lies within the Schreiber portion of the greenstone belt. It is comprised of tholeiitic and calc-alkalic mafic to felsic flows, interlayered with coarse to fine fragmental volcanic and minor sedimentary rocks. In the Jackfish Bay area, these rocks are folded into a series of close isoclinal folds with subhorizontal to gently plunging east to east-southeasterly oriented fold axes (Walker 1967, Carter 1988). Large and small sill-like intrusions of gabbro, peridotite and minor quartz-feldspar porphyries have intruded the supracrustal sequences. The supracrustal and associated intrusive rocks are bounded to the northeast, north, west and south by the Black-Pic batholith, by rocks of the Quetico metasedimentary subprovince, the Crossman batholith and Terrace Bay pluton, respectively.

Metamorphic grade is generally upper greenschist but increases to upper amphibolite proximal to the granitoid plutons.

Late north to northeast-trending Proterozoic diabase dikes of the Marathon swarm were emplaced around 2.17 Ga and intrude all the rock types in the area (Osmani 1991).

2.2 Property Geology

The Empress property was never completely mapped in detail, and the best regional reference remains the map produced by J.W.R. Walker in 1967 (1 inch = 1/2 mile). His map indicates that the property is predominantly underlain by mafic and intermediate to felsic volcanic rocks and their derived schists (Figure 3). These supracrustal rocks are intruded by intermediate to felsic hypabyssal intrusions and gabbroic sill-like bodies. Within the south portion of the property, these rocks are intruded by then late Archean composite Terrace Bay pluton (granodiorite, granite, monzonite to syenite). The Empress Mine and the Empress property are located within contact alteration zones associated, in part or in whole, with hydrous emanations from the Terrace Bay pluton.

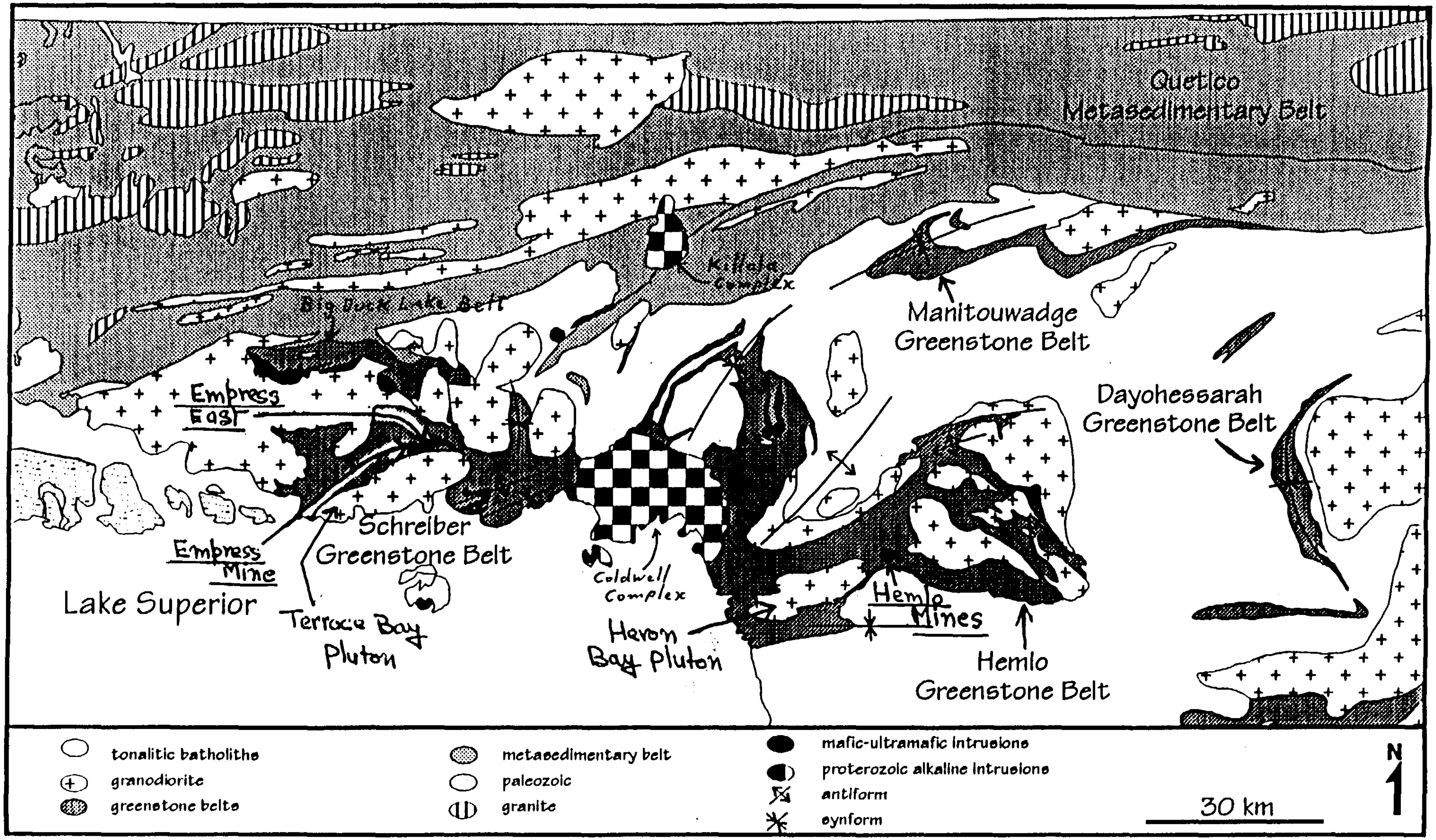


Figure 2. Regional Geological setting of Gold Deposits within Schreiber-Hemlo Greenstone Belt.

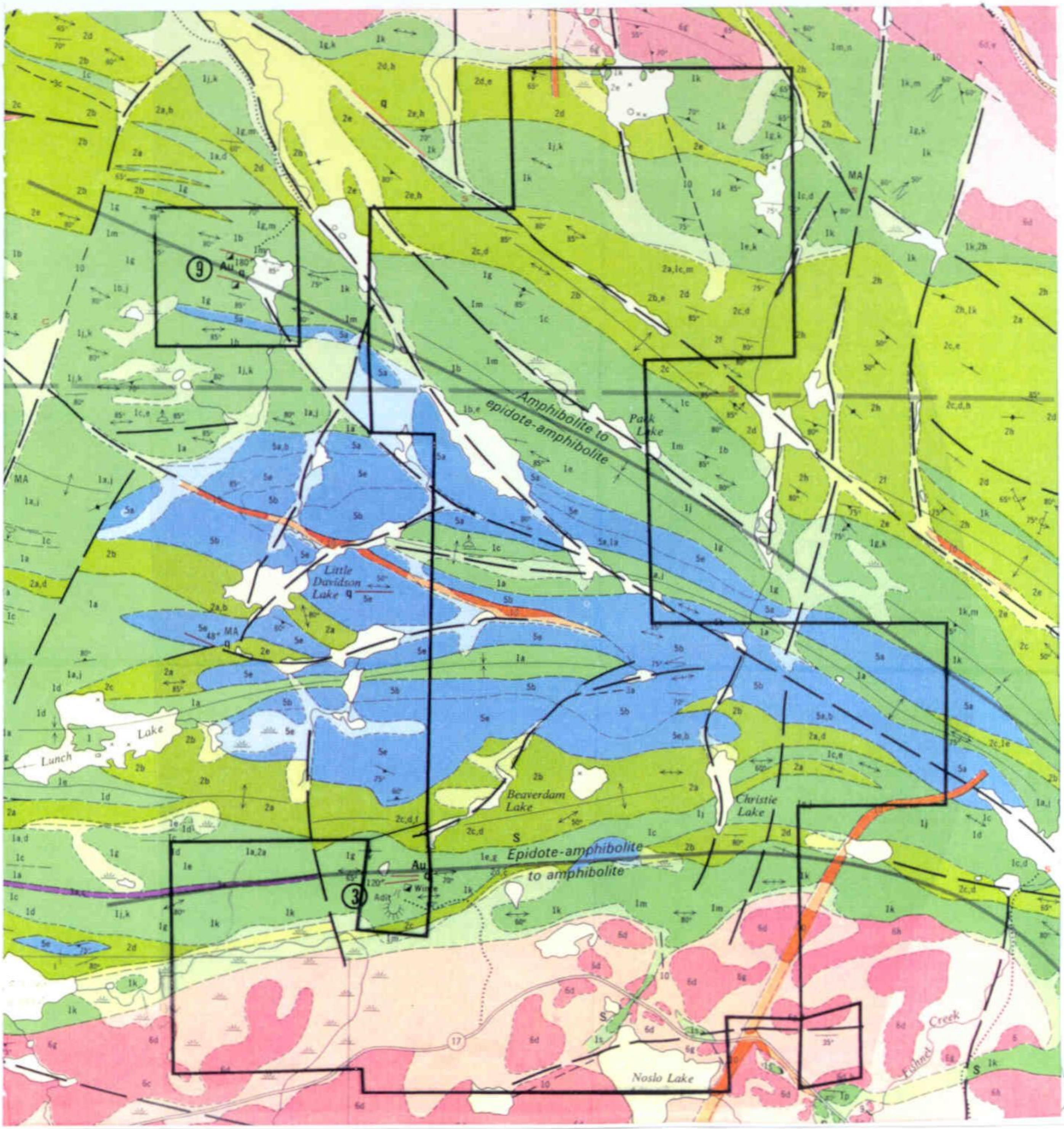


Figure 3. Geological setting the Empress Property - after Walker (1967).

1.	Mafic volcanics	5.	Mafic/Intermediate intrusive rocks
2.	Intermediate volcanics	6.	Granitic rocks
3	Iron formations	10.	Diabase
4	Sedimentary rocks		

The south part of the property was the focus of the 1999 exploration program by CGI. This area was previously mapped by David R. Bell Geological Services (for Micham Exploration Inc.) in 1983 and 1984, and the current east-grid of the property was also mapped by SDA Geological Services LTD. (for Landis Mining Corp.) in 1997. CGI revisited portions of the east-grid, concentrating its efforts on the Empress Structure, and also mapped all of the newly-cut west-grid, at a scale of 1:2500. The area mapped in 1999 is outlined on the geological map (Map 1), which essentially comprises à geological compilation conciliating past and more recent observations. A brief description of all major rock units observed by the author on the south portion of the property is given below. The "meta-" prefix is inferred for the following rock descriptions, but the term will be omitted for simplicity.

2.2-1 Mafic Metavolcanic Rocks (Map unit 2)

Mafic volcanic rocks are the most predominant volcanic rock type underlying the south part of the property. They form a 500 m wide belt which extends northeasterly at about 075° across the central part of the mapped area. They consist of **massive to pillowed and amygdaloidal/vesicular flows** (map unit **2a, b,and e**). The rocks are fine-grained, weathered greenish-grey to grey, and are generally weakly chloritized and carbonatized, except within the Empress Structure, where silicification and sericitization become much more dominant (*see* section 7.0). Minor plagioclase-phyric flows (map unit **2f**) have been noted, but these were more easily recognized in drill core (see Appendix 7). The mafic volcanic rocks are generally moderately schistose, and often display diffuse felsic bands or "ribbons" which define a crude gneissosity. These rock locally grade into massive and featureless flows which are very difficult to distinguished from their intrusive equivalent, most particularly along and north of the baseline, from L0 to L11+00E. In places (ie. Area 6+00E - north part), the unit was interpreted as a mafic volcanic (versus mafic intrusive) solely on the basis of apparent vesicles and quartz-carbonate amygdules. Petrographic examination of these features however, is not conclusive (see Appendix 6 , sample EMP99C-1414). South of the baseline and from L6+00E to Christie Lake, the abiguity dissipates, and well preserved pillow selvages were observed. The pillows are amygdular, moderately flattened, and indicate stratigraphic top direction to the south (based on pillow shape and packing). Brecciated channel-flows (map unit **2c**) or "flow-tube" breccias were also observed at Area L15+00E. On the west-grid, no primarily features have been observed, and the mafic volcanics occur as a thick and monotonous sequence of moderately schistose massive flows.

Petrographic work indicates that the mafic volcanic rocks are essentially amphibolites, composed primarily of fine hornblende partially replaced by actinolite, contained within a fine matrix of actinolite, titanite, chlorite, and accessory minerals such as magnetite, epidote, carbonate, talc, pyrite and pyrrhotite (see Appendix 6, sample 1497 and 1414). Fine biotite defining brownish stringer-bands was also commonly observed in the field.

Mafic tuffs have been reported by previous work on the Empress property and at the Empress Mine. No such observations were made by this author, and relogging of old core suggest that most of the units previously termed "mafic tuff" are actually sheared or moderately foliated mafic flows. Map code **2k - tuff/mafic sediment** and **2n - lapilli tuff** are therefore used with reservation, mostly to accomodate data compiled from assessment work.

2.2-2 Intermediate to Felsic Metavolcanic Rocks (Map unit 3)

An enigmatic "**quartz-sericite±carbonate schist**" (map unit **3s**) is found at the core of the Empress Structure, and is exposed in the old trenches and stripped areas from L0+00E to at least L11+00E. This rock unit is weathered from yellow and beige to dark rusty brown, is very fine-grained, and varies from strongly schistose to massive and very siliceous, with local "pseudolaminations" (1mm to <1cm wide) of uncertain origin defined by various shades of beige and grey. This rock is intruded by various dykes, several generations of quartz stockwork, may contain up to 15% sulphides, and is strongly sheared and folded. It is unclear whether the composition and texture of this rock unit is primary or if it resulted from extreme alteration and/or deformation; Speculation about the protolith and genesis of this rock unit varies from sediments, to felsic tuffs, to possible mylonitization of various rocks including intermediate to felsic dykes.

Petrographic examination however, indicates that deformation is significant but not as extreme as previously speculated for some samples, and mylonitization does not appear to account for the laminations which are defined by alternating biotite-quartz and sericite-quartz-rich bands (ie. sample 1301 and 1426 - Appendix 6). The rocks are generally very siliceous, sometimes cherty (ie.1274), and may contain heavy mineral concentrations (ie. 1427, 1469). The nature of the bands, the identification of detrital zircon and rutile in the thin-sections, and the proximity of recognizable sediments to the south (*see* section 2.2.3)suggests that this unit was probably derived from highly altered (mostly silicified and sericitized) sediments, possibly including a minor chemical component (chert and graphite). However, since the unit is distinct by its spatial association almost exclusively with the Empress Structure, and due to the fact that the protolith of this rock can not be ascertained, this rock has been mapped as unit **3s - quartz-sericite±biotite±carbonate schist of uncertain origin**.

Intermediate to felsic pyroclastic rocks were not observed within the area mapped in 1999. However, certain textures observed in thin sections suggest possible *tuffaceous* material at stripped area 15+00E (sample 1600 and 1605a - Appendix 6). The map code **3k - tuff** is therefore used but only in the descriptive textural sense. Map code **3n - lapilli tuff** is used with similar reservations (see section 2.2.3).

2.2-3 Clastic Metasedimentary Rocks (Map unit 6)

Identifiable clastic sedimentary rocks comprise a very small component of the area mapped in 1999. They are exposed discontinuously, as narrow lenses up to 30 m wide, at various locations along the Empress Structure, and are thought to be the equivalent of altered and/or deformed interflow sediments, mainly fine wacke, siltstone, and graphitic argillites (map unit **6c**, **6b**, and **6a** respectively). The best example is located within the south portion of stripped area 6+00E. At this location, the rocks are weathered brown to beige, and exhibit crude banding defined by the presence of minor dark grey siltstone laminations and beds, 1 to 10 cm thick, which can be followed laterally over several metres. The sediments are fine-grained, siliceous, and moderate to strongly schistose. They consist of quartz and biotite, mixed with various amounts of sericite and other accessory minerals (ie. see sample 1493 - Appendix 6). Notably, the presence of peculiar lapilli-size fragments is noted along certain horizons at this location, within the south portion of stripped area 1+00E, and in the central portion of stripped area 15+00E; These features are interpreted by the author to represent dismembered sedimentary beds resulting from deformation, and not "felsic lapilli tuffs" or "acidic agglomerate" as previously suggested by Drost (1998) and Walker (1967). The presence of abundant boudinaged and folded quartz±carb-fsp veinlets and stringers within the sediments at those locations is also consistent with this interpretation. A few relict plagioclase phenocrysts were observed however, in thin-sections from samples collected at stripped area 15+00E (sample 1605a and 1600 - Appendix 6) suggesting a possible volcanic protolith, but those observations are not conclusive.

A "sliver" of very weakly **graphitic quartz-sericite schist** (map unit **6u)** also extends almost continuously for over 800 m along the north contact between the rocks of the Empress Structure and the mafic volcanic rocks at stripped areas 1+00E to 10+75E. This argillaceous horizon is 5 to 2 m wide, rusty brown to black, is strongly sheared and oxidized, and locally displays subtle laminations suggesting a sedimentary origin. Petrographic work indicates that the rocks are extensively sheared and deformed, laminated, with alternating bands consisting predominantly of quartz, to quartz-sericite, to sericite-graphite, ±biotite, pyrite, carbonate, and other accessory minerals (see samples 1206 and 1507 - Appendix 6).

2.2-4 Ultramafic Intrusive Rocks (Map unit 7)

Only one possible occurrence of an ultramafic rock was observed in the field. It occurs as a narrow and discontinuous dyke (<30 cm wide) within the center of the Empress Structure at stripped Area 1+00E. The rock is highly sheared, folded, and was mapped as a sericite-talc-carbonate-fuchsite schist (map unit **7g**). Petrographic examination indicates that this unit consists primarily of a sericite-biotite-chlorite+/-talc schist, with accessory minerals pyrite, hematite, carbonaceous material (graphite?), apatite, rutile and magnetite; Green micas were not identified in thin-sections, but the relatively elevated Cr_2O_3 values (0.15%) suggest that it may have been present in small amounts.

Ultramafic rocks possibly exist in greater abundance and as larger intrusive bodies in the northern portion of property, but the area was not covered by this mapping program.

2.2-5 Mafic to Intermediate Intrusive Rocks (Map unit 8)

Mafic to intermediate intrusive rocks consist of gabbro, to diorite, to blue-quartz diorite. The distinction between these subunits was very difficult, as contacts were not observed and changes in composition and textures appeared to be gradational. Furthermore, the distinction between gabbro versus massive mafic volcanic flows was not always clearly established in the field (see section 2.2.1), and gradational relationship between mafic volcanic rocks and diorites have been previously reported nearby to the west, in the vicinity of Lunch Lake. This problem was also recognized by Walker (1967), who first suggested that "...these rocks are probably feeder sills and necks for the volcanic flows, and are tentatively classified as shallow intrusions" (Walker 1967, p.20). The present author also adheres to this preliminary classification, until further distinction is established, perhaps using REES.

Gabbro intrusions (map unit **8b**) are weathered grey to greenish grey, are very massive, medium-grained, weakly foliated, and locally display a weak "gneissosity" defined by felsic bands or ribbons (map unit **8u**). These rocks are amphibolitized, essentially composed of hornblende, quartz, titanite, plagioclase, and various accessory minerals (*see* sample 1278 - Appendix 6). The best exposure may be observed at the south end of stripped area 1+00E, where it rests in contact with a sliver of sediments apparently wedged against the mafic volcanic rocks further north. The extent of this particular intrusion is unclear, as it appears to grade laterally into mafic flows; The examination of drill core recovered from the vicinity also indicate that the mafic volcanic and intrusive rocks are intricately related in this area (*see* ddh 441-87-3, 4, and 5 - Appendix 7).

Diorite to blue-quartz diorite (map unit **8c** and **8d**) extends across Beaverdam Lake and toward the northeast corner of the area mapped in 1999. The rocks are weathered grey to greyish-white, but often display a distinctive pinkish-orange color on the surface of joints. They vary from massive and non-foliated to weakly foliated locally. On a fresh surface, they are mostly fine-grained, dark grey and generally non-magnetic. Small bluish quartz-eyes are common, and are best observed near Christie Lake. A sample described in the field as a "blue quartz-eye diorite" was revealed from petrographic work to be an "extreme differentiate of a gabbro", further establishing the close relationship of these rocks.

Magnetic data and a few isolated outcrops at the base of Empress Hill also indicate the presence of a large gabbro to diorite intrusive body which underlies the swamp along Beaverdam Creek between L7+00W and L12+00W. This occurrence probably represents the on-strike eastern extension of similar rocks mapped by Walker (1967) near Sister Lakes.

A "swarm" of highly altered and deformed **gabbroic to dioritic dykes** (unit **8r to 8s**) is well exposed along the Empress Structure, on L2+00E and at stripped areas 2+50E and 6+00E (*see* Map 3 and 4). These dykes are weathered greenish-grey, to brownish-grey, sometimes bleached to greyish-white, and range from 10 cm up to over 5 m in width. These rocks are variably sheared, folded, and altered, but still display a "granular" texture indicative of an intrusive origin, and are most likely derived from the larger intrusions described above in this section. They essentially consist of a plagioclase-carbonate-quartz-sericite-biotite+/-chlorite schist, with various other accessory minerals (sample 1358 - Appendix 6). At stripped area L6+00E, one of these dykes can be seen to grade laterally from a relatively unaltered gabbro (sample EMP99C-1422, Map 3), to an intermediate-looking schist further to the east. Locally, these units are dominated by biotite and/or chlorite, and can easily be misinterpreted with the lamprophyre dykes which are also common within the Empress Structure.

Other narrow dykes of apparent mafic to intermediate composition are generally non-foliated and relatively unaltered; These dykes are fine-grained, greyish green to dark grey, and are referred to by map unit **8n** (ie. stripped area 9+00E).

2.2-6 Intermediate to Felsic Hypabyssal Intrusive Rocks (Map unit 10)

Intermediate to felsic hypabyssal rocks include mainly felsite dykes, and minor feldspar porphyries. They occur mostly within and in the vicinity of the Empress Structure, as narrow intrusions less than 2 m wide, emplaced along the main fabric of the host rock. The felsite dykes are generally weathered white to yellowish-beige, and vary from massive and cherty to strongly foliated/sheared and deformed. In some instances, the deformation and alteration make it very difficult to distinguish these dykes from the previously described map unit 3s (quartz-sericite schist), and some of these units may have been misidentified (*see* section 2.2.2). Feldspar porphyry dykes are very rare and very narrow (<1m wide); One sample collected on the baseline near L1+00E was relatively fresh looking, but petrographic observation indicated the presence of significantly altered plagioclase, with biotite and epidote aggregates set within a matrix of fine-grained quartz and feldspars (sample 1356 - Appendix 6).

2.2-7 Late Archean Granitoid Rocks (Map unit 11)

Late Archean granitoid rocks of the composite Terrace Bay batholith dominate the southern portion of the area mapped in 1999. Locally referred to as the "Jackfish Lake batholith", this large intrusion consists primarily of **granite to granodiorite rocks, and lesser diorite phases**. The rocks are weathered white to grey, and generally occur as massive and small low-lying outcrops, which are best exposed along the Trans-Canada Hwy 17. They are composed of medium-grained quartz, pinkish alkali-feldspars, white plagioclase, and up to 10% hornblende and biotite, and various accessory minerals. The contact between the granitoids and the country rock was not observed while mapping the property, but its proximity is usually inferred from a weak gneissosity sometimes noted in the intrusives, and by rotating foliation angles observed within the surrounding mafic volcanic rocks. In drill core, the contacts are sharp but irregular, and are generally accompanied by increased foliation and weak silicification of the wallrock (ie. *see* ddh 4410-87-3 - Appendix 7). Reconnaissance mapping in the south end of L2+00E has revealed the presence of various moderately magnetic and non-foliated intrusive rocks which appear to range drastically in composition from nearly mafic, to diorite, to monzonite, and eventually to granodiorite. Cross-cutting relationships were not observed due to poor exposure, but drill core recovered from the vicinity has indicated the presence of at least two intrusive rocks, including gabbro, and granite to granodiorite dykes (ddh 4410-87-5 - Appendix 7). These rocks are also thought to represent various phases of the Jackfish Lake batholith, and can be observed as a large lenticular magnetic anomaly on the contoured map generated by Landis in 1997.

A narrow, **lamprophyre** dyke (map unit **11r**) was observed at stripped area 1+00E, within the center of the Empress Structure. The dyke is less than 1 m wide, dark grey to black and strongly weathered, strongly sheared, deformed and dismembered into several lenses. It consists essentially entirely of biotite phenocrysts, contained within a fine groundmass of biotite, carbonate, and probably includes feldspars. Lamprophyre dykes were also commonly intersected in drill core, where they appear less deformed, but are locally strongly chloritized.

2.2-8 Diabase Dykes (Map unit 12)

Diabase dykes intrude all rock types, and are the youngest rocks on the property. They generally trend northerly, but are often locally emplaced along older structures oriented subparallel to stratigraphy. They are weathered grey to black and rusty brown, and range in width from <1 m up to 20 m. They are fine- to coarse-grained, sometimes chilled, are moderately magnetic, and commonly display 1-2mm plagioclase phenocrysts.

3.0 METAMORPHISM

The rocks within the mapped area are transitional between the upper greenschist facies and the amphibolite facies due to contact metamorphism near the Jackfish Lake batholith to the south. This is evidenced by the presence and abundance of actinolite-hornblende, titanite, and epidote in the rocks examined in thin-sections, and is further supported by the relative scarcity of plagioclase feldspar and chlorite. Red garnets were not commonly observed while mapping, but are well represented within the mafic rocks intersected in drill core (*see* Appendix 7). Walker (1967) extends an isograd around the Jackfish batholith, which stretches across the Empress property, separating an amphibolite facies to the south, from a "typical epidote-amphibolite assemblage" north of the Empress Mine (see Figure 3).

4.0 STRUCTURAL GEOLOGY

On a regional scale, the supracrustal rocks are reported to have been subjected to at least one major episode of deformation, leading to the formation of several anticlines and synclines which generally trend to the southeast (Carter 1988). Locally, the rocks have been folded into close isoclinal folds (Walker 1967), which were subsequently disrupted by the emplacement of the Jackfish Lake-Terrace Bay batholith. On the south portion of Empress East, the penetrative fabric is essentially conformal to stratigraphy. It is oriented east to northeasterly and dips consistently to the south at various angles from subvertical to about 70 degrees; Examination of weakly deformed pillows on L15E, and graded bedding from sediments in the vicinity of the Empress Mine (Walker 1967) indicate top direction also to the south.

The stratigraphic trend is deflected slightly in proximity of the **Empress Structure**: a major alteration and deformation zone, with a corridor of influence in excess of 50 m in width (15 to 25 m wide at its core), which can be traced across the entire property from the Empress Mine to Christie Lake. The emplacement of the Empress Structure is defined by field observations during mapping, from historical drill core, and is also interpreted by geophysical signatures such as combined VLF, ground magnetics, and IP data (from previously filed assessement work). The deformation is characterized by a moderate to strong shear zone hosted by quartz-sericite schist, interflow sediments and mafic volcanic rocks, associated with mesoscopic folds, strong alteration (mainly silicification and sericitization), quartz veining, various dykes, and sulphidization. Shearing within this deformation zone appears slightly oblique to stratigraphy in places, and strikes at approximately 070 degrees, with fabrics dipping south at highly variable angles from subvertical to less than 50 degrees. Assymetrical to complex folds were observed, and at least some of the fold closures observed at stripped area 6+00E suggest a gently plunging component to the fold axes towards the east-northeast, at 18 to 34 degrees. The presence of boudinaged quartz veins, and dismembered to folded sedimentary beds including late intrusive rocks, are all indicative of the strong intensity and prolonged activity of the deformation event. The petrographic examination of samples collected from the Empress Structure showed no evidence of mylonitization, but intense deformation, micro-folds, and even "tectonized" fabrics have been described (see Appendix 6).

Based on historical data regarding the Empress Mine, the Empress Structure can be extended for another 400 to 500 m across lease claim 459728 (not part of the Empress claim block). Further west however, the continuity of the structure is uncertain due to poor bedrock exposure and limited geophysical coverage. The deformation zone may have been faulted-up and/or curved around the flanks of Empress Hill, and possibly correlates with a gold showing rediscovered by CGI in 1999 around 12+50W (see Zlatco showing - section 7). Magnetic data collected by CGI in 1999 indicates the presence of at least one elongate/longitudinal structure in the vicinity; It transects an intrusive body which probably underlies the swamp at the base of Empress Hill, and runs subparallel to Beaverdam Creek at 085 degrees. This structure may represent the sinistral extension of the Empress Structure, or possibly extends further eastward past L0, along the contact zone between rocks of the Jackfish Lake batholith to the south, and the mafic volcanic rocks further north.

Drill core recovered by Micham Exploration in 1987 has indicated the presence of several other faults and deformation zones which may run subparallel to the Empress Structure along a topographic low defined by a series of swamps and ponds which extend at 060 degrees across the property. VLF data collected by Landis Mining Corp. in 1998 indicates that the structures may merge with the Empress Structure somewhere in the vicinity of L13+00 to L14+00E. These structures vary from brittle fracturing accompanied by the emplacement of various dykes, to zones of moderate to strong shearing and weak sulphidization, accompanied by weak to strong alteration very similar to the main Empress Structure (ie. ddh4410-87-6 - see Appendix 7). However, no anomalous gold values have so far been associated with these zones. These structures and their associated alteration are not exposed on surface, except perhaps for a weak "flinty silicification" noted by Landis (Drost 1998) and by CGI within the mafic volcanic rocks located south of the baseline between L8+00E and L10+00E.

Several cross-faults and lineaments were also noted while mapping, and can be interpreted from geophysics and from airphotos. The most apparent one is located in the vicinity of L7+00E, where the Empress Structure appears to have been displaced by sinistral movement along a late fault now occupied by a diabase dyke (see Map 1).

5.0 LITHO-GEOCHEMISTRY

Eighty four samples have been analysed for major elements, and twenty have been sent for REES determination. Examination of the data is in progress, and results will not be discussed within this report. The raw data, sample locations and descriptions, and certificates of analyses are indicated on Map 1 to 7, and within Appendices 1 to 5.

6.0 REGIONAL ECONOMIC GEOLOGY

The following text on the regional economic geology of the Schreiber area represents an excerpt from OGS Open File Report 5951:

"Gold was reportedly first discovered in 1873 by Donald McKellar in the Jackfish and Victoria Cape areas. Prospector C. Robb reported that "a few specks of gold in quartz" were discovered in a vein of St. Ignace Island (Tanton 1931). No work has been done on these veins since 1882.

Early gold production (Table 3) came from the Empress Mine (1895-1900) and the North Shores Mine (1898-1900; 1935-1937). During the 1920's and the 1930's, gold exploration focused on the Schreiber area and a number of prospects and small producers. Properties such as the Harkness-Hays, Gold Range, Otisse, Jedder, Johnston-McKenna, McKenna-McCann and Schreiber-Pyramid were developed. Along with the North Shores Mine, they collectively produced approximately 3000 ounces of gold.

Table 3. Past producers of gold, Schreiber area.

Mine/Property	***Years***	***Gold Produced (oz)/Grade***
North Shores Mine	*1898-1900; 1923; 1932-1937; 1941*	*2441 / 0.64 ounce per ton Au*
Empress Mine	*1896-1897*	*112 / 0.10 ounce per ton Au*
Gold Range	*1921; 1936; 1941*	*36.35 / 0.91 ounce per ton Au*
Harkness-Hays	*1920; 1929; 1932; 1935-1936*	*200.84 / 2.58 ounce per ton Au*
Schreiber-Pyramid	*1937*	*76.57 / 0.51 ounce per ton Au*
(n.b. minor, undocumented gold production has been reported at the Hays Lake (Jedder) and Little Bruin prospects)		

Zinc, copper and lead deposits were also discovered in the late 19th century. The first producer *was the Zenith Mine (1898-1901; 1966-1970). The Winston Lake copper-zinc deposit, currently being mined by Inmet Mining Corporation, was discovered in 1982 adjacent to the Zenith Mine. The Pick Lake deposit, discovered in 1984, in now being mined at the Winston Lake Division mine.*

Dimension stone has been locally quarried since the 1880's for railway construction and architectural use. A variety of sandstones were quarried on the offshore islands of Nipigon Bay. Syenites of the Coldwell alkalic complex were extracted from sites in the vicinity of what is now Marathon. Marble was produced from a small quarry on the east side of the Nipigon River." (from Schnieders et al. 1996, p. 13-14).

7.0 MINERALIZATION AND ALTERATION

Mineralization of potential economic significance on the Empress property has been recognized since the turn of the century, with the historical discoveries of the Ursa Major gold occurrence on the north claims, and the nearby Empress Gold Mine in the south. In 1999, CGI has concentrated its effort on the south part of the property, mainly pursuing mineralization and alteration which extends eastward from the old mine, and presumably westward onto the Empress claim group.

To date, reconnaissance mapping, surface stripping and trenching, relogging of historical core, and geological compilation has led to the recognition by CGI of at least three mineralized gold zones: i) the Empress Structure, ii) the Creek Showing and iii) the Zlatco Showing. The details of the geological observations made during the stripping and trenching along the Empress Structure are briefly discussed below (section 7.1), followed by a summary of the characteristics of the mineralization, and a description of the two other showings.

7.1 Stripping, Trenching, and Channel Sampling along the Empress Structure

A total of eight areas along the Empress Structure were investigated by surface stripping and trenching during the 1999 exploration program by CGI. All areas were washed and sampled, and seven (7) of them were mapped in detail, at a scale of 1:100. The technical details of the operation are given in section 1.6-2 (Work Done/Methodology), and the geological observations at each site are summarized below. Maps illustrating the stripped areas (Map 2 to 7) are also included at the back of the report, and the most significant gold results are summarized in Table 4.

7.1-1 Area 1+00E

An area measuring up to 50 m x 40 m was stripped on L1+00E, near 1+00N, in order to better expose a series of four trenches previously excavated in the 1930's. From north to south, a transition can be observed from massive and relatively undeformed mafic volcanic rocks, followed by a 15 m wide zone of intensively deformed and altered rocks defining the core of the Empress Structure (predominantly a quartz-sericite schist), followed further south by another unit of mafic volcanic rocks (see Map 2)

The mafic volcanic rocks in the north portion of the stripped area consist of massive flows, weakly to moderately sheared and weakly carbonatized to talcose. These rocks are in sharp contact, locally unconformably, with a 6 m wide unit of dark grey to black argillaceous schist located further south. The mafic to intermediate schist is moderately chloritized, weakly graphitic, moderate to strongly sheared and weakly laminated, and is interpreted to have been derived from highly altered and deformed interflow sediments (see section 2.2-3). This unit is weakly folded, and strikes variably at 086 to 070, dipping south at 59 to 68 degrees. The sediments grade south into a horizon of quartz-sericite±biotite±carbonate schist, 8 to 10 m wide and are highly sheared, deformed, silicified and sericitized, and are accompanied by pervasive quartz±iron-carbonate stockwork. The rocks are weathered light grey to beige, to rusty brown, are locally strongly oxidized, and contain <1-2% pyrite up to 15% locally, and traces of chalcopyrite. Distinct "pseudolaminations" (1mm to <1cm thick) often characterize these rocks, and petrographic studies suggest that they are probably indicative of a sedimentary protolith (see Appendix 6). One possible highly altered and deformed ultramafic dykelet (see section 2.2-4) and several lamprophyre dykelets are also found, intruding discontinuously along the center of the Empress Structure. The deformation and alteration ends abruptly further south, and a sharp contact with a massive mafic rock, most likely a mafic volcanic, can be observed. South of the pond, near 0+90N, the rocks are fine-grained, and display possible relict flow textures. The alteration and deformation gradually increases again in a southerly direction, and the rocks appear to grade into another horizon of possible sediments, which lie unconformably (ie. 058/41), wedged between the mafic volcanic rocks and a gabbro intrusion exposed near 0+80N. The "sediments" are highly sheared to brecciated, locally laminated, and contain lapilli-size fragments which probably represent dismembered/boudinaged beds; These rocks are silicified, carbonatized and sericitized, and essentially consist of a quartz-carbonate-sericite schist. Quartz veining is minor, and sulphides are nearly absent.

Several rows of semi-contiguous channel samples (84 samples) were taken across Stripped Area 1+00E (see Map 2). Geochemically anomalous gold assay results (>5 ppb) were detected across the entire zone (40 m wide), with the greatest number of anomalies contained within the quartz-sericite schist located at the center of the Empress Structure. The values obtained from channel samples were generally weak, with the highest assay being 2.24 g/t and 1.39 g/t over 0.45 m in sample EMP99C-1222 (see Table 4 and 5). No particularly strong association between anomalous gold values and the presence of quartz veins or the amount of sulphides were noted at this location. The most spectacular assays however, were obtained from grab samples taken from quartz veins which contained no more than 1% pyrite, traces of chalcopyrite and galena: Sample EMP99X-1303, collected by CGI from a quartz vein exposed in an old trenches at 0+92E/1+23N assayed 66.93 and 42.43 g/t Au, and another grab sample taken from the vicinity is reported to have carried up to 114 g/t (from assessment files).

7.1-2 Area 2+00E

The presence of altered rock fragments or pieces of "float" were noted on L2+00E, near 0+90N, and the area was therefore quickly investigated. The outcrop is very rubbly, and only a narrow strip approximately 5 m x 2 m was successfully exposed. Given the small size of the exposure, the area was not mapped in detail but is shown on the property geological map (Map 1).

The area is mostly underlain by a strongly altered and deformed gabbroic to dioritic dyke, now reduced to a plagioclase-quartz-carbonate-biotite±chlorite±sericite schist (map unit 8s) which is commonly found intruding along the Empress Structure. The rocks are strongly bleached to grey-white, with rusty brown patches suggesting the presence of pervasive iron-carbonate (see also sample 1358 - Appendix 6). The rocks are strongly sheared, weakly folded and even weakly crenulated, with schistosity angles varying from 055/54 to 082/42. A narrow unit of quartz-sericite schist (<1 m wide), and 1 m wide sliver of moderately sheared mafic volcanic also occurs within the center of the outcrop. These rock are similar to those described at Stripped Area 1+00E.

Irregular quartz veinlets and stringers (2-3%) occur throughout the outcrop, and generally less than 1% pyrite occurs as fine disseminations and wisps, mainly within the quartz-sericite schist. No channel samples were taken, but a series of five grab samples were collected across the exposure.

The only geochemically anomalous value obtained was from the quartz-sericite schist (sample EMP99X-1902), with 20 ppb Au.

7.1-3 Area 2+50E

An area approximately 3 to 4 m wide x 25 m across was stripped near 2+50E/0+85N (see Map 3). The rocks are similar to Area 1+00E, but the intensity of alteration and mineralization associated with the Empress Structure is somewhat reduced at this location.

The zone of most intense deformation and alteration is approximately 18 m wide, and is bordered to the north and south by a massive mafic rock. It consists of a unit of highly sheared and rubbly sediments to the north, intermixed with narrow units of quartz-sericite-carbonate schists as previously described. Several gabbroic to dioritic dykes cross-cut the zone and are strongly bleached, light brown to beige, and locally oxidized; These dykes are strongly carbonatized, strongly sheared and deformed, weakly folded, and are locally silicified by the presence of a quartz stockwork which extend over a 5 m interval near the center of the Empress Structure. The quartz veins are bull white and generally non-mineralized. Minor felsite dykelets were also noted.

A total of 27 channel samples were taken from Area 2+50E. Geochemically anomalous values were obtained from nearly all rock types (except from the felsite dykelets) but only three samples contained over 100 ppb Au (see Table 4). The most elevated assays were obtained from the quartz-sericite schist or from the adjacent quartz veins. The highest value of 725 ppb Au over 1.10 m was generated from a sample combining the quartz-sericite schist, pervasive narrow quartz-carbonate±hematite stringers, and less than 2% disseminated pyrite and traces of sphalerite in association with the veinlets.

7.1-4 Area 6+00E

Stripping and trenching was completed by CGI in the vicinity of a series of very old trenches (at least five), on L6+00E near BL0. The area exposed measures approximately 4 to 15 m in width x 60 m across. It is underlain by a package of quartz-sericite schist, sediments and mafic volcanic rocks. The Empress Structure is over 25 m wide at this location, and is characterized by strong silicification and sericitization, the presence of several mafic to intermediate dykes, quartz veining, strong shearing and folding, and the presence of 1 to 5% sulphides. The largest number of consistently elevated gold values were obtained from this area.

The mafic volcanic rocks in the north part of Area 6+00E are massive and possibly amygdular, as suggested by the presence of many small cavities, up to 5mm in diameter, often infilled by quartz and/or carbonate (see Appendix 6 - sample 1414). At the base of a rock scarp near 0+36N, the mafic rocks are in contact with a quartz-sericite schist. This unit is very rubbly and poorly exposed, and probably represents the eastern extension of the sedimentary horizon (±graphitic) observed at the north edge of Stripped Area 1+00E and 2+50E. Only a trace of pyrite was noted within these rocks.

South of the pond, between 0+31N and 0+14N, the Empress Structure is dominated by buff colored to highly oxidized rocks, strongly sericitized, silicified to cherty, and carbonatized; This quartz-sericite-carbonate schist is very fine-grained, locally pseudolaminated, and was possibly derived from the intense alteration and deformation of clastic to chemical interflow sediments (see section 2.2-2). The presence of gabbroic to dioritic dykes which are themselves highly sheared and folded, attests to the intensity and longevity of the kinetic factors which acted upon these rocks, and this is further evidenced by the complex cross-cutting relationships which are observed between the dykes and the various generations of quartz stockworks (see Map 4). Complex mesoscopic folds are common, and indicate several phases of folding and refolding. Measurements on tight asymmetrical folds observed along vertical rock faces indicate shallow plunging fold axes towards the east to east-northeast, at 34 degrees to less than 18 degrees. The axial planes appear to be subparallel to the schistosity, which generally strikes at 064 to 078, and variably dips to the south at 49 to 80 degrees.

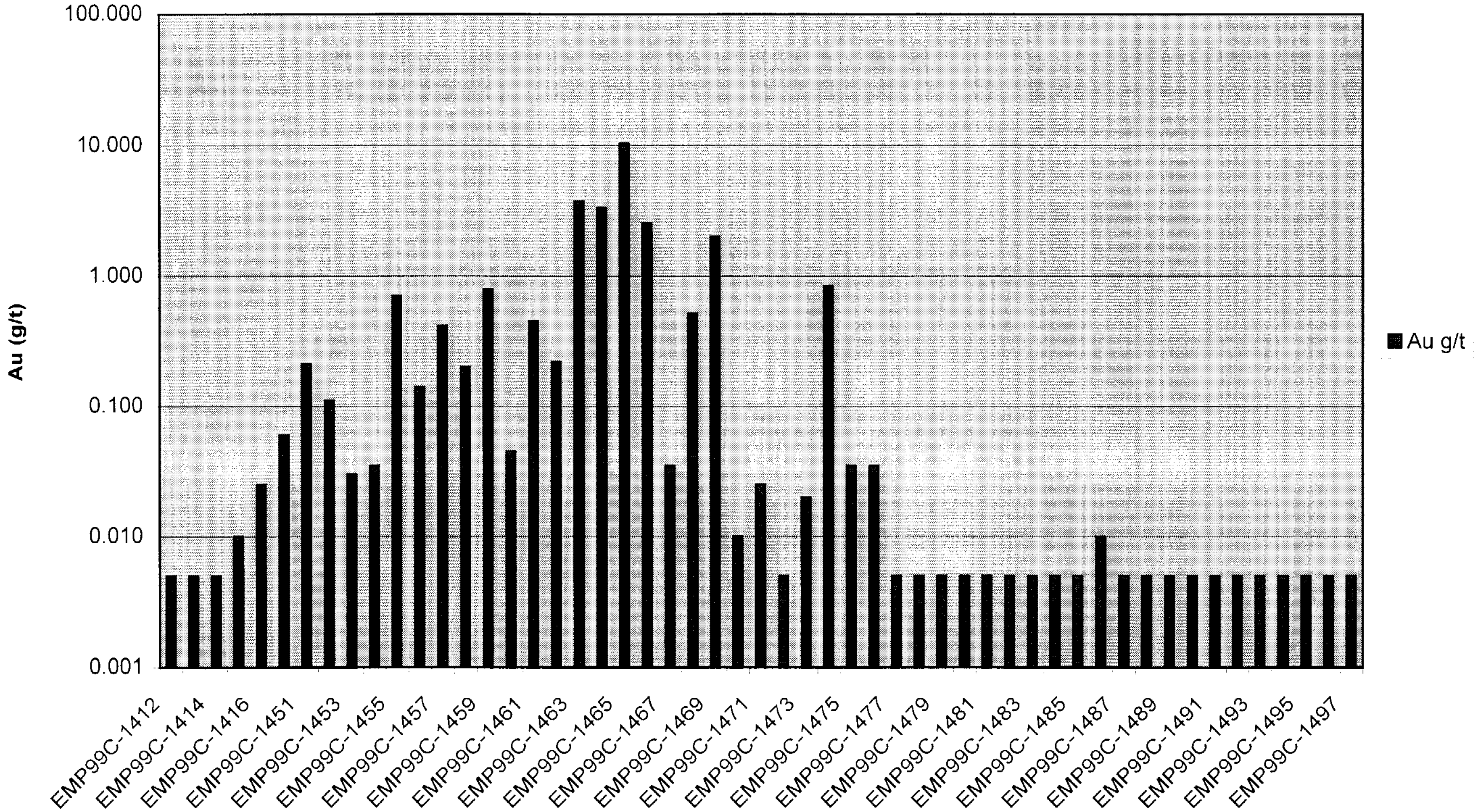
Pyrite was only observed in significant amounts within the quartz-sericite schist. It varies from 1 to 5% locally, and most was probably emplaced before the main folding event, as it commonly occurs as seams which follow the folded schistosity planes of the rock. The gabbroic to dioritic dykes contain trace amounts of pyrite. Notably, the quartz veins also contain very little pyrite (generally less than 1% to trace), but are often accompanied by trace amounts of chalcopyrite, galena, sphalerite, and rarely molybdenite (ie. in the vicinity of sample EMP99C-1428).

A mafic volcanic lense, moderately sheared, occupies the central part of the stripped area, followed further south by a 15 m wide horizon of fine wacke, siltstone and minor argillite. The sediments display alternating shades of brown, grey and beige, which expresses the varying composition of the laminations and beds (generally <10 cm). These rocks are fine-grained, quite siliceous, and petrographic examination indicates that they consists mostly of quartz, biotite, minor sericite, some carbonate and various other accessory minerals (see Appendix 6). The unit is moderately sheared and some of the beds are dismembered into apparent lapilli-size clasts, giving the rock a fragmental appearance, and this texture is best exposed along the baseline, near 5+75E.

The southernmost portion of the stripped area consists of weakly sheared mafic volcanic rocks. The unit is pillowed and locally amygdular, and top direction appears to be south, although this could not be determined with certainty at this location.

A total of 86 channel samples and 9 grab samples were collected from the area. Fourty two (42) samples generated gold assays over 100 ppb, including 17 samples with assays above 1 g/t, with a maximum value of 15.52 g/t (see Table 4). The anomalous gold values are hosted by all rock types at this location, but the most elevated values are consistently contained within the area of most intense deformation and alteration, which coincides with the presence of the quartz-sericite schist at the center of the Empress Structure. The bedrock could not be completely excavated across the structure, but a series of semi-contiguous channel samples taken across the zone indicate that values above 100 ppb are essentially sustained over a width of at least 15 m (see Figure 4). The best intersection comprises a series of four channel samples taken across a quartz-sericite schist accompanied by quartz stringers and 1 to 5% pyrite seams and disseminations, which yielded a calculated average of 5.31 g/t Au over 2.80 m, including 10.75 g/t over 0.80 m.

Figure 4. Gold distribution across stripped area 6+00E



Sample series
Covers over 50m across stratigraphy - see Map 4

7.1-5 Area 8+25E

Stripped Area 8+25E is centered along a narrow ravine representing a lineament which begins in a swampy area near L7+00E/BL0+00 and extends northeasterly at about 070 to 073 degrees towards L9+00E; Beyond that point, the ravine widens-up gradually along the side of a moderate slope which eventually stretches into a beaver pond located near L11E/1+50S. The lineament was quickly investigated because it represented a possible extension or splay to the Empress Structure. Several mafic rock floats were also noted and are sheared and altered (talcose, weakly silicified to sericitized), and accompanied by some quartz veining.

An small area about 8 m across by 1 to 2 m wide was excavated, and revealed the presence of weak to moderately altered mafic rocks (silicified), grading into strongly sheared possible sediments near the center of the excavation (see Map 5a). The possible sediments display subtle pseudolaminations very similar to those observed at Stripped Area 9+00E. The rocks are weak to moderately silicified, carbonatized, chloritized, and traces of hematite were also noted. Pyrite varies from 1 to 5% locally, as disseminations and fine seams and stringers. The bedrock at the center of the ravine could not be reached, but alteration appears to increase at depth.

Five (5) channel samples were collected, and no significant gold assays were obtained. The highest analysis yielded 80 ppb Au over 0.80 m.

7.1-6 Area 9+00E

An area approximately 3 to 4 m wide x 50 m long was mechanically stripped in the vicinity of L9+00E, just south of the baseline (see Map 5b). The area is mostly underlain by mafic volcanic rocks and minor sediments which are moderate to locally strongly deformed, and relatively weakly mineralized.

The mafic volcanic rocks are weakly to locally strongly sheared, generally weakly altered (carbonatization mainly), and are better exposed in the southern half of the stripped area, were vesicles 1-2mm in diameter are locally observed. In the north portion of the stripped area, where the shearing is most intense, a sediment horizon about 9 m wide can be observed. The sediments are moderate to strongly sheared, argillaceous, and are locally dark greyish green to brown and are very difficult to distinguish from the sheared mafic volcanic rocks. At the base of a steep rock face south of sample EMP99C-1507, the rocks are strongly schistose (at 082/86S), rubbly, partly exposed, and are dark brown to black, with patchy iron-oxide staining. They are accompanied by 1-3% pyrite and sphalerite traces, as seams and disseminations, often present along fracture planes and joints. Subtle weakly contorted or folded pseudolaminations can however be distinguished, and petrographic examinations confirms that these are well laminated sheared sediments and deformed, composed of fine-grained quartz, sericite, biotite, carbonaceous material (non-crystalline graphite), and various accessory minerals (see sample 1507 - Appendix 6). Further south, the sediments appear to become more quartz-rich, and are transitional into a quartz-sericite-carbonate schist commonly associated with the Empress Structure. Several late and narrow mafic to felsic dykes also occur thoughout the stripped area and are both conformable and non-conformable to stratigraphy.

The Empress Structure at Stripped Area 9+00E appears more "spread out" then that observed at the previously described locations. Strong shearing is more local and discrete, the intensity of alteration and mineralization is much weaker, and quartz veins are nearly absent. Fourty one (41) channel samples and two (2) grab samples were collected from the area. Geochemically anomalous gold assays are common (>5 ppb), but the significant values (>100 ppb) are isolated and scattered across a 23 m wide interval. The best assays were obtained from an interval of sediment to quartz-sericite-carbonate schist located near the zone of most intense deformation, in the north portion of the stripped area. Several assays taken across and along a 3 m-wide zone varied from 190 ppb to values as high as 3.10 g/t Au over 0.80 m. The rocks are moderately silicified and carbonatized, oxidized, contain minor irregular quartz-stringers, and contain 1-2% pyrite stringers, seams and blebs, and possible traces of chalcopyrite.

The next highest assays were collected from similar rocks located 12 m further south, with values of 2.74 g/t Au over 0.40 m. This horizon is strongly oxidized, gossanous, and presents similar characteristics to "caliche"; A polished-thin section from grab sample 1914 (3.12 g/t Au) indicates the presence of various rock fragments contained within a matrix of oxy-hydroxide, accompanied by sphalerite, chalcopyrite, galena, magnetite, pyrite, and molybdenite (see Appendix 6).

7.1-7 Area 10+75E

An area approximately 2 to 8 m wide x 40 m across was stripped in the vicinity of 10+75E/0+75S. A few old trenches are found in the area, and a quartz vein partially exposed in a stream bed was noted to contain pyrite, and traces of chalcopyrite and galena (see Map 6 - sample 1370).

The area is underlain by rocks very similar to those found at Stripped Area 9+00E, but the intensity of deformation, alteration, and mineralization are much more significant. The mafic rocks exposed in the north portion of the excavated area are difficult to interpret, since they are variously sheared and altered (silicified to sericitized), and present characteristics which appear both intrusive and extrusive. In the south portion of the area, the distinction between the units is easier, and pillows moderately stretched can be distinguished; Pillow shapes, packing and the distribution of vesicles clearly indicated top direction to the south.

The central portion of the stripped area, thought to represent the core of the Empress Structure, is rubbly and oxidized, and displays strong shearing over a width of at least 18 m. It consists mainly of strongly silicified to sericitized and carbonatized rocks, accompanied by minor quartz veining, and up to 5% pyrite blebs, seams, and fine disseminations. The protolith may have been mafic to intermediate in composition, but the rock now consists essentially of a quartz-sericite schist of uncertain origin (map unit 3s). Pseudolaminations are common, and one interval about 2 m wide appears graphitic, and probably relates to the graphitic argillite observed near the north end of Stripped Area 9+00E.

A total of 33 channel samples and two grab samples were collected. A 12 m wide section characterized by 2-5% pyrite and pervasive quartz stringers and minor quartz veins (<40 cm) assayed consistently above 100 ppb Au at the center of the stripped area, within the quartz-sericite schist. The best assays returned 1.16 and 0.42 g/t Au for an average of 0.79 g/t over 0.7 m in sample EMP99C-1555.

7.1-8 Area 15+00E

Stripped Area 15+00E extends from 1+80S to 2+45S, covering an area approximately 6 m wide by 65 m across. The site was selected because it corresponds with at least two lineaments or ravines which line-up fairly well with the extrapolated position of the Empress Structure, last observed near line L11+00E (see Map 7). The area is underlain predominantly by mafic volcanic rocks and minor sediments, and the deformation and alteration normally associated with the Empress Structure is still present, although considerably diminished in intensity and mineralization.

The mafic vocanic rocks are well pillowed and vesicular, and this represents the best exposure of such textures so far observed on the property. The pillows measure up to 1.5 m across, are moderately stretched, but clearly indicate flow top directions towards the south. Some autobrecciation textures (flow brecciation/flow tube breccias) are also noted near 2+05S. These rocks appear weakly deformed, but locally show signs of moderate deformation and alteration (silicification, sericitization, minor epidote), as expressed by weak crenulations and folding, and abundant narrow quartz stringers, most particularly in the vicinity of a small lineament near 1+95S.

The sediments occur as a 15 m wide horizon located in a deep topographic depression and along the north-facing slope of a deep ravine which stretches towards Christie Lake. These rocks show various shades or brown, beige, and grey, are fine-grained and siliceous, and display lapilli-size fragments which are thought to represent dismembered beds which resulted from the intense shearing and deformation which occured along this structure. This is further evidenced by the presence of boudinaged to dislocated quartz stringers, many of which are folded and partially rotated. The rocks are also intricately "braided" with the mafic volcanics near 2+35S, suggesting interflow sediments subjected to considerable deformation. Petrographic examination by Dr. Schandl of three samples from the area (EMP99C-1600, 1605, and 1605A) confirm that these rocks are sheared and altered, and are mainly composed of quartz and biotite (see Appendix 6).

The presence of at least two structures accompanied by various dykes (mafic to felsic in composition) and considerable deformation and alteration is noted at Stripped Area 15+00E. However, very little sulphide mineralization was noted, and 31 channel samples and 3 grab samples have indicated no significant gold anomalies; The highest assay yielded 15 ppb Au over 0.65 m (sample EMP99C-1578).

7.2 The Empress Structure

To date, the most important zone of mineralization and alteration found on the Empress Project occurs along the **Empress Structure**. Surface stripping and trenching by CGI has exposed the zone at various locations beginning from the western property boundary adjacent to the old Empress Mine (L0), and eastward at least up to L15+00E. This structure varies from less than 15 to 25 m in width, and strikes slightly oblique to stratigraphy, at roughly 070 degree azimuth,

Table 4
Significant gold assay results along the Empress Structure (>100 ppb)
1999 Mapping and Surface Stripping Program - Empress Project

	Sample #	Au (g/t)	Au (g/t) (screen assay)	Au (g/t) Average	Width (m) (channel samples)	Weighted Average
0+30W/1+57N	1309	0.535				
(see Map 1)						
Area 1+00E	1207	0.127			1.00	
(see Map 2)	1216	0.320			0.75	
	1222	**2.240**	**1.39**	**1.82**	0.45	
	1228	0.630			0.80	
	1240	0.220			0.85	
	1241	0.620			0.55	
	1242	0.105			0.50	
	1244	0.350			0.65	
	1245	0.160			0.95	
	1254	0.620			0.60	
	1255	0.190			0.80	
	1257	0.100			1.10	
	1260	0.155			0.55	
	1261	0.310			0.60	
	1262	0.330			0.70	
	1409	0.280			1.20	
	1410	0.175			1.40	
	1411	0.150			1.15	0.182 g/t Au over 10.85 m
	1407	0.785	0.87	0.83	0.90	
	1408	0.800	0.83	0.82	1.20	0.86 g/t Au over 2.10 m

	Sample #	Au (g/t)	Au (g/t) (screen assay)	Au (g/t) Average	Width (m) (channel samples)	Weighted Average
	1303	**66.930**	**42.43**	**54.68**		
	1917	0.360				
	1918	**1.500**				
1+65E/0+95N (see Map 1)	1359	**1.810**				
Area 2+50E	1293	0.295			0.30	
(see Map 3)	1294	0.725			1.10	0.633 g/t Au over 1.40 m
	1389	0.195				
3+00E/0+82N (see Map 1)	1909	0.170				
Area 6+00E	1417	0.475			0.70	
(see Map 4)	1418	0.205			0.60	
	1426	0.540			0.65	
	1427	**1.780**			0.90	
	1428	**1.160**	**1.00**	**1.08**	0.90	
	1431	0.240			0.70	
	1432	0.180			0.85	
	1433	0.160			0.80	
	1438	**1.990**			0.90	
	1440	**1.270**			0.65	
	1441	0.610			1.05	
	1442	**2.440**			0.95	

Sample #	Au (g/t)	Au (g/t) (screen assay)	Au (g/t) Average	Width (m) (channel samples)	Weighted Average
1443	0.360			1.10	
1445	0.380			0.30	
1446	0.285			0.40	
1451	0.210			1.10	
1452	0.110			0.50	
1455	0.705			0.70	
1456	0.140			0.85	
1457	0.415			0.70	
1458	0.200			1.00	
1459	0.790			0.70	
1461	0.450			0.25	
1462	0.170	0.35	0.26	0.90	
1463	**3.740**			0.80	
1464	**3.330**			0.30	
1465	**9.910**	**11.59**	**10.75**	0.80	
1466	**2.530**			0.90	5.31 g/t Au over 2.80 m
1468	0.515			0.90	
1469	**2.000**			0.30	
1474	0.840			1.00	
1315	**4.730**				
1316	0.860				
1317	0.315				
1318	0.100				
1320	**3.720**				
1321	0.465				
1322	**15.020**	**16.01**	**15.52**		
1323	**2.860**				
1326	**2.560**				

	Sample #	Au (g/t)	Au (g/t) (screen assay)	Au (g/t) Average	Width (m) (channel samples)	Weighted Average
	1327	**4.490**				
	1328	**5.730**				
6+45E/0+20N	1915	**1.200**				
(see Map 1)	1916	0.115				
Area 9+00E	1505	0.100			0.90	
(see Map 5b)	1509	0.190			0.60	
	1510	0.740			0.80	
	1511	**1.710**			0.65	
	1512	0.950			0.75	
	1513	**3.310**			0.80	
	1514	0.305			0.35	
	1515	0.190			1.00	
	1516	0.885			0.35	
	1518	0.510			0.70	
	1524	0.165			0.50	
	1528	**2.740**			0.40	
	1529	0.215			0.25	
	1530	0.200			0.60	
	1914	**3.120**				
9+40E/0+25S	1341	0.605				
(see Map 1)						
Area 10+75E	1553	0.340			0.80	
(see Map 6)	1555	**1.160**	**0.42**	**0.79**	0.70	
	1556	0.360			1.25	

Sample #	Au (g/t)	Au (g/t) (screen assay)	Au (g/t) Average	Width (m) (channel samples)	Weighted Average
1557	0.205			0.85	
1558	0.180			1.20	
1559	0.180			1.05	
1560	0.325			0.75	
1561	0.100			0.55	
1562	0.190			0.80	
1563	0.170	0.26	0.22	1.00	
1568	0.140			0.75	

Area 15+00E no significant assays
(see Map 7)

OTHER AREAS:
(see Map 1)

	Sample #	Au (g/t)
Creek Showing	1345	0.300
	1346	0.185
	1347	0.245
Zlatco Showing	1701	**6.700**
	1703	**2.300**

Note: Absence of "sample width" indicates the assay results were obtained from a grab sample.

Table 5: Pulp metallic gold assay results on selective samples - Empress Project.

Sample No.	Au g/t (-150 mesh)	Au mg (+150 mesh)	Weight grams (-150 mesh)	Weight grams (+150 mesh)	Au Tot. g/t (Screen assay)	Au g/t (Initial assay)	Au g/t (Average)	% variation*
EMP99C-1214	<0.07	<0.002	979	21.37	<0.07	0.050	0.050	Nil
EMP99C-1222	1.30	0.120	949	25.66	1.39	2.240	1.815	-37.9
EMP99C-1407	0.89	0.006	961	23.55	0.87	0.785	0.828	10.8
EMP99C-1408	0.79	0.063	965	24.55	0.83	0.800	0.815	3.7
EMP99C-1428	1.03	0.007	983	36.21	1.00	1.160	1.080	-13.8
EMP99C-1462	0.27	0.090	954	29.27	0.35	0.170	0.260	105.9
EMP99C-1465	10.29	1.698	967	38.27	11.59	9.900	10.745	17.1
EMP99C-1555	0.41	0.022	970	32.95	0.42	1.160	0.790	-63.8
EMP99C-1563	0.27	<0.002	973	31.11	0.26	0.170	0.215	52.9
EMP99C-1564	0.07	<0.002	947	32.22	0.07	0.030	0.050	133.3
EMP99x-1303	23.35	19.883	988	24.33	42.43	66.930	54.680	-36.6
EMP99x-1322	14.57	1.672	964	17.69	16.01	15.020	15.515	6.6
				Aver. 1:	6.3	8.2	7.2	-23.6
				Aver. 2:	3.0	2.9	2.9	4.1

* % variation between screen assay and initial assay.
Note: Aver. 2 excludes sample 1303.

dipping variably to the south at 90 to less than 50 degrees. It is hosted at its core, by a peculiar "pseudolaminated" quartz-sericite schist of uncertain origin, which probably resulted from the alteration and deformation of clastic to chemical interflow sediments. The zone is bordered in the north by a ±graphitic quartz-sericite schist which can be followed eastward past L11+00E. Identifiable clastic sediments, moderately deformed, are also found discontinuously along the southern edge of the zone, from L1+00E to L6+00E. Mafic volcanic to mafic intrusive rocks confine the deformation zone to the north and south, and also occur as "slivers" within the deformation corridor. Variably altered and deformed gabbroic to dioritic dykes, lamprophyres, and felsite dykes are also common within the structural zone. In the east, near L15+00E, mafic volcanic rocks are more important, and the sedimentary rocks appear to narrow down; On surface, alteration, deformation, and mineralization also decreases in this area, perhaps as an indication of a steeper plunge towards the southeast.

The **alteration** within the Empress Structure includes mainly silicification, sericitization, weak to moderate carbonatization, and to a much lesser extent biotitization, chloritization, and probably weak albitization locally. The intensity of the silicification and sericitization are difficult to evaluate given the uncertain protolith of the quartz-sericite schist. However, silicification is obvious from the amount of quartz veining and stockwork, which occurs along the structure. The veins are semi-translucent and greyish, others are late bull white veins, some are cross-cutting, others are suparallel to the fabric, many are boudinaged, even dismembered and rotated, and they may be found within all rock types, including late dykes. A petrographic study completed by Dr. Eva Schandl, from the University of Toronto, proposes that the quartz-sericite schist was probably derived from sediments, and that much of the quartz and sericite were probably an integral part of the original rock. This would account for the fact that the apparent sericitization increases from weak to strong very abruptly as we move closer towards the deformation zone, most particularly as observed in drill core. However, her study also concludes that i) silicification was the most important and most pervasive alteration observed in the rocks from Empress, and 2) there were more than one episode of silification and deformation. Many of the veins show cavity-filling emplacement such as plumose or comb textures (ie. sample 1919 - Appendix 6), and vuggy veinlets were also observed in drill core. The veins are variously strained or sheared, often show disequilibrium textures, are occasionally accompanied by calcite, albite, hematite, and commonly contain primary fluid inclusions with significant CO_2 contents, all features common in quartz veins of Archean lode gold deposits.

Rock within the Empress Structure are also variably carbonatized, but this is most evident within the mafic volcanic rocks, which often react moderately to 10% HCL; The presence of pervasive iron-carbonate is also inferred from the strong rusty-brown iron-staining observed at most stripped areas. Petrography indicates that the staining is partly related to the presence of oxidized ankerite or Fe-rich dolomite±biotite veins (ie. sample 1358), and hematized pyrite.

The most common **sulphide** found within these rocks is pyrite, accompanied by minor pyrrhotite, chalcopyrite, sphalerite, galena, and molybdenite. Pyrite occurs as fractured anhedral to subhedral disseminations parallel to the rock fabric (up to 15% locally), and as subhedral to euhedral disseminations within the quartz±albite±carbonate veins; Hairthin seams of pyrite infilling microfractures which may cross-cut both the schistosity and some of the quartz veins were not noted in polished-thin sections but were commonly observed in drill core. The pyrite is generally coated by hematite±magnetite, occasionally accompanied by minor biotite±carbonate±sericite.

The chalcopyrite, sphalerite, galena and molybdenite post-date the emplacement of most pyrite, as they are always found within the quartz veins, generally as rims coating and infilling fractures within the pyrite.

CGI has determined that **gold mineralization** occurs along the Empress Structure from L0 to at least L10+75E. The assays range widely from geochemically anomalous (>5ppb) to spectacular values of 66.93 g/t (*see* Appendix 1 and Table 4). Visible gold has been reported from the vicinity of the Empress Mine but none was observed by CGI, and "pulp metallic" assays of selected samples collected during mapping and sampling, indicate that there is little "gold nugget effect"; The gold is generally contained within the fine fraction of the samples, and the reproducibility of the assays is good (see Table 5). The anomalous gold values are well confined within the width of the Empress Structure. A series of semi-contiguous channel samples collected from stripped area 6+00E averaged 5.31 g/t Au over 2.80 m, and generated anomalous values over a total width of 25 m, including several isolated values above 1 g/t (see below). Gold is contained within all lithologies, including the various dykes, but the most elevated assays appear to coincide with intervals of quartz veining, often accompanied by pyrite and traces to <1% chalcopyrite, galena, sphalerite and molybdenite. Petrographic work confirms that at least some of the gold occurs as fine "veinlets" in association with galena, infilling fractured pyrite; Microprobe analysis indicates an electrum composition of the gold, with at least 22 wt% Ag (sample 1409 - Appendix 6). ICP data obtained from historical drill core also confirm a spatial association between Au and Ag (up to 8.07 g/t Au and 93.8 g/t Ag over 0.52 m in ddh87-9), As, Pb, Cu, Mo (up to 65 ppm), and other elements (see Appendix 8).

Notably, elevated gold values are not restricted to quartz veins and their associated base metals. At some locations the quartz veins assayed less than the wallrock (ie. grab samples 1915 and 1916, 115 ppb and 1.20 g/t respectively - Appendix 1), and in other places, samples with only the presence of disseminated pyrite yielded anomalous gold values. Portions of the ICP data also emphasizes this observation, as the anomalous gold zone intersected in drill hole 4410-87-4 does not seem to correlate with any significant base metal enrichment. These factors, the wide distribution of the gold within various lithologies, combined with the intensity of alteration and deformation previously discussed within this report, suggest several compositionally different pulses of gold mineralization, probably over a long period of time.

7.3 The Creek Showing

A new showing was discovered near 5+85W/7+15N, close to a creek which runs southward across the Empress Hill (*see* Map1). Located within a sheared mafic volcanic, the occurrence consists of a highly gossanous and brecciated horizon, approximately 1.5 m wide, highly silicified and carbonatized, accompanied by quartz stockwork, 2-5% disseminated to patchy pyrite, trace chalcopyrite, and finely disseminated magnetite. The area was hand-stripped across 5 m, and a suite of five grab samples were collected (samples EMP99X-1344 to 1348). Three samples provided anomalous values ranging from 185 to 300 ppb Au. The zone appears roughly coincident with a 2 km long "siliceous graphitic iron formation" previously indicated on geological government Map 2107 (Walker 1967), but the lateral extension of this horizon was not observed anywhere else on the property (*see* Figure 3).

7.4 The Zlatco Showing

Two significant gold assays were obtained from grab samples collected by CGI in the vicinity of very old trenches located on the west grid of the property, near 12+45W/5+75N (see Map 1). One sample collected from a mafic volcanic containing 50% quartz stringers, and 2-4% disseminated to stringer pyrite with trace chalcopyrite, returned 6.7 g/t Au (sample EMP99X-1701). Another sample (EMP99X-1703) taken from a schistose and weakly silicified mafic rock containing only 1% pyrite and trace chalcopyrite assayed 2.3 g/t Au. This showing is significant in that it may potentially represent the on-strike extension of the Empress Structure, 900 metres to the west of the Empress Mine.

7.5 Mineralization in Historical Drill Core

In 1984 and 1987, Micham Exploration completed 22 drill holes (3200 m) on Empress and in proximity of the Empress Mine. Fourteen of those (2157 m) were collared within the south portion of the current claim block, and were aimed at further testing the Empress Structure. CGI has relogged over 1800 m of this core (12 holes), and all significantly altered and/or mineralized intersections were resampled, by "quartering" the BQ-size core (see section 1.6-2).

The drilling has tested the Empress Structure for a distance of approximately 600 m, from west of the mine and east up to approximately 4+50E. The longest hole and deepest intersection of the Empress Structure was ddh 4410-87-5, at 225 m vertical-depth, with a total length of 307 m. Most holes however, were shallow and intersected the main mineralized zone at less than 100 m vertical depth.

The core indicates significant deformation, alteration, and sulphidization, consistant with the observations made on surface within the stripped areas. The zone however, was systematically intersected further southward than previously expected; This suggests that the Empress Structure is either very shallow dipping and/or that folding is more significant than expected, or it may simply relate to differences (10 to 20? m) between topographic elevations at the trenching areas versus the elevations at the collar locations.

Significantly anomalous gold values (>100 ppb) were obtained in all drill holes except for 87-5, over core lengths ranging from 3 m to 41 m (*see* Table 7). The best gold intersection, located around 0+50E at 25 m vertical-depth in drill hole 84-7, averages 480 ppb over 41 m, including 2.53 g/t Au over 7.62 m. Notably, the same intersection reported by Micham Exploration in 1984 averages 1.52 g/t Au over 7.62 m, representing 40% less than CGI's results (see Table 8); This discrepancy is discomforting but considered statistically non-significant at this point, when taking into consideration the small size of the samples collected by CGI, and the added difficulty of properly sampling highly fractured core. Hole 84-8 also undercut this zone at 50 m vertical-depth (from the same collar), and generated a historical isolated assay of 44 g/t Au over 0.6 m., but the section of interest is missing from the core library and could not be examined or resampled. The zone was further undercut at 60 m and 100 m vertical-depth by drill holes 87-1 and 87-2 respectively, with relatively less encouraging results (see Table 7). Further to the east, in the vicinity of 2+50E, an intersection of 8.07 g/t Au over 0.52 m was obtained at 65 m vertical-depth in drill hole 87-9, followed by 2.23 g/t over 0.6 m at 98 m vertical-depth in hole 87-10. Although all intersections are sub-economic, the gold assay results have indicated that the main zone thought to correlate with the Empress Structure as observed on surface carries geochemically significant anomalous values over considerable widths and at depth, in nearly all drill holes. This further confirms the auriferous continuity of the Empress Structure.

The ICP data illustrates the spatial association of Au to Cu-Pb-Zn-As, Mo and other elements (see Appendix 8), and this is consistent with the base-metal minerals noted in the core. Notably, several subsidiary structures have been intersected in drill core, with similar alteration and deformation to the main structure, but these are accompanied by lesser amounts of sulphides and quartz veining. So far, none of these zones carried anomalous gold, but the presence of weakly elevated pathfinder elements (ie. Pb) opens the possibility for additional auriferous intersections along strike or at depth. These observations are preliminary, and further manipulation of the data is required.

Table 7.
ANOMALOUS GOLD INTERSECTIONS CORRELATING WITH THE EMPRESS STRUCTURE
(Results from CGI sampling program of drill core recovered by Micham Exploration in 1984 and 1987)*
Empress Project

	DDH 441-84-7					*DDH 4410-87-1*					*DDH 4401-87-2*				
Approx. location of intersection across structure	Sample	From (ft)	To (ft)	Interval (ft)	Au g/t	Sample	From (ft)	To (ft)	Interval (ft)	Au g/t	Sample	From (ft)	To (ft)	Interval (ft)	Au g/t
L0+50E:	84-7-132	48.00	53.00	5.00	**0.130**	87-1-028	254.00	256.00	2.00	0.050	87-2-108	362.70	365.00	2.30	0.010
	84-7-133	53.00	58.00	5.00	0.010	87-1-029	256.00	261.00	5.00	0.025	87-2-109	365.00	370.00	5.00	<0.005
	84-7-134	58.00	61.40	3.40	0.005	87-1-030	261.00	265.90	4.90	**0.130**	87-2-110	370.00	373.40	3.40	0.060
	84-7-135	61.40	65.00	3.60	0.030	87-1-031	265.90	269.80	3.90	**2.470**	87-2-111	373.40	375.75	2.35	0.015
	84-7-136	65.00	70.00	5.00	0.035	87-1-032	269.80	272.55	2.75	0.040	87-2-112	375.75	378.85	3.10	0.025
	84-7-137	70.00	75.00	5.00	<0.005	87-1-033	272.55	276.00	3.45	**0.805**	87-2-113	378.85	382.15	3.30	**0.110**
	84-7-138	75.00	80.00	5.00	<0.005	87-1-034	276.00	278.55	2.55	**0.405**	87-2-114	382.15	385.55	3.40	0.035
	84-7-139	80.00	85.00	5.00	<0.005	87-1-035	278.55	280.15	1.60	**0.135**	87-2-115	385.55	388.40	2.85	**0.195**
	84-7-140	85.00	87.50	2.50	0.035	87-1-036	280.15	283.15	3.00	**1.105**	87-2-116	388.40	391.20	2.80	**1.230**
	84-7-141	87.50	90.00	2.50	**0.345**	87-1-037	283.15	286.00	2.85	**0.140**	87-2-117	391.20	395.00	3.80	<0.005
	84-7-142	90.00	92.00	2.00	<0.005	87-1-038	286.00	290.45	4.45	0.090	87-2-118	395.00	400.00	5.00	0.020
	84-7-143	92.00	97.00	5.00	0.090	87-1-039	290.45	292.60	2.15	0.075					
	84-7-144	97.00	102.00	5.00	0.080	87-1-040	292.60	294.60	2.00	**0.380**					
	84-7-145	102.00	107.00	5.00	0.045	87-1-041	294.60	298.30	3.70	**0.530**					
	84-7-146	107.00	112.00	5.00	0.030	87-1-042	298.30	300.10	1.80	**0.265**					
	84-7-147	112.00	117.00	5.00	0.015	87-1-043	300.10	302.30	2.20	**0.110**					
	84-7-148	*117.00*	*122.00*	*5.00*	***0.250***	*87-1-044*	*302.30*	*304.80*	*2.50*	*0.055*					
	84-7-149	122.00	126.70	4.70	**0.110**	87-1-045	304.80	309.80	5.00	**0.215**					
	84-7-150	126.70	127.50	0.80	**0.185**	87-1-046	309.80	313.65	3.85	0.015					
	84-7-151	127.50	129.00	1.50	**0.305**										
	84-7-152	129.00	130.40	1.40	**0.215**										
	84-7-153	130.40	135.00	4.60	**7.090**										
	84-7-154	135.00	142.00	7.00	**4.010**										
	84-7-155	142.00	144.00	2.00	0.085										
	84-7-156	144.00	145.50	1.50	**0.170**										
	84-7-157	145.50	149.00	3.50	0.030										
	84-7-158	149.00	155.30	6.30	0.005										
	84-7-159	155.30	161.00	5.70	0.015										
	84-7-160	161.00	164.40	3.40	0.090										
	84-7-161	164.40	170.00	5.60	<0.005										
	84-7-162	170.00	176.00	6.00	<0.005										
	84-7-163	176.00	179.40	3.40	0.005										
	84-7-164	179.40	184.10	4.70	0.015										

	DDH 4410-87-3					DDH 4410-87-4					DDH 4410-87-5				
	Sample	From (ft)	To (ft)	Interval (ft)	Au g/t	Sample	From (ft)	To (ft)	Interval (ft)	Au g/t	Sample	From (ft)	To (ft)	Interval (ft)	Au g/t
L1+50E:	87-3-211	368.30	372.40	4.10	0.025	87-4-256	426.00	431.00	5.00	0.020	87-5-342	808.15	813.20	5.05	0.025
	87-3-212	372.40	375.60	3.20	0.020	87-4-257	431.00	433.50	2.50	**0.190**	87-5-343	813.20	816.50	3.30	<0.005
	87-3-213	375.60	380.60	5.00	0.055	87-4-258	433.50	435.15	1.65	<0.005	87-5-344	816.50	818.10	1.60	0.010
	87-3-214	380.60	384.60	4.00	0.080	87-4-259	435.15	438.80	3.65	0.010					
	87-3-215	384.60	386.45	1.85	0.005	87-4-260	438.80	442.60	3.80	<0.005					
	87-3-216	386.45	390.85	4.40	0.045	87-4-261	442.60	447.30	4.70	0.045					
	87-3-217	390.85	394.90	4.05	**0.145**	87-4-262	447.30	449.95	2.65	0.060					
	87-3-218	394.90	396.85	1.95	**0.140**	87-4-263	449.95	453.20	3.25	**0.135**					
	87-3-219	396.85	400.85	4.00	0.070	87-4-264	453.20	455.55	2.35	0.040					
	87-3-220	400.85	403.30	2.45	0.160	87-4-265	455.55	458.50	2.95	**0.170**					
	87-3-221	403.30	405.00	1.70	<0.005	87-4-266	458.50	462.25	3.75	0.015					
	87-3-222	405.00	409.20	4.20	<0.005	87-4-267	462.25	466.00	3.75	0.080					
	87-3-223	409.20	414.30	5.10	0.055	87-4-268	466.00	470.15	4.15	0.020					
	87-3-224	414.30	419.05	4.75	0.015	87-4-269	470.15	473.50	3.35	0.045					
	87-3-225	419.05	423.35	4.30	0.020	87-4-270	473.50	475.40	1.90	0.005					
	87-3-226	423.35	426.00	2.65	**0.225**	87-4-271	475.40	477.40	2.00	**3.150**					
	87-3-227	426.00	428.00	2.00	0.015	87-4-272	477.40	482.30	4.90	0.025					
	87-3-228	428.00	432.85	4.85	0.040	87-4-273	482.30	486.00	3.70	**0.110**					
	87-3-229	432.85	435.00	2.15	<0.005	87-4-274	486.00	491.00	5.00	**0.395**					
	87-3-230	435.00	439.40	4.40	**0.170**	87-4-275	491.00	496.00	5.00	0.050					
	87-3-231	439.40	443.60	4.20	0.010	87-4-276	496.00	499.70	3.70	0.020					
	87-3-232	443.60	445.50	1.90	0.020	87-4-277	499.70	505.15	5.45	0.040					
	87-3-233	445.50	450.50	5.00	<0.005	87-4-278	505.15	508.60	3.45	0.060					
	87-3-234	450.50	454.35	3.85	0.075	87-4-279	508.60	512.75	4.15	0.030					
	87-3-235	454.35	459.70	5.35	0.015	87-4-280	512.75	516.50	3.75	0.010					

	DDH 4410-87-9					DDH 4410-87-10				
	Sample	From (ft)	To (ft)	Interval (ft)	Au g/t	Sample	From (ft)	To (ft)	Interval (ft)	Au g/t
L2+50E:	87-9-361	260.55	263.50	2.95	0.035	87-10-400	350.10	354.00	3.90	0.075
	87-9-362	285.00	289.25	4.25	0.020	87-10-401	354.00	356.00	2.00	**2.230**
	87-9-363	289.25	290.90	1.65	0.045	87-10-402	356.00	361.95	5.95	0.080
	87-9-364	290.90	292.60	1.70	**8.070**	87-10-403	361.95	366.20	4.25	0.020
	87-9-365	292.60	295.85	3.25	**0.145**	87-10-404	366.20	371.50	5.30	0.010
	87-9-366	295.85	299.50	3.65	0.035	87-10-405	371.50	374.30	2.80	0.030
	87-9-367	299.50	304.60	5.10	0.005	87-10-406	374.30	378.65	4.35	0.020
	87-9-368	304.60	307.50	2.90	<0.005	87-10-407	378.65	383.20	4.55	0.010
	87-9-369	307.50	312.00	4.50	0.050					
	87-9-370	312.00	318.00	6.00	<0.005					
	87-9-371	318.00	323.10	5.10	0.010					
	87-9-372	323.10	325.75	2.65	0.010					

	DDH 4410-87-7					DDH 4410-87-8				
	Sample	From (ft)	To (ft)	Interval (ft)	Au g/t	Sample	From (ft)	To (ft)	Interval (ft)	Au g/t
L3+40E:	87-7-482	263.05	266.70	3.65	**0.360**	87-8-509	378.55	383.20	4.65	**0.180**
	87-7-483	266.70	270.35	3.65	0.035	87-8-510	383.20	385.45	2.25	**1.075**
	87-7-484	270.35	276.00	5.65	0.025	87-8-511	385.45	389.45	4.00	**0.250**
	87-7-485	276.00	280.25	4.25	0.050	87-8-512	389.45	392.65	3.20	0.020
	87-7-486	280.25	284.00	3.75	0.025	87-8-513	392.65	394.15	1.50	<0.005
	87-7-487	284.00	288.95	4.95	**0.260**	87-8-514	394.15	397.45	3.30	0.025
	87-7-488	288.95	293.85	4.90	0.085	87-8-515	397.45	403.00	5.55	0.015
	87-7-489	293.85	297.70	3.85	**0.450**	87-8-516	403.00	407.00	4.00	0.020
	87-7-490	297.70	302.00	4.30	**0.100**	87-8-517	407.00	411.15	4.15	**0.105**
	87-7-491	302.00	306.00	4.00	0.015	87-8-518	411.15	414.95	3.80	0.045
	87-7-492	306.00	308.65	2.65	0.020	87-8-519	414.95	418.80	3.85	0.010
	87-7-493	308.65	313.40	4.75	0.030					

	DDH 4410-87-6				
	Sample	From (ft)	To (ft)	Interval (ft)	Au g/t
L4+60E:	87-6-442	336.60	339.25	2.65	0.010
	87-6-443	339.25	344.50	5.25	<0.005
	87-6-444	344.50	350.20	5.70	<0.005
	87-6-445	350.20	355.00	4.80	0.015
	87-6-446	355.00	360.00	5.00	0.010
	87-6-447	360.00	365.00	5.00	0.030
	87-6-448	365.00	370.00	5.00	0.075
	87-6-449	370.00	374.90	4.90	0.035
	87-6-450	374.90	380.00	5.10	<0.005
	87-6-451	380.00	384.50	4.50	<0.005
	87-6-452	384.50	389.20	4.70	<0.005
	87-6-453	389.20	393.00	3.80	<0.005
	87-6-454	393.00	397.15	4.15	0.060
	87-6-455	397.15	402.20	5.05	0.015
	87-6-456	402.20	404.70	2.50	**0.105**
	87-6-457	404.70	409.00	4.30	0.050
	87-6-458	409.00	413.10	4.10	**0.150**
	87-6-459	413.10	418.90	5.80	0.030
	87-6-460	418.90	421.15	2.25	0.005
	87-6-461	421.15	425.55	4.40	**0.945**
	87-6-462	425.55	430.50	4.95	**0.195**
	87-6-463	430.50	435.20	4.70	0.050
	87-6-464	435.20	440.00	4.80	0.020

* See Map 1 for collar location and vertically projected drill trace.

TABLE 8.
Comparaison of CGI vrs Micham Exploration gold assay results from ddh 441-84-7
Empress Project

SAMPLE	FROM (ft)	To (ft)	INTERVAL (ft)	CAMECO Au g/tonne	MICHAM Au g/tonne
84-7-129	36.00	41.00	5.00	0.040	N.A.
84-7-130	41.00	43.00	2.00	0.020	0.007
84-7-131	43.00	48.00	5.00	<0.005	N.A.
84-7-132	48.00	53.00	5.00	**0.130**	**0.163**
84-7-133	53.00	58.00	5.00	0.010	0.029
84-7-134	58.00	61.40	3.40	0.005	0.008
84-7-135	61.40	65.00	3.60	0.030	0.030
84-7-136	65.00	70.00	5.00	0.035	0.034
84-7-137	70.00	75.00	5.00	<0.005	0.007
84-7-138	75.00	80.00	5.00	<0.005	0.002
84-7-139	80.00	85.00	5.00	<0.005	0.002
84-7-140	85.00	87.50	2.50	0.035	0.034
84-7-141	87.50	90.00	2.50	**0.345**	**0.588**
84-7-142	90.00	92.00	2.00	<0.005	0.008
84-7-143	92.00	97.00	5.00	0.090	**0.155**
84-7-144	97.00	102.00	5.00	0.080	**0.123**
84-7-145	102.00	107.00	5.00	0.045	0.062
84-7-146	107.00	112.00	5.00	0.030	0.022
84-7-147	112.00	117.00	5.00	0.015	0.010
84-7-148	117.00	122.00	5.00	**0.250**	**2.126**
84-7-149	122.00	126.70	4.70	**0.110**	**0.301**
84-7-150	126.70	127.50	0.80	**0.185**	**0.130**
84-7-151	127.50	129.00	1.50	**0.305**	**0.201**
84-7-152	129.00	130.40	1.40	**0.215**	**0.269**
84-7-153	130.40	135.00	4.60	**7.090**	**4.594**
84-7-154	135.00	142.00	7.00	**4.010**	**0.566**
84-7-155	142.00	144.00	2.00	0.085	0.020
84-7-156	144.00	145.50	1.50	**0.170**	**0.111**
84-7-157	145.50	149.00	3.50	0.030	**0.383**
84-7-158	149.00	154.00	5.00	0.005	0.007
84-7-158	154.00	155.30	1.30	0.005	0.005
84-7-159	155.30	156.00	0.70	0.015	0.005
84-7-159	156.00	161.00	5.00	0.015	0.020
84-7-160	161.00	164.40	3.40	0.090	0.022
84-7-161	164.40	170.00	5.60	<0.005	0.004
84-7-162	170.00	176.00	6.00	<0.005	0.007
84-7-163	176.00	179.40	3.40	0.005	0.022
84-7-164	179.40	184.10	4.70	0.015	0.015
84-7-165	184.10	189.00	4.90	<0.005	N.A.
84-7-166	189.00	192.00	3.00	<0.005	N.A.
84-7-167	192.00	193.40	1.40	<0.005	0.003
84-7-168	193.40	198.00	4.60	<0.005	N.A.
84-7-169	198.00	203.00	5.00	<0.005	N.A.
84-7-170	203.00	207.00	4.00	<0.005	N.A.
84-7-171	207.00	210.90	3.90	<0.005	N.A.
84-7-172	220.00	225.20	5.20	<0.005	N.A.
84-7-173	225.20	230.00	4.80	0.020	N.A.
			Aver.	0.288	0.215

8.0 CONCLUSIONS

In 1999, CGI has conducted a multidiciplinary gold exploration program mainly directed on the southern portion of the Empress property. A major deformation corridor of historical economic significance referred to as the "Empress Structure" extends across the property, and represented the main focus of this exploration program. The program consisted of linecutting, groundmagnetics, IP, mapping, stripping and trenching, lithogeochemical sampling, channel sampling, core relogging, and petrographic work.

Past and current surveys have determined that the study area is predominantly underlain by massive to pillowed mafic volcanic rocks and minor interflow sediments, which generally trend east-northeasterly, with top direction to the south. These supracrustal rocks are intruded to the north by a large synvolcanic gabbroic to dioritic intrusion, and are intruded to the south by late Archean granitic rocks related to the Terrace Bay batholith. All rock types are cross-cut by Proterozoic diabase dykes which generally trend in a northerly direction.

To date, the **Empress Structure** represents the area of most significant alteration and gold mineralization on the property. CGI's work, in conjunction with previous exploration surveys, allows the writer to draw the following conclusions on the characteristics of the Empress Structure:

i- The structure consists of a deformation corridor approximately 40 to 50 m in width, with the most intense deformation and alteration contained over widths of **approximately 15 to 25 m across**.

ii- CGI carried out stripping and trenching which clearly exposed the structure at various locations across the Empress claim group. The deformation corridor can now be directly observed for **a total length of at least 1.8 km**, extending from the old Empress Mine and eastward beyond L15+00E. The structure extends at roughly 070 degrees, and is offset by cross-faulting in at least one location (L7+00E).

iii- Deformation consists of **moderate to strong shearing, accompanied by locally complex and asymetrical folds**. The dominant schistosity strikes at approximately 070 degrees, with varying dip angles from 90 to less than 50 degrees south. Structural measurements indicate shallow plunging fold axes towards the east to east-northeast, at 34 to less than 18 degrees; This correlates in part with regional structural observations by Walker (1967) and Carter (1988).

iv- The core of the Empress Structure is generally **occupied by a quartz-sericite±biotite±carbonate schist**, bordered to the north and south by mafic volcanic rocks. The presence of pseudolaminations, recognizable sediments in the vicinity of the structure, and petrographic work suggest that these rocks were probably derived from highly altered and deformed clastic to chemical **interflow sediments**.

v- Alteration consists of moderate to strong silicification, sericitization, carbonatization, and to a lesser extent biotization, chloritization, and probably local albitization.

vi- Quartz stockworks, including individual veins over 1 m in width, and gabbroic to dioritic dykes, felsite dykes, lamprophyres, and minor intermediate to felsic porphyry dykelets were emplaced along the structure. They are variably altered, deformed, and mineralized.

vii- Sulphidization consists predominantly of pyrite, which occurs as fine disseminations, seams and stringers, ranging from ,1% to locally 15%. Chalcopyrite, galena, sphalerite and molybdenite are also found in trace amounts, and are generally associated with the quartz veining.

viii- CGI has determined that the Empress Structure can generate significant gold values which are **locally sustained above 100 ppb over widths in excess of 15 m** (ie. Stripped Area 6+00E). Isolated assays have yielded results as high as 66.93 g/t Au in grab samples.

ix- CGI has obtained assays above 1 g/t Au from in-situ bedrock samples as far east as Stripped Area 10+75E; This represents anomalous gold values in association with the Empress Structure further to the east than ever previously recorded, and confirms the **auriferous nature of this horizon over a strike length of at least 1.4 km.**

x- Gold values were obtained from all rock types found within the Empress Structure. The greatest number of anomalous gold values were obtained from the quartz-sericite schist, and the most elevated values are associated with (but not restricted to) pervasive quartz stringers and veins accompanied by traces of base metals. ICP data indicates a general spatial association (although not consistently) between elevated gold values and other elements such as Ag, Cu, Pb, Zn, As, and Mo.

The results of CGI's 1999 exploration program have proven the continuity of a gold system in association with the Empress Structure over a strike length of at least 1.4 km. The emplacement of the gold i)- along a deformation and alteration corridor of considerable length, ii)- and the spatial association of this occurrence in proximity of the Terrace Bay batholith, and iii)- the elemental association of the gold with Mo, As, and various others elements, present similarities to deposits of the Timmins and Hemlo gold camps.

The widespread distribution of the gold across and along strike, its association with various rock types, and the intensity of alteration and deformation along the Empress Structure also suggest several and long-lasting pulses of mineralization, capable of producing a significant ore deposit.

The presence of subparallel structures accompanied by alteration and mineralization have been identified by CGI, and the discovery of two other gold showings in the west portion of the property (the Creek and Zlatco showings) further increase the gold potential of the property.

9.0 RECOMMENDATIONS

The Empress property has several gold anomalies and offers great potential for significant gold mineralization. More exploratory work is therefore recommended at various locations on the Empress property:

i)- A detailed structural study of the stripped areas along the Empress Structure is recommended. This should provide a better understanding of the kinematics involved in the evolution of the structure. Given the considerable length of this deformation zone, the study may help in outlining structural "traps" for hydrothermal fluids which would define specific drill targets most likely of generating ore-grade intersections.

ii)- A review of the lithogeochemical and ICP data should be attempted, in order to outline new potentially auriferous horizons.

iii)- A geological compilation is required, which should include all of the geophysical, geochemical, mapping, and historical diamond drilling data collected by CGI and by previous exploration companies.

iv)- Additional trenching and mapping is also recommended in the vicinity of the Zlatco showing.

v)- The northern portion of the Empress property remains essentially unexplored. Prospecting, reconnaissance mapping and geochemical sampling is recommended, in order to delineate new areas most suitable for detailed exploration work.

vi)- Finally, based on the results of the above recommendations, a follow-up diamond drilling program should be undertaken, focusing primarily on selected targets along the main structure.

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CERTIFICATE OF QUALIFICATIONS

I, Jacques Samson of 806 Denise Street, Timmins, Ontario, do hereby certify that:

1) I hold a Bachelor of Science (Honours) Degree in Geology (1986) from the University of Ottawa, Ottawa, Ontario.

2) I have been practising my profession in Ontario and Quebec since 1986.

3) I have worked for Newmont Exploration of Canada Ltd., Homestake Canada Inc., Major General Resources Ltd., and am presently employed by Cameco Gold Inc.

4) The information contained in this report and accompanying maps is based on my personal observations and direct supervision of the field work, published data, and assessment data contained in the files of the Resident Geologist's Office, Thunder Bay, Ontario.

5) I do not have directly or indirectly, nor do I expect to receive, any interest in the subject property.

Dated this 14th day of December 1999, at Sudbury, Ontario

Jacques Samson, B.Sc.H. (Geology),
Geologist III

Appendix 1

APPENDIX 1.

Sample description and location - 1999 Bedrock mapping

Empress Project

APPENDIX 1
1999 Bedrock Mapping - Sample Description and Location*
Empress Project

SAMPLE NUMBER	EASTING	NORTHING	SAMPLE DESCRIPTION	Au	Au	Au
			(see Map 1 for legend)	g/tonne	g/tonne	g/tonne
					(check assay)	(screen assay)
EMP99x-1301	see Stripped Area 1+00E (Map 2)		3s,Py1%	0.060	-----	
EMP99x-1302	see Stripped Area 1+00E (Map 2)		3s,Qstk,Py<0.5%,Gn Tr	0.065	-----	
EMP99x-1303	see Stripped Area 1+00E (Map 2)		QV,Py1%,Cpy-Gn Tr	>10.00	66.93	42.43
EMP99x-1304	2+00E	0+70N	2au	0.020	-----	
EMP99x-1305	1+75E	1+00N	2t,Gt	0.045	-----	
EMP99x-1306	1+20E	0+88N	3s,SH.3,Ox	0.040	-----	
EMP99x-1307	0+12W	1+20N	2s,SH.3,QStk,Sil.3,Py1%	0.005	-----	
EMP99x-1308	0+10W	1+38N	3s,QStr10-15%,Py<1%,Cpy Tr	0.010	-----	
EMP99x-1309	0+30W	1+57N	QV,Py1-2%,Tr Gn,Cpy	0.535	-----	
EMP99x-1310	0+30W	1+60N	3s	0.030	-----	
EMP99x-1311	0+30W	1+60N	3s	0.020	-----	
EMP99x-1312	0+00	2+00N	2t,Sil.1,Py1%	<0.005	-----	
EMP99x-1313	4+20E	0+10S	3s/10es	<0.005	-----	
EMP99x-1314	0+02N	5+25N	10es,SH.2	<0.005	-----	
EMP99x-1315	see Stripped Area 6+00E (Map 4)		QV,Py1%	4.730	-----	
EMP99x-1316	see Stripped Area 6+00E (Map 4)		3s,QStk,Py<1%	0.860	-----	
EMP99x-1317	see Stripped Area 6+00E (Map 4)		3s,QStk,Py2-3%	0.315	-----	
EMP99x-1318	see Stripped Area 6+00E (Map 4)		3s,	0.100	-----	

SAMPLE NUMBER	EASTING	NORTHING	SAMPLE DESCRIPTION	Au	Au	Au
			(see Map 1 for legend)	g/tonne	g/tonne	g/tonne
					(check assay)	(screen assay)
EMP99x-1319	see Stripped Area 6+00E (Map 4)		Py<0.5%, Cpy Tr	<0.005	-----	
EMP99x-1320	see Stripped Area 6+00E (Map 4)		3s,Py 10-15%	3.720	-----	
EMP99x-1321	see Stripped Area 6+00E (Map 4)		Qv,Py1%,Gn1%	0.465	-----	
EMP99x-1322	see Stripped Area 6+00E (Map 4)		3s,QStk,Py15%	>10.00	15.02	16.01
EMP99x-1323	see Stripped Area 6+00E (Map 4)		Qv,Py2-3%	2.860	-----	
EMP99x-1324	5+95E	2+80N	8c-d	0.020	-----	
EMP99x-1325	6+00E	1+85N	8d	0.030	-----	
EMP99x-1326	6+15E	0+10N	Qv,Py2%,Cpy-Gn Tr	2.560	-----	
EMP99x-1327	6+15E	0+10N	3s,QStk,Py3-5%,Cpy Tr	4.490	-----	
EMP99x-1328	6+15E	0+10N	QStk,Py2-3%,Gn1-2%	5.730	-----	
EMP99x-1329	6+35E	0+15N	3s/10es	0.040	-----	
EMP99x-1330	6+00E	0+10S	2be	0.045	-----	
EMP99x-1331	6+25E	1+75S	2a/8n,Sil.1,SH.1	<0.005	-----	
EMP99x-1332	8+97E	1+92S	2a,SH.2,Py1-2%	<0.005		
EMP99x-1333	8+95E	1+75S	2s/10e,Sil.2-3,Cb,Py,1%	<0.005		
EMP99x-1334	8+00E	1+10S	2a,Sil.1,SH.2	<0.005		
EMP99x-1335	8+10E	0+25S	2s,SH.2,Py1-2%	<0.005		
EMP99x-1336	6+40E	0+02N	2t	0.020		
EMP99x-1337	7+47	0+00N	2af,Ser-Sil.1,SH.2	<0.005		
EMP99x-1338	8+20E	0+08N	10e	<0.005		
EMP99x-1339	8+20E	0+08N	2af,Cb.2	0.005		
EMP99x-1340	9+25E	0+07S	3s,QStk,Py2-3%,Gn	0.045		
EMP99x-1341	9+40E	0+25S	3s/10es	0.605		
EMP99x-1342	9+00E	0+45S	2a,Sil-Ser.1,Cb.1	<0.005		
EMP99x-1343	4+95W	7+30N	2t,SH.2,FD,Mag.1	0.035		

SAMPLE NUMBER	EASTING	NORTHING	SAMPLE DESCRIPTION	Au	Au	Au
			(see Map 1 for legend)	g/tonne	g/tonne	g/tonne
					(check assay)	(screen assay)
EMP99x-1344	see Creek Showing (Map 1)	7+10N	2t,QStr,Py<1%	<0.005		
EMP99x-1345	see Creek Showing (Map 1)	7+11N	2ts,QStr,Py2%	0.300		
EMP99x-1346	see Creek Showing (Map 1)	7+12N	2ts,SH.3/Bx,Ox,Sil.3,Cb,Py3%,Cpy Tr	0.185		
EMP99x-1347	see Creek Showing (Map 1)	7+12N	2ts,SH.3/Bx,Ox,Sil.3,Cb,Py3%,Cpy Tr,Mag.2	0.245		
EMP99x-1348	see Creek Showing (Map 1)	7+15N	2ts,Mag.2,Py2%	<0.005		
EMP99x-1349	6+00W	7+90N	2t,SH.2,Mag.2	<0.005		
EMP99x-1350	0+95W	0+50N	2au/8bu	0.005		
EMP99x-1351	1+03W	0+80N	8n	<0.005		
EMP99x-1352	0+15W	1+05N	2au	<0.005		
EMP99x-1353	0+27W	1+25N	2s,Qstk 10-15%, Py<1%,Cpy Tr	0.010		
EMP99x-1354	0+30W	1+30N	3s,Py2-3%,Cpy Tr	0.080		
EMP99x-1355	0+30W	1+30N	3s,Py2-3%,Cpy Tr	<0.005		
EMP99x-1356	1+05E	0+05S	10c	0.090		
EMP99x-1357	1+50E	0+90N	3s,Py2%	0.030		
EMP99x-1358	1+65E	0+95N	8rs,SH.3	<0.005		
EMP99x-1359	1+65E	0+95N	8rs,Sil.3	1.810		
EMP99x-1360	0+90E	1+12N	2t,Sil,Cb,QStr	0.010		
EMP99x-1361	0+90E	1+12N	2s/3s,Sil,Py1%	0.020		
EMP99x-1362	1+00E	1+90N	2a,SH.1	<0.005		
EMP99x-1363	11+00E	1+72S	8n,Cb,Ox	<0.005		
EMP99x-1364	see Stripped Area 10+75E (Map 6)		3s,QStr,Py1-2%	0.070		
EMP99x-1365	10+97E	0+90S	8rs,SH,Py3-5%	0.005		
EMP99x-1366	10+97E	0+90S	3s/10es,Plam,Py1-2%	<0.005		
EMP99x-1367	10+97E	0+90S	3s,QStk,Py10-15%	0.005		

SAMPLE NUMBER	EASTING	NORTHING	SAMPLE DESCRIPTION	Au	Au	Au
			(see Map 1 for legend)	g/tonne	g/tonne	g/tonne
					(check assay)	(screen assay)
EMP99x-1368	10+97E	0+90S	Qv,Py2%,Gn Tr	0.015		
EMP99x-1369	10+97E	0+90S	2st,Sil.Py3-5%	0.005		
EMP99x-1370	see Stripped Area 10+75E (Map 6)		Qv,Py<12%,Cpy-Gn Tr	0.010		
EMP99x-1371	11+97E	0+20N	8c,fg	0.010		
EMP99x-1372	8+85W	4+50N	2au,SH.1,Mag.2	<0.005		
EMP99x-1373	9+00W	5+70N	2au,SH.2	<0.005		
EMP99x-1374	9+00W	7+15N	2aut	<0.005		
EMP99x-1375	9+00W	7+54N	8n/12e	<0.005		
EMP99x-1376	9+00W	7+46N	8bs	<0.005		
EMP99x-1377	8+00W	6+60N	2t,SH.2	<0.005		
EMP99x-1378	8+00W	4+50N	2t,SH.2,Sil?	<0.005		
EMP99x-1379	8+03W	1+70N	2t/8u,FD	<0.005		
EMP99x-1380	7+97W	1+45N	2s,SH.3	<0.005		
EMP99x-1381	15+00E	1+55S	8c-d	<0.005		
EMP99x-1382	15+00E	1+75S	2b	<0.005		
EMP99x-1383	see Stripped Area 15+00E (Map 7)		2a/8b,QStr,Py1%	<0.005		
EMP99x-1384	see Stripped Area 15+00E (Map 7)		3s/10es	<0.005		
EMP99x-1385	see Stripped Area 15+00E (Map 7)		3s/10es	<0.005		
EMP99x-1386	15+10E	2+03S	6s/3s,Py1%	<0.005		
EMP99x-1387	15+02E	2+15S	2be	<0.005		
EMP99x-1388	15+00E	2+35S	6s/3s	<0.005		
EMP99x-1389	see Stripped Area 2+50E (Map 3)		8s-3s,Qv,Py2-3%	0.195		
EMP99x-1390	0+15W	6+75S	11m-h	<0.005		
EMP99x-1391	2+00E	1+50N	2ae/8bnf,Py2-5%	<0.005		
EMP99x-1392	2+15E	1+18N	2af/8nf	<0.005		

SAMPLE NUMBER	EASTING	NORTHING	SAMPLE DESCRIPTION	Au	Au	Au
			(see Map 1 for legend)	g/tonne	g/tonne	g/tonne
					(check assay)	(screen assay)
EMP99x-1393	2+05E	1+15N	2af/8bn	<0.005		
EMP99x-1394	see Stripped Area 2+50E (Map 3), replica of EMP99C-1280		10es,SH.1	<0.005		
EMP99x-1395	see Stripped Area 2+50E (Map 3), replica of EMP99C-1288		8s,SH,Sil,Cb.3	0.020		
EMP99x-1396	see Stripped Area 2+50E (Map 3), replica of EMP99C-1295		3s,FD.1,Ox,QStr,Py1-2%	0.025		
EMP99x-1397	see Stripped Area 2+50E (Map 3), replica of EMP99C-1299		2s-3s,Sil-Ser.3	<0.005		
EMP99x-1398	see Stripped Area 2+50E (Map 3), partial replica of EMP99C-1401		10ns	<0.005		
EMP99x-1399	see Stripped Area 6+00E (Map 4)		3s,Py5-10%	0.075		
EMP99x-1701	see Zlatco Showing (Map 1)	5+75N	2a,Qstr 50%,Py2-4%,Cpy Tr	6.700		
EMP99x-1702	see Zlatco Showing (Map 1)	5+75N	2a,SH,Py1%,Cpy Tr	0.045		
EMP99x-1703	see Zlatco Showing (Map 1)	5+85N	2a,SH,Sil.1,Py-Cpy Tr	2.300		
EMP99x-1704	11+00W	3+00N	2a-b,Sil.2-3	0.040		

SAMPLE NUMBER	EASTING	NORTHING	SAMPLE DESCRIPTION	Au	Au	Au
			(see Map 1 for legend)	g/tonne	g/tonne	g/tonne
					(check assay)	(screen assay)
EMP99x-1901	see Stripped Area 2+00E (Map 1)		8rs	<0.005		
EMP99x-1902	see Stripped Area 2+00E (Map 1)		3s,Plam,Py1-2%	0.020		
EMP99x-1903	see Stripped Area 2+00E (Map 1)		3s,Plam,Py1-2%,QStk	<0.005		
EMP99x-1904	see Stripped Area 2+00E (Map 1)		2s,SH.2-3,QStr,Py<1%	<0.005		
EMP99x-1905	see Stripped Area 2+00E (Map 1)		2s-8s,Py1%	<0.005		
EMP99x-1906	2+00E	3+47N	8c,mg	<0.005		
EMP99x-1907	3+00E	3+40N	8c,mg	<0.005		
EMP99x-1908	2+95E	3+15N	8d,Py3-5%	<0.005		
EMP99x-1909	3+00E	0+82N	8rs,Py5%	0.170		
EMP99x-1910	3+00E	0+30N	3s/10s	<0.005		
EMP99x-1911	see Stripped Area 9+00E (Map 5b)		2s,SH/FD.2,Ser-Cb.2	0.015		
EMP99x-1912	8+10E	0+90N	2s,SH.2/FD,Sil.2,Mag	0.040		
EMP99x-1913	15+00E	0+77S	8c,Mag.2,Py1-2%	<0.005		
EMP99x-1914	see Stripped Area 9+00E (Map 5b)		3s-2s,SH.3,Ox,Py,Sph,Cpy,Gn	3.120		
EMP99x-1915	6+45E	0+20N	2s,Sil,QV	1.200		
EMP99x-1916	6+45E	0+20N	2s,Sil,QV	0.115		
EMP99x-1917	see Stripped Area 1+00E (Map 2), 3m east of EMP99C-1219		3s,QStk,Py15-20%	0.360		
EMP99x-1918	see Stripped Area 1+00E (Map 2)		3s,QStk,Ox,Py5%	1.500		

SAMPLE NUMBER	EASTING	NORTHING	SAMPLE DESCRIPTION	Au	Au	Au
			(see Map 1 for legend)	g/tonne	g/tonne	g/tonne
					(check assay)	(screen assay)
EMP99x-1919	see Stripped Area 1+00E (Map 2)		7g,SH.3,FD	0.010		
EMP99x-1920	see Stripped Area 1+00E (Map 2), 1.5m east of EMP99C-1408		11r,SH.3,FD	0.010		
EMP99x-1921	7+00W	2+54N	8c,fg,Mag.2,SH.1	0.005		
EMP99x-1922	7+00W	4+10N	8b/2a	0.020		
EMP99x-1923	1+85E	2+60N	11h-b	0.015		
EMP99x-1924	2+00E	3+70S	11h,fg,Mag.2	0.015		
EMP99x-1925	10+00W	2+25N	11k	0.010		
EMP99x-1926	2+00E	3+50S	11h,fg,Mag.2	<0.005		
EMP99x-1927	2+00E	4+10S	11b,mg	<0.005		
* See Map 1 to 7						

Appendix 2

APPENDIX 2.

Whole-Rock Geochemistry - 1999 Mapping and channel sampling program

Empress Project

APPENDIX 2
Whole-Rock Geochemistry - 1999 Mapping and Channel Sampling
Empress Project

SAMPLE NUMBER	EASTING	NORTHING	GEO-CODE	Al2O3 % XRF	CaO % XRF	Cr2O3 % XRF	Fe2O3 % XRF	K2O % XRF	MgO % XRF	MnO % XRF	Na2O % XRF	P2O5 % XRF	SiO2 % XRF	TiO2 % XRF	LOI %	TOTAL %	Au g/tonne
EMP99C-1201	Area 1+00E (Map 2)		2a,SH.2	14.76	10.48	<0.01	13.92	1.48	3.41	0.23	0.46	0.38	50.04	2.27	2.25	99.68	0.005
EMP99C-1206	Area 1+00E (Map 2)		6u-3s,SH.3,Gph.1	13.16	0.29	<0.01	5.41	3.66	1.37	0.05	0.20	0.12	71.19	0.43	3.28	99.16	0.020
EMP99C-1222	Area 1+00E (Map 2)		3s,Plam	14.14	0.08	0.01	7.29	3.40	0.77	0.01	2.29	0.07	66.74	0.26	3.93	98.99	2.240
EMP99C-1224	Area 1+00E (Map 2)		3s/10s,SH.3	10.81	0.34	<0.01	5.77	1.47	1.05	0.08	2.51	0.09	74.20	0.30	2.87	99.49	0.085
EMP99C-1226	Area 1+00E (Map 2)		2a,SH.1	13.72	7.33	0.01	15.43	0.48	6.66	0.17	1.93	0.43	45.27	2.19	5.64	99.26	<0.005
EMP99C-1263	Area 1+00E (Map 2)		2ae,fg,SH.1-.2	13.20	8.88	<0.01	15.38	0.53	4.31	0.26	2.44	0.43	50.84	1.93	1.02	99.22	0.010
EMP99C-1278	Area 1+00E (Map 2)		8b,mg	14.29	10.67	<0.01	14.71	1.19	3.89	0.25	2.12	0.36	48.90	2.22	1.04	99.64	<0.005
EMP99C-1280	Area 2+50E (Map 3)		10e,SH.1	10.33	1.99	<0.01	5.12	2.08	1.90	0.08	0.17	0.11	73.15	0.45	3.94	99.32	<0.005
EMP99C-1282	Area 2+50E (Map 3)		8r,SH.2,Cal.2	14.13	2.39	0.01	6.21	0.99	5.09	0.10	3.65	0.18	61.49	0.54	4.99	99.77	<0.005
EMP99C-1414	Area 6+00E (Map 4)		2ae	14.07	7.89	0.03	15.21	0.57	3.13	0.22	1.73	0.46	50.01	2.20	3.01	98.53	<0.005
EMP99C-1425	Area 6+00E (Map 4)		10es/3s	7.50	0.36	<0.01	1.96	2.30	0.25	0.04	0.24	0.03	84.56	0.22	1.59	99.05	0.005
EMP99C-1447	Area 6+00E (Map 4)		3s	10.37	1.05	<0.01	2.76	2.77	0.48	0.04	1.15	0.06	77.11	0.29	2.34	98.42	0.050
EMP99C-1448	Area 6+00E (Map 4)		2ae,SH.2	13.48	6.53	<0.01	12.46	2.65	2.80	0.18	1.93	0.35	49.78	1.80	6.37	98.33	0.040
EMP99C-1454	Area 6+00E (Map 4)		3s	12.17	0.73	<0.01	3.60	2.26	0.76	0.04	3.01	0.09	73.15	0.38	2.45	98.64	0.035
EMP99C-1479	Area 6+00E (Map 4)		2as,SH.2,Ox	15.69	3.54	<0.01	13.44	1.73	3.81	0.20	1.68	0.38	52.01	2.34	4.02	98.84	0.005
EMP99C-1493	Area 6+00E (Map 4)		6bas,SH.3,BX,Ox	13.06	1.27	<0.01	5.01	3.31	0.91	0.07	1.34	0.09	69.94	0.45	3.13	98.58	0.005
EMP99C-1497	Area 6+00E (Map 4)		2be-a,SH.1	14.08	12.78	0.06	14.39	0.66	5.62	0.22	1.84	0.35	46.18	2.01	1.20	99.39	<0.005
EMP99C-1504	Area 9+00E (Map 5b)		8n,SH.1	14.06	8.78	<0.01	14.63	0.71	4.61	0.20	1.45	0.37	49.92	2.25	1.55	98.53	0.095
EMP99C-1506	Area 9+00E (Map 5b)		6abs/10es	11.11	0.92	<0.01	3.67	3.26	0.83	0.04	<0.01	0.07	76.77	0.28	2.27	99.22	0.040
EMP99C-1507	Area 9+00E (Map 5b)		6su-p,Plam,Py1-3%	11.89	0.66	<0.01	6.73	3.16	0.82	0.05	0.01	0.07	72.09	0.38	3.78	99.64	0.055
EMP99C-1508	Area 9+00E (Map 5b)		8s,SH.3,Ox	15.39	0.52	0.02	9.12	4.10	1.20	0.17	0.02	0.32	62.11	2.00	4.47	99.44	0.020
EMP99C-1526	Area 9+00E (Map 5b)		2ae,SH.1	14.29	8.28	<0.01	15.38	0.70	4.88	0.23	2.39	0.36	48.02	2.30	1.80	98.63	<0.005
EMP99C-1533	Area 9+00E (Map 5b)		10e,SH.2	7.29	1.13	<0.01	2.18	0.58	0.45	0.03	2.49	0.05	83.56	0.21	0.78	98.75	<0.005
EMP99C-1536	Area 9+00E (Map 5b)		2t/6p,SH.3,Hem.1	13.44	2.92	<0.01	9.60	2.02	2.37	0.09	2.26	0.21	61.73	1.21	3.56	99.41	<0.005
EMP99C-1558	Area 10+75E (Map 6)		2s/8ns,SH.3	15.04	1.54	<0.01	7.42	2.80	2.42	0.15	3.67	0.18	62.29	0.92	2.88	99.31	0.180
EMP99x-1304	2+00E	0+70N	2au	13.63	10.96	<0.01	15.48	0.71	3.77	0.27	1.94	0.44	49.04	2.10	0.92	99.26	0.020
EMP99x-1305	1+75E	1+00N	2t,Gt	17.30	1.99	<0.01	17.92	2.84	2.61	0.45	0.75	0.44	48.79	2.71	2.89	98.69	0.045
EMP99x-1306	1+20E	0+88N	3s,SH.3,Ox	13.91	0.15	<0.01	8.73	4.89	1.19	0.02	0.15	0.13	64.50	0.55	4.94	99.16	0.040
EMP99x-1310	0+30W	1+60N	3s	12.05	1.02	<0.01	4.37	3.94	0.76	0.06	0.13	0.08	73.09	0.34	3.18	99.02	0.030
EMP99x-1313	4+20E	0+10S	3s/10es	12.74	2.37	<0.01	3.06	2.82	1.82	0.05	1.65	0.06	71.13	0.34	3.25	99.29	<0.005
EMP99x-1314	0+02N	5+25N	10es,SH.2	18.26	5.07	<0.01	4.80	2.99	1.59	0.09	3.47	0.10	60.54	0.58	1.65	99.14	<0.005
EMP99x-1319	Area 6+00E (Map 4)		Py<0.5%, Cpy Tr	8.91	0.21	<0.01	0.92	2.79	0.36	0.03	0.02	0.04	84.08	0.19	1.70	99.25	<0.005
EMP99x-1324	5+95E	2+80N	8c-d	13.78	4.17	<0.01	8.56	1.54	2.10	0.13	0.74	0.25	64.70	0.88	2.46	99.31	0.020
EMP99x-1325	6+00E	1+85N	8d	13.58	6.62	<0.01	12.31	0.75	4.68	0.19	2.96	0.21	54.59	1.66	1.84	99.39	0.030
EMP99x-1329	6+35E	0+15N	3s/10es	14.12	4.16	<0.01	10.14	4.12	2.19	0.10	2.32	0.37	55.45	1.99	3.74	98.70	0.040
EMP99x-1330	6+00E	0+10S	2be'	14.00	9.62	<0.01	16.81	1.00	8.55	0.23	1.31	0.31	42.78	2.01	2.56	99.18	0.045
EMP99x-1331	6+25E	1+75S	2a/8n,Sil.1,SH.1	20.11	6.82	<0.01	5.44	0.86	1.19	0.17	4.52	0.42	55.71	2.79	1.15	99.18	<0.005
EMP99x-1333	8+95E	1+75S	2s/10e,Sil.2-3,Cb,Py,1%	14.56	10.53	<0.01	4.87	4.21	2.19	0.07	0.40	0.47	55.99	1.81	4.28	99.38	<0.005
EMP99x-1334	8+00E	1+10S	2a,Sil.1,SH.2	16.03	5.24	<0.01	12.88	0.40	2.83	0.32	3.17	0.44	53.98	2.23	1.72	99.24	<0.005
EMP99x-1335	8+10E	0+25S	2s,SH.2,Py1-2%	14.93	5.89	<0.01	10.93	0.72	2.46	0.26	2.65	0.41	55.99	2.17	2.69	99.10	<0.005
EMP99x-1336	6+40E	0+02N	2t	13.97	5.61	<0.01	13.00	1.22	4.21	0.25	1.87	0.36	53.29	2.19	3.01	98.98	0.020
EMP99x-1337	7+47	0+00N	2af,Ser-Sil.1,SH.2	14.55	3.91	<0.01	13.71	0.18	6.30	0.17	2.45	0.34	49.37	2.16	6.12	99.26	<0.005
EMP99x-1338	8+20E	0+08N	10e	9.01	2.50	<0.01	3.37	1.33	0.69	0.04	1.44	0.08	78.37	0.29	1.96	99.08	<0.005
EMP99x-1339	8+20E	0+08N	2af,Cb.2	15.92	6.68	<0.01	6.86	2.80	3.51	0.13	4.12	0.28	52.69	0.56	5.82	99.37	0.005
EMP99x-1342	9+00E	0+45S	2a,Sil-Ser.1,Cb.1	13.94	8.39	<0.01	14.56	0.70	2.82	0.32	2.26	0.35	52.37	1.97	1.41	99.09	<0.005
EMP99x-1343	4+95W	7+30N	2t,SH.2,FD,Mag.1	13.45	5.39	<0.01	13.82	0.94	7.18	0.18	2.56	0.36	50.11	2.24	2.94	99.17	0.035
EMP99x-1344	5+90W	7+10N	2t	15.17	4.73	0.05	13.65	2.19	4.19	0.27	1.45	0.29	48.71	2.55	6.17	99.42	<0.005

SAMPLE NUMBER	EASTING	NORTHING	GEO-CODE	Al2O3 % XRF	CaO % XRF	Cr2O3 % XRF	Fe2O3 % XRF	K2O % XRF	MgO % XRF	MnO % XRF	Na2O % XRF	P2O5 % XRF	SiO2 % XRF	TiO2 % XRF	LOI %	TOTAL %	Au g/tonne
EMP99x-1348	5+90W	7+15N	2ts,Mag.2,Py2%	14.76	5.64	<0.01	16.07	3.33	3.52	0.24	2.25	0.34	43.98	2.52	5.96	98.61	<0.005
EMP99x-1349	6+00W	7+90N	2t,SH.2,Mag.2	15.90	6.58	<0.01	12.34	0.78	4.69	0.22	3.05	0.31	47.43	2.58	5.23	99.11	<0.005
EMP99x-1351	1+03W	0+80N	8n	14.76	11.25	<0.01	12.84	0.93	3.26	0.26	2.34	0.45	49.95	2.36	0.84	99.24	<0.005
EMP99x-1356	1+05E	0+05S	10c	15.50	2.30	<0.01	2.12	1.93	0.88	0.03	5.64	0.08	69.65	0.27	0.92	99.32	0.090
EMP99x-1358	1+65E	0+95N	8rs,SH.3	12.08	6.24	0.03	5.71	1.85	5.17	0.09	3.27	0.17	53.15	0.50	10.82	99.08	<0.005
EMP99x-1362	1+00E	1+90N	2a,SH.1	15.19	13.50	<0.01	15.73	0.67	2.91	0.26	1.13	0.29	46.79	2.35	0.51	99.33	<0.005
EMP99x-1371	11+97E	0+20N	8c,fg	13.83	4.73	<0.01	6.91	1.15	1.03	0.08	3.24	0.29	65.21	1.05	1.71	99.23	0.010
EMP99x-1375	9+00W	7+54N	8n/12e	17.26	5.08	<0.01	6.74	2.20	3.10	0.13	4.86	0.26	56.04	0.55	3.34	99.56	<0.005
EMP99x-1376	9+00W	7+46N	8bs	14.90	7.66	<0.01	15.97	0.29	8.15	0.18	2.23	0.32	44.95	2.63	2.06	99.34	<0.005
EMP99x-1380	7+97W	1+45N	2s,SH.3	14.75	4.96	<0.01	12.40	4.22	5.89	0.19	1.14	0.40	48.12	2.37	4.56	99.00	<0.005
EMP99x-1381	15+00E	1+55S	8c-d	13.66	3.51	<0.01	8.14	1.75	2.56	0.14	2.72	0.34	62.45	1.08	2.46	98.81	<0.005
EMP99x-1382	15+00E	1+75S	2b	13.61	8.52	<0.01	14.70	1.08	6.46	0.24	3.11	0.34	46.83	2.40	1.67	98.96	<0.005
EMP99x-1383	see Area 15+00E (Map 7)			14.24	5.87	<0.01	14.13	2.11	7.87	0.20	1.33	0.31	46.27	2.12	5.13	99.58	<0.005
EMP99x-1390	0+15W	6+75S	11m-h	13.30	5.76	0.01	6.30	1.92	6.94	0.10	3.73	0.15	58.80	0.56	1.95	99.52	<0.005
EMP99x-1391	2+00E	1+50N	2ae/8bnf,Py2-5%	13.91	8.24	<0.01	15.23	2.50	4.51	0.18	0.64	0.38	48.07	2.19	3.63	99.48	<0.005
EMP99x-1392	2+15E	1+18N	2af/8nf	15.82	6.81	0.01	11.39	2.85	2.54	0.33	1.12	0.61	52.41	2.73	1.94	98.56	<0.005
EMP99x-1394	Area 2+50E (Map 3),		10es,SH.1	10.66	2.17	<0.01	3.83	2.95	1.09	0.07	0.09	0.08	73.42	0.32	4.11	98.79	<0.005
EMP99x-1395	Area 2+50E (Map 3),		8s,SH,Sil,Cb.3	12.50	7.62	0.04	5.88	2.07	4.38	0.09	2.22	0.17	54.56	0.49	8.56	98.58	0.020
EMP99x-1396	Area 2+50E (Map 3),		3s,FD.1,Ox,QStr,Py1-2%	12.09	0.69	<0.01	3.36	3.90	0.58	0.07	0.09	0.05	74.90	0.24	2.93	98.90	0.025
EMP99x-1397	Area 2+50E (Map 3),		2s-3s,Sil-Ser.3	11.76	0.45	<0.01	4.20	3.39	1.53	0.06	0.12	0.05	74.62	0.27	2.70	99.15	<0.005
EMP99x-1398	Area 2+50E (Map 3),		10ns	7.32	0.98	<0.01	2.49	1.52	0.62	0.03	1.13	0.04	84.12	0.20	0.90	99.35	<0.005
EMP99x-1702	12+45W	5+75N	2a	13.75	8.41	<0.01	14.05	1.26	1.93	0.22	2.84	0.27	44.32	2.15	9.97	99.17	0.045
EMP99x-1704	11+00W	3+00N	2a-b,Sil.2-3	13.78	4.88	<0.01	14.55	1.21	2.23	0.44	2.62	0.37	55.87	2.01	1.29	99.25	0.040
EMP99x-1901	2+03E	0+90N		12.83	5.99	0.01	5.69	0.72	4.74	0.10	4.39	0.15	57.17	0.51	7.06	99.36	<0.005
EMP99x-1906	2+00E	3+47N	8c,mg	15.36	6.38	0.01	12.48	0.32	7.25	0.16	3.68	0.16	49.22	1.51	2.79	99.32	<0.005
EMP99x-1907	3+00E	3+40N	8c,mg	15.74	3.54	<0.01	8.23	1.98	1.74	0.12	3.10	0.15	62.35	1.04	1.70	99.69	<0.005
EMP99x-1910	3+00E	0+30N	3s/10s	12.50	0.70	<0.01	2.99	4.09	0.85	0.06	0.15	0.13	74.46	0.42	2.80	99.15	<0.005
EMP99x-1911	Stripped Area 9+00E		2s,SH/FD.2,Ser-Cb.2	14.63	7.00	<0.01	15.65	0.97	6.52	0.24	2.57	0.29	45.81	2.51	2.65	98.84	0.015
EMP99x-1912	8+10E	0+90N	2s,SH.2/FD,Sil.2,Mag	16.39	5.80	<0.01	9.75	1.33	5.18	0.26	5.30	0.31	48.83	2.70	3.18	99.03	0.040
EMP99x-1913	15+00E	0+77S	8c,Mag.2,Py1-2%	13.55	2.62	<0.01	8.83	1.29	2.40	0.11	3.45	0.29	64.07	1.01	1.58	99.20	<0.005
EMP99x-1919	Area 1+00E (Map 2)		7g,SH.3,FD	17.82	0.67	0.15	12.14	3.72	6.14	0.14	<0.01	0.34	49.74	0.85	7.44	99.15	0.010
EMP99x-1920	Area 1+00E (Map 2),		11r,SH.3,FD	8.33	12.34	0.07	8.60	3.59	10.06	0.17	0.59	0.70	36.75	0.80	17.27	99.27	0.010
EMP99x-1921	7+00W	2+54N	8c,fg,Mag.2,SH.1	14.97	4.41	<0.01	13.53	1.83	2.68	0.18	3.93	0.36	54.03	2.20	0.98	99.10	0.005
EMP99x-1923	1+85E	2+60N	11h-b	15.04	9.64	0.02	16.38	0.25	4.43	0.30	2.14	0.31	46.56	2.41	1.64	99.12	0.015
EMP99x-1924	2+00E	3+70S	11h,fg,Mag.2	12.80	10.34	<0.01	16.82	0.35	3.56	0.24	2.40	0.53	48.28	3.06	0.87	99.25	0.015
EMP99x-1925	10+00W	2+25N	11k	13.86	6.94	<0.01	8.67	1.11	6.15	0.15	4.36	0.52	55.90	0.85	1.22	99.73	0.010
EMP99x-1926	2+00E	3+50S	11h,fg,Mag.2	11.47	9.31	0.06	9.55	1.59	10.03	0.16	2.53	1.01	51.40	0.87	1.79	99.77	<0.005
EMP99x-1927	2+00E	4+10S	11b,mg	15.25	3.61	<0.01	3.87	2.96	2.46	0.07	4.84	0.20	63.90	0.46	0.96	98.58	<0.005

Note: Sample prefix "EMP99X-" indicates grab sample type
Sample prefic "EMP99C-" indicates channel sample type

Appendix 3

APPENDIX 3.

Gold and ICP Data - 1999 Mapping and channel sampling program

Empress Project

APPENDIX 3
Gold and ICP Data - 1999 Mapping and Channel Sampling
Empress Project

SAMPLE DESCRIPTION	Au g/tonne	Ag ppm	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm
EMP99C-1417	0.475	1.0	28	<10	50	<0.5	2	0.12	<0.5	20	115	47	3.79	<10	<1	0.30	<10
EMP99C-1428	1.160	9.6	<2	<10	30	<0.5	20	0.91	7.5	25	151	48	3.10	<10	<1	0.30	10
EMP99C-1441	0.610	0.2	8	<10	90	<0.5	<2	0.39	<0.5	7	141	15	2.13	<10	<1	0.35	20
EMP99C-1577	0.060	<0.2	<2	<10	140	<0.5	<2	1.35	<0.5	10	120	53	1.84	<10	<1	0.27	40
EMP99C-1578	0.065	0.6	12	<10	30	<0.5	<2	0.09	4.5	61	230	54	5.21	<10	<1	0.18	<10
EMP99C-1579	66.930	72.6	2	<10	<10	<0.5	22	0.05	7.5	10	218	521	1.35	<10	<1	0.07	<10
EMP99C-1585	0.535	41.6	2	<10	10	<0.5	64	0.03	0.5	5	262	2020	1.23	<10	<1	0.01	<10
EMP99C-1596	3.720	7.4	76	<10	20	<0.5	12	0.24	30.0	82	141	377	6.37	<10	<1	0.25	<10
EMP99C-1597	0.465	9.4	16	<10	30	<0.5	20	0.02	16.0	21	231	126	1.64	<10	<1	0.10	<10
EMP99x-1914	3.120	5.0	<2	<10	10	<0.5	4	0.14	3.0	144	20	459	>15.00	10	<1	0.06	10

APPENDIX 3
Gold and ICP Da
Empress Projec

SAMPLE DESCRIPTION	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
EMP99C-1417	0.18	95	9	0.01	22	400	70	1.07	<2	<1	12	<0.01	<10	<10	11	<10	138
EMP99C-1428	0.21	330	30	0.01	25	310	632	1.78	<2	1	31	<0.01	<10	<10	30	<10	830
EMP99C-1441	0.20	155	64	0.01	9	130	2	0.61	<2	<1	16	0.01	<10	<10	14	<10	72
EMP99C-1577	0.19	280	6	0.03	9	150	12	0.67	<2	<1	29	0.01	<10	<10	9	<10	58
EMP99C-1578	0.23	85	10	0.02	46	340	12	2.54	<2	2	7	<0.01	<10	<10	22	<10	494
EMP99C-1579	0.01	15	11	<0.01	12	40	1540	0.91	<2	<1	4	<0.01	<10	<10	4	<10	842
EMP99C-1585	<0.01	30	1	<0.01	7	20	2700	0.54	<2	<1	3	<0.01	<10	<10	2	<10	76
EMP99C-1596	0.09	65	101	0.01	78	290	294	>5.00	<2	1	9	<0.01	<10	<10	15	<10	3160
EMP99C-1597	0.01	15	8	<0.01	21	40	632	1.28	<2	<1	4	<0.01	<10	<10	5	<10	1885
EMP99x-1914	0.43	320	515	0.01	186	640	150	>5.00	<2	5	9	0.02	<10	<10	17	<10	366

Appendix 4

APPENDIX 4.

REES Data - 1999 Mapping and channel sampling program

Empress Project

APPENDIX 4
REES Data - 1999 Mapping and Channel Sampling
Empress Project

SAMPLE NUMBER	EASTING	NORTHING	GEO-CODE	Ba ppm	Ce ppm	Cs ppm	Co ppm	Cu ppm	Dy ppm	Er ppm	Eu ppm	Gd ppm	Ga ppm	Hf ppm	Ho ppm	La ppm	Pb ppm	Lu ppm	Nd ppm	Ni ppm	Nb ppm	Pr ppm	Rb ppm	Sm ppm	Ag ppm	Sr ppm	Ta ppm	Tb ppm	Tl ppm
EMP99C-1201	Area 1+00E (Map 2)		2a,SH.2																										
EMP99C-1206	Area 1+00E (Map 2)		6u-3s,SH.3,Gph.1																										
EMP99C-1222	Area 1+00E (Map 2)		3s,Plam																										
EMP99C-1224	Area 1+00E (Map 2)		3s/10s,SH.3																										
EMP99C-1226	Area 1+00E (Map 2)		2a,SH.1																										
EMP99C-1263	Area 1+00E (Map 2)		2ae,fg,SH.1-.2																										
EMP99C-1278	Area 1+00E (Map 2)		8b,mg																										
EMP99C-1280	Area 2+50E (Map 3)		10e,SH.1																										
EMP99C-1282	Area 2+50E (Map 3)		8r,SH.2,Cal.2																										
EMP99C-1414	Area 6+00E (Map 4)		2ae	171.5	45.5	0.4	37.5	55	6.4	3.2	2.3	6.9	22	4	1.4	18	10	0.3	26.5	65	8	5.6	15	7	<1	312	1	1	<0.5
EMP99C-1425	Area 6+00E (Map 4)		10es/3s	287	26.5	0.7	5	25	2.5	2	0.4	2.4	11	6	0.6	10.5	10	0.2	12.5	5	6	2.9	45	2.8	<1	32.3	<0.5	0.3	<0.5
EMP99C-1447	Area 6+00E (Map 4)		3s	302	54.5	0.9	12.5	20	5	3.4	0.7	5	16	7	1.2	22	5	0.5	25	10	11	6.3	58.6	5.3	<1	52.3	1.5	0.8	<0.5
EMP99C-1448	Area 6+00E (Map 4)		2ae,SH.2	395	55.5	1.4	34	85	5.4	3.1	1.8	6.2	21	4	1.1	24	5	0.3	27.5	65	7	6.3	57.4	6.2	<1	168.5	<0.5	0.9	<0.5
EMP99C-1454	Area 6+00E (Map 4)		3s	300	51.5	0.6	20	30	7	4.5	1.1	6.7	23	7	1.6	20	5	0.5	26.5	25	14	6.2	47.8	6.3	<1	75.4	0.5	1	<0.5
EMP99C-1479	Area 6+00E (Map 4)		2as,SH.2,Ox	295	47.5	3.7	39	35	4.3	2.7	1.6	5	24	3	0.9	19.5	<5	0.1	19	40	7	4.9	55.8	4.5	<1	164.5	<0.5	0.7	<0.5
EMP99C-1493	Area 6+00E (Map 4)		6bas,SH.3,BX,Ox	421	43	2.2	12.5	45	3.7	2.2	0.9	4.2	19	5	0.8	18	15	0.2	19.5	15	8	4.8	84.4	4.5	<1	74.5	0.5	0.6	<0.5
EMP99C-1497	Area 6+00E (Map 4)		2be-a,SH.1	163	36	0.6	52	35	4	2.1	1.5	4.6	20	3	0.8	15.5	<5	0.1	18.5	170	5	4.3	19	4.4	<1	233	<0.5	0.5	<0.5
EMP99C-1504	Area 9+00E (Map 5b)		8n,SH.1																										
EMP99C-1506	Area 9+00E (Map 5b)		6abs/10es																										
EMP99C-1507	Area 9+00E (Map 5b)		6su-p,Plam,Py1-3%																										
EMP99C-1508	Area 9+00E (Map 5b)		8s,SH.3,Ox																										
EMP99C-1526	Area 9+00E (Map 5b)		2ae,SH.1																										
EMP99C-1533	Area 9+00E (Map 5b)		10e,SH.2	183.5	23.5	0.1	5	55	3	1.9	0.4	3.4	7	4	0.5	9	5	<0.1	12.5	10	5	3	9.6	2.6	<1	68.1	<0.5	0.4	<0.5
EMP99C-1536	Area 9+00E (Map 5b)		2t/6p,SH.3,Hem.1																										
EMP99C-1558	Area 10+75E (Map 6)		2s/8ns,SH.3																										
EMP99x-1304	2+00E	0+70N	2au	100	70	2.7	37.5	15	9.4	5.7	5.1	9.8	22	5	1.5	87.5	5	0.6	35.5	75	9	21.5	15	9.9	<1	206	<0.5	2.5	<0.5
EMP99x-1305	1+75E	1+00N	2t,Gt																										
EMP99x-1306	1+20E	0+88N	3s,SH.3,Ox	927	21.5	3	<0.5	75	1.8	1.1	1	1.7	26	5	0.3	21	35	0.1	10	10	5	4.5	117	2.1	1	26.3	<0.5	0.5	0.5
EMP99x-1310	0+30W	1+60N	3s																										
EMP99x-1313	4+20E	0+10S	3s/10es	361	47	1.8	3.5	20	3.7	2.1	1.2	4.2	16	7	0.5	29.5	10	0.3	23.5	10	8	7.6	83.4	4.8	<1	94.6	<0.5	0.7	0.5
EMP99x-1314	0+02N	5+25N	10es,SH.2	342	72.5	2.6	15.5	55	5.5	3.3	2.5	5.9	26	7	0.8	45.5	10	0.4	35	30	10	11.2	88.2	6.9	<1	327	0.5	1.1	<0.5
EMP99x-1319	Area 6+00E (Map 4)		Py<0.5%, Cpy Tr	258	23.5	0.9	<0.5	<5	2.8	2.1	0.4	2.5	12	6	0.4	11	<5	0.2	10.5	<5	9	3.2	54.2	2.4	<1	25.5	0.5	0.4	<0.5
EMP99x-1324	5+95E	2+80N	8c-d																										
EMP99x-1325	6+00E	1+85N	8d																										
EMP99x-1329	6+35E	0+15N	3s/10es																										
EMP99x-1330	6+00E	0+10S	2be	170	54.5	1.9	49.5	<5	6	3	2.5	5.9	18	3	0.7	35	40	0.3	26	175	5	8.3	37.8	6.3	<1	140	<0.5	1.2	<0.5
EMP99x-1331	6+25E	1+75S	2a/8n,Sil.1,SH.1																										
EMP99x-1333	8+95E	1+75S	2s/10e,Sil.2-3,Cb,Py,1%																										
EMP99x-1334	8+00E	1+10S	2a,Sil.1,SH.2																										
EMP99x-1335	8+10E	0+25S	2s,SH.2,Py1-2%																										
EMP99x-1336	6+40E	0+02N	2t																										
EMP99x-1337	7+47	0+00N	2af,Ser-Sil.1,SH.2																										
EMP99x-1338	8+20E	0+08N	10e	405	31.5	1.2	14.5	150	3.4	2	0.6	3.2	11	5	0.4	16.5	30	0.2	16.5	25	8	4.8	24.6	3.6	<1	70.4	<0.5	0.6	<0.5
EMP99x-1339	8+20E	0+08N	2af,Cb.2																										
EMP99x-1342	9+00E	0+45S	2a,Sil-Ser.1,Cb.1																										
EMP99x-1343	4+95W	7+30N	2t,SH.2,FD,Mag.1																										
EMP99x-1344	5+90W	7+10N	2t																										

SAMPLE NUMBER	EASTING	NORTHING	GEO-CODE	Ba ppm	Ce ppm	Cs ppm	Co ppm	Cu ppm	Dy ppm	Er ppm	Eu ppm	Gd ppm	Ga ppm	Hf ppm	Ho ppm	La ppm	Pb ppm	Lu ppm	Nd ppm	Ni ppm	Nb ppm	Pr ppm	Rb ppm	Sm ppm	Ag ppm	Sr ppm	Ta ppm	Tb ppm	Tl ppm
EMP99x-1348	5+90W	7+15N	2ts,Mag.2,Py2%																										
EMP99x-1349	6+00W	7+90N	2t,SH.2,Mag.2																										
EMP99x-1351	1+03W	0+80N	8n																										
EMP99x-1356	1+05E	0+05S	10c	487	23.5	1.5	3.5	10	0.7	0.3	0.6	1.1	21	1	0.1	16.5	10	<0.1	9	10	<1	2.9	34.6	1.6	<1	528	<0.5	0.1	<0.5
EMP99x-1358	1+65E	0+95N	8rs,SH.3	406	42	2.5	26	40	1.7	1	1.2	2.9	17	1	0.4	26.5	5	0.1	19	115	<1	5.6	54.4	3.8	<1	380	<0.5	0.5	0.5
EMP99x-1362	1+00E	1+90N	2a,SH.1																										
EMP99x-1371	11+97E	0+20N	8c,fg																										
EMP99x-1375	9+00W	7+54N	8n/12e																										
EMP99x-1376	9+00W	7+46N	8bs																										
EMP99x-1380	7+97W	1+45N	2s,SH.3																										
EMP99x-1381	15+00E	1+55S	8c-d																										
EMP99x-1382	15+00E	1+75S	2b																										
EMP99x-1383	see Area 15+00E (Map 7)																												
EMP99x-1390	0+15W	6+75S	11m-h																										
EMP99x-1391	2+00E	1+50N	2ae/8bnf,Py2-5%																										
EMP99x-1392	2+15E	1+18N	2af/8nf																										
EMP99x-1394	Area 2+50E (Map 3), replica of 1280		10es,SH.1	356	47	4	16.5	70	3.1	2.2	0.6	3.4	17	6	0.7	23	10	0.2	18	20	7	4.6	87.8	3.4	<1	32.2	<0.5	0.4	0.5
EMP99x-1395	Area 2+50E (Map 3), replica of 1288		8s,SH,Sil,Cb.3	249	52	3.3	25.5	55	1.9	1	1	3.6	18	3	0.3	24.5	10	<0.1	22.5	120	3	5.5	63.6	4.4	<1	181.5	<0.5	0.3	<0.5
EMP99x-1396	Area 2+50E (Map 3), replica of 1295		3s,FD.1,Ox,QStr,Py1-2%																										
EMP99x-1397	Area 2+50E (Map 3), replica of 1299		2s-3s,Sil-Ser.3																										
EMP99x-1398	Area 2+50E (Map 3), replica of 1401		10ns																										
EMP99x-1702	12+45W	5+75N	2a																										
EMP99x-1704	11+00W	3+00N	2a-b,Sil.2-3																										
EMP99x-1901	2+03E	0+90N																											
EMP99x-1906	2+00E	3+47N	8c,mg																										
EMP99x-1907	3+00E	3+40N	8c,mg																										
EMP99x-1910	3+00E	0+30N	3s/10s																										
EMP99x-1911	Stripped Area 9+00E (Map 5b)		2s,SH/FD.2,Ser-Cb.2																										
EMP99x-1912	8+10E	0+90N	2s,SH.2/FD,Sil.2,Mag																										
EMP99x-1913	15+00E	0+77S	8c,Mag.2,Py1-2%																										
EMP99x-1919	Area 1+00E (Map 2)		7g,SH.3,FD																										
EMP99x-1920	Area 1+00E (Map 2), 1.5m E of 1408		11r,SH.3,FD																										
EMP99x-1921	7+00W	2+54N	8c,fg,Mag.2,SH.1																										
EMP99x-1923	1+85E	2+60N	11h-b																										
EMP99x-1924	2+00E	3+70S	11h,fg,Mag.2																										
EMP99x-1925	10+00W	2+25N	11k																										
EMP99x-1926	2+00E	3+50S	11h,fg,Mag.2																										
EMP99x-1927	2+00E	4+10S	11b,mg																										

Note: Sample prefix "EMP99X-" indicates grab sample type
Sample prefic "EMP99C-" indicates channel sample type

APPENDIX 4
REES Data - 1999 M
Empress Project

SAMPLE NUMBER	Th ppm	Tm ppm	Sn ppm	W ppm	U ppm	V ppm	Yb ppm	Y ppm	Zn ppm	Zr ppm
EMP99C-1201										
EMP99C-1206										
EMP99C-1222										
EMP99C-1224										
EMP99C-1226										
EMP99C-1263										
EMP99C-1278										
EMP99C-1280										
EMP99C-1282										
EMP99C-1414	3	0.4	<1	2	<0.5	270	3.1	35.5	110	152.5
EMP99C-1425	1	0.1	<1	4	0.5	10	2.3	17.5	100	235
EMP99C-1447	1	0.4	3	6	1	25	3.6	32.5	65	241
EMP99C-1448	3	0.3	1	8	<0.5	230	3	30.5	145	146.5
EMP99C-1454	1	0.5	5	6	1	50	4.3	40.5	55	223
EMP99C-1479	3	0.1	1	2	0.5	315	2.4	26	100	140
EMP99C-1493	2	0.1	<1	3	1	40	2.3	23	370	184
EMP99C-1497	3	0.1	<1	2	<0.5	260	2.1	23	135	104.5
EMP99C-1504										
EMP99C-1506										
EMP99C-1507										
EMP99C-1508										
EMP99C-1526										
EMP99C-1533	<1	<0.1	1	<1	<0.5	10	2	17.5	85	143
EMP99C-1536										
EMP99C-1558										
EMP99x-1304	19	0.6	3	1	<0.5	285	5.4	45	180	165
EMP99x-1305										
EMP99x-1306	12	0.1	6	5	0.5	90	1.1	8.5	100	151.5
EMP99x-1310										
EMP99x-1313	5	0.1	1	<1	1.5	40	2.3	20	125	227
EMP99x-1314	5	0.3	3	<1	2	80	3.5	30	705	269
EMP99x-1319	1	0.1	2	1	1	25	2.6	18	45	183
EMP99x-1324										
EMP99x-1325										
EMP99x-1329										
EMP99x-1330	18	0.3	<1	<1	<0.5	300	2.6	29.5	170	99
EMP99x-1331										
EMP99x-1333										
EMP99x-1334										
EMP99x-1335										
EMP99x-1336										
EMP99x-1337										
EMP99x-1338	5	0.1	3	<1	0.5	30	2.4	18.5	305	173.5
EMP99x-1339										
EMP99x-1342										
EMP99x-1343										
EMP99x-1344										

SAMPLE NUMBER	Th ppm	Tm ppm	Sn ppm	W ppm	U ppm	V ppm	Yb ppm	Y ppm	Zn ppm	Zr ppm
EMP99x-1348										
EMP99x-1349										
EMP99x-1351										
EMP99x-1356	3	<0.1	<1	1	1	40	0.3	3	45	73.5
EMP99x-1358	6	<0.1	<1	1	1	110	0.8	8.5	105	75.5
EMP99x-1362										
EMP99x-1371										
EMP99x-1375										
EMP99x-1376										
EMP99x-1380										
EMP99x-1381										
EMP99x-1382										
EMP99x-1383										
EMP99x-1390										
EMP99x-1391										
EMP99x-1392										
EMP99x-1394	2	0.1	<1	2	0.5	20	2.5	19.5	160	222
EMP99x-1395	3	<0.1	5	4	1	110	0.8	10.5	170	108.5
EMP99x-1396										
EMP99x-1397										
EMP99x-1398										
EMP99x-1702										
EMP99x-1704										
EMP99x-1901										
EMP99x-1906										
EMP99x-1907										
EMP99x-1910										
EMP99x-1911										
EMP99x-1912										
EMP99x-1913										
EMP99x-1919										
EMP99x-1920										
EMP99x-1921										
EMP99x-1923										
EMP99x-1924										
EMP99x-1925										
EMP99x-1926										
EMP99x-1927										

Note: Sample prefix
Sample prefic

Appendix 5

APPENDIX 5.

Certificates of Analyses - 1999 Mapping, channel sampling and core relogging program

Empress Project

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: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Comments: ATTN: JACQUES SAMSON

CERTIFICATE A9932272

(KPI) - CAMECO CORPORATION

Project: M5444
P.O. # :

Samples submitted to our lab in Thunder Bay, ON.
This report was printed on 04-NOV-1999.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
205	128	Geochem ring to approx 150 mesh
222	1	Drying charge (0-3 Kg)
226	126	0-3 Kg crush and split
294	2	4-7 Kg crush and split
3202	128	Rock - save entire reject
229	128	ICP - AQ Digestion charge

* NOTE 1:

The 32 element ICP package is suitable for trace metals in soil and rock samples. Elements for which the nitric-aqua regia digestion is possibly incomplete are: Al, Ba, Be, Ca, Cr, Ga, K, La, Mg, Na, Sr, Ti, Tl, W.

ANALYTICAL PROCEDURES 1 of 2

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
494	128	Au g/t: Fuse 30 g sample	FA-AAS	0.005	10.00
2118	128	Ag ppm: 32 element, soil & rock	ICP-AES	0.2	100.0
2119	128	Al %: 32 element, soil & rock	ICP-AES	0.01	15.00
2120	128	As ppm: 32 element, soil & rock	ICP-AES	2	10000
557	128	B ppm: 32 element, rock & soil	ICP-AES	10	10000
2121	128	Ba ppm: 32 element, soil & rock	ICP-AES	10	10000
2122	128	Be ppm: 32 element, soil & rock	ICP-AES	0.5	100.0
2123	128	Bi ppm: 32 element, soil & rock	ICP-AES	2	10000
2124	128	Ca %: 32 element, soil & rock	ICP-AES	0.01	15.00
2125	128	Cd ppm: 32 element, soil & rock	ICP-AES	0.5	500
2126	128	Co ppm: 32 element, soil & rock	ICP-AES	1	10000
2127	128	Cr ppm: 32 element, soil & rock	ICP-AES	1	10000
2128	128	Cu ppm: 32 element, soil & rock	ICP-AES	1	10000
2150	128	Fe %: 32 element, soil & rock	ICP-AES	0.01	15.00
2130	128	Ga ppm: 32 element, soil & rock	ICP-AES	10	10000
2131	128	Hg ppm: 32 element, soil & rock	ICP-AES	1	10000
2132	128	K %: 32 element, soil & rock	ICP-AES	0.01	10.00
2151	128	La ppm: 32 element, soil & rock	ICP-AES	10	10000
2134	128	Mg %: 32 element, soil & rock	ICP-AES	0.01	15.00
2135	128	Mn ppm: 32 element, soil & rock	ICP-AES	5	10000
2136	128	Mo ppm: 32 element, soil & rock	ICP-AES	1	10000
2137	128	Na %: 32 element, soil & rock	ICP-AES	0.01	10.00
2138	128	Ni ppm: 32 element, soil & rock	ICP-AES	1	10000
2139	128	P ppm: 32 element, soil & rock	ICP-AES	10	10000
2140	128	Pb ppm: 32 element, soil & rock	ICP-AES	2	10000
551	128	S %: 32 element, rock & soil	ICP-AES	0.01	5.00
2141	128	Sb ppm: 32 element, soil & rock	ICP-AES	2	10000
2142	128	Sc ppm: 32 elements, soil & rock	ICP-AES	1	10000
2143	128	Sr ppm: 32 element, soil & rock	ICP-AES	1	10000
2144	128	Ti %: 32 element, soil & rock	ICP-AES	0.01	10.00
2145	128	Tl ppm: 32 element, soil & rock	ICP-AES	10	10000
2146	128	U ppm: 32 element, soil & rock	ICP-AES	10	10000
2147	128	V ppm: 32 element, soil & rock	ICP-AES	1	10000
2148	128	W ppm: 32 element, soil & rock	ICP-AES	10	10000

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: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Comments: ATTN: JACQUES SAMSON

CERTIFICATE A9932272

(KPI) - CAMECO CORPORATION

Project: M5444
P.O. # :

Samples submitted to our lab in Thunder Bay, ON.
This report was printed on 04-NOV-1999.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
205	128	Geochem ring to approx 150 mesh
222	1	Drying charge (0-3 Kg)
226	126	0-3 Kg crush and split
294	2	4-7 Kg crush and split
3202	128	Rock - save entire reject
229	128	ICP - AQ Digestion charge
* NOTE	1:	

The 32 element ICP package is suitable for trace metals in soil and rock samples. Elements for which the nitric-aqua regia digestion is possibly incomplete are: Al, Ba, Be, Ca, Cr, Ga, K, La, Mg, Na, Sr, Ti, Tl, W.

ANALYTICAL PROCEDURES 2 of 2

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
2149	128	Zn ppm: 32 element, soil & rock	ICP-AES	2	10000

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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : M5444
Comments: ATTN: JACQUES SAMSON

Certificate Date: 04-NOV-1999
Invoice No. : I9932272
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9932272

SAMPLE	PREP CODE		Au g/t FA+AA	Ag ppm	Al %	As ppm	B 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 %
87-1-001	205	226	< 0.005	0.2	3.07	6	< 10	20	< 0.5	< 2	3.51	< 0.5	23	99	12	5.19	10	< 1	0.11	< 10	1.90
87-1-002	205	226	0.015	< 0.2	2.18	< 2	< 10	< 10	< 0.5	< 2	10.80	< 0.5	19	93	48	4.04	< 10	< 1	0.05	10	1.30
87-1-003	205	226	< 0.005	< 0.2	2.09	< 2	< 10	10	< 0.5	< 2	2.49	< 0.5	16	69	8	3.51	< 10	< 1	0.10	< 10	1.02
87-1-004	205	226	< 0.005	< 0.2	2.48	< 2	< 10	10	< 0.5	< 2	2.54	< 0.5	22	70	59	4.99	< 10	< 1	0.13	10	1.67
87-1-005	205	226	< 0.005	0.2	1.62	< 2	< 10	30	< 0.5	< 2	1.57	3.0	23	103	153	3.09	< 10	< 1	0.33	10	0.88
87-1-006	205	226	< 0.005	< 0.2	2.13	6	< 10	20	< 0.5	< 2	2.61	< 0.5	24	98	63	3.92	< 10	< 1	0.16	< 10	0.83
87-1-007	205	226	< 0.005	< 0.2	2.16	< 2	< 10	10	< 0.5	< 2	2.55	< 0.5	20	87	60	3.35	< 10	< 1	0.10	< 10	0.86
87-1-008	205	226	< 0.005	< 0.2	2.32	< 2	< 10	10	< 0.5	< 2	3.15	< 0.5	26	93	78	4.28	< 10	< 1	0.10	< 10	1.18
87-1-009	205	226	< 0.005	< 0.2	2.36	< 2	< 10	10	< 0.5	< 2	2.77	< 0.5	23	94	62	4.05	< 10	< 1	0.10	< 10	1.23
87-1-010	205	226	< 0.005	< 0.2	2.92	< 2	< 10	70	< 0.5	< 2	3.05	< 0.5	28	113	77	5.28	10	< 1	0.39	10	1.29
87-1-011	205	226	< 0.005	< 0.2	2.81	< 2	< 10	50	< 0.5	< 2	2.90	< 0.5	25	99	108	5.03	< 10	< 1	0.53	10	0.99
87-1-012	205	226	< 0.005	< 0.2	2.13	< 2	< 10	50	< 0.5	< 2	2.88	< 0.5	23	91	92	4.21	< 10	< 1	0.33	10	0.61
87-1-013	205	226	< 0.005	< 0.2	2.63	< 2	< 10	120	< 0.5	< 2	2.41	< 0.5	23	104	55	4.45	< 10	< 1	0.70	10	0.92
87-1-014	205	226	< 0.005	< 0.2	2.65	2	< 10	100	< 0.5	< 2	2.55	< 0.5	18	88	46	4.61	10	< 1	0.70	10	0.93
87-1-015	205	226	< 0.005	< 0.2	2.28	< 2	< 10	70	< 0.5	< 2	1.98	< 0.5	21	86	115	4.62	10	< 1	0.46	10	0.86
87-1-016	205	226	< 0.005	< 0.2	1.90	< 2	< 10	50	< 0.5	< 2	2.03	< 0.5	18	67	52	3.38	< 10	< 1	0.15	< 10	1.16
87-1-017	205	226	< 0.005	< 0.2	2.08	< 2	< 10	30	< 0.5	< 2	2.42	< 0.5	20	83	22	3.35	< 10	< 1	0.12	10	1.23
87-1-018	205	226	< 0.005	< 0.2	2.28	6	< 10	30	< 0.5	< 2	2.41	< 0.5	17	76	24	3.87	< 10	< 1	0.13	10	1.36
87-1-019	205	226	< 0.005	< 0.2	2.08	< 2	< 10	30	< 0.5	< 2	3.49	< 0.5	18	67	68	4.07	< 10	< 1	0.14	10	1.15
87-1-020	205	226	< 0.005	< 0.2	2.12	2	< 10	20	< 0.5	< 2	2.08	< 0.5	19	76	85	4.53	10	< 1	0.08	10	1.56
87-1-021	205	226	< 0.005	< 0.2	2.46	< 2	< 10	30	< 0.5	< 2	4.12	< 0.5	25	267	99	3.98	< 10	< 1	0.13	30	1.85
87-1-022	205	226	< 0.005	< 0.2	2.41	< 2	< 10	60	< 0.5	< 2	3.89	< 0.5	24	60	64	4.74	10	< 1	0.28	10	1.18
87-1-023	205	226	< 0.005	< 0.2	4.31	< 2	< 10	210	< 0.5	< 2	2.61	< 0.5	42	60	70	8.04	10	< 1	1.44	10	2.09
87-1-024	205	226	< 0.005	< 0.2	4.17	< 2	< 10	180	< 0.5	< 2	2.27	< 0.5	40	54	68	7.73	< 10	< 1	1.10	10	2.42
87-1-025	205	226	0.005	< 0.2	4.33	4	< 10	240	< 0.5	< 2	2.29	< 0.5	42	59	58	7.55	10	< 1	1.03	< 10	2.52
87-1-026	205	226	< 0.005	< 0.2	2.07	< 2	< 10	330	< 0.5	< 2	6.22	< 0.5	21	250	19	3.29	< 10	< 1	0.62	10	2.06
87-1-027	205	226	< 0.005	< 0.2	2.52	4	< 10	110	< 0.5	< 2	5.65	< 0.5	18	220	7	4.94	< 10	< 1	0.57	10	1.45
87-1-028	205	226	0.050	< 0.2	3.12	< 2	< 10	40	< 0.5	< 2	2.83	< 0.5	28	97	50	7.57	< 10	< 1	0.21	< 10	1.38
87-1-029	205	226	0.025	< 0.2	2.48	< 2	< 10	60	< 0.5	< 2	7.44	< 0.5	29	122	52	5.95	< 10	< 1	0.21	< 10	0.86
87-1-030	205	226	0.130	0.2	2.22	6	< 10	60	< 0.5	< 2	6.80	< 0.5	32	147	161	7.01	< 10	< 1	0.20	< 10	0.90
87-1-031	205	226	2.47	0.2	2.19	< 2	< 10	30	< 0.5	< 2	6.65	< 0.5	50	103	149	8.80	< 10	< 1	0.16	< 10	1.58
87-1-032	205	226	0.040	< 0.2	2.57	< 2	< 10	10	< 0.5	< 2	7.02	< 0.5	40	82	77	7.16	< 10	< 1	0.18	< 10	1.73
87-1-033	205	226	0.805	0.2	1.32	< 2	< 10	10	< 0.5	< 2	9.17	< 0.5	45	67	147	4.35	< 10	< 1	0.21	< 10	0.64
87-1-034	205	226	0.405	0.4	2.50	6	< 10	20	< 0.5	< 2	4.16	< 0.5	54	111	57	8.61	< 10	< 1	0.10	< 10	1.05
87-1-035	205	226	0.135	< 0.2	0.34	< 2	< 10	20	< 0.5	< 2	1.13	< 0.5	9	230	10	1.36	< 10	< 1	0.03	< 10	0.12
87-1-036	205	226	1.105	0.4	1.84	6	< 10	50	< 0.5	< 2	5.82	< 0.5	46	99	65	7.22	< 10	< 1	0.27	< 10	0.94
87-1-037	205	226	0.140	< 0.2	0.22	< 2	< 10	10	< 0.5	< 2	0.55	< 0.5	6	289	13	1.08	< 10	< 1	0.02	< 10	0.07
87-1-038	205	226	0.090	< 0.2	0.04	< 2	< 10	< 10	< 0.5	< 2	0.27	< 0.5	1	254	1035	0.43	< 10	< 1	< 0.01	< 10	0.02
87-1-039	205	226	0.075	< 0.2	0.95	4	< 10	50	< 0.5	< 2	7.53	< 0.5	11	199	306	2.07	< 10	< 1	0.19	10	0.77
87-1-040	205	226	0.380	0.2	0.18	< 2	< 10	10	< 0.5	< 2	2.86	< 0.5	5	220	1095	0.95	< 10	< 1	0.03	< 10	0.09

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: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : M5444
Comments: ATTN: JACQUES SAMSON

Certificate Date: 04-NOV-1999
Invoice No. : I9932272
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9932272

SAMPLE	PREP CODE		Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
87-1-001	205	226	565	< 1	0.09	42	1330	8	0.03	2	14	31	0.25	< 10	< 10	140	< 10	108
87-1-002	205	226	740	< 1	0.03	32	1140	2	0.14	< 2	14	45	0.18	< 10	< 10	111	< 10	68
87-1-003	205	226	485	< 1	0.18	27	1050	< 2	0.01	< 2	9	37	0.20	< 10	< 10	96	< 10	52
87-1-004	205	226	605	< 1	0.11	29	1260	4	0.14	< 2	13	34	0.26	< 10	< 10	137	< 10	104
87-1-005	205	226	500	11	0.03	31	500	46	0.78	< 2	5	17	0.18	< 10	< 10	45	< 10	1800
87-1-006	205	226	665	< 1	0.18	48	1350	2	0.16	< 2	14	32	0.25	< 10	< 10	116	< 10	142
87-1-007	205	226	550	< 1	0.24	46	1250	< 2	0.13	< 2	12	42	0.24	< 10	< 10	106	< 10	62
87-1-008	205	226	575	< 1	0.21	55	1250	2	0.18	< 2	14	32	0.28	< 10	< 10	128	< 10	48
87-1-009	205	226	590	< 1	0.19	51	1140	< 2	0.18	< 2	15	39	0.26	< 10	< 10	137	< 10	48
87-1-010	205	226	745	< 1	0.16	50	1250	2	0.18	2	18	25	0.29	< 10	< 10	158	< 10	92
87-1-011	205	226	780	< 1	0.17	47	1270	8	0.28	< 2	15	30	0.29	< 10	< 10	131	< 10	88
87-1-012	205	226	755	< 1	0.19	40	1200	< 2	0.22	< 2	16	28	0.27	< 10	< 10	118	< 10	78
87-1-013	205	226	600	< 1	0.15	36	1150	6	0.17	< 2	14	27	0.27	< 10	< 10	123	< 10	80
87-1-014	205	226	795	< 1	0.17	31	1090	< 2	0.10	< 2	17	29	0.25	< 10	< 10	105	< 10	88
87-1-015	205	226	695	3	0.14	31	1210	< 2	0.24	< 2	16	20	0.23	< 10	< 10	114	< 10	84
87-1-016	205	226	370	< 1	0.18	34	1440	< 2	0.11	< 2	10	25	0.18	< 10	< 10	85	< 10	52
87-1-017	205	226	425	< 1	0.20	39	1540	< 2	0.07	< 2	11	31	0.17	< 10	< 10	110	< 10	116
87-1-018	205	226	505	< 1	0.23	33	1440	< 2	0.05	< 2	13	31	0.17	< 10	< 10	106	< 10	72
87-1-019	205	226	680	< 1	0.18	28	1580	< 2	0.23	2	14	32	0.20	< 10	< 10	76	< 10	68
87-1-020	205	226	550	< 1	0.17	31	1600	2	0.28	< 2	14	32	0.24	< 10	< 10	84	< 10	60
87-1-021	205	226	650	< 1	0.08	75	1760	4	0.17	< 2	11	137	0.19	< 10	< 10	96	< 10	96
87-1-022	205	226	745	< 1	0.08	39	1230	< 2	0.19	2	12	41	0.24	< 10	< 10	105	< 10	90
87-1-023	205	226	1060	< 1	0.04	68	1380	< 2	0.25	< 2	11	31	0.33	< 10	10	194	< 10	112
87-1-024	205	226	855	< 1	0.03	71	1350	2	0.19	< 2	11	30	0.29	< 10	10	180	< 10	118
87-1-025	205	226	815	< 1	0.01	75	1310	4	0.17	4	8	37	0.20	< 10	10	164	< 10	132
87-1-026	205	226	705	< 1	0.03	85	710	4	0.06	< 2	12	94	0.05	< 10	< 10	71	< 10	88
87-1-027	205	226	685	< 1	0.03	89	620	2	0.03	2	12	79	0.04	< 10	< 10	76	< 10	120
87-1-028	205	226	525	< 1	0.01	66	1320	6	0.15	< 2	16	42	< 0.01	< 10	< 10	78	< 10	82
87-1-029	205	226	1050	1	0.01	79	1050	6	0.21	< 2	10	89	< 0.01	< 10	< 10	84	< 10	90
87-1-030	205	226	920	< 1	< 0.01	70	960	2	0.95	2	6	64	< 0.01	< 10	< 10	66	< 10	90
87-1-031	205	226	915	1	0.03	111	1110	2	1.63	< 2	8	87	0.01	< 10	10	197	< 10	102
87-1-032	205	226	1030	< 1	< 0.01	103	1030	< 2	0.16	2	4	79	0.03	< 10	< 10	116	< 10	102
87-1-033	205	226	930	< 1	< 0.01	89	1040	4	0.85	2	3	81	< 0.01	< 10	< 10	77	< 10	52
87-1-034	205	226	590	24	0.01	107	930	4	1.82	6	7	45	< 0.01	< 10	10	111	< 10	62
87-1-035	205	226	145	6	< 0.01	15	110	< 2	0.32	2	1	8	< 0.01	< 10	< 10	12	< 10	8
87-1-036	205	226	925	1	0.02	97	1090	6	1.67	4	9	92	0.01	< 10	< 10	136	< 10	82
87-1-037	205	226	85	4	< 0.01	14	100	2	0.35	< 2	< 1	9	< 0.01	< 10	< 10	9	< 10	6
87-1-038	205	226	30	1	< 0.01	6	40	< 2	0.13	< 2	< 1	8	< 0.01	< 10	< 10	2	< 10	2
87-1-039	205	226	730	< 1	0.04	43	600	< 2	0.26	< 2	8	187	< 0.01	< 10	< 10	44	< 10	100
87-1-040	205	226	165	1	< 0.01	19	60	4	0.51	< 2	1	154	< 0.01	< 10	< 10	4	< 10	24

CERTIFICATION: David Jef

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CERTIFICATE OF ANALYSIS A9932272

SAMPLE	PREP CODE		Au g/t FA+AA	Ag ppm	Al %	As ppm	B 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 %
87-1-041	205	226	0.530	0.2	2.52	< 2	< 10	60	< 0.5	< 2	5.16	< 0.5	43	85	441	6.36	< 10	< 1	0.17	< 10	1.19
87-1-042	205	226	0.265	0.2	0.76	< 2	< 10	60	< 0.5	< 2	1.84	< 0.5	13	237	27	2.70	< 10	< 1	0.03	< 10	0.27
87-1-043	205	226	0.110	0.4	1.12	< 2	< 10	70	< 0.5	< 2	7.64	< 0.5	36	94	138	4.59	< 10	< 1	0.20	< 10	0.54
87-1-044	205	226	0.055	0.2	1.76	8	< 10	30	< 0.5	< 2	5.15	0.5	27	159	164	5.95	< 10	< 1	0.15	< 10	0.77
87-1-045	205	226	0.215	0.4	1.96	16	< 10	90	< 0.5	< 2	4.69	3.5	33	76	580	5.26	< 10	< 1	0.20	< 10	0.55
87-1-046	205	226	0.015	0.2	3.07	74	< 10	90	< 0.5	< 2	4.71	0.5	32	75	223	8.22	< 10	< 1	0.37	< 10	1.09
87-1-047	205	226	< 0.005	< 0.2	3.27	< 2	< 10	90	< 0.5	< 2	2.93	< 0.5	40	102	59	4.86	< 10	< 1	0.43	< 10	1.23
87-1-048	205	226	< 0.005	< 0.2	3.33	< 2	< 10	40	< 0.5	< 2	3.46	< 0.5	34	89	56	4.93	< 10	< 1	0.18	< 10	1.36
87-1-049	205	226	< 0.005	< 0.2	3.45	10	< 10	50	< 0.5	< 2	3.55	< 0.5	35	100	59	4.51	< 10	< 1	0.30	< 10	1.01
87-1-050	205	226	< 0.005	< 0.2	3.89	12	< 10	80	< 0.5	< 2	3.18	< 0.5	45	111	96	5.47	< 10	< 1	0.56	< 10	1.17
87-1-051	205	226	< 0.005	< 0.2	4.32	< 2	< 10	160	< 0.5	< 2	3.89	< 0.5	39	123	75	4.68	< 10	< 1	0.73	< 10	1.22
87-1-052	205	226	< 0.005	< 0.2	3.65	< 2	< 10	160	< 0.5	< 2	3.21	< 0.5	35	103	77	4.63	< 10	< 1	0.61	< 10	1.42
87-1-053	205	226	< 0.005	< 0.2	3.96	14	< 10	160	< 0.5	< 2	3.17	< 0.5	37	114	68	4.84	10	< 1	0.79	< 10	1.56
87-1-054	205	226	< 0.005	< 0.2	4.04	2	< 10	90	< 0.5	< 2	3.63	< 0.5	40	107	87	4.68	< 10	< 1	0.55	< 10	1.20
87-1-055	205	226	< 0.005	< 0.2	3.36	6	< 10	90	< 0.5	< 2	3.07	< 0.5	32	91	81	3.85	< 10	< 1	0.44	< 10	1.12
87-2-056	205	226	< 0.005	< 0.2	2.45	< 2	< 10	10	< 0.5	< 2	4.38	< 0.5	29	77	116	5.02	< 10	< 1	0.11	10	1.17
87-2-057	205	226	< 0.005	< 0.2	3.75	4	< 10	< 10	< 0.5	< 2	4.60	< 0.5	34	304	50	6.58	10	< 1	0.06	30	2.96
87-2-058	205	226	< 0.005	0.6	2.90	< 2	< 10	10	< 0.5	< 2	2.64	< 0.5	28	94	90	5.91	< 10	< 1	0.16	< 10	1.47
87-2-059	205	226	< 0.005	< 0.2	2.92	< 2	< 10	20	< 0.5	< 2	2.76	< 0.5	28	87	75	5.40	< 10	< 1	0.27	< 10	1.29
87-2-060	205	226	< 0.005	< 0.2	2.32	< 2	< 10	10	< 0.5	< 2	3.15	< 0.5	21	68	34	4.23	< 10	< 1	0.15	10	1.06
87-2-061	205	294	< 0.005	< 0.2	2.44	< 2	< 10	20	< 0.5	< 2	3.24	< 0.5	22	78	46	4.40	< 10	< 1	0.23	< 10	0.82
87-2-062	205	226	< 0.005	< 0.2	1.92	< 2	< 10	< 10	< 0.5	< 2	2.87	< 0.5	20	61	67	3.55	< 10	< 1	0.11	< 10	0.77
87-2-063	205	226	< 0.005	< 0.2	2.81	< 2	< 10	< 10	< 0.5	< 2	2.58	< 0.5	24	72	37	5.05	10	< 1	0.09	< 10	1.64
87-2-064	205	226	< 0.005	< 0.2	1.22	< 2	< 10	< 10	< 0.5	< 2	3.21	< 0.5	8	198	6	2.29	< 10	< 1	0.01	< 10	0.69
87-2-065	205	226	< 0.005	0.2	2.64	12	< 10	< 10	< 0.5	< 2	3.74	< 0.5	26	93	63	4.99	< 10	< 1	0.07	< 10	1.37
87-2-066	205	226	< 0.005	< 0.2	3.01	6	< 10	< 10	< 0.5	< 2	3.17	< 0.5	28	101	60	6.25	10	< 1	0.07	< 10	1.77
87-2-067	205	226	< 0.005	< 0.2	1.62	< 2	< 10	< 10	< 0.5	< 2	1.98	< 0.5	13	38	26	2.56	< 10	< 1	0.08	< 10	0.66
87-2-068	205	226	< 0.005	< 0.2	1.74	< 2	< 10	< 10	< 0.5	< 2	1.96	< 0.5	17	48	24	3.02	< 10	< 1	0.08	< 10	1.05
87-2-069	205	226	< 0.005	< 0.2	1.58	18	< 10	< 10	< 0.5	< 2	7.10	< 0.5	37	87	58	3.42	< 10	< 1	0.04	10	1.30
87-2-070	205	226	< 0.005	< 0.2	2.72	16	< 10	10	< 0.5	< 2	4.56	< 0.5	25	252	55	4.77	10	< 1	0.14	30	2.21
87-2-071	205	226	< 0.005	< 0.2	2.23	< 2	< 10	20	< 0.5	< 2	2.86	< 0.5	20	68	83	4.08	< 10	< 1	0.17	< 10	0.78
87-2-072	205	226	< 0.005	< 0.2	3.74	4	< 10	240	< 0.5	< 2	1.50	< 0.5	33	86	60	7.07	10	< 1	1.40	< 10	1.74
87-2-073	205	226	< 0.005	< 0.2	1.82	2	< 10	40	< 0.5	< 2	1.33	2.0	18	95	103	3.73	< 10	< 1	0.28	10	0.91
87-2-074	205	226	< 0.005	0.6	2.36	2	< 10	40	< 0.5	< 2	2.09	< 0.5	43	86	359	6.63	< 10	< 1	0.28	< 10	1.54
87-2-075	205	226	0.005	0.2	1.79	< 2	< 10	50	< 0.5	< 2	1.49	2.0	30	96	151	3.78	< 10	< 1	0.54	10	0.80
87-2-076	205	226	< 0.005	< 0.2	2.82	< 2	< 10	80	< 0.5	< 2	3.38	< 0.5	24	125	61	4.63	< 10	< 1	0.39	< 10	0.77
87-2-077	205	226	< 0.005	< 0.2	2.78	14	< 10	110	< 0.5	< 2	1.73	< 0.5	30	145	107	5.75	< 10	< 1	0.75	10	1.08
87-2-078	205	226	< 0.005	< 0.2	2.64	< 2	< 10	40	< 0.5	< 2	3.71	< 0.5	30	112	122	4.74	< 10	< 1	0.20	< 10	0.77
87-2-079	205	294	< 0.005	< 0.2	2.67	< 2	< 10	60	< 0.5	< 2	2.79	< 0.5	30	127	66	5.04	< 10	< 1	0.36	< 10	0.98
87-2-080	205	226	< 0.005	< 0.2	2.29	< 2	< 10	30	< 0.5	< 2	3.27	< 0.5	25	92	110	4.58	< 10	< 1	0.21	< 10	0.96

CERTIFICATION: ____

Chemex Labs Ltd.

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

To: CAMECO CORPORATION
1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : M5444
Comments: ATTN: JACQUES SAMSON

Certificate Date: 04-NOV-1999
Invoice No. : I9932272
P.O. Number :
Account :KPI

CERTIFICATE OF ANALYSIS A9932272

SAMPLE	PREP CODE		Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
87-1-041	205	226	750	5	0.01	79	930	2	1.10	< 2	8	118	< 0.01	< 10	< 10	110	< 10	64
87-1-042	205	226	225	12	< 0.01	26	210	2	0.80	< 2	5	23	< 0.01	< 10	< 10	39	< 10	32
87-1-043	205	226	1055	1	0.03	76	960	6	1.52	< 2	13	119	< 0.01	< 10	< 10	109	< 10	102
87-1-044	205	226	955	3	< 0.01	54	490	2	0.99	< 2	5	79	< 0.01	< 10	< 10	58	< 10	118
87-1-045	205	226	795	1	0.01	47	990	10	0.85	< 2	7	65	< 0.01	< 10	10	37	< 10	788
87-1-046	205	226	1345	< 1	0.05	100	720	12	1.21	< 2	11	56	0.07	< 10	10	112	< 10	468
87-1-047	205	226	705	< 1	0.15	106	1010	2	0.21	< 2	9	28	0.30	< 10	10	148	< 10	122
87-1-048	205	226	745	< 1	0.19	89	1100	2	0.20	< 2	11	38	0.27	< 10	< 10	151	< 10	96
87-1-049	205	226	735	< 1	0.22	100	1100	< 2	0.23	< 2	11	39	0.30	< 10	< 10	150	< 10	98
87-1-050	205	226	760	< 1	0.20	132	1210	4	0.47	< 2	12	31	0.33	< 10	< 10	209	< 10	122
87-1-051	205	226	725	< 1	0.26	93	1050	4	0.24	< 2	10	40	0.29	< 10	< 10	185	< 10	84
87-1-052	205	226	685	< 1	0.22	85	1040	2	0.19	< 2	9	27	0.26	< 10	< 10	156	< 10	82
87-1-053	205	226	670	< 1	0.22	94	1060	8	0.17	< 2	8	32	0.29	< 10	< 10	169	< 10	90
87-1-054	205	226	635	< 1	0.23	98	1120	8	0.31	2	8	34	0.28	< 10	< 10	160	< 10	78
87-1-055	205	226	550	< 1	0.24	82	1080	2	0.20	< 2	8	32	0.22	< 10	< 10	141	< 10	68
87-2-056	205	226	705	< 1	0.12	32	1370	6	0.28	< 2	13	34	0.23	< 10	< 10	140	< 10	92
87-2-057	205	226	920	< 1	0.04	100	1950	< 2	0.10	< 2	14	68	0.26	< 10	< 10	170	< 10	110
87-2-058	205	226	800	< 1	0.06	41	1250	6	0.18	< 2	10	42	0.39	< 10	10	142	< 10	94
87-2-059	205	226	900	< 1	0.10	39	1040	2	0.10	< 2	10	47	0.33	< 10	< 10	133	< 10	98
87-2-060	205	226	710	< 1	0.15	30	890	< 2	0.07	< 2	11	42	0.29	< 10	< 10	121	< 10	66
87-2-061	205	294	735	< 1	0.19	34	840	2	0.07	2	12	36	0.36	< 10	< 10	121	< 10	80
87-2-062	205	226	580	< 1	0.19	31	860	< 2	0.12	< 2	10	25	0.28	< 10	< 10	97	< 10	58
87-2-063	205	226	585	< 1	0.10	38	1390	< 2	0.07	< 2	12	26	0.24	< 10	10	122	< 10	102
87-2-064	205	226	375	< 1	0.02	15	350	< 2	0.01	< 2	7	13	0.12	< 10	< 10	62	< 10	48
87-2-065	205	226	685	< 1	0.07	43	1190	2	0.09	2	12	52	0.29	< 10	< 10	132	< 10	106
87-2-066	205	226	735	< 1	0.07	45	1220	< 2	0.11	2	16	28	0.31	< 10	< 10	179	< 10	150
87-2-067	205	226	360	< 1	0.15	22	1240	6	0.08	< 2	6	17	0.18	< 10	< 10	65	< 10	62
87-2-068	205	226	390	< 1	0.09	21	1280	< 2	0.07	< 2	6	20	0.17	< 10	< 10	79	< 10	56
87-2-069	205	226	665	1	0.04	26	1230	14	0.39	2	12	112	0.14	< 10	10	112	< 10	126
87-2-070	205	226	705	< 1	0.10	81	1650	4	0.05	< 2	16	120	0.21	< 10	10	131	< 10	112
87-2-071	205	226	630	< 1	0.18	26	1030	8	0.21	< 2	11	36	0.27	< 10	< 10	118	< 10	100
87-2-072	205	226	675	< 1	0.10	45	1440	2	0.22	< 2	10	17	0.44	< 10	< 10	187	< 10	174
87-2-073	205	226	575	5	0.04	24	430	12	0.52	< 2	5	20	0.16	< 10	< 10	43	< 10	916
87-2-074	205	226	835	4	0.03	43	440	18	1.39	2	6	18	0.15	< 10	< 10	71	< 10	342
87-2-075	205	226	590	5	0.04	40	560	2	1.04	2	4	19	0.15	< 10	< 10	45	< 10	1150
87-2-076	205	226	760	< 1	0.18	52	1230	16	0.20	< 2	16	36	0.24	< 10	< 10	157	< 10	118
87-2-077	205	226	690	< 1	0.08	55	1170	6	0.38	< 2	10	24	0.30	< 10	10	136	< 10	328
87-2-078	205	226	735	< 1	0.21	53	1290	6	0.35	< 2	14	44	0.29	< 10	< 10	130	< 10	116
87-2-079	205	294	765	3	0.16	54	990	2	0.18	< 2	17	32	0.31	< 10	< 10	161	< 10	100
87-2-080	205	226	745	< 1	0.22	45	1060	16	0.21	2	13	33	0.27	< 10	< 10	121	< 10	210

CERTIFICATION: [signature]

Chemex Labs Ltd.

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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : M5444
Comments: ATTN: JACQUES SAMSON

Certificate Date: 04-NOV-1999
Invoice No. : I9932272
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9932272

SAMPLE	PREP CODE		Au g/t FA+AA	Ag ppm	Al %	As ppm	B 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 %
87-2-081	205	226	< 0.005	< 0.2	1.84	< 2	< 10	100	< 0.5	< 2	1.69	< 0.5	16	316	10	2.92	< 10	< 1	0.51	10	1.63
87-2-082	205	226	< 0.005	< 0.2	3.85	< 2	< 10	220	< 0.5	< 2	2.00	< 0.5	31	143	101	7.69	10	< 1	0.68	10	3.14
87-2-083	205	226	< 0.005	< 0.2	1.84	< 2	< 10	120	< 0.5	< 2	2.04	< 0.5	17	270	46	2.85	< 10	< 1	0.55	10	1.77
87-2-084	205	226	< 0.005	< 0.2	1.71	8	< 10	30	< 0.5	< 2	2.56	< 0.5	17	275	14	2.92	10	< 1	0.11	10	1.76
87-2-085	205	226	< 0.005	< 0.2	3.56	< 2	< 10	90	< 0.5	< 2	1.62	< 0.5	34	97	61	6.47	10	< 1	0.48	10	2.24
87-2-086	205	226	< 0.005	< 0.2	2.93	< 2	< 10	180	< 0.5	< 2	2.24	< 0.5	24	86	44	5.67	10	< 1	0.77	10	1.48
87-2-087	205	226	< 0.005	< 0.2	2.46	< 2	< 10	90	< 0.5	< 2	2.38	< 0.5	23	77	66	4.83	< 10	< 1	0.53	10	0.87
87-2-088	205	226	< 0.005	< 0.2	2.13	< 2	< 10	40	< 0.5	< 2	2.48	< 0.5	23	54	92	4.58	< 10	< 1	0.24	10	0.93
87-2-089	205	226	< 0.005	< 0.2	2.05	< 2	< 10	20	< 0.5	< 2	2.37	< 0.5	20	53	78	4.41	< 10	< 1	0.16	10	1.11
87-2-090	205	226	< 0.005	< 0.2	2.20	< 2	< 10	10	< 0.5	< 2	2.73	< 0.5	18	57	44	4.51	10	< 1	0.14	10	1.10
87-2-091	205	226	< 0.005	< 0.2	2.10	4	< 10	10	< 0.5	< 2	2.23	< 0.5	19	56	104	4.62	< 10	< 1	0.12	10	1.17
87-2-092	205	226	< 0.005	< 0.2	2.16	< 2	< 10	10	< 0.5	< 2	2.28	< 0.5	20	61	25	4.23	< 10	< 1	0.13	< 10	1.32
87-2-093	205	226	< 0.005	< 0.2	2.29	< 2	< 10	10	< 0.5	< 2	2.60	< 0.5	27	67	32	4.42	< 10	< 1	0.14	< 10	1.31
87-2-094	205	226	< 0.005	< 0.2	2.18	< 2	< 10	10	< 0.5	< 2	2.76	< 0.5	16	56	35	4.34	< 10	< 1	0.14	10	1.13
87-2-095	205	226	< 0.005	< 0.2	3.13	2	< 10	110	< 0.5	< 2	2.07	< 0.5	27	48	73	6.47	< 10	< 1	0.86	10	1.30
87-2-096	205	226	< 0.005	< 0.2	2.69	< 2	< 10	110	< 0.5	< 2	2.31	< 0.5	34	38	94	5.43	< 10	< 1	0.82	< 10	1.22
87-2-097	205	226	< 0.005	< 0.2	3.21	2	< 10	150	< 0.5	< 2	1.93	< 0.5	32	40	51	6.33	< 10	< 1	1.18	< 10	1.63
87-2-098	205	226	< 0.005	< 0.2	4.13	6	< 10	130	< 0.5	< 2	2.99	< 0.5	33	36	55	7.61	10	< 1	1.00	< 10	2.13
87-2-099	205	226	< 0.005	< 0.2	3.58	2	< 10	180	< 0.5	< 2	2.12	< 0.5	32	38	57	6.16	10	< 1	1.23	10	1.75
87-2-100	205	226	< 0.005	< 0.2	3.60	8	< 10	260	< 0.5	< 2	2.59	< 0.5	34	45	64	6.03	10	< 1	1.55	10	1.58
87-2-101	205	226	< 0.005	< 0.2	3.32	< 2	< 10	210	< 0.5	< 2	2.77	< 0.5	36	50	117	5.76	< 10	< 1	1.31	< 10	1.37
87-2-102	205	226	< 0.005	< 0.2	3.72	< 2	< 10	200	< 0.5	< 2	3.16	< 0.5	33	41	77	6.42	10	< 1	1.24	< 10	1.77
87-2-103	205	226	< 0.005	< 0.2	4.34	< 2	< 10	140	< 0.5	< 2	2.47	< 0.5	39	41	62	7.56	10	< 1	0.78	< 10	2.46
87-2-104	205	226	< 0.005	< 0.2	4.33	6	< 10	240	< 0.5	< 2	3.59	< 0.5	39	41	48	7.23	10	< 1	1.20	10	1.97
87-2-105	205	226	< 0.005	< 0.2	4.70	16	< 10	470	< 0.5	< 2	4.37	< 0.5	37	42	55	7.97	10	< 1	1.16	< 10	1.96
87-2-106	205	226	< 0.005	< 0.2	4.41	6	< 10	100	< 0.5	< 2	3.61	< 0.5	38	44	110	7.49	10	< 1	0.64	< 10	2.07
87-2-107	205	226	0.005	0.6	4.40	< 2	< 10	40	< 0.5	< 2	3.00	0.5	36	47	74	9.48	10	< 1	0.26	10	1.74
87-2-108	205	226	0.010	1.2	2.79	16	< 10	30	< 0.5	< 2	5.56	0.5	60	53	102	6.95	< 10	< 1	0.25	10	0.87
87-2-109	205	226	< 0.005	< 0.2	3.71	14	< 10	60	< 0.5	< 2	4.26	< 0.5	32	141	48	7.10	< 10	< 1	0.43	10	1.69
87-2-110	205	226	0.060	< 0.2	2.61	2	< 10	80	< 0.5	< 2	2.45	< 0.5	28	132	121	5.25	< 10	< 1	0.44	10	1.36
87-2-111	205	226	0.015	< 0.2	1.51	16	< 10	50	< 0.5	< 2	2.32	< 0.5	18	117	62	3.88	< 10	< 1	0.44	30	0.79
87-2-112	205	226	0.025	< 0.2	1.98	< 2	< 10	90	< 0.5	< 2	4.10	< 0.5	23	187	91	3.99	< 10	< 1	0.66	10	1.04
87-2-113	205	226	0.110	< 0.2	2.51	< 2	< 10	80	< 0.5	< 2	6.15	< 0.5	28	137	296	5.82	< 10	< 1	0.53	10	0.98
87-2-114	205	226	0.035	< 0.2	3.69	2	< 10	90	0.5	< 2	5.41	< 0.5	25	71	59	7.62	10	< 1	0.73	10	1.66
87-2-115	205	226	0.195	< 0.2	2.30	< 2	< 10	100	< 0.5	< 2	5.75	< 0.5	26	123	104	5.83	< 10	< 1	0.67	10	1.20
87-2-116	205	226	1.230	0.2	3.66	18	< 10	40	0.5	< 2	4.28	< 0.5	27	73	87	7.33	< 10	< 1	0.22	< 10	2.10
87-2-117	205	226	< 0.005	< 0.2	3.16	< 2	< 10	50	1.0	< 2	6.18	< 0.5	23	53	44	6.72	< 10	< 1	0.26	< 10	1.27
87-2-118	205	226	0.020	< 0.2	3.14	8	< 10	150	< 0.5	< 2	6.48	< 0.5	23	64	47	6.37	< 10	< 1	0.46	10	1.20
87-2-119	205	226	< 0.005	< 0.2	2.43	6	< 10	90	< 0.5	< 2	5.29	< 0.5	21	228	41	3.65	< 10	< 1	0.29	10	1.91
87-2-120	205	226	0.005	< 0.2	2.86	< 2	< 10	130	< 0.5	< 2	4.08	< 0.5	19	317	56	3.31	10	< 1	0.52	10	2.90

CERTIFICATION: David Ig

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SAMPLE	PREP CODE	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
87-2-081	205 226	465	< 1	0.08	61	770	6	< 0.01	< 2	5	39	0.20	< 10	< 10	66	< 10	64
87-2-082	205 226	980	< 1	0.01	71	1330	10	0.51	< 2	9	67	0.48	< 10	10	123	< 10	108
87-2-083	205 226	410	< 1	0.10	63	710	16	0.10	< 2	5	62	0.19	< 10	< 10	66	< 10	48
87-2-084	205 226	510	< 1	0.08	66	720	2	0.01	< 2	8	45	0.19	< 10	< 10	72	< 10	74
87-2-085	205 226	930	< 1	0.01	48	1550	6	0.35	< 2	12	76	0.44	< 10	< 10	128	< 10	70
87-2-086	205 226	870	< 1	0.12	40	1360	< 2	0.12	< 2	15	30	0.32	< 10	< 10	121	< 10	96
87-2-087	205 226	790	< 1	0.16	35	1240	< 2	0.18	2	15	25	0.26	< 10	< 10	111	< 10	82
87-2-088	205 226	705	3	0.16	30	1510	8	0.42	2	13	23	0.27	< 10	< 10	83	< 10	108
87-2-089	205 226	650	< 1	0.19	26	1510	2	0.23	2	14	18	0.20	< 10	10	76	< 10	62
87-2-090	205 226	835	< 1	0.21	27	1470	6	0.14	2	16	18	0.18	< 10	< 10	95	< 10	72
87-2-091	205 226	670	< 1	0.21	27	1550	12	0.29	< 2	15	13	0.18	< 10	< 10	86	< 10	88
87-2-092	205 226	590	< 1	0.14	32	1140	8	0.14	< 2	10	13	0.27	< 10	10	99	< 10	100
87-2-093	205 226	640	< 1	0.20	46	1340	6	0.23	< 2	12	17	0.28	< 10	< 10	109	< 10	70
87-2-094	205 226	760	< 1	0.22	26	1310	2	0.09	< 2	16	18	0.18	< 10	< 10	95	< 10	182
87-2-095	205 226	1205	< 1	0.09	46	1300	10	0.25	4	11	23	0.41	< 10	< 10	145	< 10	90
87-2-096	205 226	1175	< 1	0.07	53	1000	< 2	0.25	< 2	9	26	0.38	< 10	< 10	148	< 10	68
87-2-097	205 226	1120	< 1	0.06	57	1260	2	0.15	< 2	9	18	0.48	< 10	< 10	169	< 10	60
87-2-098	205 226	1345	< 1	0.09	61	1400	2	0.14	< 2	14	26	0.57	< 10	< 10	201	< 10	88
87-2-099	205 226	1030	< 1	0.12	59	1310	4	0.16	< 2	12	18	0.42	< 10	< 10	176	< 10	106
87-2-100	205 226	975	< 1	0.11	63	1270	2	0.20	< 2	12	22	0.43	< 10	< 10	189	< 10	116
87-2-101	205 226	975	< 1	0.06	63	1210	2	0.31	< 2	8	19	0.41	< 10	< 10	154	< 10	116
87-2-102	205 226	960	< 1	0.10	60	1310	2	0.24	< 2	10	21	0.28	< 10	< 10	174	< 10	128
87-2-103	205 226	990	< 1	0.04	67	1400	< 2	0.19	< 2	9	26	0.27	< 10	10	178	< 10	144
87-2-104	205 226	1095	7	0.01	68	1350	2	0.15	6	13	45	0.15	< 10	< 10	153	< 10	132
87-2-105	205 226	1190	< 1	0.01	68	1280	< 2	0.16	< 2	14	59	0.14	< 10	10	150	< 10	134
87-2-106	205 226	1115	< 1	0.01	62	1130	6	0.34	< 2	11	36	0.08	< 10	10	129	< 10	162
87-2-107	205 226	1170	1	0.01	50	600	6	1.58	< 2	11	32	0.01	< 10	10	65	< 10	330
87-2-108	205 226	1135	1	0.02	46	560	8	2.04	< 2	8	55	< 0.01	< 10	< 10	41	< 10	286
87-2-109	205 226	1200	< 1	0.01	71	900	< 2	0.52	< 2	14	62	0.01	< 10	< 10	89	< 10	200
87-2-110	205 226	730	1	0.04	43	630	2	0.84	< 2	11	41	0.05	< 10	< 10	88	< 10	112
87-2-111	205 226	585	1	0.05	18	140	8	1.01	< 2	4	30	0.04	< 10	< 10	19	< 10	88
87-2-112	205 226	670	< 1	0.03	53	490	2	0.96	< 2	7	57	0.05	< 10	< 10	51	< 10	148
87-2-113	205 226	1320	< 1	0.01	55	940	4	1.07	< 2	11	108	0.03	< 10	< 10	65	< 10	172
87-2-114	205 226	1490	< 1	0.01	39	1440	2	0.35	< 2	19	80	0.06	< 10	< 10	100	< 10	166
87-2-115	205 226	1270	5	0.04	49	1060	4	1.10	< 2	19	96	0.06	< 10	10	103	< 10	110
87-2-116	205 226	1060	< 1	0.01	42	1420	2	1.15	2	15	56	< 0.01	< 10	10	110	< 10	124
87-2-117	205 226	1415	< 1	0.01	34	1500	6	0.22	< 2	25	97	< 0.01	< 10	10	79	< 10	140
87-2-118	205 226	1425	< 1	0.01	34	1490	4	0.19	2	23	93	0.02	< 10	< 10	73	< 10	104
87-2-119	205 226	805	< 1	0.03	72	780	2	0.11	< 2	11	91	0.02	< 10	< 10	72	< 10	78
87-2-120	205 226	585	< 1	0.04	79	630	< 2	0.05	< 2	12	97	0.07	< 10	< 10	86	< 10	64

CERTIFICATION: [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: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : M5444
Comments: ATTN: JACQUES SAMSON

Certificate Date: 04-NOV-1999
Invoice No. : I9932272
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9932272

SAMPLE	PREP CODE		Au g/t FA+AA	Ag ppm	Al %	As ppm	B 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 %
87-2-121	205	226	0.010	< 0.2	2.99	< 2	< 10	270	< 0.5	< 2	3.60	< 0.5	22	330	43	3.30	10	< 1	1.16	10	3.13
87-2-122	205	226	< 0.005	< 0.2	3.25	8	< 10	350	< 0.5	< 2	3.94	< 0.5	22	360	39	3.49	10	< 1	1.38	10	3.55
87-2-123	205	226	< 0.005	< 0.2	2.91	< 2	< 10	330	< 0.5	< 2	3.24	< 0.5	20	352	21	3.25	10	< 1	1.30	10	3.18
87-2-124	205	226	< 0.005	< 0.2	2.96	6	< 10	310	< 0.5	< 2	3.35	< 0.5	20	346	31	3.30	10	< 1	1.24	10	3.23
87-2-125	205	226	< 0.005	< 0.2	2.58	< 2	< 10	280	< 0.5	< 2	2.29	< 0.5	21	333	9	3.14	10	< 1	1.00	10	3.40
87-2-126	205	222	< 0.005	< 0.2	3.23	< 2	< 10	430	0.5	< 2	4.76	< 0.5	32	190	73	5.42	10	6	0.78	30	7.52
87-2-127	205	226	< 0.005	< 0.2	2.20	6	< 10	270	< 0.5	< 2	2.05	< 0.5	19	300	22	2.58	10	< 1	0.93	10	2.44
87-2-128	205	226	< 0.005	< 0.2	2.27	< 2	< 10	150	< 0.5	< 2	2.70	< 0.5	18	288	53	2.65	10	< 1	0.60	10	2.49

CERTIFICATION:

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

5175 Timberlea Blvd., Mississauga
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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : M5444
Comments: ATTN: JACQUES SAMSON

Certificate Date: 04-NOV-1999
Invoice No. : I9932272
P.O. Number :
Account :KPI

CERTIFICATE OF ANALYSIS A9932272

SAMPLE	PREP CODE		Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
87-2-121	205	226	560	< 1	0.05	86	630	2	0.13	< 2	12	123	0.13	< 10	< 10	90	< 10	58
87-2-122	205	226	660	< 1	0.05	88	650	< 2	0.11	< 2	13	136	0.17	< 10	10	97	< 10	72
87-2-123	205	226	605	< 1	0.07	80	630	2	0.15	< 2	11	115	0.15	< 10	< 10	87	< 10	82
87-2-124	205	226	570	< 1	0.08	82	660	< 2	0.10	< 2	10	134	0.18	< 10	< 10	86	< 10	64
87-2-125	205	226	410	< 1	0.11	73	640	2	0.12	< 2	6	145	0.17	< 10	< 10	67	< 10	48
87-2-126	205	222	555	< 1	0.19	204	2150	6	0.18	2	11	558	0.35	< 10	< 10	144	< 10	58
87-2-127	205	226	370	< 1	0.10	68	670	2	0.11	4	5	109	0.17	< 10	< 10	64	< 10	48
87-2-128	205	226	460	< 1	0.08	70	640	2	0.09	< 2	5	75	0.15	< 10	< 10	66	< 10	50

CERTIFICATION: David [signature]

Chemex Labs Ltd.
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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

A9932432

Comments: ATTN: JACQUES SAMSON

CERTIFICATE A9932432

(KPI) - CAMECO CORPORATION

Project: M5444
P.O. # :

Samples submitted to our lab in Thunder Bay, ON.
This report was printed on 16-NOV-1999.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
205	132	Geochem ring to approx 150 mesh
226	132	0-3 Kg crush and split
3202	132	Rock - save entire reject
229	132	ICP - AQ Digestion charge
* NOTE	1:	

The 32 element ICP package is suitable for trace metals in soil and rock samples. Elements for which the nitric-aqua regia digestion is possibly incomplete are: Al, Ba, Be, Ca, Cr, Ga, K, La, Mg, Na, Sr, Ti, Tl, W.

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
494	132	Au g/t: Fuse 30 g sample	FA-AAS	0.005	10.00
2118	132	Ag ppm: 32 element, soil & rock	ICP-AES	0.2	100.0
2119	132	Al %: 32 element, soil & rock	ICP-AES	0.01	15.00
2120	132	As ppm: 32 element, soil & rock	ICP-AES	2	10000
557	132	B ppm: 32 element, rock & soil	ICP-AES	10	10000
2121	132	Ba ppm: 32 element, soil & rock	ICP-AES	10	10000
2122	132	Be ppm: 32 element, soil & rock	ICP-AES	0.5	100.0
2123	132	Bi ppm: 32 element, soil & rock	ICP-AES	2	10000
2124	132	Ca %: 32 element, soil & rock	ICP-AES	0.01	15.00
2125	132	Cd ppm: 32 element, soil & rock	ICP-AES	0.5	500
2126	132	Co ppm: 32 element, soil & rock	ICP-AES	1	10000
2127	132	Cr ppm: 32 element, soil & rock	ICP-AES	1	10000
2128	132	Cu ppm: 32 element, soil & rock	ICP-AES	1	10000
2150	132	Fe %: 32 element, soil & rock	ICP-AES	0.01	15.00
2130	132	Ga ppm: 32 element, soil & rock	ICP-AES	10	10000
2131	132	Hg ppm: 32 element, soil & rock	ICP-AES	1	10000
2132	132	K %: 32 element, soil & rock	ICP-AES	0.01	10.00
2151	132	La ppm: 32 element, soil & rock	ICP-AES	10	10000
2134	132	Mg %: 32 element, soil & rock	ICP-AES	0.01	15.00
2135	132	Mn ppm: 32 element, soil & rock	ICP-AES	5	10000
2136	132	Mo ppm: 32 element, soil & rock	ICP-AES	1	10000
2137	132	Na %: 32 element, soil & rock	ICP-AES	0.01	10.00
2138	132	Ni ppm: 32 element, soil & rock	ICP-AES	1	10000
2139	132	P ppm: 32 element, soil & rock	ICP-AES	10	10000
2140	132	Pb ppm: 32 element, soil & rock	ICP-AES	2	10000
551	132	S %: 32 element, rock & soil	ICP-AES	0.01	5.00
2141	132	Sb ppm: 32 element, soil & rock	ICP-AES	2	10000
2142	132	Sc ppm: 32 elements, soil & rock	ICP-AES	1	10000
2143	132	Sr ppm: 32 element, soil & rock	ICP-AES	1	10000
2144	132	Ti %: 32 element, soil & rock	ICP-AES	0.01	10.00
2145	132	Tl ppm: 32 element, soil & rock	ICP-AES	10	10000
2146	132	U ppm: 32 element, soil & rock	ICP-AES	10	10000
2147	132	V ppm: 32 element, soil & rock	ICP-AES	1	10000
2148	132	W ppm: 32 element, soil & rock	ICP-AES	10	10000
2149	132	Zn ppm: 32 element, soil & rock	ICP-AES	2	10000

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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : M5444
Comments: ATTN: JACQUES SAMSON

Certificate Date: 16-NOV-1999
Invoice No. : I9932432
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9932432

SAMPLE	PREP CODE		Au g/t FA+AA	Ag ppm	Al %	As ppm	B 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 %
87-9-372	205	226	0.010	< 0.2	1.57	< 2	< 10	30	< 0.5	< 2	2.90	1.0	22	81	116	4.14	< 10	< 1	0.22	< 10	0.84
87-9-373	205	226	< 0.005	< 0.2	4.03	< 2	< 10	120	< 0.5	< 2	2.50	< 0.5	33	64	97	7.01	10	< 1	0.86	< 10	2.55
87-9-374	205	226	< 0.005	< 0.2	3.33	< 2	< 10	110	< 0.5	< 2	2.08	< 0.5	28	73	55	5.82	10	< 1	0.69	< 10	2.03
87-9-375	205	226	< 0.005	< 0.2	2.82	< 2	< 10	80	< 0.5	< 2	2.45	< 0.5	24	55	114	5.02	10	< 1	0.57	10	1.22
87-9-376	205	226	< 0.005	< 0.2	2.72	< 2	< 10	110	< 0.5	< 2	3.03	< 0.5	26	55	67	5.86	10	< 1	0.64	10	1.26
87-9-377	205	226	< 0.005	< 0.2	1.53	< 2	< 10	30	< 0.5	< 2	2.00	0.5	19	98	120	4.09	< 10	< 1	0.27	10	0.65
87-9-378	205	226	< 0.005	< 0.2	0.83	< 2	< 10	20	< 0.5	< 2	0.75	< 0.5	8	110	61	1.80	< 10	< 1	0.17	10	0.36
87-9-379	205	226	0.010	0.2	1.21	< 2	< 10	30	< 0.5	< 2	1.85	4.0	47	97	250	7.02	< 10	< 1	0.24	< 10	0.58
87-9-380	205	226	< 0.005	< 0.2	1.68	< 2	< 10	20	< 0.5	< 2	2.53	< 0.5	19	63	75	3.49	< 10	< 1	0.14	< 10	0.83
87-9-381	205	226	< 0.005	< 0.2	2.30	< 2	< 10	30	< 0.5	< 2	3.05	< 0.5	17	72	15	3.29	< 10	< 1	0.11	< 10	1.09
87-9-382	205	226	< 0.005	< 0.2	2.17	< 2	< 10	10	< 0.5	< 2	3.68	< 0.5	52	88	264	5.18	< 10	< 1	0.10	< 10	0.98
87-9-383	205	226	< 0.005	< 0.2	2.23	< 2	< 10	30	< 0.5	< 2	2.30	< 0.5	13	73	18	3.55	< 10	< 1	0.20	10	0.97
87-9-384	205	226	0.025	< 0.2	1.18	< 2	< 10	10	< 0.5	< 2	4.20	2.5	16	53	276	11.70	< 10	< 1	0.10	< 10	0.52
87-9-385	205	226	< 0.005	< 0.2	2.11	< 2	< 10	50	< 0.5	< 2	1.89	< 0.5	20	59	68	3.97	< 10	< 1	0.16	< 10	1.01
87-6-415	205	226	< 0.005	< 0.2	1.93	< 2	< 10	50	< 0.5	< 2	1.14	< 0.5	16	73	37	4.35	10	< 1	0.19	20	1.00
87-6-416	205	226	< 0.005	< 0.2	1.71	< 2	< 10	30	< 0.5	< 2	0.47	1.0	14	65	49	3.47	< 10	< 1	0.16	20	0.97
87-6-417	205	226	0.005	< 0.2	1.40	32	< 10	< 10	< 0.5	< 2	3.22	< 0.5	68	62	97	4.76	10	< 1	0.05	10	1.09
87-6-418	205	226	< 0.005	< 0.2	2.68	< 2	< 10	40	< 0.5	< 2	1.31	1.0	26	205	79	4.77	10	< 1	0.25	10	1.78
87-6-419	205	226	< 0.005	< 0.2	2.62	< 2	< 10	10	< 0.5	< 2	2.51	0.5	34	127	83	5.87	10	< 1	0.08	< 10	1.88
87-6-420	205	226	< 0.005	< 0.2	2.41	< 2	< 10	30	< 0.5	< 2	1.95	< 0.5	33	128	82	5.63	10	< 1	0.21	10	1.76
87-6-421	205	226	< 0.005	< 0.2	2.54	4	< 10	80	< 0.5	< 2	2.44	< 0.5	27	111	58	5.21	< 10	< 1	0.72	10	1.45
87-6-422	205	226	< 0.005	< 0.2	1.44	12	< 10	20	0.5	< 2	1.93	< 0.5	11	77	40	3.26	< 10	< 1	0.26	10	0.94
87-6-423	205	226	< 0.005	< 0.2	1.28	4	< 10	30	0.5	< 2	2.71	< 0.5	8	106	28	2.65	< 10	< 1	0.23	20	0.89
87-6-424	205	226	< 0.005	< 0.2	2.26	8	< 10	80	1.5	< 2	13.30	< 0.5	36	293	105	5.00	10	< 1	0.09	60	3.33
87-6-425	205	226	< 0.005	< 0.2	1.70	184	< 10	30	1.0	< 2	3.11	< 0.5	13	108	78	3.63	< 10	< 1	0.26	10	0.80
87-6-426	205	226	< 0.005	< 0.2	1.00	20	< 10	30	< 0.5	< 2	1.40	< 0.5	5	75	19	2.16	< 10	< 1	0.39	10	0.38
87-6-427	205	226	< 0.005	< 0.2	0.85	< 2	< 10	10	< 0.5	< 2	1.53	< 0.5	7	91	13	2.29	< 10	< 1	0.27	10	0.22
87-6-428	205	226	< 0.005	< 0.2	1.53	< 2	< 10	20	< 0.5	< 2	1.13	< 0.5	7	88	29	2.90	< 10	< 1	0.51	20	0.70
87-6-429	205	226	< 0.005	< 0.2	1.28	< 2	< 10	20	< 0.5	< 2	1.14	0.5	7	85	48	2.56	< 10	< 1	0.43	30	0.58
87-6-430	205	226	< 0.005	< 0.2	1.44	< 2	< 10	30	< 0.5	< 2	1.45	0.5	9	71	62	3.02	< 10	< 1	0.55	20	0.65
87-6-431	205	226	< 0.005	< 0.2	1.73	< 2	< 10	30	< 0.5	< 2	1.08	0.5	11	57	47	3.43	< 10	< 1	0.52	20	1.01
87-6-432	205	226	< 0.005	< 0.2	1.74	< 2	< 10	30	< 0.5	< 2	1.53	< 0.5	10	62	46	3.34	< 10	< 1	0.67	20	0.96
87-6-433	205	226	< 0.005	< 0.2	2.65	< 2	< 10	90	< 0.5	< 2	2.09	0.5	22	82	98	5.24	< 10	< 1	1.08	10	1.69
87-6-434	205	226	< 0.005	< 0.2	2.26	< 2	< 10	60	< 0.5	< 2	3.64	0.5	18	65	63	4.95	10	< 1	0.46	10	1.46
87-6-435	205	226	< 0.005	< 0.2	3.16	< 2	< 10	40	< 0.5	< 2	2.00	< 0.5	22	80	67	5.93	10	< 1	0.25	< 10	2.44
87-6-436	205	226	< 0.005	< 0.2	2.44	< 2	< 10	40	< 0.5	< 2	1.26	< 0.5	20	118	73	4.40	10	< 1	0.23	< 10	2.02
87-6-437	205	226	< 0.005	< 0.2	2.33	< 2	< 10	250	< 0.5	< 2	2.29	0.5	20	118	120	4.47	10	< 1	1.29	10	1.78
87-6-438	205	226	< 0.005	< 0.2	0.92	< 2	< 10	100	< 0.5	< 2	0.79	3.0	27	98	334	3.85	< 10	< 1	0.36	10	0.58
87-6-439	205	226	< 0.005	< 0.2	2.14	< 2	< 10	50	< 0.5	< 2	2.17	< 0.5	17	73	81	4.43	10	< 1	0.23	10	1.40
87-6-440	205	226	< 0.005	< 0.2	2.44	< 2	< 10	30	< 0.5	< 2	2.65	< 0.5	20	95	119	5.39	10	< 1	0.11	10	1.86

CERTIFICATION: David Jef

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

5175 Timberlea Blvd., Mississauga
Ontario, Canada L4W 2S3
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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : M5444
Comments: ATTN: JACQUES SAMSON

Certificate Date: 16-NOV-1999
Invoice No. : I9932432
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9932432

SAMPLE	PREP CODE	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
87-9-372	205 226	615	3	0.01	41	610	2	1.01	< 2	6	35	< 0.01	< 10	< 10	44	< 10	538
87-9-373	205 226	875	2	0.01	55	1500	< 2	0.52	< 2	6	15	0.21	< 10	< 10	187	< 10	228
87-9-374	205 226	665	3	0.03	54	1220	< 2	0.31	< 2	4	13	0.24	< 10	< 10	140	< 10	214
87-9-375	205 226	580	1	0.10	47	1340	2	0.30	< 2	9	17	0.24	< 10	< 10	124	< 10	134
87-9-376	205 226	965	< 1	0.09	56	1330	< 2	0.41	< 2	11	26	0.32	< 10	< 10	158	< 10	190
87-9-377	205 226	445	9	0.02	31	450	4	1.55	< 2	4	20	0.05	< 10	< 10	49	< 10	350
87-9-378	205 226	215	3	0.03	13	230	2	0.39	< 2	2	11	0.03	< 10	< 10	17	< 10	200
87-9-379	205 226	430	3	0.02	61	320	2	3.39	< 2	4	12	0.05	< 10	< 10	34	< 10	1265
87-9-380	205 226	510	1	0.14	33	1360	< 2	0.31	< 2	8	25	0.20	< 10	< 10	87	< 10	92
87-9-381	205 226	480	1	0.19	49	1200	< 2	0.06	< 2	8	44	0.18	< 10	< 10	83	< 10	68
87-9-382	205 226	510	< 1	0.13	65	1200	2	1.23	< 2	8	38	0.24	< 10	< 10	96	< 10	94
87-9-383	205 226	590	2	0.14	26	1050	< 2	0.04	< 2	7	27	0.19	< 10	< 10	78	< 10	320
87-9-384	205 226	1900	1	0.04	26	270	< 2	1.24	< 2	2	15	0.04	< 10	< 10	27	< 10	872
87-9-385	205 226	605	1	0.15	60	1050	< 2	0.18	< 2	6	19	0.17	< 10	< 10	91	< 10	90
87-6-415	205 226	610	2	0.05	35	600	2	0.19	< 2	7	18	0.12	< 10	< 10	62	< 10	164
87-6-416	205 226	440	3	0.03	36	740	74	0.43	< 2	4	11	0.04	< 10	< 10	32	< 10	596
87-6-417	205 226	515	2	0.06	72	860	26	3.02	< 2	6	28	< 0.01	< 10	< 10	44	< 10	184
87-6-418	205 226	560	3	0.07	79	1800	30	0.72	< 2	8	35	0.19	< 10	< 10	85	< 10	682
87-6-419	205 226	480	3	0.12	134	1780	< 2	1.09	< 2	8	51	0.29	< 10	< 10	89	< 10	422
87-6-420	205 226	410	< 1	0.12	130	1910	2	1.11	< 2	9	36	0.27	< 10	< 10	95	< 10	138
87-6-421	205 226	525	3	0.09	91	1340	2	0.36	< 2	7	64	0.24	< 10	< 10	97	< 10	148
87-6-422	205 226	280	3	0.01	35	470	6	1.08	< 2	3	37	0.04	< 10	< 10	19	< 10	134
87-6-423	205 226	300	2	< 0.01	36	580	6	0.40	< 2	3	61	0.01	< 10	< 10	27	< 10	122
87-6-424	205 226	1555	< 1	< 0.01	231	3410	26	0.34	< 2	12	479	0.06	< 10	< 10	166	< 10	132
87-6-425	205 226	495	4	< 0.01	45	640	12	0.82	< 2	4	47	0.01	< 10	< 10	31	< 10	324
87-6-426	205 226	240	3	0.01	7	140	6	0.99	< 2	1	18	0.01	< 10	< 10	4	< 10	30
87-6-427	205 226	200	4	< 0.01	10	210	6	1.22	< 2	< 1	16	< 0.01	< 10	< 10	3	< 10	32
87-6-428	205 226	360	2	< 0.01	10	240	< 2	0.43	< 2	1	14	0.06	< 10	< 10	8	< 10	64
87-6-429	205 226	380	3	0.01	10	190	< 2	0.67	< 2	1	16	0.06	< 10	< 10	6	< 10	518
87-6-430	205 226	385	3	0.01	13	430	4	0.64	< 2	3	16	0.09	< 10	< 10	17	< 10	294
87-6-431	205 226	315	3	0.01	17	690	2	0.53	< 2	4	13	0.09	< 10	< 10	25	< 10	458
87-6-432	205 226	295	3	0.01	14	580	< 2	0.57	< 2	3	13	0.10	< 10	< 10	18	< 10	260
87-6-433	205 226	470	1	0.02	32	1100	4	1.09	< 2	5	38	0.13	< 10	< 10	51	< 10	660
87-6-434	205 226	595	2	0.03	27	1130	6	0.50	< 2	7	42	0.03	< 10	< 10	72	< 10	458
87-6-435	205 226	490	1	0.11	29	1470	6	0.19	< 2	10	20	0.20	< 10	< 10	133	< 10	90
87-6-436	205 226	305	1	0.12	29	1480	< 2	0.13	< 2	6	17	0.11	< 10	< 10	98	< 10	74
87-6-437	205 226	615	1	0.04	43	690	4	0.96	< 2	8	38	0.13	< 10	< 10	60	< 10	530
87-6-438	205 226	240	3	0.04	36	350	6	1.51	< 2	4	9	0.07	< 10	< 10	28	< 10	1630
87-6-439	205 226	500	1	0.13	36	1740	< 2	0.28	< 2	9	21	0.13	< 10	< 10	69	< 10	98
87-6-440	205 226	675	1	0.10	46	1650	4	0.36	< 2	11	30	0.24	< 10	< 10	94	< 10	152

CERTIFICATION: David Jag

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Invoice No. : I9932432
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CERTIFICATE OF ANALYSIS A9932432

SAMPLE	PREP CODE		Au g/t FA+AA	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm
87-6-441	205	226	0.005	0.6	1.56	60	< 10	80	< 0.5	< 2
87-6-442	205	226	0.010	0.8	1.61	88	< 10	40	< 0.5	< 2
87-6-443	205	226	< 0.005	< 0.2	2.16	6	< 10	20	< 0.5	< 2
87-6-444	205	226	< 0.005	< 0.2	2.26	2	< 10	70	< 0.5	< 2
87-6-445	205	226	0.015	0.2	2.05	22	< 10	80	< 0.5	< 2
87-6-446	205	226	0.010	0.6	2.32	10	< 10	60	< 0.5	< 2
87-6-447	205	226	0.030	0.8	1.47	18	< 10	20	< 0.5	< 2
87-6-448	205	226	0.075	0.6	1.82	12	< 10	40	< 0.5	< 2
87-6-449	205	226	0.035	0.4	2.59	6	< 10	30	< 0.5	< 2
87-6-450	205	226	< 0.005	< 0.2	2.75	8	< 10	60	< 0.5	< 2
87-6-451	205	226	< 0.005	< 0.2	3.09	< 2	< 10	90	< 0.5	< 2
87-6-452	205	226	< 0.005	< 0.2	3.09	2	< 10	50	< 0.5	< 2
87-6-453	205	226	< 0.005	< 0.2	3.62	2	< 10	60	< 0.5	< 2
87-6-454	205	226	0.060	0.2	3.02	< 2	< 10	90	< 0.5	< 2
87-6-455	205	226	0.015	< 0.2	1.68	8	< 10	60	< 0.5	< 2
87-6-456	205	226	0.105	0.2	0.83	< 2	< 10	20	< 0.5	< 2
87-6-457	205	226	0.050	< 0.2	1.26	< 2	< 10	50	< 0.5	< 2
87-6-458	205	226	0.150	< 0.2	1.08	10	< 10	40	< 0.5	< 2
87-6-459	205	226	0.030	< 0.2	1.59	2	< 10	40	< 0.5	< 2
87-6-460	205	226	0.005	< 0.2	0.79	2	< 10	30	< 0.5	< 2
87-6-461	205	226	0.945	1.0	1.77	2	< 10	40	< 0.5	< 2
87-6-462	205	226	0.195	0.6	2.79	6	< 10	40	< 0.5	< 2
87-6-463	205	226	0.050	0.8	0.97	8	< 10	40	< 0.5	< 2
87-6-464	205	226	0.020	< 0.2	2.95	6	< 10	70	< 0.5	< 2
87-6-465	205	226	< 0.005	0.2	2.93	< 2	< 10	40	< 0.5	< 2
87-6-466	205	226	< 0.005	0.2	1.52	2	< 10	40	< 0.5	< 2
87-6-467	205	226	< 0.005	< 0.2	3.50	8	< 10	130	< 0.5	< 2
87-6-468	205	226	< 0.005	0.2	5.06	6	< 10	120	< 0.5	< 2
87-6-469	205	226	< 0.005	0.2	4.02	< 2	< 10	140	< 0.5	< 2
87-7-470	205	226	< 0.005	< 0.2	1.81	< 2	< 10	30	< 0.5	< 2
87-7-471	205	226	< 0.005	< 0.2	2.12	< 2	10	< 10	< 0.5	< 2
87-7-472	205	226	< 0.005	< 0.2	2.61	< 2	< 10	20	< 0.5	< 2
87-7-473	205	226	< 0.005	< 0.2	1.25	< 2	< 10	130	< 0.5	< 2
87-7-474	205	226	< 0.005	< 0.2	1.21	2	< 10	130	< 0.5	< 2
87-7-475	205	226	0.025	0.2	1.78	4	< 10	110	< 0.5	< 2
87-7-476	205	226	0.015	0.4	1.04	6	< 10	80	< 0.5	< 2
87-7-477	205	226	0.015	0.2	2.02	2	< 10	140	< 0.5	< 2
87-7-478	205	226	0.010	0.4	1.38	12	< 10	90	< 0.5	< 2
87-7-479	205	226	< 0.005	0.2	2.12	10	< 10	130	< 0.5	< 2
87-7-480	205	226	< 0.005	0.2	3.69	< 2	10	< 10	< 0.5	< 2

SAMPLE	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %
87-6-441	2.31	3.0	35	63	244	4.97	< 10	< 1	0.17	10	0.86
87-6-442	3.07	2.5	38	51	177	5.42	< 10	< 1	0.18	10	0.67
87-6-443	2.50	< 0.5	30	74	170	4.98	10	< 1	0.13	< 10	1.29
87-6-444	2.26	< 0.5	23	86	86	4.16	< 10	< 1	0.33	< 10	1.34
87-6-445	1.65	2.0	27	76	203	4.57	10	< 1	0.77	10	1.00
87-6-446	1.36	2.0	27	75	183	4.54	< 10	< 1	0.80	20	1.33
87-6-447	2.68	3.5	29	64	1260	3.30	< 10	< 1	0.23	30	1.17
87-6-448	2.40	3.5	38	80	191	5.36	10	< 1	0.34	10	1.49
87-6-449	3.49	1.5	25	90	109	5.20	10	< 1	0.27	10	1.88
87-6-450	2.21	< 0.5	23	90	41	4.55	< 10	< 1	0.33	< 10	1.72
87-6-451	2.45	< 0.5	25	88	25	5.11	10	< 1	0.45	10	2.27
87-6-452	3.10	< 0.5	25	87	71	5.20	10	< 1	0.23	< 10	2.10
87-6-453	3.37	< 0.5	31	116	50	6.21	10	< 1	0.29	< 10	2.54
87-6-454	5.12	< 0.5	29	102	128	6.50	10	< 1	0.29	10	1.75
87-6-455	5.20	0.5	20	69	101	4.27	< 10	< 1	0.37	10	0.89
87-6-456	1.75	1.5	19	106	49	2.73	< 10	< 1	0.10	10	0.55
87-6-457	2.01	< 0.5	7	77	31	2.82	< 10	< 1	0.31	30	0.72
87-6-458	1.50	< 0.5	25	118	81	2.68	< 10	< 1	0.23	10	0.47
87-6-459	2.98	< 0.5	15	75	42	3.22	< 10	< 1	0.50	10	0.80
87-6-460	1.87	< 0.5	10	163	46	1.64	< 10	< 1	0.19	< 10	0.52
87-6-461	2.05	0.5	21	127	102	3.56	< 10	< 1	0.34	10	1.17
87-6-462	2.74	1.5	26	112	139	6.11	< 10	< 1	0.30	20	2.05
87-6-463	4.01	3.5	28	95	335	3.72	< 10	< 1	0.25	10	0.37
87-6-464	3.71	< 0.5	29	44	87	5.59	10	< 1	0.45	20	1.32
87-6-465	2.79	< 0.5	27	54	60	6.05	10	< 1	0.23	10	1.23
87-6-466	1.25	0.5	12	94	61	2.48	< 10	< 1	0.50	10	0.69
87-6-467	1.78	0.5	38	56	105	6.89	10	< 1	1.08	< 10	1.58
87-6-468	1.87	0.5	32	41	125	8.33	10	< 1	1.57	10	3.59
87-6-469	2.17	< 0.5	44	111	94	6.97	10	< 1	1.05	< 10	2.37
87-7-470	2.62	1.5	23	58	138	3.72	< 10	< 1	0.17	< 10	0.67
87-7-471	2.91	< 0.5	24	40	199	4.38	10	< 1	0.11	10	0.87
87-7-472	2.79	< 0.5	21	62	32	4.45	10	< 1	0.17	10	1.53
87-7-473	1.77	0.5	13	68	92	2.62	< 10	< 1	0.58	10	0.65
87-7-474	1.81	0.5	14	65	93	2.58	< 10	< 1	0.58	10	0.61
87-7-475	2.84	1.5	21	131	142	3.91	< 10	< 1	0.56	10	1.29
87-7-476	2.22	3.5	28	78	182	5.27	< 10	< 1	0.34	10	0.88
87-7-477	3.02	2.0	26	84	175	5.69	10	< 1	0.71	10	1.16
87-7-478	2.43	2.5	27	62	182	4.43	< 10	< 1	0.78	10	0.69
87-7-479	1.94	0.5	27	84	134	5.50	10	< 1	0.67	10	1.26
87-7-480	5.34	< 0.5	20	58	209	2.97	10	< 1	0.04	10	0.58

CERTIFICATION: David Jeff

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CERTIFICATE OF ANALYSIS A9932432

SAMPLE	PREP CODE		Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
87-6-441	205	226	495	6	0.06	53	740	30	2.03	< 2	6	37	0.06	< 10	10	42	< 10	1250
87-6-442	205	226	560	13	0.06	50	530	28	2.50	< 2	6	41	0.03	< 10	10	37	< 10	1505
87-6-443	205	226	555	3	0.15	50	1760	< 2	0.62	< 2	13	34	0.21	< 10	10	93	< 10	130
87-6-444	205	226	465	2	0.17	49	1860	< 2	0.27	< 2	9	29	0.22	< 10	< 10	86	< 10	84
87-6-445	205	226	500	7	0.06	35	590	8	1.60	< 2	4	22	0.11	< 10	< 10	34	< 10	1395
87-6-446	205	226	495	5	0.04	34	550	12	1.29	< 2	5	25	0.09	< 10	< 10	38	< 10	1370
87-6-447	205	226	440	4	0.03	25	360	16	1.46	< 2	1	29	< 0.01	< 10	< 10	10	< 10	1730
87-6-448	205	226	425	5	0.04	53	550	14	2.34	< 2	5	30	0.04	< 10	10	50	< 10	2170
87-6-449	205	226	595	5	0.01	44	920	16	1.16	< 2	9	45	0.08	< 10	10	85	< 10	668
87-6-450	205	226	490	2	0.13	48	1650	< 2	0.14	< 2	9	34	0.21	< 10	10	86	< 10	108
87-6-451	205	226	550	2	0.11	49	1540	< 2	0.10	< 2	8	43	0.26	< 10	10	106	< 10	110
87-6-452	205	226	620	2	0.10	47	1490	< 2	0.29	< 2	10	53	0.18	< 10	10	108	< 10	140
87-6-453	205	226	710	2	0.09	67	1650	< 2	0.20	< 2	12	50	0.18	< 10	10	146	< 10	162
87-6-454	205	226	1055	3	0.05	45	1470	< 2	0.65	< 2	14	81	0.13	< 10	10	132	< 10	176
87-6-455	205	226	990	5	0.03	28	730	2	0.94	< 2	12	77	0.05	< 10	10	53	< 10	322
87-6-456	205	226	320	30	0.07	25	320	< 2	1.25	< 2	4	27	0.01	< 10	< 10	26	< 10	426
87-6-457	205	226	490	11	0.03	9	140	< 2	0.76	< 2	1	28	0.03	< 10	< 10	14	< 10	120
87-6-458	205	226	330	17	0.03	23	190	2	1.20	< 2	2	23	0.01	< 10	< 10	15	< 10	42
87-6-459	205	226	630	5	0.01	18	550	< 2	0.92	< 2	3	40	0.05	< 10	< 10	25	< 10	160
87-6-460	205	226	365	25	0.06	15	230	2	0.53	< 2	3	25	0.01	< 10	< 10	9	< 10	56
87-6-461	205	226	405	19	0.02	25	410	134	1.23	< 2	4	30	0.02	< 10	< 10	24	< 10	132
87-6-462	205	226	470	5	0.01	42	1010	22	1.72	< 2	5	51	0.01	< 10	10	36	< 10	912
87-6-463	205	226	505	6	0.04	47	460	34	2.35	< 2	2	35	< 0.01	< 10	10	14	< 10	2150
87-6-464	205	226	860	4	0.14	46	1160	< 2	0.27	< 2	12	49	0.32	< 10	10	142	< 10	120
87-6-465	205	226	960	2	0.07	47	1250	2	0.21	< 2	11	40	0.38	< 10	10	159	< 10	128
87-6-466	205	226	255	4	0.03	22	240	24	0.55	< 2	3	14	0.04	< 10	< 10	18	< 10	290
87-6-467	205	226	885	3	0.02	72	1280	6	0.59	< 2	9	30	0.42	< 10	10	176	< 10	280
87-6-468	205	226	960	3	0.01	55	1090	22	0.40	< 2	12	29	0.32	< 10	10	177	< 10	346
87-6-469	205	226	675	3	0.03	91	1000	< 2	0.39	< 2	6	20	0.30	< 10	10	174	< 10	120
87-7-470	205	226	595	3	0.17	24	1090	12	0.27	< 2	11	19	0.27	< 10	< 10	120	< 10	242
87-7-471	205	226	620	1	0.16	20	1440	< 2	0.41	< 2	11	21	0.25	< 10	10	131	< 10	102
87-7-472	205	226	545	1	0.09	26	1450	< 2	0.08	< 2	8	20	0.19	< 10	10	115	< 10	86
87-7-473	205	226	395	4	0.05	19	410	< 2	0.54	< 2	3	24	0.07	< 10	< 10	26	< 10	368
87-7-474	205	226	390	5	0.04	19	380	< 2	0.55	< 2	3	24	0.07	< 10	< 10	24	< 10	402
87-7-475	205	226	575	7	0.03	47	520	2	0.74	< 2	5	34	0.05	< 10	< 10	42	< 10	780
87-7-476	205	226	640	7	0.05	41	700	18	1.99	< 2	5	24	< 0.01	< 10	< 10	28	< 10	2070
87-7-477	205	226	770	5	0.04	36	830	2	1.65	< 2	10	27	0.08	< 10	10	58	< 10	890
87-7-478	205	226	550	4	0.03	36	830	4	1.80	< 2	4	23	0.07	< 10	10	30	< 10	1380
87-7-479	205	226	650	4	0.07	38	940	< 2	1.67	< 2	10	16	0.15	< 10	10	73	< 10	432
87-7-480	205	226	380	< 1	0.05	22	1150	< 2	0.31	< 2	8	19	0.32	< 10	10	145	< 10	68

CERTIFICATION: David Jeff

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : M5444
Comments: ATTN: JACQUES SAMSON

Certificate Date: 16-NOV-1999
Invoice No. : I9932432
P.O. Number :
Account :KPI

CERTIFICATE OF ANALYSIS A9932432

SAMPLE	PREP CODE		Au g/t FA+AA	Ag ppm	Al %	As ppm	B 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 %
87-7-481	205	226	< 0.005	< 0.2	2.36	2	< 10	30	< 0.5	< 2	2.81	< 0.5	15	81	40	3.58	< 10	< 1	0.21	< 10	1.15
87-7-482	205	226	0.360	< 0.2	1.10	< 2	< 10	100	< 0.5	< 2	3.61	< 0.5	15	70	131	4.48	< 10	< 1	0.61	20	1.18
87-7-483	205	226	0.035	< 0.2	0.99	< 2	< 10	50	< 0.5	< 2	6.03	< 0.5	24	66	64	6.40	< 10	< 1	0.27	< 10	1.88
87-7-484	205	226	0.025	< 0.2	1.84	< 2	< 10	40	< 0.5	< 2	5.58	< 0.5	28	87	72	6.66	< 10	< 1	0.43	< 10	1.83
87-7-485	205	226	0.050	< 0.2	3.66	< 2	< 10	80	< 0.5	< 2	5.33	< 0.5	31	124	56	7.33	10	< 1	0.63	< 10	2.52
87-7-486	205	226	0.025	< 0.2	1.28	< 2	< 10	140	< 0.5	< 2	4.07	0.5	26	118	144	5.05	< 10	< 1	0.58	10	1.47
87-7-487	205	226	0.260	2.4	1.01	44	< 10	120	0.5	< 2	2.79	5.0	46	86	207	4.89	< 10	< 1	0.31	< 10	0.71
87-7-488	205	226	0.085	0.2	0.27	< 2	< 10	< 10	< 0.5	< 2	1.55	< 0.5	9	199	36	1.51	< 10	< 1	0.03	< 10	0.06
87-7-489	205	226	0.450	0.2	0.38	18	< 10	10	< 0.5	< 2	1.33	< 0.5	52	162	78	5.44	< 10	< 1	0.07	< 10	0.18
87-7-490	205	226	0.100	0.2	0.62	4	< 10	10	< 0.5	< 2	2.28	2.5	9	180	87	2.10	< 10	< 1	0.10	< 10	0.19
87-7-491	205	226	0.015	< 0.2	0.77	< 2	< 10	40	< 0.5	< 2	2.74	2.0	11	115	68	2.14	< 10	< 1	0.22	< 10	0.47
87-7-492	205	226	0.020	< 0.2	2.60	< 2	< 10	30	< 0.5	< 2	3.97	0.5	21	83	63	5.11	10	< 1	0.16	< 10	1.32
87-7-493	205	226	0.030	< 0.2	2.70	< 2	< 10	20	< 0.5	< 2	3.70	< 0.5	31	60	68	4.83	< 10	< 1	0.13	< 10	1.26
87-7-494	205	226	< 0.005	< 0.2	2.96	< 2	< 10	10	< 0.5	< 2	3.31	< 0.5	33	49	75	5.38	< 10	< 1	0.16	< 10	1.16
87-7-495	205	226	< 0.005	< 0.2	1.31	< 2	< 10	40	< 0.5	< 2	2.54	1.5	13	97	115	3.14	< 10	< 1	0.30	20	0.51
87-7-496	205	226	< 0.005	< 0.2	1.75	< 2	< 10	10	< 0.5	< 2	2.84	< 0.5	32	52	145	4.09	< 10	< 1	0.13	10	0.84
87-7-497	205	226	< 0.005	< 0.2	2.39	< 2	< 10	30	< 0.5	< 2	2.52	< 0.5	21	66	78	4.12	< 10	< 1	0.21	< 10	1.16
87-7-498	205	226	0.035	< 0.2	1.71	< 2	< 10	20	< 0.5	< 2	3.19	2.0	21	61	200	6.97	< 10	< 1	0.27	< 10	0.63
87-7-499	205	226	< 0.005	< 0.2	3.04	< 2	< 10	50	< 0.5	< 2	3.91	< 0.5	34	70	97	5.49	< 10	< 1	0.38	< 10	1.04
87-7-500	205	226	< 0.005	< 0.2	4.18	< 2	< 10	30	< 0.5	< 2	1.22	< 0.5	34	117	114	6.68	< 10	< 1	0.23	< 10	2.92
87-7-501	205	226	< 0.005	< 0.2	3.65	< 2	< 10	150	< 0.5	< 2	1.58	< 0.5	35	109	87	5.36	10	1	0.89	< 10	2.36
87-8-502	205	226	< 0.005	< 0.2	1.20	< 2	< 10	60	< 0.5	< 2	3.64	1.5	21	63	109	2.90	< 10	< 1	0.38	10	0.54
87-8-503	205	226	< 0.005	< 0.2	1.72	< 2	< 10	80	< 0.5	< 2	1.96	< 0.5	19	117	52	3.23	< 10	< 1	0.27	10	1.10
87-8-504	205	226	< 0.005	< 0.2	1.66	< 2	< 10	10	< 0.5	< 2	2.97	< 0.5	19	52	64	3.23	< 10	< 1	0.09	< 10	0.91
87-8-505	205	226	0.005	< 0.2	1.40	< 2	< 10	70	< 0.5	< 2	2.41	2.0	24	56	171	3.81	< 10	< 1	0.27	< 10	0.76
87-8-506	205	226	< 0.005	< 0.2	2.55	< 2	< 10	60	< 0.5	< 2	2.56	< 0.5	31	84	94	5.91	10	< 1	0.32	< 10	1.38
87-8-507	205	226	< 0.005	< 0.2	2.93	< 2	< 10	10	< 0.5	< 2	3.28	< 0.5	32	59	227	7.23	10	< 1	0.10	10	2.28
87-8-508	205	226	0.005	< 0.2	3.55	< 2	< 10	20	0.5	< 2	4.84	< 0.5	47	70	184	8.35	10	< 1	0.28	10	2.83
87-8-509	205	226	0.180	0.2	2.86	10	< 10	40	0.5	< 2	4.91	1.5	24	73	278	5.91	< 10	< 1	0.23	< 10	1.67
87-8-510	205	226	1.075	2.2	0.49	6	< 10	10	< 0.5	< 2	1.07	0.5	16	182	460	1.96	< 10	< 1	0.06	< 10	0.27
87-8-511	205	226	0.250	< 0.2	2.41	< 2	< 10	40	< 0.5	< 2	5.51	< 0.5	27	112	27	5.58	10	< 1	0.29	< 10	1.64
87-8-512	205	226	0.020	< 0.2	2.84	< 2	< 10	80	< 0.5	< 2	5.70	< 0.5	31	131	35	7.31	10	< 1	0.66	< 10	2.29
87-8-513	205	226	< 0.005	< 0.2	0.32	< 2	< 10	250	< 0.5	< 2	2.12	< 0.5	5	200	9	1.03	< 10	< 1	0.09	< 10	0.24
87-8-514	205	226	0.025	< 0.2	3.08	< 2	< 10	60	0.5	< 2	6.29	< 0.5	28	133	34	6.94	10	< 1	0.51	< 10	2.32
87-8-515	205	226	0.015	< 0.2	1.57	< 2	< 10	40	0.5	< 2	4.90	< 0.5	22	129	83	5.96	< 10	< 1	0.26	10	1.25
87-8-516	205	226	0.020	< 0.2	1.61	< 2	< 10	30	0.5	< 2	2.87	< 0.5	20	114	28	3.70	< 10	< 1	0.19	10	0.95
87-8-517	205	226	0.105	0.6	2.11	< 2	< 10	30	0.5	< 2	3.36	4.5	24	91	201	5.32	< 10	< 1	0.20	10	0.97
87-8-518	205	226	0.045	< 0.2	2.29	22	< 10	30	0.5	< 2	4.12	2.0	37	72	97	6.27	< 10	< 1	0.18	< 10	0.95
87-8-519	205	226	0.010	0.2	3.29	< 2	< 10	20	0.5	< 2	2.50	1.5	40	92	102	8.07	10	< 1	0.21	< 10	1.67
87-8-520	205	226	< 0.005	< 0.2	2.58	< 2	< 10	30	0.5	< 2	5.86	< 0.5	36	45	67	6.05	< 10	< 1	0.40	< 10	1.03

CERTIFICATION:

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : M5444
Comments: ATTN: JACQUES SAMSON

Certificate Date: 16-NOV-1999
Invoice No. : I9932432
P.O. Number :
Account :KPI

CERTIFICATE OF ANALYSIS A9932432

SAMPLE	PREP CODE		Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
87-7-481	205	226	450	2	0.16	46	1280	< 2	0.09	< 2	8	41	0.23	< 10	< 10	82	< 10	72
87-7-482	205	226	785	4	0.04	23	620	10	0.71	< 2	6	84	0.04	< 10	< 10	45	< 10	204
87-7-483	205	226	1235	2	0.03	47	1150	< 2	0.52	< 2	10	90	< 0.01	< 10	< 10	73	< 10	144
87-7-484	205	226	1135	< 1	0.02	54	1270	< 2	0.55	< 2	12	58	0.05	< 10	< 10	102	< 10	198
87-7-485	205	226	1045	1	0.01	63	1500	2	0.35	< 2	23	82	0.09	< 10	< 10	179	< 10	152
87-7-486	205	226	965	3	0.03	44	750	< 2	0.84	< 2	11	68	0.05	< 10	< 10	69	< 10	258
87-7-487	205	226	640	4	0.01	41	580	670	1.80	< 2	3	54	< 0.01	< 10	< 10	19	< 10	1575
87-7-488	205	226	190	65	0.01	16	130	48	0.85	< 2	1	12	< 0.01	< 10	< 10	8	< 10	40
87-7-489	205	226	190	45	0.01	92	120	10	4.81	< 2	1	18	< 0.01	< 10	< 10	8	< 10	36
87-7-490	205	226	265	12	< 0.01	19	280	10	0.96	< 2	3	30	< 0.01	< 10	< 10	15	< 10	272
87-7-491	205	226	375	4	0.01	17	240	12	0.67	< 2	1	43	< 0.01	< 10	< 10	8	< 10	284
87-7-492	205	226	640	2	0.01	35	630	6	0.51	< 2	8	49	< 0.01	< 10	< 10	77	< 10	202
87-7-493	205	226	570	< 1	0.06	47	1240	< 2	0.28	< 2	11	45	0.27	< 10	< 10	133	< 10	112
87-7-494	205	226	770	< 1	0.15	55	1100	< 2	0.29	< 2	12	26	0.34	< 10	< 10	133	< 10	114
87-7-495	205	226	465	3	0.02	20	280	8	0.81	< 2	3	20	0.04	< 10	< 10	20	< 10	774
87-7-496	205	226	515	1	0.12	36	1380	< 2	0.62	< 2	8	26	0.26	< 10	< 10	93	< 10	116
87-7-497	205	226	595	< 1	0.10	45	1130	2	0.24	< 2	6	26	0.23	< 10	< 10	73	< 10	242
87-7-498	205	226	1175	1	0.03	44	390	< 2	1.26	< 2	3	25	0.06	< 10	< 10	30	< 10	962
87-7-499	205	226	930	< 1	0.18	89	1090	< 2	0.36	< 2	8	23	0.26	< 10	< 10	120	< 10	130
87-7-500	205	226	595	5	0.01	86	860	< 2	0.35	2	14	13	0.27	< 10	< 10	215	< 10	230
87-7-501	205	226	555	< 1	0.10	75	1110	< 2	0.18	< 2	8	13	0.33	< 10	< 10	173	< 10	92
87-8-502	205	226	445	1	0.02	27	590	2	0.68	< 2	3	25	0.03	< 10	< 10	24	< 10	820
87-8-503	205	226	440	< 1	0.11	32	960	< 2	0.15	< 2	7	39	0.20	< 10	< 10	78	< 10	54
87-8-504	205	226	550	< 1	0.11	22	1250	< 2	0.21	< 2	6	28	0.22	< 10	< 10	76	< 10	64
87-8-505	205	226	480	1	0.04	29	490	10	1.21	< 2	3	14	0.11	< 10	< 10	42	< 10	1105
87-8-506	205	226	725	1	0.09	43	1450	< 2	0.64	< 2	14	18	0.21	< 10	< 10	109	< 10	138
87-8-507	205	226	850	1	0.22	53	580	< 2	0.03	< 2	19	58	0.18	< 10	< 10	233	< 10	92
87-8-508	205	226	965	< 1	0.03	58	690	< 2	0.11	< 2	17	97	0.03	< 10	< 10	171	< 10	112
87-8-509	205	226	800	< 1	0.01	34	1070	2	1.01	< 2	10	82	0.01	< 10	< 10	65	< 10	342
87-8-510	205	226	145	12	0.02	18	140	36	1.18	< 2	2	16	< 0.01	< 10	< 10	20	< 10	96
87-8-511	205	226	950	7	0.02	52	1170	4	0.74	< 2	13	99	0.03	< 10	< 10	95	< 10	164
87-8-512	205	226	1080	1	0.02	70	1450	2	0.29	< 2	22	118	0.08	< 10	< 10	160	< 10	182
87-8-513	205	226	275	1	< 0.01	10	220	< 2	0.17	< 2	3	48	< 0.01	< 10	< 10	16	< 10	26
87-8-514	205	226	1175	1	0.01	61	1320	< 2	0.28	< 2	17	98	0.07	< 10	< 10	153	< 10	162
87-8-515	205	226	880	3	0.03	36	1100	< 2	0.54	< 2	16	74	0.05	< 10	< 10	116	< 10	98
87-8-516	205	226	495	7	0.03	26	560	< 2	1.05	< 2	7	36	0.01	< 10	< 10	56	< 10	76
87-8-517	205	226	580	5	0.01	40	590	16	1.99	< 2	4	52	< 0.01	< 10	< 10	26	< 10	1235
87-8-518	205	226	760	4	0.01	59	1020	8	1.15	< 2	10	47	< 0.01	< 10	< 10	72	< 10	476
87-8-519	205	226	705	1	0.01	85	710	2	1.15	< 2	16	31	< 0.01	< 10	< 10	94	< 10	684
87-8-520	205	226	1285	1	0.02	60	1290	10	0.69	< 2	19	119	0.01	< 10	< 10	97	< 10	244

CERTIFICATION: David Jeff

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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : M5444
Comments: ATTN: JACQUES SAMSON

Certificate Date: 16-NOV-1999
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CERTIFICATE OF ANALYSIS A9932432

SAMPLE	PREP CODE		Au g/t FA+AA	Ag ppm	Al %	As ppm	B 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 %
87-8-521	205	226	< 0.005	< 0.2	4.29	< 2	< 10	110	< 0.5	< 2	2.17	< 0.5	35	52	74	7.11	10	< 1	0.83	< 10	2.63
87-8-522	205	226	< 0.005	< 0.2	3.06	< 2	< 10	140	< 0.5	< 2	2.16	< 0.5	27	48	81	4.56	10	< 1	0.61	< 10	1.38
87-8-523	205	226	< 0.005	< 0.2	2.75	< 2	< 10	120	< 0.5	< 2	2.47	< 0.5	31	45	55	4.93	< 10	< 1	0.56	< 10	1.37
87-8-524	205	226	0.005	< 0.2	4.04	< 2	< 10	120	< 0.5	< 2	0.68	< 0.5	36	69	142	7.79	10	< 1	0.69	10	2.64
87-8-525	205	226	< 0.005	< 0.2	2.17	< 2	< 10	440	1.5	< 2	4.82	< 0.5	51	201	129	6.42	10	< 1	0.97	40	4.32
87-8-526	205	226	< 0.005	< 0.2	4.81	< 2	< 10	60	< 0.5	< 2	1.59	< 0.5	36	50	59	7.24	10	< 1	0.28	< 10	3.67
87-8-527	205	226	< 0.005	< 0.2	2.78	< 2	< 10	40	< 0.5	< 2	2.48	< 0.5	35	76	79	5.47	< 10	< 1	0.27	10	1.61
87-8-528	205	226	0.015	0.2	2.72	< 2	< 10	40	0.5	< 2	2.85	0.5	37	66	66	5.87	10	< 1	0.26	< 10	1.60
87-8-529	205	226	< 0.005	0.2	1.46	< 2	< 10	20	< 0.5	< 2	2.04	3.0	26	91	251	4.67	< 10	< 1	0.22	10	0.72
87-8-530	205	226	< 0.005	< 0.2	1.99	< 2	< 10	30	< 0.5	< 2	2.90	< 0.5	28	63	135	4.51	< 10	< 1	0.15	< 10	0.85
87-8-531	205	226	< 0.005	< 0.2	2.21	< 2	< 10	10	< 0.5	< 2	3.01	< 0.5	18	61	29	3.54	< 10	< 1	0.09	< 10	0.85
87-8-532	205	226	< 0.005	< 0.2	2.89	< 2	< 10	140	< 0.5	< 2	1.60	2.5	29	74	151	5.78	10	< 1	0.70	10	1.59

CERTIFICATION: *David Ivy*

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CERTIFICATE OF ANALYSIS A9932432

SAMPLE	PREP CODE		Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
87-8-521	205	226	595	1	0.05	60	1270	2	0.41	< 2	9	35	0.36	< 10	< 10	138	< 10	180
87-8-522	205	226	410	< 1	0.16	53	1330	< 2	0.23	< 2	8	36	0.23	< 10	< 10	101	< 10	124
87-8-523	205	226	590	< 1	0.09	64	1330	< 2	0.26	< 2	8	18	0.25	< 10	< 10	99	< 10	128
87-8-524	205	226	640	2	0.03	62	1060	< 2	0.75	< 2	8	20	0.24	< 10	< 10	127	< 10	228
87-8-525	205	226	615	1	0.09	211	2260	< 2	0.46	< 2	10	515	0.29	< 10	< 10	145	< 10	144
87-8-526	205	226	580	1	0.05	71	1350	< 2	0.26	< 2	10	18	0.43	< 10	< 10	175	< 10	136
87-8-527	205	226	745	< 1	0.11	67	1370	< 2	0.64	< 2	9	30	0.35	< 10	< 10	116	< 10	112
87-8-528	205	226	740	< 1	0.04	63	1070	4	1.16	< 2	9	27	0.35	< 10	< 10	136	< 10	326
87-8-529	205	226	430	3	0.01	37	360	4	1.78	< 2	4	14	0.08	< 10	< 10	27	< 10	1140
87-8-530	205	226	665	< 1	0.17	36	1220	< 2	0.53	< 2	11	27	0.36	< 10	< 10	108	< 10	104
87-8-531	205	226	550	< 1	0.21	23	1090	2	0.07	< 2	9	42	0.25	< 10	< 10	94	< 10	100
87-8-532	205	226	720	4	0.04	56	560	6	0.47	< 2	5	13	0.18	< 10	< 10	70	< 10	1165

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: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

A9932479

Comments: ATTN: JACQUES SAMSON

CERTIFICATE A9932479

(KPI) - CAMECO CORPORATION

Project: M5444
P.O. # :

Samples submitted to our lab in Thunder Bay, ON.
This report was printed on 08-NOV-1999.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
205	29	Geochem ring to approx 150 mesh
226	29	0-3 Kg crush and split
3202	29	Rock - save entire reject
229	29	ICP - AQ Digestion charge

* NOTE 1:

The 32 element ICP package is suitable for trace metals in soil and rock samples. Elements for which the nitric-aqua regia digestion is possibly incomplete are: Al, Ba, Be, Ca, Cr, Ga, K, La, Mg, Na, Sr, Ti, Tl, W.

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
494	29	Au g/t: Fuse 30 g sample	FA-AAS	0.005	10.00
2118	29	Ag ppm: 32 element, soil & rock	ICP-AES	0.2	100.0
2119	29	Al %: 32 element, soil & rock	ICP-AES	0.01	15.00
2120	29	As ppm: 32 element, soil & rock	ICP-AES	2	10000
557	29	B ppm: 32 element, rock & soil	ICP-AES	10	10000
2121	29	Ba ppm: 32 element, soil & rock	ICP-AES	10	10000
2122	29	Be ppm: 32 element, soil & rock	ICP-AES	0.5	100.0
2123	29	Bi ppm: 32 element, soil & rock	ICP-AES	2	10000
2124	29	Ca %: 32 element, soil & rock	ICP-AES	0.01	15.00
2125	29	Cd ppm: 32 element, soil & rock	ICP-AES	0.5	500
2126	29	Co ppm: 32 element, soil & rock	ICP-AES	1	10000
2127	29	Cr ppm: 32 element, soil & rock	ICP-AES	1	10000
2128	29	Cu ppm: 32 element, soil & rock	ICP-AES	1	10000
2150	29	Fe %: 32 element, soil & rock	ICP-AES	0.01	15.00
2130	29	Ga ppm: 32 element, soil & rock	ICP-AES	10	10000
2131	29	Hg ppm: 32 element, soil & rock	ICP-AES	1	10000
2132	29	K %: 32 element, soil & rock	ICP-AES	0.01	10.00
2151	29	La ppm: 32 element, soil & rock	ICP-AES	10	10000
2134	29	Mg %: 32 element, soil & rock	ICP-AES	0.01	15.00
2135	29	Mn ppm: 32 element, soil & rock	ICP-AES	5	10000
2136	29	Mo ppm: 32 element, soil & rock	ICP-AES	1	10000
2137	29	Na %: 32 element, soil & rock	ICP-AES	0.01	10.00
2138	29	Ni ppm: 32 element, soil & rock	ICP-AES	1	10000
2139	29	P ppm: 32 element, soil & rock	ICP-AES	10	10000
2140	29	Pb ppm: 32 element, soil & rock	ICP-AES	2	10000
551	29	S %: 32 element, rock & soil	ICP-AES	0.01	5.00
2141	29	Sb ppm: 32 element, soil & rock	ICP-AES	2	10000
2142	29	Sc ppm: 32 elements, soil & rock	ICP-AES	1	10000
2143	29	Sr ppm: 32 element, soil & rock	ICP-AES	1	10000
2144	29	Ti %: 32 element, soil & rock	ICP-AES	0.01	10.00
2145	29	Tl ppm: 32 element, soil & rock	ICP-AES	10	10000
2146	29	U ppm: 32 element, soil & rock	ICP-AES	10	10000
2147	29	V ppm: 32 element, soil & rock	ICP-AES	1	10000
2148	29	W ppm: 32 element, soil & rock	ICP-AES	10	10000
2149	29	Zn ppm: 32 element, soil & rock	ICP-AES	2	10000

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
5175 Timberlea Blvd., Mississauga
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PHONE: 905-624-2806 FAX: 905-624-6163

To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : M5444
Comments: ATTN: JACQUES SAMSON

Certificate Date: 08-NOV-1999
Invoice No. : I9932479
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9932479

SAMPLE	PREP CODE		Au g/t FA+AA	Ag ppm	Al %	As ppm	B 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 %
87-10-386	205	226	< 0.005	< 0.2	1.81	< 2	< 10	70	< 0.5	< 2	2.36	< 0.5	16	85	66	3.27	< 10	< 1	0.64	10	1.21
87-10-387	205	226	< 0.005	< 0.2	2.47	< 2	< 10	30	< 0.5	< 2	3.77	< 0.5	20	65	20	4.48	10	< 1	0.26	10	1.19
87-10-388	205	226	< 0.005	< 0.2	1.41	< 2	< 10	160	< 0.5	< 2	1.43	< 0.5	12	78	70	2.30	< 10	< 1	0.67	10	0.64
87-10-389	205	226	0.010	0.2	1.47	< 2	< 10	110	< 0.5	< 2	1.98	4.5	40	71	417	5.72	< 10	< 1	0.66	10	0.57
87-10-390	205	226	0.005	< 0.2	2.83	< 2	< 10	80	< 0.5	< 2	4.02	< 0.5	33	124	70	5.51	10	< 1	0.84	< 10	1.17
87-10-391	205	226	< 0.005	< 0.2	2.42	< 2	< 10	90	< 0.5	< 2	2.50	< 0.5	30	98	82	4.97	10	< 1	0.24	< 10	1.43
87-10-392	205	226	< 0.005	< 0.2	2.58	< 2	< 10	90	< 0.5	< 2	4.99	< 0.5	32	118	180	7.06	10	< 1	0.33	< 10	1.72
87-10-393	205	226	< 0.005	< 0.2	2.52	< 2	< 10	30	< 0.5	< 2	2.81	< 0.5	24	76	95	5.25	10	< 1	0.20	10	1.30
87-10-394	205	226	< 0.005	< 0.2	2.91	< 2	< 10	40	< 0.5	< 2	3.79	< 0.5	29	88	34	5.45	< 10	< 1	0.11	< 10	1.64
87-10-395	205	226	0.020	< 0.2	2.03	< 2	< 10	200	< 0.5	< 2	6.50	< 0.5	26	65	78	5.89	< 10	< 1	0.22	< 10	1.60
87-10-396	205	226	< 0.005	< 0.2	0.88	< 2	< 10	230	< 0.5	< 2	2.03	< 0.5	8	65	18	1.68	< 10	< 1	0.23	< 10	0.61
87-10-397	205	226	< 0.005	< 0.2	3.08	< 2	< 10	240	< 0.5	< 2	6.63	< 0.5	30	77	26	6.98	< 10	< 1	0.27	< 10	1.72
87-10-398	205	226	< 0.005	< 0.2	3.73	< 2	< 10	80	< 0.5	< 2	4.23	< 0.5	33	110	37	6.21	10	< 1	0.32	< 10	2.67
87-10-399	205	226	< 0.005	< 0.2	2.91	< 2	< 10	150	< 0.5	< 2	6.03	< 0.5	25	72	50	6.29	< 10	< 1	0.36	10	1.17
87-10-400	205	226	0.075	< 0.2	0.98	2	< 10	90	< 0.5	< 2	3.97	3.0	19	83	108	1.96	< 10	< 1	0.42	20	0.62
87-10-401	205	226	2.23	29.4	0.35	< 2	< 10	70	< 0.5	54	1.11	3.5	4	215	2840	2.10	< 10	< 1	0.10	< 10	0.07
87-10-402	205	226	0.080	0.2	0.98	6	< 10	80	0.5	< 2	3.48	6.0	27	139	64	2.60	< 10	< 1	0.37	10	0.70
87-10-403	205	226	0.020	0.2	1.73	2	< 10	110	0.5	< 2	3.48	< 0.5	26	154	57	3.69	< 10	< 1	0.25	10	0.95
87-10-404	205	226	0.010	0.4	1.23	4	< 10	80	< 0.5	< 2	2.88	0.5	21	94	182	2.86	< 10	< 1	0.29	10	0.46
87-10-405	205	226	0.030	0.4	0.45	4	< 10	20	< 0.5	< 2	1.74	< 0.5	8	198	511	1.39	< 10	< 1	0.05	< 10	0.21
87-10-406	205	226	0.020	1.2	1.26	12	< 10	60	< 0.5	< 2	1.72	2.5	37	185	558	3.61	< 10	< 1	0.19	< 10	0.57
87-10-407	205	226	0.010	0.6	1.72	4	< 10	40	< 0.5	< 2	2.00	2.0	35	84	160	3.67	< 10	< 1	0.27	10	0.78
87-10-408	205	226	0.005	< 0.2	2.10	< 2	< 10	80	0.5	< 2	5.84	< 0.5	20	130	62	3.93	< 10	< 1	0.54	10	0.95
87-10-409	205	226	< 0.005	< 0.2	3.09	< 2	< 10	100	< 0.5	< 2	3.75	< 0.5	27	38	53	5.68	10	< 1	0.29	10	1.37
87-10-410	205	226	< 0.005	< 0.2	3.31	< 2	< 10	170	< 0.5	< 2	3.16	< 0.5	32	42	54	5.90	10	< 1	0.65	10	1.34
87-10-411	205	226	0.010	0.2	1.78	6	< 10	50	< 0.5	< 2	1.48	4.5	23	91	131	3.66	< 10	< 1	0.49	10	0.59
87-10-412	205	226	< 0.005	< 0.2	3.38	< 2	< 10	70	< 0.5	< 2	3.67	< 0.5	35	82	153	6.47	10	< 1	0.27	< 10	1.45
87-10-413	205	226	0.075	< 0.2	2.59	< 2	< 10	20	< 0.5	< 2	4.89	1.0	20	79	152	7.22	< 10	< 1	0.11	< 10	1.17
87-10-414	205	226	< 0.005	< 0.2	3.61	< 2	< 10	60	< 0.5	< 2	3.62	< 0.5	33	93	55	6.87	10	< 1	0.34	< 10	1.53

CERTIFICATION: [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: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : M5444
Comments: ATTN: JACQUES SAMSON

Certificate Date: 08-NOV-1999
Invoice No. : I9932479
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9932479

SAMPLE	PREP CODE		Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
87-10-386	205	226	355	3	0.06	20	590	2	0.36	< 2	4	27	0.15	< 10	< 10	40	< 10	122
87-10-387	205	226	740	< 1	0.16	25	1200	2	0.07	< 2	12	25	0.22	< 10	< 10	131	< 10	90
87-10-388	205	226	325	1	0.08	16	350	< 2	0.28	< 2	3	12	0.09	< 10	< 10	22	< 10	202
87-10-389	205	226	440	3	0.05	62	610	6	2.27	< 2	4	14	0.12	< 10	< 10	44	< 10	2570
87-10-390	205	226	945	< 1	0.09	58	1230	< 2	0.43	< 2	10	14	0.30	< 10	< 10	132	< 10	126
87-10-391	205	226	640	< 1	0.16	54	1380	< 2	0.34	< 2	14	20	0.28	< 10	< 10	123	< 10	106
87-10-392	205	226	1300	1	0.04	64	1230	2	0.46	< 2	21	45	0.04	< 10	< 10	105	< 10	178
87-10-393	205	226	730	1	0.23	37	1610	< 2	0.30	< 2	16	19	0.20	< 10	< 10	103	< 10	78
87-10-394	205	226	730	< 1	0.08	55	1650	< 2	0.15	< 2	11	65	0.19	< 10	< 10	94	< 10	106
87-10-395	205	226	1125	< 1	0.04	55	1320	< 2	0.17	< 2	19	73	< 0.01	< 10	< 10	90	< 10	94
87-10-396	205	226	305	1	0.11	14	360	< 2	0.08	< 2	3	47	0.02	< 10	< 10	23	< 10	42
87-10-397	205	226	1185	< 1	0.03	68	1390	< 2	0.10	< 2	21	79	< 0.01	< 10	< 10	102	< 10	118
87-10-398	205	226	755	< 1	0.06	71	1610	< 2	0.12	< 2	12	61	0.21	< 10	< 10	130	< 10	114
87-10-399	205	226	970	1	0.03	47	1170	2	0.44	< 2	15	62	0.01	< 10	< 10	75	< 10	216
87-10-400	205	226	565	1	0.01	33	480	8	0.75	< 2	3	88	< 0.01	< 10	< 10	17	< 10	920
87-10-401	205	226	120	6	0.01	14	80	4060	1.61	< 2	1	26	< 0.01	< 10	< 10	10	< 10	254
87-10-402	205	226	430	6	0.03	60	540	26	1.27	< 2	3	177	0.03	< 10	< 10	32	< 10	858
87-10-403	205	226	490	13	0.03	64	730	44	1.31	< 2	5	81	< 0.01	< 10	< 10	37	< 10	110
87-10-404	205	226	420	5	0.05	28	240	10	1.33	< 2	2	44	< 0.01	< 10	< 10	8	< 10	306
87-10-405	205	226	235	1	0.05	8	80	10	0.72	< 2	1	22	< 0.01	< 10	< 10	3	< 10	62
87-10-406	205	226	270	5	< 0.01	43	200	20	2.25	< 2	2	23	< 0.01	< 10	< 10	11	< 10	1020
87-10-407	205	226	315	4	0.01	32	250	22	1.68	< 2	1	34	< 0.01	< 10	< 10	7	< 10	1030
87-10-408	205	226	805	1	0.02	46	1290	20	0.72	< 2	8	107	0.02	< 10	< 10	41	< 10	236
87-10-409	205	226	795	< 1	0.21	39	1500	< 2	0.22	< 2	15	47	0.32	< 10	< 10	152	< 10	134
87-10-410	205	226	810	< 1	0.18	61	1310	< 2	0.35	< 2	12	35	0.36	< 10	< 10	138	< 10	222
87-10-411	205	226	325	7	0.03	32	290	4	1.37	< 2	3	19	0.06	< 10	< 10	20	< 10	1660
87-10-412	205	226	990	1	0.13	49	1430	< 2	0.63	< 2	16	43	0.36	< 10	< 10	167	< 10	178
87-10-413	205	226	1450	< 1	0.04	28	360	< 2	1.03	< 2	3	21	0.14	< 10	< 10	40	< 10	420
87-10-414	205	226	1125	1	0.13	87	1080	2	0.23	< 2	11	21	0.28	< 10	< 10	171	< 10	218

CERTIFICATION:

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
5175 Timberlea Blvd., Mississauga
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PHONE: 905-624-2806 FAX: 905-624-6163

To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

A9932057

Comments: ATTN: JACQUES SAMSON

CERTIFICATE A9932057

(KPI) - CAMECO CORPORATION

Project: M5444
P.O. # :

Samples submitted to our lab in Thunder Bay, ON.
This report was printed on 02-NOV-1999.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
205	159	Geochem ring to approx 150 mesh
226	159	0-3 Kg crush and split
3202	159	Rock - save entire reject
229	159	ICP - AQ Digestion charge

* NOTE 1:

The 32 element ICP package is suitable for trace metals in soil and rock samples. Elements for which the nitric-aqua regia digestion is possibly incomplete are: Al, Ba, Be, Ca, Cr, Ga, K, La, Mg, Na, Sr, Ti, Tl, W.

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
494	159	Au g/t: Fuse 30 g sample	FA-AAS	0.005	10.00
2118	159	Ag ppm: 32 element, soil & rock	ICP-AES	0.2	100.0
2119	159	Al %: 32 element, soil & rock	ICP-AES	0.01	15.00
2120	159	As ppm: 32 element, soil & rock	ICP-AES	2	10000
557	159	B ppm: 32 element, rock & soil	ICP-AES	10	10000
2121	159	Ba ppm: 32 element, soil & rock	ICP-AES	10	10000
2122	159	Be ppm: 32 element, soil & rock	ICP-AES	0.5	100.0
2123	159	Bi ppm: 32 element, soil & rock	ICP-AES	2	10000
2124	159	Ca %: 32 element, soil & rock	ICP-AES	0.01	15.00
2125	159	Cd ppm: 32 element, soil & rock	ICP-AES	0.5	500
2126	159	Co ppm: 32 element, soil & rock	ICP-AES	1	10000
2127	159	Cr ppm: 32 element, soil & rock	ICP-AES	1	10000
2128	159	Cu ppm: 32 element, soil & rock	ICP-AES	1	10000
2150	159	Fe %: 32 element, soil & rock	ICP-AES	0.01	15.00
2130	159	Ga ppm: 32 element, soil & rock	ICP-AES	10	10000
2131	159	Hg ppm: 32 element, soil & rock	ICP-AES	1	10000
2132	159	K %: 32 element, soil & rock	ICP-AES	0.01	10.00
2151	159	La ppm: 32 element, soil & rock	ICP-AES	10	10000
2134	159	Mg %: 32 element, soil & rock	ICP-AES	0.01	15.00
2135	159	Mn ppm: 32 element, soil & rock	ICP-AES	5	10000
2136	159	Mo ppm: 32 element, soil & rock	ICP-AES	1	10000
2137	159	Na %: 32 element, soil & rock	ICP-AES	0.01	10.00
2138	159	Ni ppm: 32 element, soil & rock	ICP-AES	1	10000
2139	159	P ppm: 32 element, soil & rock	ICP-AES	10	10000
2140	159	Pb ppm: 32 element, soil & rock	ICP-AES	2	10000
551	159	S %: 32 element, rock & soil	ICP-AES	0.01	5.00
2141	159	Sb ppm: 32 element, soil & rock	ICP-AES	2	10000
2142	159	Sc ppm: 32 elements, soil & rock	ICP-AES	1	10000
2143	159	Sr ppm: 32 element, soil & rock	ICP-AES	1	10000
2144	159	Ti %: 32 element, soil & rock	ICP-AES	0.01	10.00
2145	159	Tl ppm: 32 element, soil & rock	ICP-AES	10	10000
2146	159	U ppm: 32 element, soil & rock	ICP-AES	10	10000
2147	159	V ppm: 32 element, soil & rock	ICP-AES	1	10000
2148	159	W ppm: 32 element, soil & rock	ICP-AES	10	10000
2149	159	Zn ppm: 32 element, soil & rock	ICP-AES	2	10000

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

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PHONE: 905-624-2806 FAX: 905-624-6163

To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : M5444
Comments: ATTN: JACQUES SAMSON

Certificate Date: 02-NOV-1999
Invoice No. :19932057
P.O. Number :
Account :KPI

CERTIFICATE OF ANALYSIS A9932057

SAMPLE	PREP CODE		Au g/t FA+AA	Ag ppm	Al %	As ppm	B 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 %
84-7-129	205	226	0.040	< 0.2	2.49	< 2	< 10	120	< 0.5	< 2	2.48	< 0.5	21	85	37	4.57	< 10	< 1	0.76	10	1.04
84-7-130	205	226	0.020	< 0.2	2.91	< 2	< 10	220	< 0.5	< 2	2.40	< 0.5	34	94	121	6.21	< 10	< 1	1.61	10	1.38
84-7-131	205	226	< 0.005	< 0.2	2.63	< 2	< 10	170	< 0.5	< 2	2.68	< 0.5	26	72	52	5.27	< 10	< 1	1.08	< 10	1.33
84-7-132	205	226	0.130	< 0.2	2.39	< 2	< 10	90	< 0.5	< 2	4.34	< 0.5	32	86	95	7.11	10	< 1	1.02	< 10	1.26
84-7-133	205	226	0.010	< 0.2	2.87	< 2	< 10	70	< 0.5	< 2	1.68	< 0.5	41	46	168	6.48	< 10	< 1	0.37	< 10	1.27
84-7-134	205	226	0.005	< 0.2	2.89	< 2	< 10	40	< 0.5	< 2	1.74	1.0	41	71	407	6.48	< 10	< 1	0.19	< 10	1.47
84-7-135	205	226	0.030	< 0.2	2.65	< 2	< 10	30	< 0.5	< 2	3.35	3.5	44	65	192	7.69	< 10	< 1	0.20	< 10	0.82
84-7-136	205	226	0.035	< 0.2	2.60	< 2	< 10	60	< 0.5	< 2	5.89	0.5	44	55	111	7.26	< 10	< 1	0.26	< 10	0.82
84-7-137	205	226	< 0.005	< 0.2	2.83	< 2	< 10	140	< 0.5	< 2	3.21	< 0.5	31	66	55	5.53	< 10	< 1	0.52	< 10	1.34
84-7-138	205	226	< 0.005	< 0.2	2.74	< 2	< 10	80	< 0.5	< 2	2.07	< 0.5	31	51	52	4.96	10	< 1	0.16	< 10	1.87
84-7-139	205	226	< 0.005	< 0.2	2.81	< 2	< 10	40	< 0.5	< 2	3.63	< 0.5	31	52	60	5.50	10	< 1	0.14	< 10	1.31
84-7-140	205	226	0.035	< 0.2	2.46	< 2	< 10	60	< 0.5	< 2	8.10	< 0.5	30	39	137	5.53	< 10	< 1	0.23	< 10	0.87
84-7-141	205	226	0.345	0.2	1.08	< 2	< 10	40	< 0.5	< 2	4.38	3.5	28	89	84	4.75	< 10	< 1	0.14	< 10	0.38
84-7-142	205	226	< 0.005	< 0.2	2.54	2	< 10	40	0.5	< 2	8.79	< 0.5	21	507	14	3.53	10	< 1	0.09	< 10	2.01
84-7-143	205	226	0.090	0.2	0.74	< 2	< 10	30	< 0.5	< 2	2.80	2.0	21	54	118	3.51	< 10	< 1	0.14	10	0.16
84-7-144	205	226	0.080	0.4	0.37	< 2	< 10	10	< 0.5	< 2	3.99	3.5	29	37	255	3.81	< 10	< 1	0.14	10	0.36
84-7-145	205	226	0.045	0.2	0.63	< 2	< 10	30	< 0.5	< 2	2.52	4.5	26	52	202	3.99	< 10	< 1	0.14	10	0.54
84-7-146	205	226	0.030	0.2	1.08	< 2	< 10	20	< 0.5	< 2	3.10	2.5	22	57	223	4.07	< 10	< 1	0.15	< 10	0.31
84-7-147	205	226	0.015	0.2	0.81	< 2	< 10	30	< 0.5	< 2	4.02	0.5	16	62	74	2.34	< 10	< 1	0.20	10	0.26
84-7-148	205	226	0.250	2.4	0.52	< 2	< 10	30	< 0.5	< 2	3.30	4.0	28	85	1330	2.45	< 10	< 1	0.21	10	0.15
84-7-149	205	226	0.110	0.4	0.64	< 2	< 10	40	< 0.5	< 2	4.12	3.5	19	60	134	2.59	< 10	< 1	0.28	10	0.29
84-7-150	205	226	0.185	6.6	0.22	< 2	< 10	40	< 0.5	12	1.45	10.5	7	199	629	1.11	< 10	< 1	0.08	< 10	0.05
84-7-151	205	226	0.305	2.6	0.54	24	< 10	70	< 0.5	< 2	3.83	32.0	42	89	1330	4.05	< 10	< 1	0.28	< 10	0.16
84-7-152	205	226	0.215	4.4	0.19	2	< 10	30	< 0.5	2	2.35	2.0	30	141	2070	2.83	< 10	< 1	0.06	< 10	0.11
84-7-153	205	226	7.09	19.8	0.72	32	< 10	50	< 0.5	20	1.67	13.0	23	114	4120	4.30	< 10	< 1	0.12	< 10	0.21
84-7-154	205	226	4.01	2.6	0.96	16	< 10	50	< 0.5	< 2	1.66	4.5	38	137	260	5.32	< 10	< 1	0.20	< 10	0.31
84-7-155	205	226	0.085	< 0.2	0.13	< 2	< 10	60	< 0.5	< 2	1.20	< 0.5	4	221	26	0.93	< 10	< 1	0.03	< 10	0.04
84-7-156	205	226	0.170	1.0	0.86	12	< 10	40	< 0.5	< 2	0.70	4.5	48	125	199	5.85	< 10	< 1	0.16	10	0.25
84-7-157	205	226	0.030	0.8	0.48	10	< 10	60	< 0.5	< 2	1.80	4.0	15	141	55	1.56	< 10	< 1	0.17	< 10	0.12
84-7-158	205	226	0.005	< 0.2	3.50	< 2	< 10	110	0.5	< 2	2.16	< 0.5	33	43	98	7.39	10	< 1	0.58	< 10	2.02
84-7-159	205	226	0.015	< 0.2	1.68	< 2	< 10	30	< 0.5	< 2	3.07	1.5	21	70	94	3.92	< 10	< 1	0.18	< 10	0.76
84-7-160	205	226	0.090	0.8	1.26	< 2	< 10	30	< 0.5	< 2	2.32	2.5	24	72	256	4.07	< 10	< 1	0.20	< 10	0.42
84-7-161	205	226	< 0.005	< 0.2	1.80	< 2	< 10	50	< 0.5	< 2	2.37	< 0.5	23	45	44	3.89	< 10	< 1	0.39	< 10	0.82
84-7-162	205	226	< 0.005	< 0.2	2.32	< 2	< 10	130	< 0.5	< 2	2.08	0.5	29	49	44	5.00	< 10	< 1	0.71	< 10	1.25
84-7-163	205	226	0.005	0.2	1.23	< 2	< 10	60	< 0.5	< 2	1.95	3.5	21	57	198	3.31	< 10	< 1	0.31	10	0.42
84-7-164	205	226	0.015	0.6	0.94	16	< 10	50	< 0.5	< 2	1.75	3.5	20	72	138	2.98	< 10	< 1	0.19	< 10	0.28
84-7-165	205	226	< 0.005	< 0.2	1.80	< 2	< 10	100	< 0.5	< 2	2.81	< 0.5	23	73	59	3.71	< 10	< 1	0.26	< 10	0.71
84-7-166	205	226	< 0.005	< 0.2	2.17	< 2	< 10	160	< 0.5	< 2	4.53	< 0.5	27	85	94	4.41	< 10	< 1	0.35	< 10	0.90
84-7-167	205	226	< 0.005	0.2	1.17	< 2	< 10	50	< 0.5	< 2	2.72	1.5	16	98	78	3.21	< 10	< 1	0.21	< 10	0.42
84-7-168	205	226	< 0.005	< 0.2	3.04	< 2	< 10	140	< 0.5	< 2	2.17	< 0.5	34	49	65	5.93	10	< 1	0.64	< 10	1.40

CERTIFICATION: ________________

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : M5444
Comments: ATTN: JACQUES SAMSON

Certificate Date: 02-NOV-1999
Invoice No. : I9932057
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9932057

SAMPLE	PREP CODE		Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
84-7-129	205	226	710	1	0.11	35	1570	< 2	0.15	< 2	9	24	0.21	< 10	< 10	77	< 10	104
84-7-130	205	226	860	< 1	0.03	64	1570	< 2	0.63	< 2	6	14	0.30	< 10	< 10	80	< 10	154
84-7-131	205	226	740	< 1	0.01	41	1540	< 2	0.18	< 2	4	12	0.20	< 10	< 10	73	< 10	122
84-7-132	205	226	1025	1	0.02	66	790	2	2.44	< 2	11	35	0.18	< 10	< 10	133	< 10	286
84-7-133	205	226	690	1	< 0.01	71	1270	< 2	0.50	< 2	4	12	0.10	< 10	< 10	90	< 10	170
84-7-134	205	226	690	2	< 0.01	63	1160	< 2	1.13	< 2	4	12	0.10	< 10	< 10	78	< 10	686
84-7-135	205	226	775	5	< 0.01	60	770	8	1.80	< 2	7	28	0.02	< 10	< 10	61	< 10	1005
84-7-136	205	226	1110	1	0.01	60	1010	10	1.18	< 2	8	65	0.03	< 10	< 10	77	< 10	436
84-7-137	205	226	680	1	0.06	56	1280	< 2	0.14	< 2	8	39	0.25	< 10	< 10	118	< 10	150
84-7-138	205	226	425	< 1	0.08	55	1280	< 2	0.12	< 2	6	26	0.18	< 10	< 10	102	< 10	90
84-7-139	205	226	710	< 1	0.03	57	1210	< 2	0.18	< 2	8	41	0.15	< 10	< 10	102	< 10	112
84-7-140	205	226	1160	< 1	0.01	56	1180	8	0.38	< 2	9	92	0.03	< 10	< 10	85	< 10	172
84-7-141	205	226	565	6	0.01	40	680	12	2.66	< 2	5	55	0.01	< 10	< 10	21	< 10	558
84-7-142	205	226	785	< 1	< 0.01	168	1020	2	0.08	< 2	12	91	< 0.01	< 10	< 10	49	< 10	160
84-7-143	205	226	340	4	< 0.01	23	300	24	1.84	< 2	< 1	31	< 0.01	< 10	< 10	4	< 10	874
84-7-144	205	226	745	3	< 0.01	38	390	12	2.35	< 2	< 1	55	< 0.01	< 10	< 10	3	< 10	1775
84-7-145	205	226	615	1	< 0.01	35	500	8	2.01	< 2	< 1	23	< 0.01	< 10	< 10	5	< 10	2260
84-7-146	205	226	475	2	0.01	32	780	6	1.48	< 2	1	25	< 0.01	< 10	< 10	11	< 10	1690
84-7-147	205	226	555	1	0.01	19	640	6	0.72	< 2	1	47	< 0.01	< 10	< 10	7	< 10	516
84-7-148	205	226	440	7	< 0.01	20	300	10	1.57	< 2	< 1	58	< 0.01	< 10	< 10	5	< 10	1320
84-7-149	205	226	585	1	< 0.01	19	640	6	1.31	< 2	1	93	< 0.01	< 10	< 10	12	< 10	1045
84-7-150	205	226	170	4	< 0.01	11	170	412	0.64	< 2	< 1	49	< 0.01	< 10	< 10	6	< 10	842
84-7-151	205	226	540	4	< 0.01	43	500	6	3.76	< 2	1	117	< 0.01	< 10	< 10	8	< 10	4660
84-7-152	205	226	275	18	0.02	34	190	62	2.45	< 2	2	90	< 0.01	< 10	< 10	4	< 10	196
84-7-153	205	226	225	7	< 0.01	27	290	2020	2.82	< 2	1	46	< 0.01	< 10	30	11	< 10	1540
84-7-154	205	226	220	4	< 0.01	43	390	14	3.73	< 2	1	35	0.01	< 10	< 10	15	< 10	808
84-7-155	205	226	95	6	< 0.01	6	70	12	0.50	< 2	< 1	70	< 0.01	< 10	< 10	2	< 10	40
84-7-156	205	226	115	11	0.01	52	340	18	4.49	< 2	2	20	< 0.01	< 10	< 10	22	< 10	794
84-7-157	205	226	220	3	< 0.01	15	130	12	0.91	< 2	< 1	13	< 0.01	< 10	< 10	3	< 10	746
84-7-158	205	226	760	< 1	< 0.01	54	1310	2	0.30	< 2	14	30	0.26	< 10	< 10	171	< 10	124
84-7-159	205	226	550	4	< 0.01	26	540	10	0.54	< 2	3	25	0.01	< 10	< 10	39	< 10	476
84-7-160	205	226	380	5	< 0.01	34	430	6	1.63	< 2	2	26	< 0.01	< 10	< 10	19	< 10	878
84-7-161	205	226	505	< 1	0.07	36	1090	< 2	0.15	< 2	7	23	0.17	< 10	< 10	77	< 10	94
84-7-162	205	226	680	1	0.03	50	1230	2	0.25	< 2	9	29	0.25	< 10	< 10	105	< 10	382
84-7-163	205	226	360	1	0.01	24	280	12	1.10	< 2	3	24	0.03	< 10	< 10	17	< 10	1025
84-7-164	205	226	245	11	< 0.01	24	200	14	1.31	< 2	1	21	< 0.01	< 10	< 10	8	< 10	1240
84-7-165	205	226	605	< 1	0.11	28	1210	< 2	0.15	< 2	10	25	0.18	< 10	< 10	84	< 10	110
84-7-166	205	226	885	< 1	0.05	34	1150	< 2	0.42	< 2	10	33	0.23	< 10	< 10	78	< 10	148
84-7-167	205	226	340	9	0.01	19	310	6	1.21	< 2	2	11	0.06	< 10	< 10	18	< 10	422
84-7-168	205	226	810	1	0.06	62	1290	4	0.50	< 2	8	15	0.34	< 10	< 10	126	< 10	202

CERTIFICATION: David Jeff

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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : M5444
Comments: ATTN: JACQUES SAMSON

Page Number :2-A
Total Pages :4
Certificate Date: 02-NOV-1999
Invoice No. : I9932057
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9932057

SAMPLE	PREP CODE		Au g/t FA+AA	Ag ppm	Al %	As ppm	B 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 %
84-7-169	205	226	< 0.005	< 0.2	2.90	< 2	< 10	90	< 0.5	< 2	2.43	< 0.5	30	40	63	5.54	10	< 1	0.34	< 10	1.71
84-7-170	205	226	< 0.005	< 0.2	2.46	< 2	< 10	50	< 0.5	< 2	2.67	< 0.5	23	36	53	4.27	10	< 1	0.22	< 10	1.06
84-7-171	205	226	< 0.005	< 0.2	1.91	< 2	< 10	20	< 0.5	< 2	2.40	< 0.5	21	29	54	3.28	< 10	< 1	0.11	< 10	0.72
84-7-172	205	226	< 0.005	< 0.2	2.73	< 2	< 10	70	< 0.5	< 2	2.36	0.5	30	37	70	5.45	10	< 1	0.26	< 10	1.85
84-7-173	205	226	0.020	0.4	1.56	< 2	< 10	100	< 0.5	< 2	0.99	4.5	26	82	204	4.32	< 10	< 1	0.41	10	0.63
87-3-174	205	226	< 0.005	< 0.2	3.08	< 2	< 10	60	< 0.5	< 2	1.48	< 0.5	25	76	63	5.19	10	< 1	0.39	< 10	2.69
87-3-175	205	226	< 0.005	< 0.2	4.36	< 2	< 10	190	< 0.5	< 2	2.15	< 0.5	30	93	82	6.64	10	< 1	1.73	< 10	3.45
87-3-176	205	226	< 0.005	< 0.2	3.08	< 2	< 10	150	< 0.5	< 2	3.38	< 0.5	21	285	21	3.50	10	< 1	1.99	10	2.77
87-3-177	205	226	< 0.005	< 0.2	2.00	< 2	< 10	60	< 0.5	< 2	1.90	< 0.5	13	154	25	2.32	< 10	< 1	1.30	20	1.72
87-3-178	205	226	< 0.005	< 0.2	1.36	< 2	< 10	40	< 0.5	< 2	0.64	< 0.5	7	50	33	1.93	< 10	< 1	0.70	20	0.95
87-3-179	205	226	< 0.005	< 0.2	3.06	< 2	< 10	80	< 0.5	< 2	1.10	< 0.5	22	84	51	4.80	10	< 1	0.61	10	2.69
87-3-180	205	226	< 0.005	< 0.2	2.70	< 2	< 10	20	< 0.5	< 2	1.15	< 0.5	24	74	50	4.68	10	< 1	0.15	< 10	2.53
87-3-181	205	226	< 0.005	< 0.2	2.77	< 2	< 10	40	< 0.5	< 2	1.57	< 0.5	23	77	50	4.66	10	< 1	0.24	< 10	2.45
87-3-182	205	226	< 0.005	< 0.2	1.60	< 2	< 10	40	< 0.5	< 2	0.36	0.5	5	74	38	2.99	< 10	< 1	0.48	20	0.99
87-3-183	205	226	< 0.005	< 0.2	1.81	10	< 10	70	< 0.5	< 2	0.87	1.0	20	53	79	3.26	< 10	< 1	0.77	10	1.20
87-3-184	205	226	< 0.005	< 0.2	2.38	< 2	< 10	100	< 0.5	< 2	0.81	< 0.5	17	46	44	4.04	10	< 1	1.11	10	1.62
87-3-185	205	226	< 0.005	< 0.2	1.54	8	< 10	40	< 0.5	< 2	1.85	1.0	30	37	112	4.19	< 10	< 1	0.33	10	0.82
87-3-186	205	226	< 0.005	< 0.2	5.04	< 2	< 10	50	1.5	< 2	1.82	< 0.5	26	70	161	7.59	10	< 1	0.46	< 10	3.67
87-3-187	205	226	< 0.005	< 0.2	2.69	< 2	< 10	210	1.5	< 2	10.35	< 0.5	65	283	117	6.86	20	< 1	0.40	50	3.91
87-3-188	205	226	< 0.005	< 0.2	4.40	< 2	< 10	60	0.5	< 2	2.29	< 0.5	33	164	61	8.09	10	< 1	0.37	< 10	4.61
87-3-189	205	226	< 0.005	< 0.2	2.24	< 2	< 10	40	< 0.5	< 2	1.43	< 0.5	24	158	55	4.58	10	< 1	0.18	< 10	2.26
87-3-190	205	226	< 0.005	< 0.2	0.87	< 2	< 10	50	< 0.5	< 2	0.83	< 0.5	7	87	16	1.26	< 10	< 1	0.32	10	0.68
87-3-191	205	226	< 0.005	< 0.2	0.85	< 2	< 10	100	< 0.5	< 2	0.62	< 0.5	7	80	18	1.28	< 10	< 1	0.40	< 10	0.64
87-3-192	205	226	0.005	< 0.2	1.77	< 2	< 10	30	< 0.5	< 2	1.13	< 0.5	19	40	72	3.70	10	< 1	0.14	10	1.54
87-3-193	205	226	< 0.005	< 0.2	2.76	< 2	< 10	80	< 0.5	< 2	1.99	< 0.5	25	52	66	5.26	10	< 1	0.37	< 10	2.24
87-3-194	205	226	< 0.005	< 0.2	0.75	< 2	< 10	40	< 0.5	< 2	0.68	< 0.5	6	86	13	1.05	< 10	< 1	0.18	< 10	0.55
87-3-195	205	226	< 0.005	< 0.2	0.85	< 2	< 10	50	< 0.5	< 2	1.13	< 0.5	7	81	19	1.32	< 10	< 1	0.12	10	0.68
87-3-196	205	226	< 0.005	< 0.2	2.50	< 2	< 10	290	< 0.5	< 2	2.97	< 0.5	20	287	33	3.15	10	< 1	1.16	10	2.75
87-3-197	205	226	< 0.005	< 0.2	0.79	< 2	< 10	10	< 0.5	< 2	1.01	< 0.5	6	68	10	1.46	< 10	< 1	0.05	10	0.57
87-3-198	205	226	0.005	< 0.2	3.28	< 2	< 10	40	< 0.5	< 2	3.62	< 0.5	26	103	27	5.81	10	< 1	0.26	< 10	2.20
87-3-199	205	226	< 0.005	< 0.2	2.52	< 2	< 10	90	< 0.5	< 2	3.35	< 0.5	27	109	68	5.08	10	< 1	0.44	< 10	1.37
87-3-200	205	226	< 0.005	< 0.2	2.70	< 2	< 10	< 10	< 0.5	< 2	3.15	< 0.5	29	89	216	5.29	10	< 1	0.08	< 10	1.64
87-3-201	205	226	< 0.005	< 0.2	2.91	< 2	< 10	< 10	< 0.5	< 2	4.41	< 0.5	27	101	70	5.51	10	< 1	0.07	< 10	2.12
87-3-202	205	226	< 0.005	< 0.2	1.62	< 2	< 10	< 10	< 0.5	< 2	2.31	< 0.5	16	64	63	3.18	< 10	< 1	0.07	10	0.70
87-3-203	205	226	0.010	< 0.2	3.19	< 2	< 10	150	< 0.5	< 2	2.14	0.5	28	80	142	6.71	10	< 1	0.76	10	1.32
87-3-204	205	226	< 0.005	< 0.2	2.61	< 2	< 10	90	< 0.5	< 2	2.25	1.5	30	79	106	5.16	< 10	< 1	0.34	< 10	1.20
87-3-205	205	226	0.010	< 0.2	2.07	< 2	< 10	140	< 0.5	< 2	2.24	2.0	30	68	118	4.63	< 10	< 1	0.48	< 10	0.97
87-3-206	205	226	0.015	< 0.2	1.62	< 2	< 10	100	< 0.5	< 2	1.34	1.5	21	86	116	4.15	< 10	< 1	0.28	< 10	0.60
87-3-207	205	226	< 0.005	< 0.2	2.87	< 2	< 10	70	0.5	< 2	3.85	< 0.5	24	248	45	4.73	10	< 1	0.23	10	2.13
87-3-208	205	226	< 0.005	< 0.2	2.52	< 2	< 10	90	< 0.5	< 2	4.49	0.5	22	203	78	4.29	10	< 1	0.29	10	1.68

CERTIFICATION:

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P3E 5P5

Project : M5444
Comments: ATTN: JACQUES SAMSON

Certificate Date: 02-NOV-1999
Invoice No. : I9932057
P.O. Number :
Account :KPI

CERTIFICATE OF ANALYSIS A9932057

SAMPLE	PREP CODE		Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
84-7-169	205	226	685	1	0.06	60	1280	< 2	0.16	< 2	9	22	0.33	< 10	< 10	122	< 10	130
84-7-170	205	226	570	1	0.15	36	1400	< 2	0.13	< 2	9	19	0.25	< 10	< 10	102	< 10	88
84-7-171	205	226	395	< 1	0.20	40	1180	< 2	0.14	< 2	8	25	0.20	< 10	< 10	79	< 10	70
84-7-172	205	226	805	4	0.09	51	1210	6	0.37	< 2	10	30	0.22	< 10	< 10	126	< 10	292
84-7-173	205	226	300	3	0.03	36	460	8	1.30	< 2	5	9	0.10	< 10	< 10	46	< 10	1470
87-3-174	205	226	405	2	0.05	41	1230	< 2	0.16	< 2	7	17	0.18	< 10	< 10	101	< 10	78
87-3-175	205	226	655	2	0.03	45	1230	< 2	0.40	< 2	14	31	0.36	< 10	< 10	160	< 10	106
87-3-176	205	226	580	< 1	0.03	73	640	< 2	0.06	< 2	11	41	0.16	< 10	< 10	75	< 10	104
87-3-177	205	226	325	2	0.02	40	420	2	0.11	< 2	5	31	0.11	< 10	< 10	35	< 10	94
87-3-178	205	226	170	3	0.01	10	200	2	0.19	< 2	1	11	0.05	< 10	< 10	11	< 10	198
87-3-179	205	226	460	2	0.04	44	960	< 2	0.06	< 2	9	20	0.20	< 10	< 10	97	< 10	98
87-3-180	205	226	405	< 1	0.06	52	1020	< 2	0.05	< 2	8	17	0.13	< 10	< 10	94	< 10	86
87-3-181	205	226	460	1	0.05	52	990	< 2	0.04	< 2	11	21	0.16	< 10	< 10	102	< 10	120
87-3-182	205	226	230	2	0.03	6	220	6	0.36	< 2	1	11	0.05	< 10	< 10	10	< 10	222
87-3-183	205	226	260	3	0.03	23	640	26	0.76	< 2	3	17	0.07	< 10	< 10	25	< 10	744
87-3-184	205	226	400	2	0.03	12	1220	6	0.41	< 2	6	15	0.16	< 10	< 10	52	< 10	336
87-3-185	205	226	335	2	0.02	30	980	8	1.32	< 2	3	28	0.02	< 10	< 10	29	< 10	798
87-3-186	205	226	680	1	0.01	27	1210	< 2	0.19	< 2	16	42	0.09	< 10	< 10	152	< 10	122
87-3-187	205	226	1380	< 1	0.05	319	2670	< 2	0.25	< 2	14	617	0.29	< 10	< 10	207	< 10	98
87-3-188	205	226	715	1	0.03	48	1270	2	0.16	< 2	18	77	0.12	< 10	< 10	188	< 10	112
87-3-189	205	226	365	< 1	0.07	34	1480	< 2	0.11	< 2	11	36	0.14	< 10	< 10	124	< 10	70
87-3-190	205	226	165	< 1	0.06	13	350	2	0.04	< 2	1	51	0.07	< 10	< 10	27	< 10	50
87-3-191	205	226	155	1	0.07	13	370	2	0.04	< 2	1	37	0.09	< 10	< 10	26	< 10	50
87-3-192	205	226	255	1	0.07	15	1470	< 2	0.12	< 2	4	14	0.12	< 10	< 10	89	< 10	50
87-3-193	205	226	435	< 1	0.05	24	1490	< 2	0.11	< 2	6	29	0.19	< 10	< 10	127	< 10	80
87-3-194	205	226	140	< 1	0.06	12	300	< 2	0.03	< 2	1	47	0.07	< 10	< 10	19	< 10	42
87-3-195	205	226	155	< 1	0.07	15	360	2	0.07	< 2	2	44	0.09	< 10	< 10	25	< 10	40
87-3-196	205	226	455	< 1	0.04	77	650	< 2	0.08	< 2	8	59	0.19	< 10	< 10	73	< 10	78
87-3-197	205	226	205	1	0.07	12	340	2	0.05	< 2	2	27	0.06	< 10	< 10	27	< 10	24
87-3-198	205	226	720	1	0.07	49	1620	< 2	0.07	< 2	14	40	0.26	< 10	< 10	148	< 10	94
87-3-199	205	226	630	1	0.12	50	1810	< 2	0.17	< 2	14	37	0.22	< 10	< 10	141	< 10	94
87-3-200	205	226	580	< 1	0.13	57	1600	< 2	0.23	< 2	11	36	0.25	< 10	< 10	119	< 10	88
87-3-201	205	226	605	< 1	0.11	56	1770	< 2	0.17	< 2	13	54	0.20	< 10	< 10	124	< 10	78
87-3-202	205	226	495	< 1	0.17	29	1530	< 2	0.12	< 2	11	22	0.14	< 10	< 10	67	< 10	62
87-3-203	205	226	925	3	0.04	43	1420	< 2	0.77	< 2	8	20	0.19	< 10	< 10	68	< 10	534
87-3-204	205	226	645	1	0.04	42	1280	< 2	0.50	< 2	6	17	0.23	< 10	< 10	80	< 10	598
87-3-205	205	226	670	1	0.02	44	1040	< 2	0.64	< 2	4	17	0.18	< 10	< 10	64	< 10	748
87-3-206	205	226	395	3	0.01	39	420	6	0.85	< 2	4	20	0.03	< 10	< 10	28	< 10	496
87-3-207	205	226	540	1	0.02	89	700	2	0.27	< 2	11	50	0.04	< 10	< 10	61	< 10	116
87-3-208	205	226	580	< 1	0.02	73	570	4	0.39	< 2	10	55	0.04	< 10	< 10	57	< 10	362

CERTIFICATION: David [illegible]

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : M5444
Comments: ATTN: JACQUES SAMSON

Certificate Date: 02-NOV-1999
Invoice No. : I9932057
P.O. Number :
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CERTIFICATE OF ANALYSIS A9932057

SAMPLE	PREP CODE		Au g/t FA+AA	Ag ppm	Al %	As ppm	B 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 %
87-3-209	205	226	< 0.005	< 0.2	2.22	< 2	< 10	150	0.5	< 2	4.67	< 0.5	20	255	33	3.61	10	< 1	0.44	10	2.02
87-3-210	205	226	< 0.005	< 0.2	3.09	< 2	< 10	30	0.5	< 2	3.48	< 0.5	19	263	36	4.83	10	< 1	0.11	10	2.38
87-3-211	205	226	0.025	1.2	1.53	< 2	< 10	60	< 0.5	< 2	3.74	4.5	47	60	260	5.98	< 10	< 1	0.13	< 10	0.35
87-3-212	205	226	0.020	< 0.2	0.71	< 2	< 10	40	< 0.5	< 2	3.10	0.5	7	72	47	1.74	< 10	< 1	0.19	10	0.14
87-3-213	205	226	0.055	1.4	0.56	< 2	< 10	30	< 0.5	< 2	2.70	6.0	18	96	242	2.57	< 10	< 1	0.17	20	0.08
87-3-214	205	226	0.080	1.0	0.71	8	< 10	40	< 0.5	< 2	1.35	6.0	33	73	292	3.28	< 10	< 1	0.21	20	0.11
87-3-215	205	226	0.005	0.8	0.13	< 2	< 10	10	< 0.5	< 2	1.06	< 0.5	5	233	12	0.69	< 10	< 1	0.05	< 10	0.02
87-3-216	205	226	0.045	0.8	0.80	< 2	< 10	30	< 0.5	< 2	4.77	2.0	43	66	264	3.89	< 10	< 1	0.18	10	0.16
87-3-217	205	226	0.145	1.2	0.43	20	< 10	30	< 0.5	< 2	3.27	2.0	23	84	142	2.70	< 10	< 1	0.21	10	0.06
87-3-218	205	226	0.140	0.8	0.20	< 2	< 10	110	< 0.5	< 2	5.53	0.5	21	141	1200	1.77	< 10	< 1	0.01	< 10	0.10
87-3-219	205	226	0.070	0.6	0.72	< 2	< 10	30	< 0.5	< 2	3.10	2.0	49	48	170	4.08	< 10	< 1	0.16	10	0.24
87-3-220	205	226	0.160	0.6	0.85	16	< 10	60	< 0.5	< 2	3.12	3.0	40	60	183	4.49	< 10	< 1	0.23	10	0.32
87-3-221	205	226	< 0.005	< 0.2	0.03	< 2	< 10	60	< 0.5	< 2	5.92	< 0.5	1	151	6	0.29	< 10	< 1	< 0.01	< 10	0.06
87-3-222	205	226	< 0.005	< 0.2	0.02	< 2	< 10	1010	< 0.5	< 2	9.62	< 0.5	1	120	6	0.52	< 10	< 1	< 0.01	< 10	0.11
87-3-223	205	226	0.055	0.2	0.60	10	< 10	80	< 0.5	< 2	3.08	2.0	51	82	276	3.06	< 10	< 1	0.25	10	0.12
87-3-224	205	226	0.015	< 0.2	0.77	< 2	< 10	50	< 0.5	< 2	3.49	0.5	11	57	71	2.37	< 10	< 1	0.20	10	0.23
87-3-225	205	226	0.020	< 0.2	0.89	< 2	< 10	30	< 0.5	< 2	2.98	< 0.5	17	56	58	3.08	< 10	< 1	0.25	10	0.37
87-3-226	205	226	0.225	0.2	0.12	< 2	< 10	< 10	< 0.5	< 2	3.56	1.5	150	78	125	12.30	< 10	< 1	0.03	< 10	0.07
87-3-227	205	226	0.015	< 0.2	0.34	< 2	< 10	30	< 0.5	< 2	2.04	< 0.5	14	80	16	2.10	< 10	< 1	0.09	< 10	0.13
87-3-228	205	226	0.040	0.2	0.78	< 2	< 10	40	< 0.5	< 2	2.60	0.5	20	70	205	2.92	< 10	< 1	0.22	10	0.34
87-3-229	205	226	< 0.005	< 0.2	2.74	< 2	< 10	70	0.5	< 2	4.44	< 0.5	21	209	32	3.52	10	< 1	0.54	10	2.26
87-3-230	205	226	0.170	0.2	1.57	2	< 10	50	< 0.5	< 2	4.15	1.0	28	103	194	4.95	< 10	< 1	0.21	< 10	0.88
87-3-231	205	226	0.010	< 0.2	2.23	< 2	< 10	40	< 0.5	< 2	6.76	< 0.5	29	60	91	6.44	10	< 1	0.14	< 10	1.16
87-3-232	205	226	0.020	< 0.2	2.01	< 2	< 10	40	< 0.5	< 2	6.77	< 0.5	36	40	140	5.85	< 10	< 1	0.15	< 10	0.94
87-3-233	205	226	< 0.005	< 0.2	2.48	< 2	< 10	50	< 0.5	< 2	4.26	< 0.5	37	44	67	6.23	10	< 1	0.11	< 10	1.26
87-3-234	205	226	0.075	< 0.2	1.38	< 2	< 10	130	< 0.5	< 2	3.96	< 0.5	34	47	66	5.30	< 10	< 1	0.48	< 10	0.90
87-3-235	205	226	0.015	< 0.2	0.85	< 2	< 10	50	< 0.5	< 2	6.34	< 0.5	31	35	95	4.91	< 10	< 1	0.24	< 10	0.59
87-3-236	205	226	< 0.005	< 0.2	3.11	< 2	< 10	100	< 0.5	< 2	5.17	< 0.5	26	187	52	4.99	10	< 1	0.40	10	2.09
87-3-237	205	226	< 0.005	< 0.2	3.03	< 2	< 10	180	< 0.5	< 2	3.16	< 0.5	37	42	67	6.23	10	< 1	0.58	< 10	1.58
87-3-238	205	226	< 0.005	< 0.2	2.70	< 2	< 10	60	< 0.5	< 2	3.15	< 0.5	36	43	72	6.05	10	< 1	0.23	< 10	1.60
87-4-239	205	226	< 0.005	< 0.2	3.55	< 2	< 10	60	< 0.5	< 2	2.77	< 0.5	27	67	71	5.92	10	< 1	0.41	< 10	3.05
87-4-240	205	226	< 0.005	< 0.2	2.14	< 2	< 10	170	< 0.5	< 2	1.27	< 0.5	13	66	50	3.68	10	< 1	1.04	10	1.43
87-4-241	205	226	< 0.005	< 0.2	2.12	< 2	< 10	20	< 0.5	< 2	2.84	< 0.5	19	295	40	3.19	10	< 1	0.12	10	2.74
87-4-242	205	226	< 0.005	< 0.2	1.32	< 2	< 10	40	< 0.5	< 2	2.49	< 0.5	15	253	36	2.09	10	< 1	0.15	10	1.37
87-4-243	205	226	< 0.005	< 0.2	2.93	< 2	< 10	20	< 0.5	< 2	1.55	< 0.5	23	49	46	5.07	10	< 1	0.08	< 10	2.38
87-4-244	205	226	< 0.005	< 0.2	2.01	< 2	< 10	90	< 0.5	< 2	1.50	< 0.5	45	101	270	4.20	< 10	< 1	0.59	< 10	0.83
87-4-245	205	226	< 0.005	< 0.2	1.99	< 2	< 10	40	< 0.5	< 2	2.16	< 0.5	35	82	278	4.13	< 10	< 1	0.29	< 10	0.69
87-4-246	205	226	< 0.005	< 0.2	1.80	< 2	< 10	10	< 0.5	< 2	3.20	< 0.5	63	53	863	6.60	< 10	< 1	0.15	< 10	0.69
87-4-247	205	226	< 0.005	< 0.2	1.77	< 2	< 10	50	< 0.5	< 2	1.40	< 0.5	40	89	172	3.54	< 10	< 1	0.39	< 10	0.67
87-4-248	205	226	< 0.005	< 0.2	1.56	< 2	< 10	30	< 0.5	< 2	2.63	< 0.5	18	68	79	3.07	< 10	< 1	0.17	< 10	0.83

CERTIFICATION: ____________

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SAMPLE	PREP CODE	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
87-3-209	205 226	555	< 1	0.02	79	610	2	0.15	< 2	10	78	0.09	< 10	< 10	63	< 10	58
87-3-210	205 226	505	< 1	0.01	77	620	2	0.14	< 2	10	33	0.03	< 10	< 10	60	< 10	266
87-3-211	205 226	475	2	0.01	67	850	14	2.59	< 2	11	38	< 0.01	< 10	< 10	46	< 10	2360
87-3-212	205 226	360	3	< 0.01	11	240	6	0.47	< 2	1	28	< 0.01	< 10	< 10	6	< 10	350
87-3-213	205 226	300	3	< 0.01	26	200	96	1.80	< 2	< 1	21	< 0.01	< 10	< 10	4	< 10	1945
87-3-214	205 226	160	7	< 0.01	35	300	46	2.32	< 2	< 1	15	< 0.01	< 10	< 10	4	< 10	2300
87-3-215	205 226	90	3	< 0.01	6	30	68	0.33	< 2	< 1	10	< 0.01	< 10	< 10	1	< 10	20
87-3-216	205 226	465	2	0.01	47	560	16	2.32	< 2	1	48	< 0.01	< 10	< 10	7	< 10	1345
87-3-217	205 226	330	4	< 0.01	27	240	54	2.31	< 2	< 1	47	< 0.01	< 10	< 10	3	< 10	782
87-3-218	205 226	300	7	< 0.01	25	50	14	1.26	< 2	1	516	< 0.01	< 10	< 10	1	< 10	60
87-3-219	205 226	410	4	< 0.01	47	480	4	2.91	< 2	1	44	< 0.01	< 10	< 10	6	< 10	1115
87-3-220	205 226	415	4	0.01	46	570	4	3.37	< 2	2	52	0.01	< 10	< 10	15	< 10	1430
87-3-221	205 226	325	< 1	< 0.01	3	30	12	0.03	< 2	< 1	631	< 0.01	< 10	< 10	1	< 10	16
87-3-222	205 226	310	< 1	< 0.01	3	10	26	0.28	< 2	< 1	1390	< 0.01	< 10	< 10	< 1	< 10	8
87-3-223	205 226	470	5	< 0.01	32	330	< 2	2.22	< 2	< 1	57	< 0.01	< 10	< 10	10	< 10	844
87-3-224	205 226	535	2	< 0.01	18	390	< 2	0.78	< 2	< 1	68	< 0.01	< 10	< 10	6	< 10	362
87-3-225	205 226	490	1	< 0.01	16	640	< 2	1.02	< 2	1	48	< 0.01	< 10	< 10	10	< 10	114
87-3-226	205 226	315	3	0.01	335	50	2	>5.00	< 2	1	232	< 0.01	< 10	10	1	< 10	218
87-3-227	205 226	190	19	0.02	18	130	2	1.59	< 2	< 1	95	< 0.01	< 10	< 10	2	< 10	42
87-3-228	205 226	365	5	< 0.01	21	240	< 2	1.84	< 2	< 1	47	< 0.01	< 10	< 10	5	< 10	236
87-3-229	205 226	690	1	0.01	73	650	< 2	0.15	< 2	5	97	0.05	< 10	< 10	38	< 10	130
87-3-230	205 226	755	5	< 0.01	37	620	2	1.91	< 2	3	78	0.01	< 10	< 10	37	< 10	308
87-3-231	205 226	1230	< 1	< 0.01	51	1120	2	0.57	< 2	4	113	0.03	< 10	< 10	87	< 10	240
87-3-232	205 226	1090	< 1	< 0.01	57	1380	2	0.79	< 2	4	131	0.04	< 10	< 10	75	< 10	206
87-3-233	205 226	840	< 1	0.01	64	1240	2	0.33	< 2	5	60	0.07	< 10	< 10	109	< 10	216
87-3-234	205 226	800	< 1	0.01	52	1350	2	0.85	< 2	6	91	0.05	< 10	< 10	101	< 10	122
87-3-235	205 226	1110	< 1	0.02	52	1150	4	0.59	< 2	6	89	< 0.01	< 10	< 10	53	< 10	206
87-3-236	205 226	810	< 1	0.01	68	920	2	0.19	< 2	10	88	0.07	< 10	< 10	94	< 10	124
87-3-237	205 226	640	< 1	< 0.01	62	1360	2	0.27	< 2	5	42	0.18	< 10	< 10	126	< 10	152
87-3-238	205 226	615	< 1	< 0.01	64	1260	2	0.18	< 2	10	63	0.19	< 10	< 10	133	< 10	178
87-4-239	205 226	545	1	0.02	37	1200	< 2	0.40	< 2	13	35	0.13	< 10	< 10	135	< 10	70
87-4-240	205 226	320	1	0.03	18	410	2	0.32	< 2	6	20	0.11	< 10	< 10	44	< 10	124
87-4-241	205 226	385	< 1	0.03	77	690	< 2	0.15	< 2	9	62	0.14	< 10	< 10	66	< 10	40
87-4-242	205 226	325	< 1	0.05	51	610	< 2	0.09	< 2	3	59	0.11	< 10	< 10	41	< 10	38
87-4-243	205 226	450	1	0.05	22	1410	< 2	0.09	< 2	7	24	0.26	< 10	< 10	99	< 10	78
87-4-244	205 226	395	4	0.14	85	1540	< 2	0.51	< 2	9	18	0.17	< 10	< 10	132	< 10	74
87-4-245	205 226	475	9	0.18	59	1510	< 2	0.51	< 2	8	23	0.14	< 10	< 10	96	< 10	66
87-4-246	205 226	1420	3	0.13	77	1140	< 2	1.56	< 2	6	13	0.13	< 10	< 10	59	< 10	64
87-4-247	205 226	455	1	0.09	85	1460	< 2	0.25	< 2	6	15	0.14	< 10	< 10	103	< 10	74
87-4-248	205 226	510	4	0.13	23	890	< 2	0.09	< 2	8	29	0.20	< 10	< 10	79	< 10	70

CERTIFICATION: David J.

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P.O. Number :
Account :KPI

CERTIFICATE OF ANALYSIS A9932057

SAMPLE	PREP CODE		Au g/t FA+AA	Ag ppm	Al %	As ppm	B 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 %
87-4-249	205	226	< 0.005	< 0.2	1.96	< 2	< 10	180	< 0.5	< 2	2.41	3.5	26	94	197	5.02	10	< 1	0.66	10	1.13
87-4-250	205	226	< 0.005	< 0.2	2.43	< 2	< 10	110	< 0.5	< 2	2.02	< 0.5	22	69	86	5.30	< 10	< 1	0.88	10	0.97
87-4-251	205	226	< 0.005	< 0.2	2.24	< 2	< 10	110	< 0.5	< 2	2.83	< 0.5	24	96	105	5.29	< 10	< 1	0.92	< 10	0.89
87-4-252	205	226	< 0.005	< 0.2	1.43	< 2	< 10	40	< 0.5	< 2	1.83	1.0	18	57	72	3.06	< 10	< 1	0.15	< 10	0.80
87-4-253	205	226	< 0.005	< 0.2	1.65	< 2	< 10	40	< 0.5	< 2	2.56	< 0.5	17	75	32	3.36	< 10	< 1	0.20	10	0.80
87-4-254	205	226	< 0.005	< 0.2	3.34	< 2	< 10	80	< 0.5	< 2	3.84	< 0.5	21	249	3	4.90	10	< 1	0.45	10	3.00
87-4-255	205	226	< 0.005	< 0.2	2.73	< 2	< 10	150	< 0.5	< 2	3.29	< 0.5	37	99	79	5.63	10	< 1	0.94	10	1.65
87-4-256	205	226	0.020	< 0.2	2.14	< 2	< 10	140	< 0.5	< 2	4.82	< 0.5	37	59	99	7.43	10	< 1	0.91	10	1.51
87-4-257	205	226	0.190	< 0.2	1.44	< 2	< 10	130	< 0.5	< 2	5.23	0.5	36	64	94	6.19	< 10	< 1	0.83	< 10	1.19
87-4-258	205	226	< 0.005	< 0.2	0.61	< 2	< 10	60	< 0.5	< 2	2.46	< 0.5	8	85	20	1.89	< 10	< 1	0.09	10	0.48
87-4-259	205	226	0.010	< 0.2	1.25	< 2	< 10	230	< 0.5	< 2	5.57	< 0.5	38	76	51	5.60	< 10	< 1	0.80	< 10	1.15
87-4-260	205	226	< 0.005	< 0.2	1.88	< 2	< 10	70	< 0.5	< 2	4.56	< 0.5	34	63	93	6.23	< 10	< 1	0.17	< 10	1.09
87-4-261	205	226	0.045	< 0.2	0.65	< 2	< 10	30	< 0.5	< 2	4.73	< 0.5	24	79	132	4.08	< 10	< 1	0.23	< 10	0.36
87-4-262	205	226	0.060	< 0.2	0.21	< 2	< 10	< 10	< 0.5	< 2	1.52	< 0.5	6	181	19	1.13	< 10	< 1	0.04	< 10	0.04
87-4-263	205	226	0.135	< 0.2	0.56	< 2	< 10	10	< 0.5	< 2	4.63	< 0.5	31	96	58	4.91	< 10	< 1	0.11	< 10	0.21
87-4-264	205	226	0.040	< 0.2	0.48	< 2	< 10	40	< 0.5	< 2	3.15	< 0.5	28	105	77	3.69	< 10	< 1	0.19	< 10	0.30
87-4-265	205	226	0.170	< 0.2	0.75	< 2	< 10	50	< 0.5	< 2	4.03	2.0	18	63	106	4.97	< 10	< 1	0.34	10	0.41
87-4-266	205	226	0.015	< 0.2	1.04	< 2	< 10	< 10	< 0.5	< 2	8.37	< 0.5	35	47	83	3.41	< 10	< 1	0.12	< 10	0.14
87-4-267	205	226	0.080	< 0.2	1.80	< 2	< 10	10	< 0.5	< 2	4.86	< 0.5	41	87	92	5.79	< 10	< 1	0.14	< 10	0.29
87-4-268	205	226	0.020	< 0.2	1.35	< 2	< 10	20	< 0.5	< 2	6.10	< 0.5	42	60	73	4.37	< 10	< 1	0.18	< 10	0.41
87-4-269	205	226	0.045	< 0.2	1.39	< 2	< 10	50	0.5	< 2	3.96	< 0.5	38	100	121	4.82	< 10	< 1	0.23	< 10	0.63
87-4-270	205	226	0.005	< 0.2	0.25	< 2	< 10	10	< 0.5	< 2	0.75	< 0.5	9	267	8	1.08	< 10	< 1	0.07	< 10	0.08
87-4-271	205	226	3.15	< 0.2	1.00	< 2	< 10	10	< 0.5	< 2	3.77	< 0.5	22	164	19	4.58	< 10	< 1	0.06	< 10	0.48
87-4-272	205	226	0.025	< 0.2	1.80	< 2	< 10	10	< 0.5	< 2	6.10	< 0.5	32	69	54	6.07	< 10	< 1	0.13	< 10	0.92
87-4-273	205	226	0.110	< 0.2	1.23	< 2	< 10	10	< 0.5	< 2	4.35	< 0.5	28	96	92	4.84	< 10	< 1	0.15	< 10	0.51
87-4-274	205	226	0.395	< 0.2	1.66	< 2	< 10	20	0.5	< 2	7.37	< 0.5	24	78	75	4.61	< 10	< 1	0.15	< 10	0.52
87-4-275	205	226	0.050	0.2	1.62	< 2	< 10	10	0.5	< 2	3.84	< 0.5	24	165	215	5.09	< 10	< 1	0.10	< 10	0.90
87-4-276	205	226	0.020	< 0.2	1.81	< 2	< 10	10	< 0.5	< 2	5.46	0.5	21	103	145	9.81	< 10	< 1	0.10	< 10	0.93
87-4-277	205	226	0.040	< 0.2	1.45	< 2	< 10	10	< 0.5	< 2	7.11	1.0	24	67	170	7.28	< 10	< 1	0.15	< 10	0.75
87-4-278	205	226	0.060	< 0.2	1.26	< 2	< 10	40	< 0.5	< 2	3.78	3.0	17	72	47	3.51	< 10	< 1	0.27	< 10	0.44
87-4-279	205	226	0.030	0.2	1.54	< 2	< 10	10	0.5	< 2	5.92	2.0	19	81	159	3.99	< 10	< 1	0.12	< 10	0.54
87-4-280	205	226	0.010	< 0.2	3.62	< 2	< 10	< 10	0.5	< 2	4.73	< 0.5	32	75	79	8.57	10	< 1	0.07	< 10	1.60
87-4-281	205	226	< 0.005	< 0.2	2.55	< 2	< 10	10	< 0.5	< 2	5.37	< 0.5	38	82	64	4.81	< 10	< 1	0.23	< 10	1.12
87-4-282	205	226	< 0.005	< 0.2	3.16	< 2	< 10	70	< 0.5	< 2	2.98	< 0.5	45	97	76	5.94	10	< 1	0.51	< 10	1.64
87-4-283	205	226	0.010	< 0.2	2.93	< 2	< 10	60	< 0.5	< 2	2.84	< 0.5	48	99	116	5.57	10	< 1	0.27	< 10	1.80
87-4-284	205	226	< 0.005	< 0.2	2.23	< 2	< 10	10	< 0.5	< 2	2.79	< 0.5	33	77	52	4.33	< 10	< 1	0.09	< 10	1.16
87-4-285	205	226	< 0.005	< 0.2	2.72	< 2	< 10	< 10	< 0.5	< 2	3.44	< 0.5	37	89	80	5.51	< 10	< 1	0.05	< 10	1.67
87-4-286	205	226	0.010	< 0.2	3.36	< 2	< 10	60	< 0.5	< 2	3.97	< 0.5	41	108	85	6.53	10	< 1	0.33	< 10	2.13
87-4-287	205	226	< 0.005	< 0.2	3.71	< 2	< 10	10	< 0.5	< 2	3.17	< 0.5	34	89	80	7.34	10	< 1	0.06	< 10	2.88

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: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : M5444
Comments: ATTN: JACQUES SAMSON

Certificate Date: 02-NOV-1999
Invoice No. : I9932057
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9932057

SAMPLE	PREP CODE		Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
87-4-249	205	226	605	4	0.04	39	540	2	1.03	< 2	8	19	0.23	< 10	< 10	65	< 10	1845
87-4-250	205	226	955	1	0.07	31	1430	< 2	0.30	< 2	8	19	0.30	< 10	< 10	68	< 10	140
87-4-251	205	226	950	1	0.07	38	1480	8	0.40	< 2	9	27	0.31	< 10	< 10	83	< 10	138
87-4-252	205	226	400	4	0.12	36	1670	34	0.17	< 2	8	17	0.15	< 10	< 10	64	< 10	466
87-4-253	205	226	510	< 1	0.14	31	1740	< 2	0.10	< 2	9	34	0.14	< 10	< 10	79	< 10	74
87-4-254	205	226	1055	< 1	0.01	35	1480	< 2	0.01	< 2	13	46	0.22	< 10	< 10	103	< 10	152
87-4-255	205	226	845	< 1	0.01	64	1270	6	0.41	< 2	9	40	0.21	< 10	< 10	124	< 10	236
87-4-256	205	226	1555	1	0.02	57	1110	2	0.79	< 2	11	63	0.09	< 10	< 10	95	< 10	278
87-4-257	205	226	1450	< 1	0.02	47	860	< 2	1.37	< 2	8	74	0.07	< 10	< 10	78	< 10	244
87-4-258	205	226	455	< 1	0.07	17	400	2	0.23	< 2	3	46	0.01	< 10	< 10	31	< 10	44
87-4-259	205	226	1455	< 1	0.02	90	970	< 2	0.56	< 2	8	80	0.07	< 10	< 10	109	< 10	152
87-4-260	205	226	1650	< 1	0.01	88	870	< 2	0.42	< 2	6	46	0.03	< 10	< 10	68	< 10	158
87-4-261	205	226	965	2	0.01	40	610	2	0.96	< 2	4	61	< 0.01	< 10	< 10	32	< 10	190
87-4-262	205	226	140	3	< 0.01	12	120	< 2	0.29	< 2	1	18	< 0.01	< 10	< 10	13	< 10	18
87-4-263	205	226	655	12	0.03	33	530	< 2	1.84	< 2	5	68	0.01	< 10	< 10	54	< 10	52
87-4-264	205	226	555	8	0.02	35	320	< 2	1.53	< 2	1	74	0.01	< 10	< 10	25	< 10	68
87-4-265	205	226	1415	2	< 0.01	27	310	< 2	1.44	< 2	1	51	0.04	< 10	< 10	35	< 10	448
87-4-266	205	226	1080	< 1	0.01	84	940	2	0.50	< 2	8	60	< 0.01	< 10	< 10	46	< 10	82
87-4-267	205	226	615	< 1	< 0.01	97	1050	< 2	0.62	< 2	4	31	< 0.01	< 10	< 10	59	< 10	84
87-4-268	205	226	930	< 1	< 0.01	88	1120	< 2	0.86	< 2	3	64	< 0.01	< 10	< 10	51	< 10	70
87-4-269	205	226	615	2	< 0.01	65	1020	< 2	0.83	< 2	2	73	< 0.01	< 10	< 10	69	< 10	76
87-4-270	205	226	115	2	< 0.01	15	180	< 2	0.31	< 2	< 1	11	< 0.01	< 10	< 10	11	< 10	12
87-4-271	205	226	590	6	< 0.01	35	380	2	1.02	< 2	4	86	< 0.01	< 10	< 10	56	< 10	48
87-4-272	205	226	1175	< 1	< 0.01	45	1210	2	0.76	< 2	4	87	< 0.01	< 10	< 10	67	< 10	142
87-4-273	205	226	820	4	0.01	38	960	< 2	0.99	< 2	5	58	0.01	< 10	< 10	70	< 10	120
87-4-274	205	226	1280	< 1	0.01	44	1210	2	0.71	< 2	7	103	< 0.01	< 10	< 10	50	< 10	118
87-4-275	205	226	955	10	< 0.01	75	360	2	1.20	< 2	3	49	< 0.01	< 10	< 10	28	< 10	164
87-4-276	205	226	2620	1	< 0.01	51	490	< 2	1.03	< 2	5	51	0.03	< 10	< 10	67	< 10	348
87-4-277	205	226	2540	< 1	< 0.01	49	490	2	1.53	< 2	3	81	0.01	< 10	< 10	51	< 10	446
87-4-278	205	226	695	4	0.03	28	530	< 2	0.79	< 2	5	55	0.01	< 10	< 10	32	< 10	834
87-4-279	205	226	1025	5	< 0.01	36	870	6	0.67	< 2	5	64	< 0.01	< 10	< 10	39	< 10	504
87-4-280	205	226	1920	1	< 0.01	87	880	2	0.45	< 2	9	63	0.02	< 10	< 10	126	< 10	372
87-4-281	205	226	1035	< 1	0.01	94	1040	2	0.35	< 2	6	32	0.07	< 10	< 10	95	< 10	158
87-4-282	205	226	790	< 1	0.01	109	970	2	0.28	< 2	5	19	0.15	< 10	< 10	147	< 10	156
87-4-283	205	226	720	< 1	0.02	117	990	2	0.37	< 2	5	18	0.17	< 10	< 10	128	< 10	114
87-4-284	205	226	610	1	0.09	88	1090	2	0.15	< 2	7	27	0.20	< 10	< 10	102	< 10	88
87-4-285	205	226	735	< 1	0.05	93	1030	< 2	0.22	< 2	9	50	0.28	< 10	< 10	129	< 10	100
87-4-286	205	226	900	1	0.02	105	1050	< 2	0.45	< 2	7	36	0.23	< 10	< 10	167	< 10	114
87-4-287	205	226	975	< 1	0.02	87	1040	< 2	0.19	< 2	12	38	0.23	< 10	< 10	171	< 10	114

CERTIFICATION: [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: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

A9929741

Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

CERTIFICATE A9929741

(KPI) - CAMECO CORPORATION

Project: M5444
P.O. # :

Samples submitted to our lab in Thunder Bay, ON.
This report was printed on 07-OCT-1999.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
299	1	Pulp; prepped on other workorder

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
902	1	Al2O3 %: XRF	XRF	0.01	100.00
906	1	CaO %: XRF	XRF	0.01	100.00
2590	1	Cr2O3 %: XRF	XRF	0.01	100.00
903	1	Fe2O3 %: XRF	XRF	0.01	100.00
908	1	K2O %: XRF	XRF	0.01	100.00
905	1	MgO %: XRF	XRF	0.01	100.00
1989	1	MnO %: XRF	XRF	0.01	100.00
907	1	Na2O %: XRF	XRF	0.01	100.00
909	1	P2O5 %: XRF	XRF	0.01	100.00
901	1	SiO2 %: XRF	XRF	0.01	100.00
904	1	TiO2 %: XRF	XRF	0.01	100.00
910	1	LOI %: XRF	XRF	0.01	100.00
2540	1	Total %	CALCULATION	0.01	105.00

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: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : M5444
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Certificate Date: 07-OCT-1999
Invoice No. : 19929741
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9929741

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 %
EMP99x-1925	299	--	13.86	6.94	< 0.01	8.67	1.11	6.15	0.15	4.36	0.52	55.90	0.85	1.22	99.73

CERTIFICATION: [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: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

A9929752

Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

CERTIFICATE A9929752

(KPI) - CAMECO CORPORATION

Project: M5444
P.O. # :

Samples submitted to our lab in Thunder Bay, ON.
This report was printed on 12-OCT-1999.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
244	9	Pulp; prev. prepared at Chemex

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
902	9	Al2O3 %: XRF	XRF	0.01	100.00
906	9	CaO %: XRF	XRF	0.01	100.00
2590	9	Cr2O3 %: XRF	XRF	0.01	100.00
903	9	Fe2O3 %: XRF	XRF	0.01	100.00
908	9	K2O %: XRF	XRF	0.01	100.00
905	9	MgO %: XRF	XRF	0.01	100.00
1989	9	MnO %: XRF	XRF	0.01	100.00
907	9	Na2O %: XRF	XRF	0.01	100.00
909	9	P2O5 %: XRF	XRF	0.01	100.00
901	9	SiO2 %: XRF	XRF	0.01	100.00
904	9	TiO2 %: XRF	XRF	0.01	100.00
910	9	LOI %: XRF	XRF	0.01	100.00
2540	9	Total %	CALCULATION	0.01	105.00

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: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : M5444
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Page Number :1
Total Pages :1
Certificate Date: 12-OCT-1999
Invoice No. :19929752
P.O. Number :
Account :KPI

CERTIFICATE OF ANALYSIS A9929752

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 %
EMP99C-1206	244	--	13.16	0.29	< 0.01	5.41	3.66	1.37	0.05	0.20	0.12	71.19	0.43	3.28	99.16
EMP99C-1504	244	--	14.06	8.78	< 0.01	14.63	0.71	4.61	0.20	1.45	0.37	49.92	2.25	1.55	98.53
EMP99C-1507	244	--	11.89	0.66	< 0.01	6.73	3.16	0.82	0.05	0.01	0.07	72.09	0.38	3.78	99.64
EMP99C-1508	244	--	15.39	0.52	0.02	9.12	4.10	1.20	0.17	0.02	0.32	62.11	2.00	4.47	99.44
EMP99C-1536	244	--	13.44	2.92	< 0.01	9.60	2.02	2.37	0.09	2.26	0.21	61.73	1.21	3.56	99.41
EMP99C-1558	244	--	15.04	1.54	< 0.01	7.42	2.80	2.42	0.15	3.67	0.18	62.29	0.92	2.88	99.31
EMP99x-1344	244	--	15.17	4.73	0.05	13.65	2.19	4.19	0.27	1.45	0.29	48.71	2.55	6.17	99.42
EMP99x-1348	244	--	14.76	5.64	< 0.01	16.07	3.33	3.52	0.24	2.25	0.34	43.98	2.52	5.96	98.61
EMP99x-1702	244	--	13.75	8.41	< 0.01	14.05	1.26	1.93	0.22	2.84	0.27	44.32	2.15	9.97	99.17

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: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

A9929793

Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

CERTIFICATE A9929793

(KPI) - CAMECO CORPORATION

Project: M5444
P.O. # :

Samples submitted to our lab in Thunder Bay, ON.
This report was printed on 01-OCT-1999.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
219	12	Drying charge (4-7 Kg)
234	12	0-7 Kg splitting charge
3288	12	Ring 1000 g to approx -150 mesh
3206	12	1Kg sieve to -150 mesh

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
881	12	Au g/t: Total, metallics calc.	FA-AAS/GRAV	0.07	1500.00
885	12	Au- g/t: Metallics calc.	FA-AAS/GRAV	0.07	1500.00
887	12	Au+ mg: Metallics calculation	FA-AAS/GRAV	0.002	50.000
889	12	Weight- g: Metallics calculation	BALANCE	1	10000
888	12	Weight+ g: Metallics calculation	BALANCE	0.01	200.0

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: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : M5444
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Certificate Date: 01-OCT-1999
Invoice No. : I9929793
P.O. Number :
Account :KPI

CERTIFICATE OF ANALYSIS A9929793

SAMPLE	PREP CODE		Au tot g/t	Au - g/t	Au + mg	Wt - grams	Wt + grams					
EMP99C-1214	219	234	< 0.07	< 0.07	< 0.002	979	21.37					
EMP99C-1222	219	234	1.39	1.30	0.120	949	25.66					
EMP99C-1407	219	234	0.87	0.89	0.006	961	23.55					
EMP99C-1408	219	234	0.83	0.79	0.063	965	24.55					
EMP99C-1428	219	234	1.00	1.03	0.007	983	36.21					
EMP99C-1462	219	234	0.35	0.27	0.090	954	29.27					
EMP99C-1465	219	234	11.59	10.29	1.698	967	38.27					
EMP99C-1555	219	234	0.42	0.41	0.022	970	32.95					
EMP99C-1563	219	234	0.26	0.27	< 0.002	973	31.11					
EMP99C-1564	219	234	0.07	0.07	< 0.002	947	32.22					
EMP99x-1303	219	234	42.43	23.35	19.883	988	24.33					
EMP99x-1322	219	234	16.01	14.57	1.672	964	17.69					

CERTIFICATION: [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: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

A9929753

Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

CERTIFICATE A9929753

(KPI) - CAMECO CORPORATION

Project: M5444
P.O. # :

Samples submitted to our lab in Thunder Bay, ON.
This report was printed on 01-OCT-1999.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
244	3	Pulp; prev. prepared at Chemex
229	3	ICP - AQ Digestion charge

* NOTE 1:

The 32 element ICP package is suitable for trace metals in soil and rock samples. Elements for which the nitric-aqua regia digestion is possibly incomplete are: Al, Ba, Be, Ca, Cr, Ga, K, La, Mg, Na, Sr, Ti, Tl, W.

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
2118	3	Ag ppm: 32 element, soil & rock	ICP-AES	0.2	100.0
2119	3	Al %: 32 element, soil & rock	ICP-AES	0.01	15.00
2120	3	As ppm: 32 element, soil & rock	ICP-AES	2	10000
557	3	B ppm: 32 element, rock & soil	ICP-AES	10	10000
2121	3	Ba ppm: 32 element, soil & rock	ICP-AES	10	10000
2122	3	Be ppm: 32 element, soil & rock	ICP-AES	0.5	100.0
2123	3	Bi ppm: 32 element, soil & rock	ICP-AES	2	10000
2124	3	Ca %: 32 element, soil & rock	ICP-AES	0.01	15.00
2125	3	Cd ppm: 32 element, soil & rock	ICP-AES	0.5	500
2126	3	Co ppm: 32 element, soil & rock	ICP-AES	1	10000
2127	3	Cr ppm: 32 element, soil & rock	ICP-AES	1	10000
2128	3	Cu ppm: 32 element, soil & rock	ICP-AES	1	10000
2150	3	Fe %: 32 element, soil & rock	ICP-AES	0.01	15.00
2130	3	Ga ppm: 32 element, soil & rock	ICP-AES	10	10000
2131	3	Hg ppm: 32 element, soil & rock	ICP-AES	1	10000
2132	3	K %: 32 element, soil & rock	ICP-AES	0.01	10.00
2151	3	La ppm: 32 element, soil & rock	ICP-AES	10	10000
2134	3	Mg %: 32 element, soil & rock	ICP-AES	0.01	15.00
2135	3	Mn ppm: 32 element, soil & rock	ICP-AES	5	10000
2136	3	Mo ppm: 32 element, soil & rock	ICP-AES	1	10000
2137	3	Na %: 32 element, soil & rock	ICP-AES	0.01	10.00
2138	3	Ni ppm: 32 element, soil & rock	ICP-AES	1	10000
2139	3	P ppm: 32 element, soil & rock	ICP-AES	10	10000
2140	3	Pb ppm: 32 element, soil & rock	ICP-AES	2	10000
551	3	S %: 32 element, rock & soil	ICP-AES	0.01	5.00
2141	3	Sb ppm: 32 element, soil & rock	ICP-AES	2	10000
2142	3	Sc ppm: 32 elements, soil & rock	ICP-AES	1	10000
2143	3	Sr ppm: 32 element, soil & rock	ICP-AES	1	10000
2144	3	Ti %: 32 element, soil & rock	ICP-AES	0.01	10.00
2145	3	Tl ppm: 32 element, soil & rock	ICP-AES	10	10000
2146	3	U ppm: 32 element, soil & rock	ICP-AES	10	10000
2147	3	V ppm: 32 element, soil & rock	ICP-AES	1	10000
2148	3	W ppm: 32 element, soil & rock	ICP-AES	10	10000
2149	3	Zn ppm: 32 element, soil & rock	ICP-AES	2	10000

Chemex Labs Ltd.
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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : M5444
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Certificate Date: 01-OCT-1999
Invoice No. : I9929753
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9929753

SAMPLE	PREP CODE		Ag ppm	Al %	As ppm	B 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
EMP99C-1555	244	229	2.0	1.37	14	< 10	40	< 0.5	< 2	0.99	1.0	20	84	59	4.17	< 10	< 1	0.27	10	0.84	890
EMP99x-1347	244	229	0.2	0.80	< 2	< 10	10	< 0.5	< 2	6.13	1.5	56	66	27	7.09	< 10	< 1	0.12	< 10	2.13	1775
EMP99x-1701	244	229	0.8	1.71	6	< 10	70	< 0.5	< 2	2.41	< 0.5	54	178	8	7.16	< 10	< 1	0.82	< 10	1.14	1120

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: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : M5444
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Certificate Date: 01-OCT-1999
Invoice No. : I9929753
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9929753

SAMPLE	PREP CODE		Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
EMP99C-1555	244	229	26	0.09	25	560	< 2	0.88	< 2	6	17	0.05	< 10	< 10	48	< 10	242
EMP99x-1347	244	229	31	0.16	94	610	8	2.84	< 2	12	272	0.04	< 10	< 10	98	< 10	84
EMP99x-1701	244	229	9	0.03	92	640	2	2.66	< 2	12	20	0.13	< 10	< 10	124	< 10	54

CERTIFICATION:

Chemex Labs Ltd.
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5175 Timberlea Blvd., Mississauga
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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : CAM M5444
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Certificate Date: 09-JUL-1999
Invoice No. : I9921921
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9921921

SAMPLE	PREP CODE		Au g/t FA+AA
EMP99x-1350	205	226	0.005
EMP99x-1351	205	226	< 0.005
EMP99x-1352	205	226	< 0.005
EMP99x-1353	205	226	0.010
EMP99x-1354	205	226	0.080
EMP99x-1355	205	226	< 0.005
EMP99x-1356	205	226	0.090
EMP99x-1357	205	226	0.030
EMP99x-1358	205	226	< 0.005
EMP99x-1359	205	226	1.810
EMP99x-1360	205	226	0.010
EMP99x-1361	205	226	0.020
EMP99x-1362	205	226	< 0.005
EMP99x-1363	205	226	< 0.005
EMP99x-1364	205	226	0.070
EMP99x-1365	205	226	0.005
EMP99x-1366	205	226	< 0.005
EMP99x-1367	205	226	0.005
EMP99x-1368	205	226	0.015
EMP99x-1369	205	226	0.005
EMP99x-1370	205	226	0.010
EMP99x-1371	205	226	0.010

CERTIFICATION: Adriana Alexandre

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
5175 Timberlea Blvd., Mississauga
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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : CAM M5444
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Page Number : 1
Total Pages : 1
Certificate Date: 12-JUL-1999
Invoice No. : 19921922
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9921922

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 %
EMP99x-1351	299	--	14.76	11.25	< 0.01	12.84	0.93	3.26	0.26	2.34	0.45	49.95	2.36	0.84	99.24
EMP99x-1356	299	--	15.50	2.30	< 0.01	2.12	1.93	0.88	0.03	5.64	0.08	69.65	0.27	0.92	99.32
EMP99x-1358	299	--	12.08	6.24	0.03	5.71	1.85	5.17	0.09	3.27	0.17	53.15	0.50	10.82	99.08
EMP99x-1362	299	--	15.19	13.50	< 0.01	15.73	0.67	2.91	0.26	1.13	0.29	46.79	2.35	0.51	99.33
EMP99x-1371	299	--	13.83	4.73	< 0.01	6.91	1.15	1.03	0.08	3.24	0.29	65.21	1.05	1.71	99.23

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: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : M 5444
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Page [illegible]ber :1
Total Pages :1
Certificate Date: 29-JUL-1999
Invoice No. : I9923592
P.O. Number :
Account :KPI

CERTIFICATE OF ANALYSIS A9923592

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 %
EMP99C-1201	299	--	14.76	10.48	< 0.01	13.92	1.48	3.41	0.23	0.46	0.38	50.04	2.27	2.25	99.68
EMP99C-1222	299	--	14.14	0.08	0.01	7.29	3.40	0.77	0.01	2.29	0.07	66.74	0.26	3.93	98.99
EMP99C-1224	299	--	10.81	0.34	< 0.01	5.77	1.47	1.05	0.08	2.51	0.09	74.20	0.30	2.87	99.49
EMP99C-1226	299	--	13.72	7.33	0.01	15.43	0.48	6.66	0.17	1.93	0.43	45.27	2.19	5.64	99.26
EMP99C-1263	299	--	13.20	8.88	< 0.01	15.38	0.53	4.31	0.26	2.44	0.43	50.84	1.93	1.02	99.22
EMP99C-1278	299	--	14.29	10.67	< 0.01	14.71	1.19	3.89	0.25	2.12	0.36	48.90	2.22	1.04	99.64
EMP99C-1280	299	--	10.33	1.99	< 0.01	5.12	2.08	1.90	0.08	0.17	0.11	73.15	0.45	3.94	99.32
EMP99C-1282	299	--	14.13	2.39	0.01	6.21	0.99	5.09	0.10	3.65	0.18	61.49	0.54	4.99	99.77

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: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

A9927906

Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

CERTIFICATE A9927906

(KPI) - CAMECO CORPORATION
Project: ~~ONAMAN~~ Empress
P.O. # :

Samples submitted to our lab in Thunder Bay, ON.
This report was printed on 13-SEP-1999.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
244	9	Pulp; prev. prepared at Chemex

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
902	9	Al2O3 %: XRF	XRF	0.01	100.00
906	9	CaO %: XRF	XRF	0.01	100.00
2590	9	Cr2O3 %: XRF	XRF	0.01	100.00
903	9	Fe2O3 %: XRF	XRF	0.01	100.00
908	9	K2O %: XRF	XRF	0.01	100.00
905	9	MgO %: XRF	XRF	0.01	100.00
1989	9	MnO %: XRF	XRF	0.01	100.00
907	9	Na2O %: XRF	XRF	0.01	100.00
909	9	P2O5 %: XRF	XRF	0.01	100.00
901	9	SiO2 %: XRF	XRF	0.01	100.00
904	9	TiO2 %: XRF	XRF	0.01	100.00
910	9	LOI %: XRF	XRF	0.01	100.00
2540	9	Total %	CALCULATION	0.01	105.00

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: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : ONAMAN
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Certificate Date: 13-SEP-1999
Invoice No. : I9927906
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9927906

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 %
EMP99x-1704	244	--	13.78	4.88	< 0.01	14.55	1.21	2.23	0.44	2.62	0.37	55.87	2.01	1.29	99.25
EMP99x-1911	244	--	14.63	7.00	< 0.01	15.65	0.97	6.52	0.24	2.57	0.29	45.81	2.51	2.65	98.84
EMP99x-1912	244	--	16.39	5.80	< 0.01	9.75	1.33	5.18	0.26	5.30	0.31	48.83	2.70	3.18	99.03
EMP99x-1913	244	--	13.55	2.62	< 0.01	8.83	1.29	2.40	0.11	3.45	0.29	64.07	1.01	1.58	99.20
EMP99x-1919	244	--	17.82	0.67	0.15	12.14	3.72	6.14	0.14	< 0.01	0.34	49.74	0.85	7.44	99.15
EMP99x-1920	244	--	8.33	12.34	0.07	8.60	3.59	10.06	0.17	0.59	0.70	36.75	0.80	17.27	99.27
EMP99x-1921	244	--	14.97	4.41	< 0.01	13.53	1.83	2.68	0.18	3.93	0.36	54.03	2.20	0.98	99.10
EMP99x-1923	244	--	15.04	9.64	0.02	16.38	0.25	4.43	0.30	2.14	0.31	46.56	2.41	1.64	99.12
EMP99x-1924	244	--	12.80	10.34	< 0.01	16.82	0.35	3.56	0.24	2.40	0.53	48.28	3.06	0.87	99.25

CERTIFICATION: [signature]

RERUNS from A9927477

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: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

A9927477

Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

CERTIFICATE A9927477

(KPI) - CAMECO CORPORATION
Project: ~~ONAMAN~~ Empress
P.O. # :

Samples submitted to our lab in Thunder Bay, ON.
This report was printed on 08-SEP-1999.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
205	18	Geochem ring to approx 150 mesh
226	18	0-3 Kg crush and split
3202	18	Rock - save entire reject

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
494	18	Au g/t: Fuse 30 g sample	FA-AAS	0.005	10.00

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

.o: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : ONAMAN
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Page Nu.. er :1
Total Pages :1
Certificate Date: 08-SEP-1999
Invoice No. : I9927477
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9927477

SAMPLE	PREP CODE		Au g/t FA+AA									
EMP99x-1701	205	226	6.70									
EMP99x-1702	205	226	0.045									
EMP99x-1703	205	226	2.30									
EMP99x-1704	205	226	0.040									
EMP99x-1911	205	226	0.015									
EMP99x-1912	205	226	0.040									
EMP99x-1913	205	226	< 0.005									
EMP99x-1914	205	226	3.12									
EMP99x-1915	205	226	1.200									
EMP99x-1916	205	226	0.115									
EMP99x-1917	205	226	0.360									
EMP99x-1918	205	226	1.500									
EMP99x-1919	205	226	0.010									
EMP99x-1920	205	226	0.010									
EMP99x-1921	205	226	0.005									
EMP99x-1922	205	226	0.020									
EMP99x-1923	205	226	0.015									
EMP99x-1924	205	226	0.015									

CERTIFICATION: Adriana Alexandra

Chemex Labs Ltd.

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

To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

A9927918

Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

CERTIFICATE A9927918

(KPI) - CAMECO CORPORATION
Project: ~~ONAMAN~~ Empress East
P.O. # :

Samples submitted to our lab in Thunder Bay, ON.
This report was printed on 09-SEP-1999.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
244	1	Pulp; prev. prepared at Chemex
229	1	ICP - AQ Digestion charge
* NOTE	1:	

The 32 element ICP package is suitable for trace metals in soil and rock samples. Elements for which the nitric-aqua regia digestion is possibly incomplete are: Al, Ba, Be, Ca, Cr, Ga, K, La, Mg, Na, Sr, Ti, Tl, W.

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
2118	1	Ag ppm: 32 element, soil & rock	ICP-AES	0.2	100.0
2119	1	Al %: 32 element, soil & rock	ICP-AES	0.01	15.00
2120	1	As ppm: 32 element, soil & rock	ICP-AES	2	10000
557	1	B ppm: 32 element, rock & soil	ICP-AES	10	10000
2121	1	Ba ppm: 32 element, soil & rock	ICP-AES	10	10000
2122	1	Be ppm: 32 element, soil & rock	ICP-AES	0.5	100.0
2123	1	Bi ppm: 32 element, soil & rock	ICP-AES	2	10000
2124	1	Ca %: 32 element, soil & rock	ICP-AES	0.01	15.00
2125	1	Cd ppm: 32 element, soil & rock	ICP-AES	0.5	500
2126	1	Co ppm: 32 element, soil & rock	ICP-AES	1	10000
2127	1	Cr ppm: 32 element, soil & rock	ICP-AES	1	10000
2128	1	Cu ppm: 32 element, soil & rock	ICP-AES	1	10000
2150	1	Fe %: 32 element, soil & rock	ICP-AES	0.01	15.00
2130	1	Ga ppm: 32 element, soil & rock	ICP-AES	10	10000
2131	1	Hg ppm: 32 element, soil & rock	ICP-AES	1	10000
2132	1	K %: 32 element, soil & rock	ICP-AES	0.01	10.00
2151	1	La ppm: 32 element, soil & rock	ICP-AES	10	10000
2134	1	Mg %: 32 element, soil & rock	ICP-AES	0.01	15.00
2135	1	Mn ppm: 32 element, soil & rock	ICP-AES	5	10000
2136	1	Mo ppm: 32 element, soil & rock	ICP-AES	1	10000
2137	1	Na %: 32 element, soil & rock	ICP-AES	0.01	10.00
2138	1	Ni ppm: 32 element, soil & rock	ICP-AES	1	10000
2139	1	P ppm: 32 element, soil & rock	ICP-AES	10	10000
2140	1	Pb ppm: 32 element, soil & rock	ICP-AES	2	10000
551	1	S %: 32 element, rock & soil	ICP-AES	0.01	5.00
2141	1	Sb ppm: 32 element, soil & rock	ICP-AES	2	10000
2142	1	Sc ppm: 32 elements, soil & rock	ICP-AES	1	10000
2143	1	Sr ppm: 32 element, soil & rock	ICP-AES	1	10000
2144	1	Ti %: 32 element, soil & rock	ICP-AES	0.01	10.00
2145	1	Tl ppm: 32 element, soil & rock	ICP-AES	10	10000
2146	1	U ppm: 32 element, soil & rock	ICP-AES	10	10000
2147	1	V ppm: 32 element, soil & rock	ICP-AES	1	10000
2148	1	W ppm: 32 element, soil & rock	ICP-AES	10	10000
2149	1	Zn ppm: 32 element, soil & rock	ICP-AES	2	10000

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: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : ONAMAN
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Page Number : 1-A
Total Pages : 1
Certificate Date: 09-SEP-1999
Invoice No. : I9927918
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9927918

SAMPLE	PREP CODE		Ag ppm	Al %	As ppm	B 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
EMP99x-1914	244	229	5.0	1.11	< 2	< 10	10	< 0.5	4	0.14	3.0	144	20	459	>15.00	10	< 1	0.06	10	0.43	320

CERTIFICATION: ________

Chemex Labs Ltd.

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

To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : ONAMAN
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Certificate Date: 09-SEP-1999
Invoice No. : I9927918
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9927918

SAMPLE	PREP CODE		Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
EMP99x-1914	244	229	515	0.01	186	640	150	>5.00	< 2	5	9	0.02	< 10	< 10	17	< 10	366

CERTIFICATION: ________

Chemex Labs Ltd.
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PHONE: 905-624-2806 FAX: 905-624-6163

To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

A9929740

Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

CERTIFICATE A9929740

(KPI) - CAMECO CORPORATION

Project: M5444
P.O. # :

Samples submitted to our lab in Thunder Bay, ON.
This report was printed on 30-SEP-1999.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
208	1	Assay ring to approx 150 mesh
226	1	0-3 Kg crush and split
3202	1	Rock - save entire reject

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
494	1	Au g/t: Fuse 30 g sample	FA-AAS	0.005	10.00

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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : M5444
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Certificate Date: 30-SEP-1999
Invoice No. : 19929740
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9929740

SAMPLE	PREP CODE		Au g/t FA+AA									
EMP99x-1925	208	226	0.010									

CERTIFICATION: Adriana Alexandru

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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
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Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

CERTIFICATE A9927194

(KPI) - CAMECO CORPORATION

Project:
P.O. # :

Samples submitted to our lab in Thunder Bay, ON.
This report was printed on 01-SEP-1999.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
205	31	Geochem ring to approx 150 mesh
226	3	0-3 Kg crush and split
222	1	Drying charge (0-3 Kg)
294	27	4-7 Kg crush and split
219	18	Drying charge (4-7 Kg)
276	1	8-12 Kg crush and split
3202	31	Rock - save entire reject

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
494	31	Au g/t: Fuse 30 g sample	FA-AAS	0.005	10.00

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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project :
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Page Number : 1
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Invoice No. : I9927194
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9927194

SAMPLE	PREP CODE		Au g/t FA+AA
EMP99C-1577	205	276	< 0.005
EMP99C-1578	205	294	0.015
EMP99C-1579	205	294	< 0.005
EMP99C-1580	205	294	< 0.005
EMP99C-1581	205	294	0.005
EMP99C-1582	205	294	< 0.005
EMP99C-1583	205	294	< 0.005
EMP99C-1584	205	226	< 0.005
EMP99C-1585	205	294	< 0.005
EMP99C-1586	205	294	< 0.005
EMP99C-1587	205	294	< 0.005
EMP99C-1588	205	294	< 0.005
EMP99C-1589	205	294	< 0.005
EMP99C-1590	205	294	< 0.005
EMP99C-1591	205	294	< 0.005
EMP99C-1592	205	294	< 0.005
EMP99C-1593	205	294	< 0.005
EMP99C-1594	205	294	< 0.005
EMP99C-1595	205	294	< 0.005
EMP99C-1596	205	294	< 0.005
EMP99C-1597	205	294	< 0.005
EMP99C-1598	205	294	< 0.005
EMP99C-1599	205	294	< 0.005
EMP99C-1600	205	294	< 0.005
EMP99C-1601	205	294	< 0.005
EMP99C-1602	205	294	< 0.005
EMP99C-1603	205	226	< 0.005
EMP99C-1604	205	226	< 0.005
EMP99C-1605	205	294	< 0.005
EMP99C-1606	205	294	< 0.005
EMP99C-1607	205	294	< 0.005

CERTIFICATION:

Chemex Labs Ltd.

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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

A9925938

Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

CERTIFICATE A9925938

(KPI) - CAMECO CORPORATION

Project: M5444
P.O. # :

Samples submitted to our lab in Thunder Bay, ON.
This report was printed on 30-AUG-1999.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
299	10	Pulp; prepped on other workorder
297	10	Meta-borate fusion charge

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
2855	10	Ba ppm: ICP-MS	ICP-MS	0.5	10000
2501	10	Ce ppm: ICP-MS	ICP-MS	0.5	10000
2858	10	Cs ppm: ICP-MS	ICP-MS	0.1	10000
2859	10	Co ppm: ICP-MS	ICP-MS	0.5	10000
2860	10	Cu ppm: ICP-MS	ICP-MS	5	10000
2502	10	Dy ppm: ICP-MS	ICP-MS	0.1	1000
2503	10	Er ppm: ICP-MS	ICP-MS	0.1	1000
2504	10	Eu ppm: ICP-MS	ICP-MS	0.1	1000
2505	10	Gd ppm: ICP-MS	ICP-MS	0.1	1000
2861	10	Ga ppm: ICP-MS	ICP-MS	1	1000
2842	10	Hf ppm: ICP-MS	ICP-MS	1	10000
2506	10	Ho ppm: IPC-MS	ICP-MS	0.1	1000
2507	10	La ppm: ICP-MS	ICP-MS	0.5	10000
2862	10	Pb ppm: ICP-MS	ICP-MS	5	10000
2508	10	Lu ppm: ICP-MS	ICP-MS	0.1	1000
2509	10	Nd ppm: ICP-MS	ICP-MS	0.5	10000
2863	10	Ni ppm: ICP-MS	ICP-MS	5	10000
2844	10	Nb ppm: ICP-MS	ICP-MS	1	10000
2510	10	Pr ppm: ICP-MS	ICP-MS	0.1	1000
2864	10	Rb ppm: ICP-MS	ICP-MS	0.2	10000
2511	10	Sm ppm: ICP-MS	ICP-MS	0.1	1000
2865	10	Ag ppm: ICP-MS	ICP-MS	1	1000
2867	10	Sr ppm: ICP-MS	ICP-MS	0.1	10000
2868	10	Ta ppm: ICP-MS	ICP-MS	0.5	10000
2512	10	Tb ppm: ICP-MS	ICP-MS	0.1	1000
2869	10	Tl ppm: ICP-MS	ICP-MS	0.5	1000
2550	10	Th ppm: ICP-MS	ICP-MS	1	1000
2513	10	Tm ppm: ICP-MS	ICP-MS	0.1	1000
2870	10	Sn ppm: ICP-MS	ICP-MS	1	10000
2871	10	W ppm: ICP-MS	ICP-MS	1	10000
2549	10	U ppm: ICP-MS	ICP-MS	0.5	1000
2872	10	V ppm: ICP-MS	ICP-MS	5	10000
2514	10	Yb ppm: ICP-MS	ICP-MS	0.1	1000
2873	10	Y ppm: ICP-MS	ICP-MS	0.5	10000
2874	10	Zn ppm: ICP-MS	ICP-MS	5	10000
2875	10	Zr ppm: ICP-MS	ICP-MS	0.5	10000

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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : M5444
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Page Number : 1-A
Total Pages : 1
Certificate Date: 30-AUG-1999
Invoice No. : I9925938
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9925938

SAMPLE	PREP CODE		Ba ppm	Ce ppm	Cs ppm	Co ppm	Cu ppm	Dy ppm	Er ppm	Eu ppm	Gd ppm	Ga ppm	Hf ppm	Ho ppm	La ppm	Pb ppm	Lu ppm	Nd ppm	Ni ppm	Nb ppm	Pr ppm
EMP99x-1394	299	297	356	47.0	4.0	16.5	70	3.1	2.2	0.6	3.4	17	6	0.7	23.0	10	0.2	18.0	20	7	4.6
EMP99x-1395	299	297	249	52.0	3.3	25.5	55	1.9	1.0	1.0	3.6	18	3	0.3	24.5	10	< 0.1	22.5	120	3	5.5
EMP99C-1414	299	297	171.5	45.5	0.4	37.5	55	6.4	3.2	2.3	6.9	22	4	1.4	18.0	10	0.3	26.5	65	8	5.6
EMP99C-1425	299	297	287	26.5	0.7	5.0	25	2.5	2.0	0.4	2.4	11	6	0.6	10.5	10	0.2	12.5	5	6	2.9
EMP99C-1447	299	297	302	54.5	0.9	12.5	20	5.0	3.4	0.7	5.0	16	7	1.2	22.0	5	0.5	25.0	10	11	6.3
EMP99C-1448	299	297	395	55.5	1.4	34.0	85	5.4	3.1	1.8	6.2	21	4	1.1	24.0	5	0.3	27.5	65	7	6.3
EMP99C-1454	299	297	300	51.5	0.6	20.0	30	7.0	4.5	1.1	6.7	23	7	1.6	20.0	5	0.5	26.5	25	14	6.2
EMP99C-1479	299	297	295	47.5	3.7	39.0	35	4.3	2.7	1.6	5.0	24	3	0.9	19.5	< 5	0.1	19.0	40	7	4.9
EMP99C-1493	299	297	421	43.0	2.2	12.5	45	3.7	2.2	0.9	4.2	19	5	0.8	18.0	15	0.2	19.5	15	8	4.8
EMP99C-1497	299	297	163.0	36.0	0.6	52.0	35	4.0	2.1	1.5	4.6	20	3	0.8	15.5	< 5	0.1	18.5	170	5	4.3

CERTIFICATION: David [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: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : M5444
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Page I. .ber : 1-B
Total Pages : 1
Certificate Date: 30-AUG-1999
Invoice No. : I9925938
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9925938

SAMPLE	PREP CODE		Rb ppm	Sm ppm	Ag ppm	Sr ppm	Ta ppm	Tb ppm	Tl ppm	Th ppm	Tm ppm	Sn ppm	W ppm	U ppm	V ppm	Yb ppm	Y ppm	Zn ppm	Zr ppm
EMP99x-1394	299	297	87.8	3.4	< 1	32.2	< 0.5	0.4	0.5	2	0.1	< 1	2	0.5	20	2.5	19.5	160	222
EMP99x-1395	299	297	63.6	4.4	< 1	181.5	< 0.5	0.3	< 0.5	3	< 0.1	5	4	1.0	110	0.8	10.5	170	108.5
EMP99C-1414	299	297	15.0	7.0	< 1	312	1.0	1.0	< 0.5	3	0.4	< 1	2	< 0.5	270	3.1	35.5	110	152.5
EMP99C-1425	299	297	45.0	2.8	< 1	32.3	< 0.5	0.3	< 0.5	1	0.1	< 1	4	0.5	10	2.3	17.5	100	235
EMP99C-1447	299	297	58.6	5.3	< 1	52.3	1.5	0.8	< 0.5	1	0.4	3	6	1.0	25	3.6	32.5	65	241
EMP99C-1448	299	297	57.4	6.2	< 1	168.5	< 0.5	0.9	< 0.5	3	0.3	1	8	< 0.5	230	3.0	30.5	145	146.5
EMP99C-1454	299	297	47.8	6.3	< 1	75.4	0.5	1.0	< 0.5	1	0.5	5	6	1.0	50	4.3	40.5	55	223
EMP99C-1479	299	297	55.8	4.5	< 1	164.5	< 0.5	0.7	< 0.5	3	0.1	1	2	0.5	315	2.4	26.0	100	140.0
EMP99C-1493	299	297	84.4	4.5	< 1	74.5	0.5	0.6	< 0.5	2	0.1	< 1	3	1.0	40	2.3	23.0	370	184.0
EMP99C-1497	299	297	19.0	4.4	< 1	233	< 0.5	0.5	< 0.5	3	0.1	< 1	2	< 0.5	260	2.1	23.0	135	104.5

CERTIFICATION: Dave Lef

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

A9926792

Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

CERTIFICATE A9926792

(KPI) - CAMECO CORPORATION

Project:
P.O. # :

Samples submitted to our lab in Thunder Bay, ON.
This report was printed on 30-AUG-1999.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
244	3	Pulp; prev. prepared at Chemex
229	3	ICP - AQ Digestion charge

* NOTE 1:

The 32 element ICP package is suitable for trace metals in soil and rock samples. Elements for which the nitric-aqua regia digestion is possibly incomplete are: Al, Ba, Be, Ca, Cr, Ga, K, La, Mg, Na, Sr, Ti, Tl, W.

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
2118	3	Ag ppm: 32 element, soil & rock	ICP-AES	0.2	100.0
2119	3	Al %: 32 element, soil & rock	ICP-AES	0.01	15.00
2120	3	As ppm: 32 element, soil & rock	ICP-AES	2	10000
557	3	B ppm: 32 element, rock & soil	ICP-AES	10	10000
2121	3	Ba ppm: 32 element, soil & rock	ICP-AES	10	10000
2122	3	Be ppm: 32 element, soil & rock	ICP-AES	0.5	100.0
2123	3	Bi ppm: 32 element, soil & rock	ICP-AES	2	10000
2124	3	Ca %: 32 element, soil & rock	ICP-AES	0.01	15.00
2125	3	Cd ppm: 32 element, soil & rock	ICP-AES	0.5	500
2126	3	Co ppm: 32 element, soil & rock	ICP-AES	1	10000
2127	3	Cr ppm: 32 element, soil & rock	ICP-AES	1	10000
2128	3	Cu ppm: 32 element, soil & rock	ICP-AES	1	10000
2150	3	Fe %: 32 element, soil & rock	ICP-AES	0.01	15.00
2130	3	Ga ppm: 32 element, soil & rock	ICP-AES	10	10000
2131	3	Hg ppm: 32 element, soil & rock	ICP-AES	1	10000
2132	3	K %: 32 element, soil & rock	ICP-AES	0.01	10.00
2151	3	La ppm: 32 element, soil & rock	ICP-AES	10	10000
2134	3	Mg %: 32 element, soil & rock	ICP-AES	0.01	15.00
2135	3	Mn ppm: 32 element, soil & rock	ICP-AES	5	10000
2136	3	Mo ppm: 32 element, soil & rock	ICP-AES	1	10000
2137	3	Na %: 32 element, soil & rock	ICP-AES	0.01	10.00
2138	3	Ni ppm: 32 element, soil & rock	ICP-AES	1	10000
2139	3	P ppm: 32 element, soil & rock	ICP-AES	10	10000
2140	3	Pb ppm: 32 element, soil & rock	ICP-AES	2	10000
551	3	S %: 32 element, rock & soil	ICP-AES	0.01	5.00
2141	3	Sb ppm: 32 element, soil & rock	ICP-AES	2	10000
2142	3	Sc ppm: 32 elements, soil & rock	ICP-AES	1	10000
2143	3	Sr ppm: 32 element, soil & rock	ICP-AES	1	10000
2144	3	Ti %: 32 element, soil & rock	ICP-AES	0.01	10.00
2145	3	Tl ppm: 32 element, soil & rock	ICP-AES	10	10000
2146	3	U ppm: 32 element, soil & rock	ICP-AES	10	10000
2147	3	V ppm: 32 element, soil & rock	ICP-AES	1	10000
2148	3	W ppm: 32 element, soil & rock	ICP-AES	10	10000
2149	3	Zn ppm: 32 element, soil & rock	ICP-AES	2	10000

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project :
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Page Number : 1-A
Total Pages : 1
Certificate Date: 30-AUG-1999
Invoice No. : I9926792
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9926792

SAMPLE	PREP CODE		Ag ppm	Al %	As ppm	B 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
EMP99C-1417	244	229	1.0	0.68	28	< 10	50	< 0.5	2	0.12	< 0.5	20	115	47	3.79	< 10	< 1	0.30	< 10	0.18	95
EMP99C-1428	244	229	9.6	0.69	< 2	< 10	30	< 0.5	20	0.91	7.5	25	151	48	3.10	< 10	< 1	0.30	10	0.21	330
EMP99C-1441	244	229	0.2	0.69	8	< 10	90	< 0.5	< 2	0.39	< 0.5	7	141	15	2.13	< 10	< 1	0.35	20	0.20	155

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: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project :
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Certificate Date: 30-AUG-1999
Invoice No. : I9926792
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9926792

SAMPLE	PREP CODE		Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
EMP99C-1417	244	229	9	0.01	22	400	70	1.07	< 2	< 1	12	< 0.01	< 10	< 10	11	< 10	138
EMP99C-1428	244	229	30	0.01	25	310	632	1.78	< 2	1	31	< 0.01	< 10	< 10	30	< 10	830
EMP99C-1441	244	229	64	0.01	9	130	2	0.61	< 2	< 1	16	0.01	< 10	< 10	14	< 10	72

CERTIFICATION: David [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: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

A9926415

Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

CERTIFICATE A9926415

(KPI) - CAMECO CORPORATION

Project:
P.O. # :

Samples submitted to our lab in Thunder Bay, ON.
This report was printed on 30-AUG-1999.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
299	3	Pulp; prepped on other workorder

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
902	3	Al2O3 %: XRF	XRF	0.01	100.00
906	3	CaO %: XRF	XRF	0.01	100.00
2590	3	Cr2O3 %: XRF	XRF	0.01	100.00
903	3	Fe2O3 %: XRF	XRF	0.01	100.00
908	3	K2O %: XRF	XRF	0.01	100.00
905	3	MgO %: XRF	XRF	0.01	100.00
1989	3	MnO %: XRF	XRF	0.01	100.00
907	3	Na2O %: XRF	XRF	0.01	100.00
909	3	P2O5 %: XRF	XRF	0.01	100.00
901	3	SiO2 %: XRF	XRF	0.01	100.00
904	3	TiO2 %: XRF	XRF	0.01	100.00
910	3	LOI %: XRF	XRF	0.01	100.00
2540	3	Total %	CALCULATION	0.01	105.00

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SUDBURY, ON
P3E 5P5

Project :
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Page Number : 1
Total Pages : 1
Certificate Date: 30-AUG-1999
Invoice No. : I9926415
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9926415

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 %
EMP99C-1506	299	--	11.11	0.92	< 0.01	3.67	3.26	0.83	0.04	< 0.01	0.07	76.77	0.28	2.27	99.22
EMP99C-1526	299	--	14.29	8.28	< 0.01	15.38	0.70	4.88	0.23	2.39	0.36	48.02	2.30	1.80	98.63
EMP99C-1533	299	--	7.29	1.13	< 0.01	2.18	0.58	0.45	0.03	2.49	0.05	83.56	0.21	0.78	98.75

CERTIFICATION: [signature]

Chemex Labs Ltd.

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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

A9925936

Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

CERTIFICATE A9925936

(KPI) - CAMECO CORPORATION

Project: M5444
P.O. # :

Samples submitted to our lab in Thunder Bay, ON.
This report was printed on 27-AUG-1999.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
299	13	Pulp; prepped on other workorder

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
902	13	Al2O3 %: XRF	XRF	0.01	100.00
906	13	CaO %: XRF	XRF	0.01	100.00
2590	13	Cr2O3 %: XRF	XRF	0.01	100.00
903	13	Fe2O3 %: XRF	XRF	0.01	100.00
908	13	K2O %: XRF	XRF	0.01	100.00
905	13	MgO %: XRF	XRF	0.01	100.00
1989	13	MnO %: XRF	XRF	0.01	100.00
907	13	Na2O %: XRF	XRF	0.01	100.00
909	13	P2O5 %: XRF	XRF	0.01	100.00
901	13	SiO2 %: XRF	XRF	0.01	100.00
904	13	TiO2 %: XRF	XRF	0.01	100.00
910	13	LOI %: XRF	XRF	0.01	100.00
2540	13	Total %	CALCULATION	0.01	105.00

Chemex Labs Ltd.
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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
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P3E 5P5

Project : M5444
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Page Number : 1
Total Pages : 1
Certificate Date: 27-AUG-1999
Invoice No. : I9925936
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9925936

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 %
EMP99x-1394	299	--	10.66	2.17	< 0.01	3.83	2.95	1.09	0.07	0.09	0.08	73.42	0.32	4.11	98.79
EMP99x-1395	299	--	12.50	7.62	0.04	5.88	2.07	4.38	0.09	2.22	0.17	54.56	0.49	8.56	98.58
EMP99x-1396	299	--	12.09	0.69	< 0.01	3.36	3.90	0.58	0.07	0.09	0.05	74.90	0.24	2.93	98.90
EMP99x-1397	299	--	11.76	0.45	< 0.01	4.20	3.39	1.53	0.06	0.12	0.05	74.62	0.27	2.70	99.15
EMP99x-1398	299	--	7.32	0.98	< 0.01	2.49	1.52	0.62	0.03	1.13	0.04	84.12	0.20	0.90	99.35
EMP99C-1414	299	--	14.07	7.89	0.03	15.21	0.57	3.13	0.22	1.73	0.46	50.01	2.20	3.01	98.53
EMP99C-1425	299	--	7.50	0.36	< 0.01	1.96	2.30	0.25	0.04	0.24	0.03	84.56	0.22	1.59	99.05
EMP99C-1447	299	--	10.37	1.05	< 0.01	2.76	2.77	0.48	0.04	1.15	0.06	77.11	0.29	2.34	98.42
EMP99C-1448	299	--	13.48	6.53	< 0.01	12.46	2.65	2.80	0.18	1.93	0.35	49.78	1.80	6.37	98.33
EMP99C-1454	299	--	12.17	0.73	< 0.01	3.60	2.26	0.76	0.04	3.01	0.09	73.15	0.38	2.45	98.64
EMP99C-1479	299	--	15.69	3.54	< 0.01	13.44	1.73	3.81	0.20	1.68	0.38	52.01	2.34	4.02	98.84
EMP99C-1493	299	--	13.06	1.27	< 0.01	5.01	3.31	0.91	0.07	1.34	0.09	69.94	0.45	3.13	98.58
EMP99C-1497	299	--	14.08	12.78	0.06	14.39	0.66	5.62	0.22	1.84	0.35	46.18	2.01	1.20	99.39

CERTIFICATION: ______

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

A9926416

Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

CERTIFICATE A9926416

(KPI) - CAMECO CORPORATION

Project:
P.O. # :

Samples submitted to our lab in Thunder Bay, ON.
This report was printed on 03-SEP-1999.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
299	1	Pulp; prepped on other workorder
297	1	Meta-borate fusion charge

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
2855	1	Ba ppm: ICP-MS	ICP-MS	0.5	10000
2501	1	Ce ppm: ICP-MS	ICP-MS	0.5	10000
2858	1	Cs ppm: ICP-MS	ICP-MS	0.1	10000
2859	1	Co ppm: ICP-MS	ICP-MS	0.5	10000
2860	1	Cu ppm: ICP-MS	ICP-MS	5	10000
2502	1	Dy ppm: ICP-MS	ICP-MS	0.1	1000
2503	1	Er ppm: ICP-MS	ICP-MS	0.1	1000
2504	1	Eu ppm: ICP-MS	ICP-MS	0.1	1000
2505	1	Gd ppm: ICP-MS	ICP-MS	0.1	1000
2861	1	Ga ppm: ICP-MS	ICP-MS	1	1000
2842	1	Hf ppm: ICP-MS	ICP-MS	1	10000
2506	1	Ho ppm: IPC-MS	ICP-MS	0.1	1000
2507	1	La ppm: ICP-MS	ICP-MS	0.5	10000
2862	1	Pb ppm: ICP-MS	ICP-MS	5	10000
2508	1	Lu ppm: ICP-MS	ICP-MS	0.1	1000
2509	1	Nd ppm: ICP-MS	ICP-MS	0.5	10000
2863	1	Ni ppm: ICP-MS	ICP-MS	5	10000
2844	1	Nb ppm: ICP-MS	ICP-MS	1	10000
2510	1	Pr ppm: ICP-MS	ICP-MS	0.1	1000
2864	1	Rb ppm: ICP-MS	ICP-MS	0.2	10000
2511	1	Sm ppm: ICP-MS	ICP-MS	0.1	1000
2865	1	Ag ppm: ICP-MS	ICP-MS	1	1000
2867	1	Sr ppm: ICP-MS	ICP-MS	0.1	10000
2868	1	Ta ppm: ICP-MS	ICP-MS	0.5	10000
2512	1	Tb ppm: ICP-MS	ICP-MS	0.1	1000
2869	1	Tl ppm: ICP-MS	ICP-MS	0.5	1000
2550	1	Th ppm: ICP-MS	ICP-MS	1	1000
2513	1	Tm ppm: ICP-MS	ICP-MS	0.1	1000
2870	1	Sn ppm: ICP-MS	ICP-MS	1	10000
2871	1	W ppm: ICP-MS	ICP-MS	1	10000
2549	1	U ppm: ICP-MS	ICP-MS	0.5	1000
2872	1	V ppm: ICP-MS	ICP-MS	5	10000
2514	1	Yb ppm: ICP-MS	ICP-MS	0.1	1000
2873	1	Y ppm: ICP-MS	ICP-MS	0.5	10000
2874	1	Zn ppm: ICP-MS	ICP-MS	5	10000
2875	1	Zr ppm: ICP-MS	ICP-MS	0.5	10000

Chemex Labs Ltd.

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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project :
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Certificate Date: 03-SEP-1999
Invoice No. : I9926416
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9926416

SAMPLE	PREP CODE		Ba ppm	Ce ppm	Cs ppm	Co ppm	Cu ppm	Dy ppm	Er ppm	Eu ppm	Gd ppm	Ga ppm	Hf ppm	Ho ppm	La ppm	Pb ppm	Lu ppm	Nd ppm	Ni ppm	Nb ppm	Pr ppm
EMP99C-1533	299	297	183.5	23.5	0.1	5.0	55	3.0	1.9	0.4	3.4	7	4	0.5	9.0	5	< 0.1	12.5	10	5	3.0

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: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project :
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Certificate Date: 03-SEP-1999
Invoice No. : I9926416
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9926416

SAMPLE	PREP CODE		Rb ppm	Sm ppm	Ag ppm	Sr ppm	Ta ppm	Tb ppm	Tl ppm	Th ppm	Tm ppm	Sn ppm	W ppm	U ppm	V ppm	Yb ppm	Y ppm	Zn ppm	Zr ppm
EMP99C-1533	299	297	9.6	2.6	< 1	68.1	< 0.5	0.4	< 0.5	< 1	< 0.1	1	< 1	< 0.5	10	2.0	17.5	85	143.0

CERTIFICATION:

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
5175 Timberlea Blvd., Mississauga
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PHONE: 905-624-2806 FAX: 905-624-6163

To: CAMECO CORPORATION
1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

A9926973

Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

CERTIFICATE A9926973

(KPI) - CAMECO CORPORATION

Project:
P.O. # :

Samples submitted to our lab in Thunder Bay, ON.
This report was printed on 08-SEP-1999.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
299	4	Pulp; prepped on other workorder

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
902	4	Al2O3 %: XRF	XRF	0.01	100.00
906	4	CaO %: XRF	XRF	0.01	100.00
2590	4	Cr2O3 %: XRF	XRF	0.01	100.00
903	4	Fe2O3 %: XRF	XRF	0.01	100.00
908	4	K2O %: XRF	XRF	0.01	100.00
905	4	MgO %: XRF	XRF	0.01	100.00
1989	4	MnO %: XRF	XRF	0.01	100.00
907	4	Na2O %: XRF	XRF	0.01	100.00
909	4	P2O5 %: XRF	XRF	0.01	100.00
901	4	SiO2 %: XRF	XRF	0.01	100.00
904	4	TiO2 %: XRF	XRF	0.01	100.00
910	4	LOI %: XRF	XRF	0.01	100.00
2540	4	Total %	CALCULATION	0.01	105.00

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
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P3E 5P5

Project :
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Certificate Date: 08-SEP-1999
Invoice No. : I9926973
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9926973

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 %
EMP99x-1901	299	--	12.83	5.99	0.01	5.69	0.72	4.74	0.10	4.39	0.15	57.17	0.51	7.06	99.36
EMP99x-1906	299	--	15.36	6.38	0.01	12.48	0.32	7.25	0.16	3.68	0.16	49.22	1.51	2.79	99.32
EMP99x-1907	299	--	15.74	3.54	< 0.01	8.23	1.98	1.74	0.12	3.10	0.15	62.35	1.04	1.70	99.69
EMP99x-1910	299	--	12.50	0.70	< 0.01	2.99	4.09	0.85	0.06	0.15	0.13	74.46	0.42	2.80	99.15

CERTIFICATION:

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
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P3E 5P5

Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

CERTIFICATE A9926972

(KPI) - CAMECO CORPORATION

Project:
P.O. # :

Samples submitted to our lab in Thunder Bay, ON.
This report was printed on 31-AUG-1999.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
205	43	Geochem ring to approx 150 mesh
226	14	0-3 Kg crush and split
222	1	Drying charge (0-3 Kg)
294	27	4-7 Kg crush and split
219	17	Drying charge (4-7 Kg)
276	2	8-12 Kg crush and split
3202	43	Rock - save entire reject

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
494	43	Au g/t: Fuse 30 g sample	FA-AAS	0.005	10.00

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
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P3E 5P5

Project :
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Page Number :1
Total Pages :2
Certificate Date: 31-AUG-1999
Invoice No. : I9926972
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9926972

SAMPLE	PREP CODE		Au g/t FA+AA									
EMP99C-1544	205	294	< 0.005									
EMP99C-1545	205	294	< 0.005									
EMP99C-1546	205	294	< 0.005									
EMP99C-1547	205	294	0.025									
EMP99C-1548	205	294	0.050									
EMP99C-1549	205	294	0.025									
EMP99C-1550	205	276	0.030									
EMP99C-1551	205	294	0.010									
EMP99C-1552	205	294	0.010									
EMP99C-1553	205	294	0.340									
EMP99C-1554	205	294	0.070									
EMP99C-1555	205	294	1.160									
EMP99C-1556	205	294	0.360									
EMP99C-1557	205	294	0.205									
EMP99C-1558	205	294	0.180									
EMP99C-1559	205	294	0.180									
EMP99C-1560	205	294	0.325									
EMP99C-1561	205	226	0.100									
EMP99C-1562	205	294	0.190									
EMP99C-1563	205	294	0.170									
EMP99C-1564	205	226	0.030									
EMP99C-1565	205	294	0.060									
EMP99C-1566	205	226	0.040									
EMP99C-1567	205	226	0.025									
EMP99C-1568	205	294	0.140									
EMP99C-1569	205	294	0.060									
EMP99C-1570	205	294	0.045									
EMP99C-1571	205	294	0.040									
EMP99C-1572	205	294	0.020									
EMP99C-1573	205	294	0.030									
EMP99C-1574	205	294	< 0.005									
EMP99C-1575	205	294	< 0.005									
EMP99C-1576	205	276	< 0.005									
EMP99x-1901	205	226	< 0.005									
EMP99x-1902	205	226	0.020									
EMP99x-1903	205	226	< 0.005									
EMP99x-1904	205	226	< 0.005									
EMP99x-1905	205	226	< 0.005									
EMP99x-1906	205	226	< 0.005									
EMP99x-1907	205	226	< 0.005									

CERTIFICATION: Adriana Alexandru

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project :
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Certificate Date: 31-AUG-1999
Invoice No. : I9926972
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9926972

SAMPLE	PREP CODE		Au g/t FA+AA									
EMP99x-1908	205	226	< 0.005									
EMP99x-1909	205	226	0.170									
EMP99x-1910	205	226	< 0.005									

CERTIFICATION: Adriana Alexandru

Chemex Labs Ltd.
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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

A9926375

Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

CERTIFICATE A9926375

(KPI) - CAMECO CORPORATION

Project:
P.O. # :

Samples submitted to our lab in Thunder Bay, ON.
This report was printed on 25-AUG-1999.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
205	47	Geochem ring to approx 150 mesh
226	9	0-3 Kg crush and split
222	5	Drying charge (0-3 Kg)
294	34	4-7 Kg crush and split
219	18	Drying charge (4-7 Kg)
276	4	8-12 Kg crush and split
3202	47	Rock - save entire reject

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
494	47	Au g/t: Fuse 30 g sample	FA-AAS	0.005	10.00

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

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PHONE: 905-624-2806 FAX: 905-624-6163

To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project :
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Page Number :1
Total Pages :2
Certificate Date: 25-AUG-1999
Invoice No. : I9926375
P.O. Number :
Account :KPI

CERTIFICATE OF ANALYSIS A9926375

SAMPLE	PREP CODE		Au g/t FA+AA
EMP99x-1399	205	226	0.075
EMP99C-1498	205	294	0.030
EMP99C-1499	205	294	< 0.005
EMP99C-1500	205	226	0.010
EMP99C-1501	205	226	0.080
EMP99C-1502	205	294	< 0.005
EMP99C-1503	205	294	< 0.005
EMP99C-1504	205	294	0.095
EMP99C-1505	205	294	0.100
EMP99C-1506	205	276	0.040
EMP99C-1507	205	294	0.055
EMP99C-1508	205	294	0.020
EMP99C-1509	205	294	0.190
EMP99C-1510	205	294	0.740
EMP99C-1511	205	294	1.710
EMP99C-1512	205	294	0.950
EMP99C-1513	205	294	3.31
EMP99C-1514	205	226	0.305
EMP99C-1515	205	294	0.190
EMP99C-1516	205	226	0.885
EMP99C-1517	205	294	0.065
EMP99C-1518	205	294	0.510
EMP99C-1519	205	294	0.040
EMP99C-1520	205	294	< 0.005
EMP99C-1521	205	294	0.015
EMP99C-1522	205	294	0.045
EMP99C-1523	205	294	0.055
EMP99C-1524	205	294	0.165
EMP99C-1525	205	294	0.005
EMP99C-1526	205	276	< 0.005
EMP99C-1527	205	294	0.010
EMP99C-1528	205	226	2.74
EMP99C-1529	205	226	0.215
EMP99C-1530	205	294	0.200
EMP99C-1531	205	294	0.010
EMP99C-1532	205	294	0.005
EMP99C-1533	205	294	< 0.005
EMP99C-1534	205	276	0.020
EMP99C-1535	205	294	0.005
EMP99C-1536	205	294	< 0.005

CERTIFICATION: Adriana Alexandre

Chemex Labs Ltd.
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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project :
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Certificate Date: 25-AUG-1999
Invoice No. : 19926375
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9926375

SAMPLE	PREP CODE		Au g/t FA+AA
EMP99C-1537	205	294	0.050
EMP99C-1538	205	294	0.010
EMP99C-1539	205	294	0.025
EMP99C-1540	205	226	0.010
EMP99C-1541	205	294	0.020
EMP99C-1542	205	226	0.015
EMP99C-1543	205	276	0.040

CERTIFICATION: Adriana Alexandru

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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

A9925929

Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

CERTIFICATE A9925929

(KPI) - CAMECO CORPORATION

Project: M5444
P.O. # :

Samples submitted to our lab in Thunder Bay, ON.
This report was printed on 25-AUG-1999.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
205	92	Geochem ring to approx 150 mesh
226	27	0-3 Kg crush and split
222	12	Drying charge (0-3 Kg)
294	59	4-7 Kg crush and split
219	17	Drying charge (4-7 Kg)
276	6	8-12 Kg crush and split
245	3	Drying charge (8-12 Kg)

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
494	92	Au g/t: Fuse 30 g sample	FA-AAS	0.005	10.00

Chemex Labs Ltd.

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PHONE: 905-624-2806 FAX: 905-624-6163

To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : M5444
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Certificate Date: 25-AUG-1999
Invoice No. : I9925929
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9925929

SAMPLE	PREP CODE		Au g/t FA+AA
EMP99x-1394	205	226	< 0.005
EMP99x-1395	205	226	0.020
EMP99x-1396	205	226	0.025
EMP99x-1397	205	226	< 0.005
EMP99x-1398	205	226	< 0.005
EMP99C-1412	205	294	< 0.005
EMP99C-1413	205	294	< 0.005
EMP99C-1414	205	294	< 0.005
EMP99C-1415	205	226	0.010
EMP99C-1416	205	226	0.025
EMP99C-1417	205	294	0.475
EMP99C-1418	205	294	0.205
EMP99C-1419	205	226	0.025
EMP99C-1420	205	294	0.020
EMP99C-1421	205	294	0.025
EMP99C-1422	205	226	< 0.005
EMP99C-1423	205	226	0.045
EMP99C-1424	205	294	0.045
EMP99C-1425	205	294	0.005
EMP99C-1426	205	294	0.540
EMP99C-1427	205	294	1.780
EMP99C-1428	205	294	1.160
EMP99C-1429	205	294	0.095
EMP99C-1430-A	205	226	0.055
EMP99C-1430-B	205	226	0.050
EMP99C-1431	205	294	0.240
EMP99C-1432	205	294	0.180
EMP99C-1433	205	294	0.160
EMP99C-1434	205	294	0.055
EMP99C-1435	205	294	0.020
EMP99C-1436	205	294	0.060
EMP99C-1437	205	294	0.085
EMP99C-1438	205	294	1.990
EMP99C-1439	205	294	0.050
EMP99C-1440	205	294	1.270
EMP99C-1441	205	294	0.610
EMP99C-1442	205	276	2.44
EMP99C-1443	205	294	0.360
EMP99C-1444	205	226	0.045
EMP99C-1445	205	226	0.380

CERTIFICATION: Adriana Alexandre

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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : M5444
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Certificate Date: 25-AUG-1999
Invoice No. : I9925929
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9925929

SAMPLE	PREP CODE		Au g/t FA+AA									
EMP99C-1446	205	226	0.285									
EMP99C-1447	205	294	0.050									
EMP99C-1448	205	276	0.040									
EMP99C-1449	205	226	0.030									
EMP99C-1450	205	294	0.060									
EMP99C-1451	205	276	0.210									
EMP99C-1452	205	226	0.110									
EMP99C-1453	205	226	0.030									
EMP99C-1454	205	294	0.035									
EMP99C-1455	205	294	0.705									
EMP99C-1456	205	294	0.140									
EMP99C-1457	205	294	0.415									
EMP99C-1458	205	294	0.200									
EMP99C-1459	205	294	0.790									
EMP99C-1460	205	226	0.045									
EMP99C-1461	205	226	0.450									
EMP99C-1462	205	294	0.170									
EMP99C-1463	205	294	3.74									
EMP99C-1464	205	226	3.33									
EMP99C-1465	205	294	9.91									
EMP99C-1466	205	294	2.53									
EMP99C-1467	205	226	0.035									
EMP99C-1468	205	294	0.515									
EMP99C-1469	205	226	2.00									
EMP99C-1470	205	226	0.010									
EMP99C-1471	205	294	0.025									
EMP99C-1472	205	294	0.005									
EMP99C-1473	205	294	0.020									
EMP99C-1474	205	294	0.840									
EMP99C-1475	205	226	0.035									
EMP99C-1476	205	226	0.035									
EMP99C-1477	205	294	< 0.005									
EMP99C-1478	205	294	< 0.005									
EMP99C-1479	205	294	0.005									
EMP99C-1480	205	294	< 0.005									
EMP99C-1481	205	276	< 0.005									
EMP99C-1482	205	294	< 0.005									
EMP99C-1483	205	226	< 0.005									
EMP99C-1484	205	294	< 0.005									
EMP99C-1485	205	294	< 0.005									

CERTIFICATION: Adriana Alexandra

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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : M5444
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Certificate Date: 25-AUG-1999
Invoice No. : I9925929
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9925929

SAMPLE	PREP CODE		Au g/t FA+AA
EMP99C-1486	205	294	0.010
EMP99C-1487	205	294	< 0.005
EMP99C-1488	205	276	< 0.005
EMP99C-1489	205	294	< 0.005
EMP99C-1490	205	294	< 0.005
EMP99C-1491	205	294	< 0.005
EMP99C-1492	205	294	< 0.005
EMP99C-1493	205	294	0.005
EMP99C-1494	205	294	< 0.005
EMP99C-1495	205	294	< 0.005
EMP99C-1496	205	276	< 0.005
EMP99C-1497	205	294	< 0.005

CERTIFICATION: Adriana Alexandru

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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

A9921045

Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

CERTIFICATE A9921045

(KPI) - CAMECO CORPORATION

Project:
P.O. # :

Samples submitted to our lab in Thunder Bay, ON.
This report was printed on 19-JUL-1999.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
205	53	Geochem ring to approx 150 mesh
226	51	0-3 Kg crush and split
294	2	4-7 Kg crush and split
229	10	ICP - AQ Digestion charge

* NOTE 1:

The 32 element ICP package is suitable for trace metals in soil and rock samples. Elements for which the nitric-aqua regia digestion is possibly incomplete are: Al, Ba, Be, Ca, Cr, Ga, K, La, Mg, Na, Sr, Ti, Tl, W.

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
494	53	Au g/t: Fuse 30 g sample	FA-AAS	0.005	10.00
997	2	Au g/t: 1 assay ton, grav.	FA-GRAVIMETRIC	0.07	1000.0
2118	10	Ag ppm: 32 element, soil & rock	ICP-AES	0.2	100.0
2119	10	Al %: 32 element, soil & rock	ICP-AES	0.01	15.00
2120	10	As ppm: 32 element, soil & rock	ICP-AES	2	10000
557	10	B ppm: 32 element, rock & soil	ICP-AES	10	10000
2121	10	Ba ppm: 32 element, soil & rock	ICP-AES	10	10000
2122	10	Be ppm: 32 element, soil & rock	ICP-AES	0.5	100.0
2123	10	Bi ppm: 32 element, soil & rock	ICP-AES	2	10000
2124	10	Ca %: 32 element, soil & rock	ICP-AES	0.01	15.00
2125	10	Cd ppm: 32 element, soil & rock	ICP-AES	0.5	500
2126	10	Co ppm: 32 element, soil & rock	ICP-AES	1	10000
2127	10	Cr ppm: 32 element, soil & rock	ICP-AES	1	10000
2128	10	Cu ppm: 32 element, soil & rock	ICP-AES	1	10000
2150	10	Fe %: 32 element, soil & rock	ICP-AES	0.01	15.00
2130	10	Ga ppm: 32 element, soil & rock	ICP-AES	10	10000
2131	10	Hg ppm: 32 element, soil & rock	ICP-AES	1	10000
2132	10	K %: 32 element, soil & rock	ICP-AES	0.01	10.00
2151	10	La ppm: 32 element, soil & rock	ICP-AES	10	10000
2134	10	Mg %: 32 element, soil & rock	ICP-AES	0.01	15.00
2135	10	Mn ppm: 32 element, soil & rock	ICP-AES	5	10000
2136	10	Mo ppm: 32 element, soil & rock	ICP-AES	1	10000
2137	10	Na %: 32 element, soil & rock	ICP-AES	0.01	10.00
2138	10	Ni ppm: 32 element, soil & rock	ICP-AES	1	10000
2139	10	P ppm: 32 element, soil & rock	ICP-AES	10	10000
2140	10	Pb ppm: 32 element, soil & rock	ICP-AES	2	10000
551	10	S %: 32 element, rock & soil	ICP-AES	0.01	5.00
2141	10	Sb ppm: 32 element, soil & rock	ICP-AES	2	10000
2142	10	Sc ppm: 32 elements, soil & rock	ICP-AES	1	10000
2143	10	Sr ppm: 32 element, soil & rock	ICP-AES	1	10000
2144	10	Ti %: 32 element, soil & rock	ICP-AES	0.01	10.00
2145	10	Tl ppm: 32 element, soil & rock	ICP-AES	10	10000
2146	10	U ppm: 32 element, soil & rock	ICP-AES	10	10000
2147	10	V ppm: 32 element, soil & rock	ICP-AES	1	10000
2148	10	W ppm: 32 element, soil & rock	ICP-AES	10	10000
2149	10	Zn ppm: 32 element, soil & rock	ICP-AES	2	10000

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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project :
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Certificate Date: 19-JUL-1999
Invoice No. :19921045
P.O. Number :
Account :KPI

CERTIFICATE OF ANALYSIS A9921045

SAMPLE	PREP CODE		Au g/t FA+AA	Au FA g/t	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm
~~DW-01~~	~~205~~	~~226~~	~~0.020~~		~~< 0.2~~	~~0.86~~	~~< 2~~	~~< 10~~	~~60~~	~~< 0.5~~	~~< 2~~	~~2.25~~	~~< 0.5~~	~~40~~	~~121~~	~~9~~	~~8.04~~	~~< 10~~	~~< 1~~	~~0.42~~	~~< 10~~
~~DW-02~~	~~205~~	~~226~~	~~0.005~~		~~< 0.2~~	~~0.29~~	~~4~~	~~< 10~~	~~< 10~~	~~< 0.5~~	~~10~~	~~7.21~~	~~< 0.5~~	~~60~~	~~110~~	~~25~~	~~6.58~~	~~< 10~~	~~< 1~~	~~0.07~~	~~< 10~~
~~EM-01~~	~~205~~	~~226~~	~~2.60~~		~~37.6~~	~~0.35~~	~~< 2~~	~~< 10~~	~~100~~	~~< 0.5~~	~~62~~	~~0.75~~	~~3.0~~	~~8~~	~~230~~	~~2020~~	~~2.45~~	~~< 10~~	~~< 1~~	~~0.11~~	~~< 10~~
~~EM-02~~	~~205~~	~~226~~	~~0.005~~		~~0.2~~	~~0.73~~	~~< 2~~	~~< 10~~	~~30~~	~~0.5~~	~~2~~	~~1.05~~	~~< 0.5~~	~~29~~	~~220~~	~~80~~	~~3.37~~	~~< 10~~	~~< 1~~	~~0.07~~	~~10~~
EMP99x-1301	205	226	0.060	-----	< 0.2	0.81	< 2	< 10	140	< 0.5	< 2	1.35	< 0.5	10	120	53	1.84	< 10	< 1	0.27	40
EMP99x-1302	205	226	0.065	-----	0.6	0.76	12	< 10	30	< 0.5	< 2	0.09	4.5	61	230	54	5.21	< 10	< 1	0.18	< 10
EMP99x-1303	205	226	>10.00	66.93	72.6	0.12	2	< 10	< 10	< 0.5	22	0.05	7.5	10	218	521	1.35	< 10	< 1	0.07	< 10
EMP99x-1304	205	226	0.020	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1305	205	226	0.045	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1306	205	226	0.040	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1307	205	226	0.005	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1308	205	226	0.010	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1309	205	226	0.535	-----	41.6	0.04	2	< 10	10	< 0.5	64	0.03	0.5	5	262	2020	1.23	< 10	< 1	0.01	< 10
EMP99x-1310	205	226	0.030	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1311	205	226	0.020	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1312	205	294	< 0.005	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1313	205	226	< 0.005	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1314	205	226	< 0.005	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1315	205	294	4.73	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1316	205	226	0.860	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1317	205	226	0.315	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1318	205	226	0.100	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1319	205	226	< 0.005	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1320	205	226	3.72	-----	7.4	0.55	76	< 10	20	< 0.5	12	0.24	30.0	82	141	377	6.37	< 10	< 1	0.25	< 10
EMP99x-1321	205	226	0.465	-----	9.4	0.16	16	< 10	30	< 0.5	20	0.02	16.0	21	231	126	1.64	< 10	< 1	0.10	< 10
EMP99x-1322	205	226	>10.00	15.02	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1323	205	226	2.86	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1324	205	226	0.020	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1325	205	226	0.030	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1326	205	226	2.56	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1327	205	226	4.49	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1328	205	226	5.73	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1329	205	226	0.040	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1330	205	226	0.045	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1331	205	226	< 0.005	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1332	205	226	< 0.005	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1333	205	226	< 0.005	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1334	205	226	< 0.005	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1335	205	226	< 0.005	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1336	205	226	0.020	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

CERTIFICATION: David Jef

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To: CAMECO CORPORATION

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Project :
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Certificate Date: 19-JUL-1999
Invoice No. : I9921045
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9921045

SAMPLE	PREP CODE		Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
~~BW-01~~	~~205~~	~~226~~	~~1.52~~	~~910~~	~~< 1~~	~~0.06~~	~~86~~	~~870~~	~~32~~	~~1.91~~	~~< 2~~	~~11~~	~~79~~	~~0.09~~	~~< 10~~	~~10~~	~~314~~	~~< 10~~	~~46~~
~~BW-02~~	~~205~~	~~226~~	~~2.24~~	~~2170~~	~~< 1~~	~~0.06~~	~~110~~	~~1510~~	~~10~~	~~>5.00~~	~~< 2~~	~~11~~	~~150~~	~~0.05~~	~~< 10~~	~~10~~	~~149~~	~~< 10~~	~~92~~
~~BM-01~~	~~205~~	~~226~~	~~0.21~~	~~220~~	~~< 1~~	~~0.02~~	~~24~~	~~300~~	~~774~~	~~1.40~~	~~< 2~~	~~5~~	~~48~~	~~0.02~~	~~< 10~~	~~< 10~~	~~36~~	~~< 10~~	~~170~~
~~BM-02~~	~~205~~	~~226~~	~~0.25~~	~~795~~	~~30~~	~~0.03~~	~~29~~	~~200~~	~~16~~	~~1.60~~	~~< 2~~	~~5~~	~~20~~	~~0.01~~	~~< 10~~	~~< 10~~	~~81~~	~~< 10~~	~~244~~
EMP99x-1301	205	226	0.19	280	6	0.03	9	150	12	0.67	< 2	< 1	29	0.01	< 10	< 10	9	< 10	58
EMP99x-1302	205	226	0.23	85	10	0.02	46	340	12	2.54	< 2	2	7	< 0.01	< 10	< 10	22	< 10	494
EMP99x-1303	205	226	0.01	15	11	< 0.01	12	40	1540	0.91	< 2	< 1	4	< 0.01	< 10	< 10	4	< 10	842
EMP99x-1304	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1305	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1306	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1307	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1308	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1309	205	226	< 0.01	30	1	< 0.01	7	20	2700	0.54	< 2	< 1	3	< 0.01	< 10	< 10	2	< 10	76
EMP99x-1310	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1311	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1312	205	294	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1313	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1314	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1315	205	294	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1316	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1317	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1318	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1319	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1320	205	226	0.09	65	101	0.01	78	290	294	>5.00	< 2	1	9	< 0.01	< 10	< 10	15	< 10	3160
EMP99x-1321	205	226	0.01	15	8	< 0.01	21	40	632	1.28	< 2	< 1	4	< 0.01	< 10	< 10	5	< 10	1885
EMP99x-1322	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1323	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1324	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1325	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1326	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1327	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1328	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1329	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1330	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1331	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1332	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1333	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1334	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1335	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1336	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

CERTIFICATION: David Jef

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: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project :
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Certificate Date: 19-JUL-1999
Invoice No. : I9921045
P.O. Number :
Account :KPI

CERTIFICATE OF ANALYSIS A9921045

SAMPLE	PREP CODE		Au g/t FA+AA	Au FA g/t	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm
EMP99x-1337	205	226	< 0.005	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1338	205	226	< 0.005	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1339	205	226	0.005	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1340	205	226	0.045	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1341	205	226	0.605	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1342	205	226	< 0.005	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1343	205	226	0.035	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1344	205	226	< 0.005	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1345	205	226	0.300	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1346	205	226	0.185	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1347	205	226	0.245	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1348	205	226	< 0.005	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1349	205	226	< 0.005	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

CERTIFICATION: David Tef

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: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project :
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Certificate Date: 19-JUL-1999
Invoice No. : I9921045
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9921045

SAMPLE	PREP CODE		Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
EMP99x-1337	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1338	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1339	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1340	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1341	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1342	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1343	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1344	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1345	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1346	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1347	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1348	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EMP99x-1349	205	226	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

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: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

A9922112

Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

CERTIFICATE A9922112

(KPI) - CAMECO CORPORATION

Project: CAM M5444
P.O. # :

Samples submitted to our lab in Thunder Bay, ON.
This report was printed on 02-AUG-1999.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
299	2	Pulp; prepped on other workorder
297	2	Meta-borate fusion charge

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
2855	2	Ba ppm: ICP-MS	ICP-MS	0.5	10000
2501	2	Ce ppm: ICP-MS	ICP-MS	0.5	10000
2858	2	Cs ppm: ICP-MS	ICP-MS	0.1	10000
2859	2	Co ppm: ICP-MS	ICP-MS	0.5	10000
2860	2	Cu ppm: ICP-MS	ICP-MS	5	10000
2502	2	Dy ppm: ICP-MS	ICP-MS	0.1	1000
2503	2	Er ppm: ICP-MS	ICP-MS	0.1	1000
2504	2	Eu ppm: ICP-MS	ICP-MS	0.1	1000
2505	2	Gd ppm: ICP-MS	ICP-MS	0.1	1000
2861	2	Ga ppm: ICP-MS	ICP-MS	1	1000
2842	2	Hf ppm: ICP-MS	ICP-MS	1	10000
2506	2	Ho ppm: IPC-MS	ICP-MS	0.1	1000
2507	2	La ppm: ICP-MS	ICP-MS	0.5	10000
2862	2	Pb ppm: ICP-MS	ICP-MS	5	10000
2508	2	Lu ppm: ICP-MS	ICP-MS	0.1	1000
2509	2	Nd ppm: ICP-MS	ICP-MS	0.5	10000
2863	2	Ni ppm: ICP-MS	ICP-MS	5	10000
2844	2	Nb ppm: ICP-MS	ICP-MS	1	10000
2510	2	Pr ppm: ICP-MS	ICP-MS	0.1	1000
2864	2	Rb ppm: ICP-MS	ICP-MS	0.2	10000
2511	2	Sm ppm: ICP-MS	ICP-MS	0.1	1000
2865	2	Ag ppm: ICP-MS	ICP-MS	1	1000
2867	2	Sr ppm: ICP-MS	ICP-MS	0.1	10000
2868	2	Ta ppm: ICP-MS	ICP-MS	0.5	10000
2512	2	Tb ppm: ICP-MS	ICP-MS	0.1	1000
2869	2	Tl ppm: ICP-MS	ICP-MS	0.5	1000
2550	2	Th ppm: ICP-MS	ICP-MS	1	1000
2513	2	Tm ppm: ICP-MS	ICP-MS	0.1	1000
2870	2	Sn ppm: ICP-MS	ICP-MS	1	10000
2871	2	W ppm: ICP-MS	ICP-MS	1	10000
2549	2	U ppm: ICP-MS	ICP-MS	0.5	1000
2872	2	V ppm: ICP-MS	ICP-MS	5	10000
2514	2	Yb ppm: ICP-MS	ICP-MS	0.1	1000
2873	2	Y ppm: ICP-MS	ICP-MS	0.5	10000
2874	2	Zn ppm: ICP-MS	ICP-MS	5	10000
2875	2	Zr ppm: ICP-MS	ICP-MS	0.5	10000

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: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : CAM M5444
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Certificate Date: 02-AUG-1999
Invoice No. : I9922112
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9922112

SAMPLE	PREP CODE		Ba ppm	Ce ppm	Cs ppm	Co ppm	Cu ppm	Dy ppm	Er ppm	Eu ppm	Gd ppm	Ga ppm	Hf ppm	Ho ppm	La ppm	Pb ppm	Lu ppm	Nd ppm	Ni ppm	Nb ppm	Pr ppm
EMP99x-1356	299	297	487	23.5	1.5	3.5	10	0.7	0.3	0.6	1.1	21	1	0.1	16.5	10	< 0.1	9.0	10	< 1	2.9
EMP99x-1358	299	297	406	42.0	2.5	26.0	40	1.7	1.0	1.2	2.9	17	1	0.4	26.5	5	0.1	19.0	115	< 1	5.6

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: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : CAM M5444
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Certificate Date: 02-AUG-1999
Invoice No. : I9922112
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9922112

SAMPLE	PREP CODE		Rb ppm	Sm ppm	Ag ppm	Sr ppm	Ta ppm	Tb ppm	Tl ppm	Th ppm	Tm ppm	Sn ppm	W ppm	U ppm	V ppm	Yb ppm	Y ppm	Zn ppm	Zr ppm
EMP99x-1356	299	297	34.6	1.6	< 1	528	< 0.5	0.1	< 0.5	3	< 0.1	< 1	1	1.0	40	0.3	3.0	45	73.5
EMP99x-1358	299	297	54.4	3.8	< 1	380	< 0.5	0.5	0.5	6	< 0.1	< 1	1	1.0	110	0.8	8.5	105	75.5

CERTIFICATION:

Prepared for:

Cameco Corporation

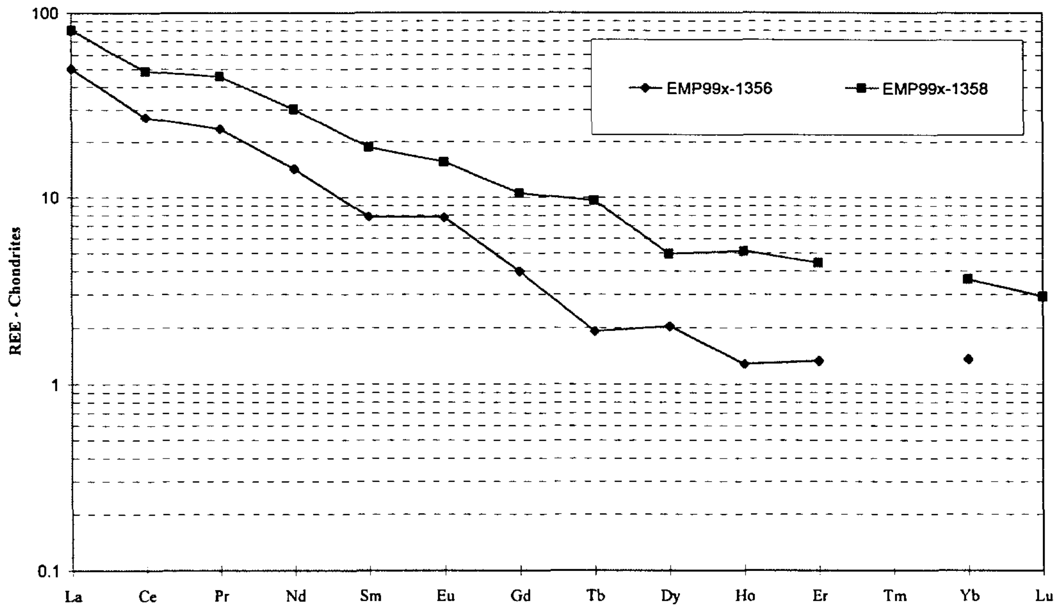
REE Chondrite Normalization Plots

Rare Earth Element (REE) concentration data is typically ratioed against a standard set, which is representative of the concentrations of the rare earth elements found in chondritic meteorites. This allows easier interpretation of the data by smoothing out fluctuations due to natural abundance variations and exposing those anomalies due to geological processes. The Chondrite reference values used in these plots are listed in the table below (based on N. Nakamura (1974) in Geochimica et Cosmochimica Acta, Volume 38, p. 757-775).

Chondrite Plot Reference Values

Element	Chondrite Concentration (ppm)
La	0.328
Ce	0.865
Pr	0.123
Nd	0.630
Sm	0.203
Eu	0.077
Gd	0.276
Tb	0.052
Dy	0.343
Ho	0.078
Er	0.225
Tm	0.034
Yb	0.220
Lu	0.034

Cameco Corporation (KPI)
REE Chondrites Normalization Plot - A9922112



Please Note that Element Concentrations Less than the Detection Limit are not plotted on this graph.

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: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

A9921056

Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

CERTIFICATE A9921056

(KPI) - CAMECO CORPORATION

Project:
P.O. # :

Samples submitted to our lab in Thunder Bay, ON.
This report was printed on 03-AUG-1999.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
299	7	Pulp; prepped on other workorder
297	7	Meta-borate fusion charge

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
2855	7	Ba ppm: ICP-MS	ICP-MS	0.5	10000
2501	7	Ce ppm: ICP-MS	ICP-MS	0.5	10000
2858	7	Cs ppm: ICP-MS	ICP-MS	0.1	10000
2859	7	Co ppm: ICP-MS	ICP-MS	0.5	10000
2860	7	Cu ppm: ICP-MS	ICP-MS	5	10000
2502	7	Dy ppm: ICP-MS	ICP-MS	0.1	1000
2503	7	Er ppm: ICP-MS	ICP-MS	0.1	1000
2504	7	Eu ppm: ICP-MS	ICP-MS	0.1	1000
2505	7	Gd ppm: ICP-MS	ICP-MS	0.1	1000
2861	7	Ga ppm: ICP-MS	ICP-MS	1	1000
2842	7	Hf ppm: ICP-MS	ICP-MS	1	10000
2506	7	Ho ppm: IPC-MS	ICP-MS	0.1	1000
2507	7	La ppm: ICP-MS	ICP-MS	0.5	10000
2862	7	Pb ppm: ICP-MS	ICP-MS	5	10000
2508	7	Lu ppm: ICP-MS	ICP-MS	0.1	1000
2509	7	Nd ppm: ICP-MS	ICP-MS	0.5	10000
2863	7	Ni ppm: ICP-MS	ICP-MS	5	10000
2844	7	Nb ppm: ICP-MS	ICP-MS	1	10000
2510	7	Pr ppm: ICP-MS	ICP-MS	0.1	1000
2864	7	Rb ppm: ICP-MS	ICP-MS	0.2	10000
2511	7	Sm ppm: ICP-MS	ICP-MS	0.1	1000
2865	7	Ag ppm: ICP-MS	ICP-MS	1	1000
2867	7	Sr ppm: ICP-MS	ICP-MS	0.1	10000
2868	7	Ta ppm: ICP-MS	ICP-MS	0.5	10000
2512	7	Tb ppm: ICP-MS	ICP-MS	0.1	1000
2869	7	Tl ppm: ICP-MS	ICP-MS	0.5	1000
2550	7	Th ppm: ICP-MS	ICP-MS	1	1000
2513	7	Tm ppm: ICP-MS	ICP-MS	0.1	1000
2870	7	Sn ppm: ICP-MS	ICP-MS	1	10000
2871	7	W ppm: ICP-MS	ICP-MS	1	10000
2549	7	U ppm: ICP-MS	ICP-MS	0.5	1000
2872	7	V ppm: ICP-MS	ICP-MS	5	10000
2514	7	Yb ppm: ICP-MS	ICP-MS	0.1	1000
2873	7	Y ppm: ICP-MS	ICP-MS	0.5	10000
2874	7	Zn ppm: ICP-MS	ICP-MS	5	10000
2875	7	Zr ppm: ICP-MS	ICP-MS	0.5	10000

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
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PHONE: 905-624-2806 FAX: 905-624-6163

To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project :
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Page Number : 1-A
Total Pages : 1
Certificate Date: 03-AUG-1999
Invoice No. : I9921056
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9921056

SAMPLE	PREP CODE		Ba ppm	Ce ppm	Cs ppm	Co ppm	Cu ppm	Dy ppm	Er ppm	Eu ppm	Gd ppm	Ga ppm	Hf ppm	Ho ppm	La ppm	Pb ppm	Lu ppm	Nd ppm	Ni ppm	Nb ppm	Pr ppm
EMP99x-1304	299	297	100.0	70.0	2.7	37.5	15	9.4	5.7	5.1	9.8	22	5	1.5	87.5	5	0.6	35.5	75	9	21.5
EMP99x-1306	299	297	927	21.5	3.0	< 0.5	75	1.8	1.1	1.0	1.7	26	5	0.3	21.0	35	0.1	10.0	10	5	4.5
EMP99x-1313	299	297	361	47.0	1.8	3.5	20	3.7	2.1	1.2	4.2	16	7	0.5	29.5	10	0.3	23.5	10	8	7.6
EMP99x-1314	299	297	342	72.5	2.6	15.5	55	5.5	3.3	2.5	5.9	26	7	0.8	45.5	10	0.4	35.0	30	10	11.2
EMP99x-1319	299	297	258	23.5	0.9	< 0.5	< 5	2.8	2.1	0.4	2.5	12	6	0.4	11.0	< 5	0.2	10.5	< 5	9	3.2
EMP99x-1330	299	297	170.0	54.5	1.9	49.5	< 5	6.0	3.0	2.5	5.9	18	3	0.7	35.0	40	0.3	26.0	175	5	8.3
EMP99x-1338	299	297	405	31.5	1.2	14.5	150	3.4	2.0	0.6	3.2	11	5	0.4	16.5	30	0.2	16.5	25	8	4.8

CERTIFICATION: David Jeff

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: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project :
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Certificate Date: 03-AUG-1999
Invoice No. : I9921056
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9921056

SAMPLE	PREP CODE		Rb ppm	Sm ppm	Ag ppm	Sr ppm	Ta ppm	Tb ppm	Tl ppm	Th ppm	Tm ppm	Sn ppm	W ppm	U ppm	V ppm	Yb ppm	Y ppm	Zn ppm	Zr ppm
EMP99x-1304	299	297	15.0	9.9	< 1	206	< 0.5	2.5	< 0.5	19	0.6	3	1	< 0.5	285	5.4	45.0	180	165.0
EMP99x-1306	299	297	117.0	2.1	1	26.3	< 0.5	0.5	0.5	12	0.1	6	5	0.5	90	1.1	8.5	100	151.5
EMP99x-1313	299	297	83.4	4.8	< 1	94.6	< 0.5	0.7	0.5	5	0.1	1	< 1	1.5	40	2.3	20.0	125	227
EMP99x-1314	299	297	88.2	6.9	< 1	327	0.5	1.1	< 0.5	5	0.3	3	< 1	2.0	80	3.5	30.0	705	269
EMP99x-1319	299	297	54.2	2.4	< 1	25.5	0.5	0.4	< 0.5	1	0.1	2	1	1.0	25	2.6	18.0	45	183.0
EMP99x-1330	299	297	37.8	6.3	< 1	140.0	< 0.5	1.2	< 0.5	18	0.3	< 1	< 1	< 0.5	300	2.6	29.5	170	99.0
EMP99x-1338	299	297	24.6	3.6	< 1	70.4	< 0.5	0.6	< 0.5	5	0.1	3	< 1	0.5	30	2.4	18.5	305	173.5

CERTIFICATION: David Jeff

Chemex Labs Ltd.

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Prepared for:

Cameco Corporation

REE Chondrite Normalization Plots

Rare Earth Element (REE) concentration data is typically ratioed against a standard set, which is representative of the concentrations of the rare earth elements found in chondritic meteorites. This allows easier interpretation of the data by smoothing out fluctuations due to natural abundance variations and exposing those anomalies due to geological processes. The Chondrite reference values used in these plots are listed in the table below (based on N. Nakamura (1974) in Geochimica et Cosmochimica Acta, Volume 38, p. 757-775).

Chondrite Plot Reference Values

Element	Chondrite Concentration (ppm)
La	0.328
Ce	0.865
Pr	0.123
Nd	0.630
Sm	0.203
Eu	0.077
Gd	0.276
Tb	0.052
Dy	0.343
Ho	0.078
Er	0.225
Tm	0.034
Yb	0.220
Lu	0.034

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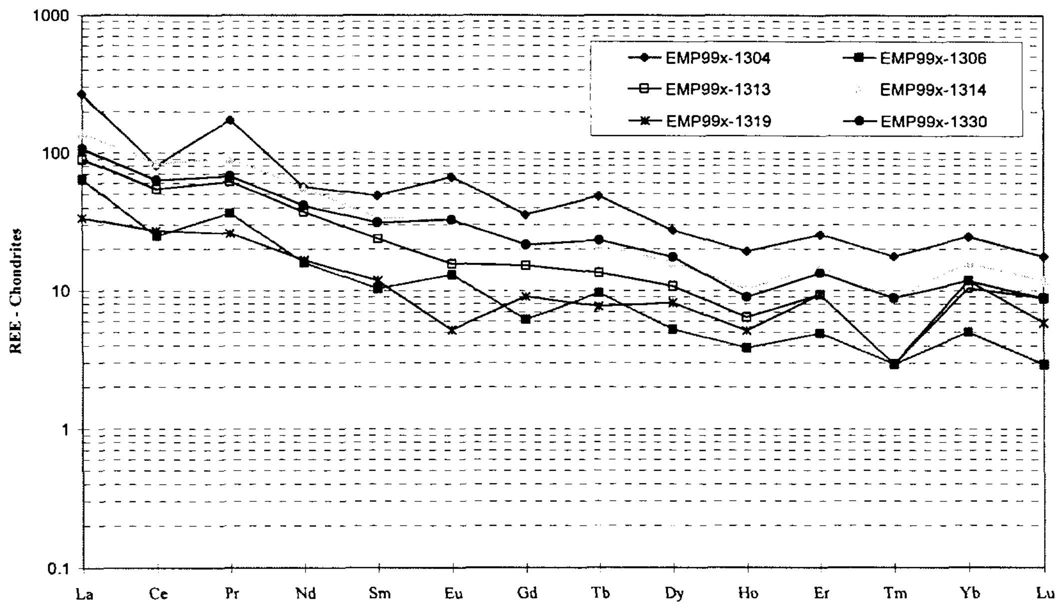
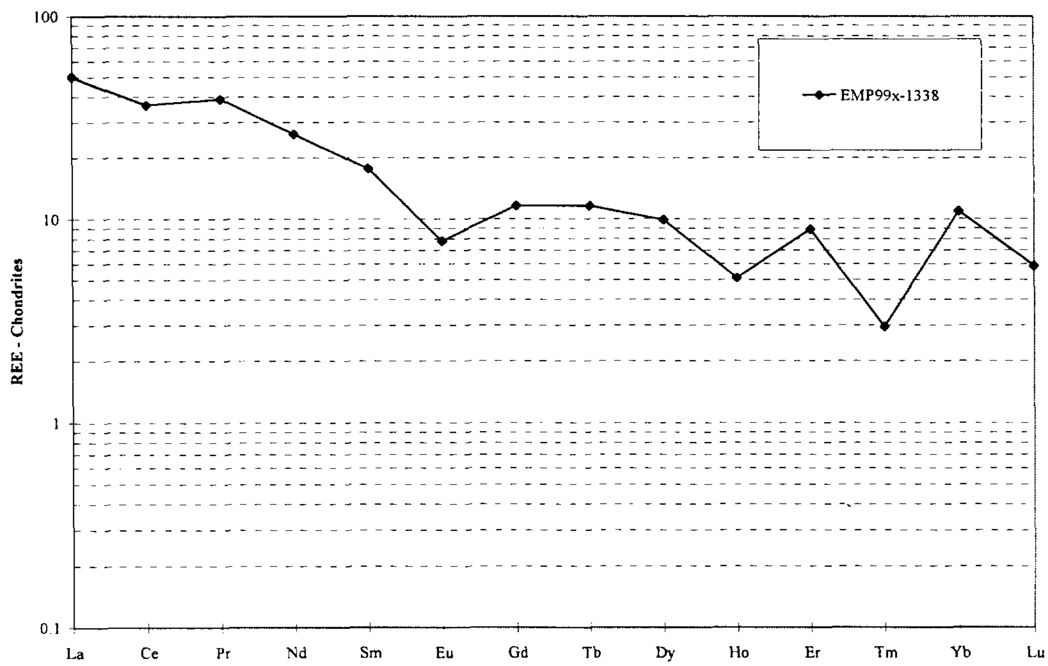
Cameco Corporation (KPI)
REE Chondrites Normalization Plot - A9921056



Cameco Corporation (KPI)
REE Chondrites Normalization Plot - A9921056



Please Note that Element Concentrations Less than the Detection Limit are not plotted on these graphs.

Chemex Labs Ltd.
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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

A9923589

Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

CERTIFICATE A9923589

(KPI) - CAMECO CORPORATION

Project: M 5444
P.O. # :

Samples submitted to our lab in Thunder Bay, ON.
This report was printed on 30-JUL-1999.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
299	9	Pulp; prepped on other workorder

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
902	9	Al2O3 %: XRF	XRF	0.01	100.00
906	9	CaO %: XRF	XRF	0.01	100.00
2590	9	Cr2O3 %: XRF	XRF	0.01	100.00
903	9	Fe2O3 %: XRF	XRF	0.01	100.00
908	9	K2O %: XRF	XRF	0.01	100.00
905	9	MgO %: XRF	XRF	0.01	100.00
1989	9	MnO %: XRF	XRF	0.01	100.00
907	9	Na2O %: XRF	XRF	0.01	100.00
909	9	P2O5 %: XRF	XRF	0.01	100.00
901	9	SiO2 %: XRF	XRF	0.01	100.00
904	9	TiO2 %: XRF	XRF	0.01	100.00
910	9	LOI %: XRF	XRF	0.01	100.00
2540	9	Total %	CALCULATION	0.01	105.00

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : M 5444
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Certificate Date: 30-JUL-1999
Invoice No. : I9923589
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9923589

SAMPLE	PREP CODE		Al_2O_3 % XRF	CaO % XRF	Cr_2O_3 % XRF	Fe_2O_3 % XRF	K_2O % XRF	MgO % XRF	MnO % XRF	Na_2O % XRF	P_2O_5 % XRF	SiO_2 % XRF	TiO_2 % XRF	LOI % XRF	TOTAL %
EMP99x-1375	299	--	17.26	5.08	< 0.01	6.74	2.20	3.10	0.13	4.86	0.26	56.04	0.55	3.34	99.56
EMP99x-1376	299	--	14.90	7.66	< 0.01	15.97	0.29	8.15	0.18	2.23	0.32	44.95	2.63	2.06	99.34
EMP99x-1380	299	--	14.75	4.96	< 0.01	12.40	4.22	5.89	0.19	1.14	0.40	48.12	2.37	4.56	99.00
EMP99x-1381	299	--	13.66	3.51	< 0.01	8.14	1.75	2.56	0.14	2.72	0.34	62.45	1.08	2.46	98.81
EMP99x-1382	299	--	13.61	8.52	< 0.01	14.70	1.08	6.46	0.24	3.11	0.34	46.83	2.40	1.67	98.96
EMP99x-1383	299	--	14.24	5.87	< 0.01	14.13	2.11	7.87	0.20	1.33	0.31	46.27	2.12	5.13	99.58
EMP99x-1390	299	--	13.30	5.76	0.01	6.30	1.92	6.94	0.10	3.73	0.15	58.80	0.56	1.95	99.52
EMP99x-1391	299	--	13.91	8.24	< 0.01	15.23	2.50	4.51	0.18	0.64	0.38	48.07	2.19	3.63	99.48
EMP99x-1392	299	--	15.82	6.81	0.01	11.39	2.85	2.54	0.33	1.12	0.61	52.41	2.73	1.94	98.56

CERTIFICATION: ______

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

A9923302

Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

CERTIFICATE A9923302

(KPI) - CAMECO CORPORATION

Project: M 5444
P.O. # :

Samples submitted to our lab in Thunder Bay, ON.
This report was printed on 23-JUL-1999.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
205	112	Geochem ring to approx 150 mesh
226	5	0-3 Kg crush and split
219	48	Drying charge (4-7 Kg)
294	75	4-7 Kg crush and split
245	25	Drying charge (8-12 Kg)
276	32	8-12 Kg crush and split
3202	112	Rock - save entire reject

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
494	112	Au g/t: Fuse 30 g sample	FA-AAS	0.005	10.00

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

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PHONE: 905-624-2806 FAX: 905-624-6163

To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : M 5444
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Page Number : 1
Total Pages : 3
Certificate Date: 23-JUL-1999
Invoice No. : I9923302
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9923302

SAMPLE	PREP CODE		Au g/t FA+AA
EMP99C-1201	205	294	0.005
EMP99C-1202	205	294	< 0.005
EMP99C-1203	205	294	< 0.005
EMP99C-1204A	205	294	< 0.005
EMP99C-1204B	205	294	0.015
EMP99C-1205	205	294	< 0.005
EMP99C-1206	205	219	0.020
EMP99C-1207	205	219	0.120
EMP99C-1208	205	294	0.410
EMP99C-1209	205	219	0.040
EMP99C-1210	205	219	0.050
EMP99C-1211	205	294	0.050
EMP99C-1212	205	226	0.015
EMP99C-1213	205	294	0.075
EMP99C-1214	205	294	0.050
EMP99C-1215	205	294	0.065
EMP99C-1216	205	294	0.320
EMP99C-1217	205	226	0.080
EMP99C-1218	205	294	0.075
EMP99C-1219	205	294	0.010
EMP99C-1220	205	294	0.010
EMP99C-1221	205	226	< 0.005
EMP99C-1222	205	294	2.24
EMP99C-1223	205	219	0.040
EMP99C-1224	205	219	0.085
EMP99C-1225	205	294	< 0.005
EMP99C-1226	205	294	< 0.005
EMP99C-1227	205	219	0.090
EMP99C-1228	205	245	0.630
EMP99C-1229	205	245	0.075
EMP99C-1230	205	276	0.015
EMP99C-1231	205	245	0.040
EMP99C-1232	205	294	0.010
EMP99C-1233	205	226	0.040
EMP99C-1234	205	294	0.020
EMP99C-1235	205	294	0.055
EMP99C-1236	205	294	0.045
EMP99C-1237	205	276	0.055
EMP99C-1238	205	219	0.080
EMP99C-1239	205	294	0.005

CERTIFICATION: Adriana Alexandre

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : M 5444
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Certificate Date: 23-JUL-1999
Invoice No. : I9923302
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9923302

SAMPLE	PREP CODE		Au g/t FA+AA									
EMP99C-1240	205	219	0.220									
EMP99C-1241	205	219	0.620									
EMP99C-1242	205	294	0.105									
EMP99C-1243	205	294	0.040									
EMP99C-1244	205	219	0.350									
EMP99C-1245	205	219	0.160									
EMP99C-1246	205	276	< 0.005									
EMP99C-1247	205	294	0.015									
EMP99C-1248	205	294	< 0.005									
EMP99C-1249	205	219	0.015									
EMP99C-1250	205	219	0.025									
EMP99C-1251	205	245	< 0.005									
EMP99C-1252	205	245	0.010									
EMP99C-1253	205	245	0.050									
EMP99C-1254	205	245	0.620									
EMP99C-1255	205	219	0.190									
EMP99C-1256	205	219	0.050									
EMP99C-1257	205	245	0.180									
EMP99C-1258	205	219	0.005									
EMP99C-1259	205	245	0.030									
EMP99C-1260	205	219	0.155									
EMP99C-1261	205	219	0.310									
EMP99C-1262	205	219	0.330									
EMP99C-1263	205	245	0.010									
EMP99C-1264	205	245	< 0.005									
EMP99C-1265	205	245	0.010									
EMP99C-1266	205	245	0.030									
EMP99C-1267	205	219	0.010									
EMP99C-1268	205	245	< 0.005									
EMP99C-1269	205	219	0.010									
EMP99C-1270	205	219	< 0.005									
EMP99C-1271	205	219	< 0.005									
EMP99C-1272	205	219	< 0.005									
EMP99C-1273	205	219	0.020									
EMP99C-1274	205	219	0.030									
EMP99C-1275	205	219	0.015									
EMP99C-1276	205	219	0.015									
EMP99C-1277	205	219	0.015									
EMP99C-1278	205	245	< 0.005									
EMP99C-1279	205	245	< 0.005									

CERTIFICATION: Adriana Alexandre

Chemex Labs Ltd.

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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project : M 5444
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Certificate Date: 23-JUL-1999
Invoice No. : I9923302
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9923302

SAMPLE	PREP CODE		Au g/t FA+AA
EMP99C-1280	205	219	< 0.005
EMP99C-1281	205	219	< 0.005
EMP99C-1282	205	219	< 0.005
EMP99C-1283	205	219	0.020
EMP99C-1284	205	219	0.020
EMP99C-1285	205	219	0.030
EMP99C-1286	205	219	0.070
EMP99C-1287	205	219	0.045
EMP99C-1288	205	219	0.010
EMP99C-1289	205	245	< 0.005
EMP99C-1290	205	245	0.070
EMP99C-1291	205	219	0.240
EMP99C-1292	205	219	0.075
EMP99C-1293	205	226	0.295
EMP99C-1294	205	245	0.725
EMP99C-1295	205	245	0.055
EMP99C-1296	205	245	0.005
EMP99C-1297	205	219	0.005
EMP99C-1298	205	219	0.010
EMP99C-1299	205	219	0.010
EMP99C-1400	205	219	0.020
EMP99C-1401	205	276	< 0.005
EMP99C-1402	205	219	< 0.005
EMP99C-1403	205	219	< 0.005
EMP99C-1404	205	219	0.010
EMP99C-1405	205	276	< 0.005
EMP99C-1406	205	276	< 0.005
EMP99C-1407	205	245	0.785
EMP99C-1408	205	245	0.800
EMP99C-1409	205	276	0.280
EMP99C-1410	205	245	0.175
EMP99C-1411	205	245	0.150

CERTIFICATION: Adriana Alexandru

Chemex Labs Ltd.
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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

A9923299

Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

CERTIFICATE A9923299

(KPI) - CAMECO CORPORATION

Project: M 5444
P.O. # :

Samples submitted to our lab in Thunder Bay, ON.
This report was printed on 22-JUL-1999.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
205	22	Geochem ring to approx 150 mesh
226	22	0-3 Kg crush and split
3202	22	Rock - save entire reject

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
494	22	Au g/t: Fuse 30 g sample	FA-AAS	0.005	10.00

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
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P3E 5P5

Project : M 5444
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Certificate Date: 22-JUL-1999
Invoice No. : I9923299
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9923299

SAMPLE	PREP CODE		Au g/t FA+AA
EMP99x-1372	205	226	< 0.005
EMP99x-1373	205	226	< 0.005
EMP99x-1374	205	226	< 0.005
EMP99x-1375	205	226	< 0.005
EMP99x-1376	205	226	< 0.005
EMP99x-1377	205	226	< 0.005
EMP99x-1378	205	226	< 0.005
EMP99x-1379	205	226	< 0.005
EMP99x-1380	205	226	< 0.005
EMP99x-1381	205	226	< 0.005
EMP99x-1382	205	226	< 0.005
EMP99x-1383	205	226	< 0.005
EMP99x-1384	205	226	< 0.005
EMP99x-1385	205	226	< 0.005
EMP99x-1386	205	226	< 0.005
EMP99x-1387	205	226	< 0.005
EMP99x-1388	205	226	< 0.005
EMP99x-1389	205	226	0.195
EMP99x-1390	205	226	< 0.005
EMP99x-1391	205	226	< 0.005
EMP99x-1392	205	226	< 0.005
EMP99x-1393	205	226	< 0.005

CERTIFICATION: Adriana Alexandre

Chemex Labs Ltd.

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To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

CERTIFICATE A9921052

(KPI) - CAMECO CORPORATION

Project:
P.O. # :

Samples submitted to our lab in Thunder Bay, ON.
This report was printed on 01-JUL-1999.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
299	22	Pulp; prepped on other workorder

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
902	22	Al2O3 %: XRF	XRF	0.01	100.00
906	22	CaO %: XRF	XRF	0.01	100.00
2590	22	Cr2O3 %: XRF	XRF	0.01	100.00
903	22	Fe2O3 %: XRF	XRF	0.01	100.00
908	22	K2O %: XRF	XRF	0.01	100.00
905	22	MgO %: XRF	XRF	0.01	100.00
1989	22	MnO %: XRF	XRF	0.01	100.00
907	22	Na2O %: XRF	XRF	0.01	100.00
909	22	P2O5 %: XRF	XRF	0.01	100.00
901	22	SiO2 %: XRF	XRF	0.01	100.00
904	22	TiO2 %: XRF	XRF	0.01	100.00
910	22	LOI %: XRF	XRF	0.01	100.00
2540	22	Total %	CALCULATION	0.01	105.00

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
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Ontario, Canada L4W 2S3
PHONE: 905-624-2806 FAX: 905-624-6163

To: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

Project :
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Page Number : 1
Total Pages : 1
Certificate Date: 01-JUL-1999
Invoice No. : I9921052
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9921052

SAMPLE	PREP CODE		Al_2O_3 % XRF	CaO % XRF	Cr_2O_3 % XRF	Fe_2O_3 % XRF	K_2O % XRF	MgO % XRF	MnO % XRF	Na_2O % XRF	P_2O_5 % XRF	SiO_2 % XRF	TiO_2 % XRF	LOI % XRF	TOTAL %
EMP99x-1304	299	--	13.63	10.96	< 0.01	15.48	0.71	3.77	0.27	1.94	0.44	49.04	2.10	0.92	99.26
EMP99x-1305	299	--	17.30	1.99	< 0.01	17.92	2.84	2.61	0.45	0.75	0.44	48.79	2.71	2.89	98.69
EMP99x-1306	299	--	13.91	0.15	< 0.01	8.73	4.89	1.19	0.02	0.15	0.13	64.50	0.55	4.94	99.16
EMP99x-1310	299	--	12.05	1.02	< 0.01	4.37	3.94	0.76	0.06	0.13	0.08	73.09	0.34	3.18	99.02
EMP99x-1313	299	--	12.74	2.37	< 0.01	3.06	2.82	1.82	0.05	1.65	0.06	71.13	0.34	3.25	99.29
EMP99x-1314	299	--	18.26	5.07	< 0.01	4.80	2.99	1.59	0.09	3.47	0.10	60.54	0.58	1.65	99.14
EMP99x-1319	299	--	8.91	0.21	< 0.01	0.92	2.79	0.36	0.03	0.02	0.04	84.08	0.19	1.70	99.25
EMP99x-1324	299	--	13.78	4.17	< 0.01	8.56	1.54	2.10	0.13	0.74	0.25	64.70	0.88	2.46	99.31
EMP99x-1325	299	--	13.58	6.62	< 0.01	12.31	0.75	4.68	0.19	2.96	0.21	54.59	1.66	1.84	99.39
EMP99x-1329	299	--	14.12	4.16	< 0.01	10.14	4.12	2.19	0.10	2.32	0.37	55.45	1.99	3.74	98.70
EMP99x-1330	299	--	14.00	9.62	< 0.01	16.81	1.00	8.55	0.23	1.31	0.31	42.78	2.01	2.56	99.18
EMP99x-1331	299	--	20.11	6.82	< 0.01	5.44	0.86	1.19	0.17	4.52	0.42	55.71	2.79	1.15	99.18
EMP99x-1333	299	--	14.56	10.53	< 0.01	4.87	4.21	2.19	0.07	0.40	0.47	55.99	1.81	4.28	99.38
EMP99x-1334	299	--	16.03	5.24	< 0.01	12.88	0.40	2.83	0.32	3.17	0.44	53.98	2.23	1.72	99.24
EMP99x-1335	299	--	14.93	5.89	< 0.01	10.93	0.72	2.46	0.26	2.65	0.41	55.99	2.17	2.69	99.10
EMP99x-1336	299	--	13.97	5.61	< 0.01	13.00	1.22	4.21	0.25	1.87	0.36	53.29	2.19	3.01	98.98
EMP99x-1337	299	--	14.55	3.91	< 0.01	13.71	0.18	6.30	0.17	2.45	0.34	49.37	2.16	6.12	99.26
EMP99x-1338	299	--	9.01	2.50	< 0.01	3.37	1.33	0.69	0.04	1.44	0.08	78.37	0.29	1.96	99.08
EMP99x-1339	299	--	15.92	6.68	< 0.01	6.86	2.80	3.51	0.13	4.12	0.28	52.69	0.56	5.82	99.37
EMP99x-1342	299	--	13.94	8.39	< 0.01	14.56	0.70	2.82	0.32	2.26	0.35	52.37	1.97	1.41	99.09
EMP99x-1343	299	--	13.45	5.39	< 0.01	13.82	0.94	7.18	0.18	2.56	0.36	50.11	2.24	2.94	99.17
EMP99x-1349	299	--	15.90	6.58	< 0.01	12.34	0.78	4.69	0.22	3.05	0.31	47.43	2.58	5.23	99.11

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: CAMECO CORPORATION

1349 KELLY LAKE RD., UNIT #6
SUDBURY, ON
P3E 5P5

A9923592

Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

CERTIFICATE A9923592

(KPI) - CAMECO CORPORATION

Project: M 5444
P.O. # :

Samples submitted to our lab in Thunder Bay, ON.
This report was printed on 29-JUL-1999.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
299	8	Pulp; prepped on other workorder

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
902	8	Al2O3 %: XRF	XRF	0.01	100.00
906	8	CaO %: XRF	XRF	0.01	100.00
2590	8	Cr2O3 %: XRF	XRF	0.01	100.00
903	8	Fe2O3 %: XRF	XRF	0.01	100.00
908	8	K2O %: XRF	XRF	0.01	100.00
905	8	MgO %: XRF	XRF	0.01	100.00
1989	8	MnO %: XRF	XRF	0.01	100.00
907	8	Na2O %: XRF	XRF	0.01	100.00
909	8	P2O5 %: XRF	XRF	0.01	100.00
901	8	SiO2 %: XRF	XRF	0.01	100.00
904	8	TiO2 %: XRF	XRF	0.01	100.00
910	8	LOI %: XRF	XRF	0.01	100.00
2540	8	Total %	CALCULATION	0.01	105.00

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Project : M 5444
Comments: ATTN: MIKE KOZIOL CC: JACQUES SAMSON

Certificate Date: 29-JUL-1999
Invoice No. : I9923592
P.O. Number :
Account : KPI

CERTIFICATE OF ANALYSIS A9923592

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 %
EMP99C-1201	299	--	14.76	10.48	< 0.01	13.92	1.48	3.41	0.23	0.46	0.38	50.04	2.27	2.25	99.68
EMP99C-1222	299	--	14.14	0.08	0.01	7.29	3.40	0.77	0.01	2.29	0.07	66.74	0.26	3.93	98.99
EMP99C-1224	299	--	10.81	0.34	< 0.01	5.77	1.47	1.05	0.08	2.51	0.09	74.20	0.30	2.87	99.49
EMP99C-1226	299	--	13.72	7.33	0.01	15.43	0.48	6.66	0.17	1.93	0.43	45.27	2.19	5.64	99.26
EMP99C-1263	299	--	13.20	8.88	< 0.01	15.38	0.53	4.31	0.26	2.44	0.43	50.84	1.93	1.02	99.22
EMP99C-1278	299	--	14.29	10.67	< 0.01	14.71	1.19	3.89	0.25	2.12	0.36	48.90	2.22	1.04	99.64
EMP99C-1280	299	--	10.33	1.99	< 0.01	5.12	2.08	1.90	0.08	0.17	0.11	73.15	0.45	3.94	99.32
EMP99C-1282	299	--	14.13	2.39	0.01	6.21	0.99	5.09	0.10	3.65	0.18	61.49	0.54	4.99	99.77

CERTIFICATION:

Appendix 6

APPENDIX 6.

A Petrographic Study: Empress Project - by Eva Schandl Ph.D.

Empress Project

A PETROGRAPHIC STUDY:
EMPRESS EAST PROJECT
TERRACE BAY, ONTARIO

prepared for:
Jacques Samson
CAMECO GOLD INC.

October 28, 1999

By:
Eva S. Schandl Ph.D.

Table 6. Polished thin sections - Sample description
Empress Project

Rock Category	Sample Number	Sample Description (Hand sample)	Questions/Comments	Petrographic Interpretation	Geological Code	Location	Au (g/t)	Other Data	Appendix 6 (page #)
Mafic rocks	Emp99C-1497	Relatively unaltered and pillowed mafic volcanic; SH.1, Qstr 2-3%, Py Tr	Describe mineralogy.	Amphibolite/metabasalt(?)	2be	Area 6+00E (south end)	<0.005	WR, REES	1
	Emp99C-1414	Mafic volcanic(?); very massive, with apparent amygdules and vesicules; Cal.1-2, QCalStr 2-3%, Py <1% on fracture planes.	Describe mineralogy, textures. Are these truly amygdules?	Basaltic tuff?	2ae,SH.2	Area 6+00E (north end)	<0.005	WR, REES	2
	Emp99C-1410	Altered mafic volcanic?; SH.3/Bx, cherty clasts, Sil.2, Cb.2, Qstwk 5-8% perv., Py 2%, Cpy Tr.	Describe mineralogy, alteration.	Sediment (qtz-ser-cb-py)	3s,SH.3/BX,Py2%,Cpy Tr	Area 1+00E (north of pond)	0.175		4
	Emp99C-1606	Bleached and anastomosing "felsic band"/felsic dyke(?) within a pillowed mafic volcanic rock.	Describe mineralogy, and confirm if it really is an altered mafic volcanic.	Sediment (siliceous, qtz-bt-cb)	6s	Area 15+00E	<0.005		5
	Emp99C-1278	Relatively unaltered gabbro; very weak "gneissosity" defined by occasional felsic bands.	Describe mineralogy, and compare with sample 1410.	Amphibolite (metagabbro, completely tectonized)	8bu	Area 1+00E (south end)	<0.005	WR	6
Ultramafic Rock	Emp99X-1919	Talc-chlorite-sericite-carbonate-fuchsite schist.	Describe mineralogy. Can you determine if the green mica is Cr or Va-rich.	Sericite schists (deformed and banded sericite-biotite-chlorite+/-talc schist)	7g	Area 1+00E (central area)	0.010	WR	8
Volcaniclastic/ Pyroclastic Rocks	Emp99C-1206	Chloritic/graphitic? mafic schist, talcose, SH.3,FD, gossaneous, weathered black to brown, Py <0.5%.	Determine mineralogy, is it an altered ultramafic/mafic rock, or sediment? Any graphite. Compare with sample 1919.	Graphite-sericite schist/sediment? (extensively deformed, shear related, quartz-sericite-graphite schist)	6u,SH.3,FD,FeC	Area 1+00E (north end)	0.020	WR	9
	Emp99C-1493	Finely laminated sediment (qtz-ser schist, QCb str perv.; Py wispy str, oxided.	Confirm if sediment, alteration?, mylonitized?	Sediment (fg qtz-biotite-graphite-sericite schist.	6s,BD	Area 6+00E (south end)	0.005	WR, REES	11
	Emp99C-1507	Laminated mafic sediment to argillite, rusty, moderately sericitic.	Sheared and altered mafic, graphitic?	Sediment (well laminated, sheared, qtz-ser-bt-graph-py).	6sup, SH.3,Plam, Ox.	Area 9+00E (north end)	0.055	WR	12
	Emp99C-1605A	Dark grey, fine grained, sheared sed/mafic rock, with dismembered/boudinaged quartz veinlets?	Determine protolith, alteration, if really are boudinaged quartz stringers.	Tuff? (sheared, silicified, felsic volc clasts(?), qtz-bt-plag)	6s	Area 15+00E	<0.005		13

Rock Category	Sample Number	Sample Description (Hand sample)	Questions/Comments	Petrographic Interpretation	Geological Code	Location	Au (g/t)	Other Data	Appendix 6 (page #)
	Emp99C-1600	Sedimentary rock, with rotated to dismembered siltstone/mudstone laminations.	Are the apparent clasts really of sedimentary origin, or are they quartz stringers. Determine degree of deformation, and compare with 1605A.	Tuff/metavolcanic rock? (sheared, similar to 1605A, qtz-bt schist)	6s-3s	Area 15+00E	<0.005		15
Quartz-sericite schist	Emp99C-1274	Pseudo-laminated rock; qtz-ser-cb schist, sil.1, sediment/mylonite?; Py 2-3%.	Is this rock a tuff, a sediment, is it mylonitized? Is it similar to sample 1493.	Chert-chemical sediment? (extensively silicified, vfg cherty rx, qtz-cb-bt).	3s-6s, Sil/Cht, Plam-BD	Area 1+00E (south end)	0.030	,	16
	Emp99C-1426	Quartz-sericite schist, folded, gossanous.	Is this a more altered equivalent of sample 1274 and 1493?	Sediment (Sil.1,FD, qtz-ser-FeOx)	3s	Area 6+00E (central part)	0.540		17
	Emp99X-1396	Similar to sample 1426.	Same as 1426?	Sediment (deformed qtz-ser-bt-FeOx)	3s/6s	Area 2+50E (central part)	0.025		18
	Emp99X-1301	Quartz-sericite schist, pseudolaminated, with qtz stockwork; Py 1-2%, Cpy tr.	Is this rock a mylonite? What is the protolith...similar to 1396,1426? Identify sulphides. Any gold?	Sediment (vfg, qtz-bt-ser-cb; weak laminations)	3s,Plam	Area 1+00E (central part)	0.060		19
Mineralized samples.	Emp99X-1914	Pervasively gossanous rock, mineralized with fine diss. py. Possibly a highly altered gabbroic dyke.	Determine alteration, protolith, identify sulphides.	Fragmentsl/oxi-hydroxide with various rock fragments, and base metal minerals	3s,Ox,Bx,caliche,Py,Cpy, Gn, Sph,Mo	Area 9+00E	3.120		20
	Emp99C-1428	Mineralized quartz-carb. vein and wallrock. Py, Gn, Mo, Sph, Cpy.	Identify sulphides, any visible gold.	Quartz vein with wallrock fragments	Qv,Py,Gn,Mo,Sph,Cpy	Area 6+00E	1.160		21
	Emp99C-1427	Highly silicified rock, with cross-cutting semi-translucent qtz stringers cross-cutting pseudolaminations.	Determine types and stages of alteration? Any gold.	Sediment (very similar to 1426 and 1396; laminated qtz-ser-bt-py-FeOx).	3s/6s	Area 6+00E (central part)	1.780		22
	Emp99C-1465A	Quartz vein, with wallrock slivers, pervasively altered. Pyrite seams and disseminations, 1-2%.	Identify sulphides, alteration, any visible gold.	Quartz vein and wallrock	Qv,Py1-2%	Area 6+00E (central part)	10.750		23
	Emp99C-1465B	Pervasively altered wallrock to vein, strongly silicified, with py 3-5% disseminated to seams.	Identify sulphides, any Mo, Au.	Extensively silicified sediment (qtz-ser-cb-py-bt)	3s	Area 6+00E (central part)	9.910		25

Rock Category	Sample Number	Sample Description (Hand sample)	Questions/Comments	Petrographic Interpretation	Geological Code	Location	Au (g/t)	Other Data	Appendix 6 (page #)
	Emp99X-1328	Quartz vein with sulphides along microfractures, Py 2-3%, Gn %, Cpy tr.	Determined sulphides, any Au, its association.	Albite-quartz vein in sediment	Qv,Py2-3%,Gn,Cpy tr	Area 6+00E	5.730		26
	Emp99C-1409	Highly silicified mafic/quartz-sericite schist. QCStwk 50%, Py 5% D-Str.	Protolith? Alteration, sulphides?	Albite-quartz veins in siliceous sediment	3s,SH/Bx.3,QStk2-3%,Py10-15%	Area 1+00E (north of pond)	0.280		27
	Emp99X-1556	Quartz-sericite schist, with Py diss. and wisps 5%, with late quartz vein.	Identify sulphides, any Au.	Altered porphyry	3s	Area 10+75E	0.360		29
	Emp99C-1469	Highly siliceous rock, weakly pseudolaminated, possibly a felsite dyke.	Determine alteration, protolith, any visible Au.	Silicified sediment (vfg, qtz-ser-bt-cb)	3s/6s	Area 6+00E (central part)	2.000		30
Other rock:	Emp99C-1425	Felsite dyke, fine-grained, pseudolaminated, light grey, weathered yellowish brown.	Is this rock a mylonite? Protolith? Is it similar to 1301, 1469.	Sediment (qtz-ser-bt; SH.1; almost identical to 1469)	3s	Area 6+00E (central part)	0.005	WR, REES	31
	Emp99X-1356	Intermediate feldspar porphyry. Weathered beige, green-grey, with 15% 1-2mm white feldspar phenocrysts, biotite 2-3%, within grey groundmass.	Determine mineralogy.	Feldspar porphyry (altered, plag-qtz-bt-epid-amph)	10c	L1+05E/ BL0+05S	0.090	WR, REES	32
	Emp99X-1358	Gabbroic/dioritic dyke. Highly altered, sheared, rusty brown, carbonatized, with pervasive microstringers of quartz-carbonate.	Determine mineralogy, alteration, protolith. Compare with 1278 and 1381.	Diorite (extensively altered)	8rs	L1+65E/ 0+95N (old trench)	<0.005	WR, REES	34
	Emp99X-1381	Diorite, fine-grained, weathered pink, trace of bluish quartz eyes, and minor pinkish feldspar.	Determine mineralogy.	Gabbro (extensively altered and fractionated)	8c	L15+00E/ 1+55S	<0.005	WR	35

OBJECTIVES

The objectives of this petrographic study were:

(1) To identify the protolith of the suite of 28 rocks from the Empress East Project, Terrace Bay, Ontario,

(2) To describe the mineralogy and alteration (intensity and type) in the suite of 28 samples,

(3) To determine the origin of lamination in the rocks; (a) sedimentary (b) tectonic

(4) To identify the types of sulfides present in the rocks, and

(5) To identify gold and its association with the sulfides.

DISCUSSION AND CONCLUSIONS

(1) Protoliths:

The estimated protolith of each sample is listed below. The estimation was based on mineralogy, texture and the presence-absence of key accessory minerals. The rocks can be divided into mafic rocks (metagabbro and metabasalt), sediments (most are silicified) tuffs, intrusives (porphyry, diorite and gabbro), quartz veins, and quartz-albite veins. The precursors of sericite schist and graphite-sericite schist are uncertain - but most likely, they were, sediments.

Page #	Sample Number	Rock Type
1	1497	Amphibolite (metabasalt?)
6	1278	Amphibolite (metagabbro)
2	1414	Basaltic tuff?
16	1274	Chert - chemical sediment?(silicified)
34	1358	Diorite
32	1356	Feldspar porphyry
30	1914	Fragmental
35	1381	Gabbro
9	1206	Graphite-sericite schist
21	1428	Qtz vein+wallrock

P. 2

23	1465A	Qtz vein+wallrock
26	1328	Quartz-albite vein
11	1493	Sediment
12	1507	Sediment
5	1606	Sediment (siliceous - chert?)
4	1410	Sediment (siliceous)
18	1396	Sediment (silicified)
19	1301	Sediment (silicified)
17	1426	Sediment (silicified)
31	1425	Sediment (silicified)
25	1465B	Sediment (silicified)
30	1469	Sediment (silicified)
22	1427	Sediment (silicified)
27	1409	Sediment (with albite-quartz vein)
8	1919	Sericite schist
15	1600	Tuff - metavolcanic rock? (silicified)
29	1556	Tuff or fragmental (w/qtz-carb vein)
13	1605A	Tuff? (silicified)

(2) Mineralogy, alteration:

The mineralogy and texture (including alteration) in individual samples are described in detail in the section on petrography. Important features in the rocks are demonstrated by photomicrographs. Table 3 is a summary of visually estimated % of minerals present in individual samples.

Evidently, silicification and sericite alteration are the two most common and most pervasive alteration observed in these rocks. However, because several of the rocks are thought to be metasediments, it is difficult to determine how much of the quartz and sericite have been added to the rocks, and how much of these minerals were an integral part of the sediments. While the presence of quartz veins evidently suggests silicification, interstitial sericite may represent only the original interstitial clays in the sediment - and not the addition of K_2O to the rocks. Keeping this in mind, it is suggested that silicification is the most important and most pervasive alteration observed in the rocks from Empress East. There was more than one episode of silicification, as is evident from the deformation and fragmentation of early quartz veins (i.e. 1414) (see detailed description under petrography, and photomicrographs), and from the late fracture-filling veins (1919). Most quartz veins were subjected to deformation and recrystallization, as is evident from the mortar and mosaic texture in most veins.

(3) Origin of lamination:

While deformation was noted in several of the rocks, the microstructure of individual samples do not show evidence of mylonitization, merely some schistosity and deformation. The rocks most affected, are, the fine-grained sediments. Compositional banding and lamination observed in several of the rocks are, most probably the result of the original sedimentary texture. The deformation does not appear to be sufficiently extensive to warrant this lamination. It should be noted that the presence of graphite in some of the sediments resulted in more extensive deformation (competence difference between different bands; i.e. sample 1206).

(4 & 5) The Sulfides and Gold:

Most common sulfides in the rock are pyrite. Minor pyrrhotite, chalcopyrite, sphalerite, galena and molybdenite were also observed. Pyrite represents the earliest sulfide (many are fractured), all others form rims on pyrite. The only sulfide that was identified with gold in these rocks is, galena. Gold occurs as a small vein in fractured pyrite and the gold vein grades into galena within the same fracture. Please see microprobe analysis of galena and gold from the same fracture, and also the photomicrograph. Gold is really an electrum, containing 22 wt% Ag. Note that the sulfur and Pb peaks could not be resolved on the microprobe, thus, only Pb is reported on the table

It appears that the sulfide most likely to be associated with gold is, galena. However, as this conclusion is based only on one sample, sulfide-rich samples should be studied petrographically in detail.

RECOMMENDATIONS

Chemical analysis of selected rocks (mainly the sediments) is suggested for a positive identification of the protolith. While criteron used for identification included the presence and absence of various accessory minerals, such as zircon, monazite, rutile, etc., this should be verified at least on a few samples.

TABLE 1. ESTIMATED % MINERALS IN THE EMPRESS EAST PROJECT, TERRACE BAY, ONT.

Sample No	**1497**	**1414**	**1410**	**1606**	**1278**	**1919**	**1206**	**1493**	**1507**	**1605A**	**1600**
Rock Type	amphibolite	basalt-tuff?	sediment	sediment	amphibolite	ser.schist	gr.ser.sch.	sediment	sediment	tuff?	tuff?
Quartz		12	70	70	25	30	60	50	60	64	65
Plagioclase					2					5	1
Albite											
Sericite			15			37	24	x	20	x	x
Biotite			x	28	x	20	2	45	10	30	30
Amphibole	85	60			68						
Epidote	x	24			x						
Chlorite	5					10	x	x			
Talc		x				3					
Carbonate		x	10	2				x x		x	
Graphite*						x	10	3	7		
Titanite	10				5						
Rutile						x	x	x		x	x
Leucoxene											
Apatite		x	x	x	x	x	x	x x			
Zircon											
Pyrite	x	2	5		x		3	2	3	x	x
Pyrrhotite		x								1	x
Chalcopyrite										x	
Sphalerite			x					x		x	
Galena											
Molybdenite											
Magnetite	x	x	x		x			x x			
Ilmenite		2									
Fe-oxide											4
Hematite						x	1				
Chomite											
Fragments											

*=not always crystalline, but may be carbonaceous material;

TABLE 1. CONTINUED

Sample No Rock Type	1274 chert?	1426 sediment	1396 sediment	1301 sediment	1914 fragmental	1428 qtz.vein+frg	1427 sediment	1465A qtz vein+frg	1465B sediment	1328 alb-qtz vein	1409 vein+sed.
											GOLD
Quartz	86	70	60	60	10	70	70	74	55	80	35
Plagioclase					20						
Albite	3					2	x			10	35
Sericite		25	30	10		20	24	20	22	1	5
Biotite	5	x	4	20			5	1	5	x	x
Amphibole											
Epidote										x	
Chlorite											
Talc											
Carbonate	5			8		x	x	x	10	1	5
Graphite*											
Titanite											
Rutile	x	x	x	x		x	x	x	x	x	x
Leucoxene											
Apatite							x				
Zircon							x				
Pyrite	1	x	1	2		8	x	5	8	6	20
Pyrrhotite											
Chalcopyrite										2	x
Sphalerite											
Galena									x		x
Molybdenite									x		x
Magnetite				x		x	x	x			
Ilmenite	x										
Fe-oxide	x	5	5	x	40						
Hematite						x					
Chromite											
Fragments					30						

TABLE 1. CONTINUED

Sample No rock type	1556 vein+tuff	1469 sediment	1425 sediment	1356 fldsp porph	1358 diorite	1381 gabbro
Quartz	80	70	70	30	15	12
Plagioclase				50	50	64
Albite						x
Sericite	10	27	25	x	3	x
Biotite	2	2	1	10	12	1
Amphibole				0.5		
Epidote				10		5
Chlorite	3					15
Talc						
Carbonate	5	1		x	20	2
Graphite						
Titanite				x		
Rutile		x	x		x	x
Leucoxene						
Apatite				x	x	
Zircon				x		
Pyrite	0.5	x			x	1
Pyrrhotite		x				
Chalcopyrite						
Sphalerite						
Galena						
Molybdenite						
Magnetite						x
Ilmenite						
Fe-oxide			4		x	
Hematite						
Chromite					x	
Fragments						

```
EC          1408 ELECTRUM
EC          zaf cycles 11     bc drift=1.025
EC                 fac     %el    stfm
EC          AU     0.95   77.18   0.094
EC          AG     0.76   22.89   0.051
EC          total        100.07

EC          ELECTRUM
EC          zaf cycles 10     bc drift=1.065
EC                 fac     %el    stfm
EC          AU     0.94   75.08   0.091
EC          AG     0.75   23.02   0.051
EC          total         98.10

EC          GALENA
EC          zaf cycles  5     bc drift=1.068
EC                 fac     %el      %ox    stfm
EC          PBO    0.92   90.62    97.62 24.007
EC          total         90.62    97.62  24

EC          GALENA
EC          zaf cycles  5     bc drift=1.076
EC                 fac     %el      %ox    stfm
EC          PBO    0.91   87.88    94.66 24.007
EC          total         87.88    94.66  24
```

Sample Number: 1497 **Rock Type: Amphibolite (metabasalt?)**

Petrographic Description:

The rock consists predominantly of amphibole and titanite aggregates. The amphibole had an originally calcic composition, as suggested by the dark green pleochroism, and it is partly replaced by actinolitic amphibole (blue-green pleochroism). Some amphibole are rimmed and some are partly replaced by chlorite. Chlorite is also interstitial to matrix amphibole. They are almost isotropic in the matrix and have dark brown birefringence. Titanite occurs in fine-grained, anhedral aggregates, and are distributed throughout the matrix. Plagioclase is absent - it was probably part of the matrix, and was replaced partly by amphibole and partly by titanite. A few small pyrite grains occur in the center of some amphibole.

Mineral	%	Grain size(mm)	Comments
Hornblende-actinolite	85	<0.5-2.5.	Euhedral, relict hornblende is partly replaced by blue-green, prismatic and acicular actinolite. Stubby hornblende generally occurs in the center of the larger grains. Fine-grained, randomly oriented acicular actinolite makes up part of the rock matrix. Some actinolite in the matrix are replaced by chlorite with very dark brown birefringence (brunsvigite?), whereas some of the larger actinolite are rimmed by penninite.
Titanite	10	<0.5	Fine-grained titanite occurs in aggregates and these aggregates are disseminated through the rock. They have very high relief, brownish color and high birefringence. Rare grains are euhedral. Some titanite aggregates contain minute magnetite grains in the center, suggesting the breakdown of titaniferous magnetite to titanite.
Chlorite	5		Chlorite is interstitial to the matrix and partly replaces actinolite.

Accessory Minerals: Magnetite, pyrite, epidote.

Sample Number: 1414 **Rock Type: Basaltic tuff?**

Petrographic Description:

Very fine-grained mafic rock. The texture resembles of a fine-grained, hornblende-epidote amygdaloidal basalt. However, the "vesicles" are filled by fine-grained, recrystallized, granoblastic quartz aggregates. The rock has a slightly flattened fabric, but the matrix is not sufficiently flattened to give rise to the quartz schlierens. Amhibole-rich matrix boudinages the quartz aggregates. Quartz also occurs as small, discontinuous veinlets and fine-grained quartz is an integral part of the rock. Their recrystallization to granoblastic texture suggests that they pre-dated deformation and flattening. I suggest that the "amygdules", which parallel the rock fabric, represent discontinuous quartz bands intercalated with the mafic components in the rock. The mafic component consists of amphibole (hornblende and lesser actinolite), epidote, and fine-grained ilmenite. Amphibole and ilmenite define the rock fabric, whereas some epidote are aligned perpendicular to it. Minor late amphibole veins cross-cut the rock fabric, and are partly altered to talc.

Mineral	**%**	**Grain size(mm)**	**Comments**
Hornblende	60	av. <0.3	Dark green hornblende is aligned parallel, defining the rock fabric. Some are partly replaced by actinolite (light blue-green pleochroism). Weak deformation is evident in the parallel orientation of the grains. Late actinolite veinlets cross-cut the rock and are partly replaced by talc.
Epidote	24	av. 0.3	Subhedral epidote is interstitial to the amphiboles. The very high birefringence suggests an Fe-rich variety. Some of the grains are oriented perpendicular to the rock fabric, suggesting a late over-print on the deformed. flattened hornblende.
Quartz	12	<0.2-0.6	Granoblastic quartz (120° triple junction of grain boundaries) occurs in aggregates, superficially resembling vesicle-filling, as discontinuous veinlets, and very fine-grained quartz is an integral part of the rock matrix. The larger aggregates are boudinaged by the amphibole-epidote matrix, suggesting their presence prior to deformation.
Ilmenite	2	<0.3	Fine-grained, oriented ilmenite needles parallel

			the rock fabric, and they are interstitial to amphibole.
Pyrite	2	up to 1.3	Anhedral pyrite occurs within the quartz aggregates. Some are elongate, parallel the rock fabric, suggesting their presence prior to flattening, deformation.

Accessory Minerals: Pyrrhotite, carbonate, apatite, talc, magnetite

Sample Number: 1410 **Rock Type: Sediment**

Petrographic Description:

Siliceous sediment with narrow, deformed bands of fine-grained carbonate and veinlets of sericite. Anhedral pyrite and minor sphalerite occur in the carbonate bands. Sphalerite must be an Fe-rich variety, as most grains are isotropic.The quartz-rich matrix is recrystallized and some grains are granoblastic. The rock fabric is defined by the contorted carbonate and sericite veinlets and the somewhat stretched, elongate texture of the fine-grained quartz.

Note: there is no textural evidence to suggest that the precursor was an aphanitic volcanic rock (it would have had to have a relatively felsic composition with all that quartz present).

Mineral	%	Grain size(mm)	Comments
Quartz	70	av.<0.5	Fine-grained quartz is the most abundant mineral in this rock. The grains are anhedral, weakly deformed, and some show evidence of extensive recrystallization (granoblastic texture). Most grains are strained and have undulose extinction. There is a weak gradation in size between bands separated by carbonate and sericite veinlets.
Carbonate	10	<0.3-0.6	Fine-grained carbonate occurs in narrow bands and veinlets between the quartz-rich bands. Fine-grained carbonate occurs within sericite-rich bands, and single carbonate grains are boudinaged by sericite veinlets. The relatively dark color of carbonates suggest an Fe-rich variety (ankerite or ferroan dolomite).
Sericite	15		Sericite also defines the rock fabric. It occurs in narrow bands and veinlets which boudinage quartz and some carbonate. The veins are contorted, suggesting deformation.
Pyrite	5	<0.5-1.5	Anhedral pyrite occurs within the carbonate-rich bands, but also in the recrystallized quartz-rich bands. Their elongate form suggests their presence in the sediment prior to deformation. Some are intergrown with Fe-rich sphalerite.

Accessory Minerals: Sphalerite, magnetite, apatite, biotite

Sample Number: 1606 **Rock Type: Sediment (siliceous)**

Petrographic Description:

The rock consists of very fine-grained quartz and very fine-grained biotite. The fine-grained biotite occurs in aggregates. The rock is probably a (cherty, siliceous) sediment fragment included in the basalt. The fine-grained quartz recrystallized to granoblastic aggregates during metamorphism. Minor carbonate is interstitial to quartz and some occur as more coarse-grained aggregates within the cherty matrix. Quartz occurs as microcrystalline matrix and locally, as fine-grained aggregates. Some epidote are present within the carbonate aggregates.

Mineral	%
Quartz	70
Biotite	28
Carbonate	2
Apatite	trace

Sample Number: 1278 **Rock Type: Amphibolite (Metagabbro)**

Petrographic Description:

A completely tectonized mafic rock. It consists predominantly of relatively coarse-grained hornblende, interstitial quartz, relict plagioclase, titanite and minor carbonate.The original texture of the rocks has been completely destroyed. Relict, prismatic plagioclase are almost completely replaced by a mixture of quartz and amphibole. Minor epidote is interstitial to amphibole, and titanite crystallized apparently from the breakdown of titanomagnetite. The rock fabric is defined by the parallel (and weakly deformed) amphibole aggregates. Based on the grain size of the relict plagioclase (ca. 1mm), the gabbro must have been fine-grained.

Mineral	%	Grain size(mm)	Comments
Hornblende	68	0.5-2.0	Subhedral-anhedral hornblendic amphibole constitutes the major part of the rock. Most are slender prismatic grains with parallel orientation. Some of the late coarse-grained amphibole aggregates are perpendicular to the rock fabric. Most grains occur in weakly deformed aggregates and are associated with fine-grained titanite. The coarse-grained amphibole are associated with relatively coarse-grained (up to 3mm long) titanite. Some amphibole are partly uralitized (have actinolitic rims).
Quartz	25	av. <0.5	Most quartz occur as anhedral aggregates within amphibole-rich domains. They have embayed, ragged grain boundaries and are partly intergrown with relict plagioclase. The grains all have undulose extinction, suggesting strain.
Titanite	5	<0.5-3.0	Titanite is evidently a replacement after titanoferous magnetite. The calcium may have been derived from the partial breakdown of hornblende to actinolite and the breakdown of plagioclase. Most grains are anhedral, and the smaller grains are aligned parallel to the rock fabric - evidently pre-dating deformation.
Plagioclase	2	<0.5-2.0	Plagioclase are partly recrystallized grains

where the twin lamellae are almost completely destroyed. They all have ragged, embayed grain boundaries, The composition is not possible to estimate, on account of the lack of good twin lamellae. Most are replaced by quartz and amphibole.

Accessory Minerals: Biotite, epidote, magnetite, pyrite, apatite

Sample Number: 1919 **Rock Type:Sericite schist**

Petrographic Description:

A shear-zone related rock. Deformed sericite-biotite-chlorite-rich bands (±talc) make up part of this schistose rock, and ribboned quartz veins separate the mica-chlorite±talc-rich bands. Most quartz grains are aligned perpendicular to the rock fabric and also to foliation, and their morphology suggests that most veins have crystallized in open fractures. In several veins, quartz have a plumose texture, supporting a cavity or fracture-filling origin.The rock is characterized by strong foliation and schistosity, and narrow seams of black carbonaceous veinlets occur between bands. In hand specimen, slickenside texture is evident and locally the rock surface is smooth and shiny, and coated with brown mica (weathered biotite), having locally bright green patches (replacement of weathered biotite by chlorite). Green micas were not found in the thin section and the green color on the slickenside surface of the rock (and within the schistose bands) is given by chlorite. Fine-grained rutile are disseminated within the sheet silicate bands, and magnetite grains are very few. Pyrite occurs as fractured, fragmented grains, often rimmed by hematite.

Evidently, this micaceous schist formed within a shear zone.

Mineral	**%**	**Grain size(mm)**	**Comments**
Quartz	30	<0.3-0.6	Quartz occurs in veinlets which parallel the rock fabric. Some are euhedral aggregates, some have plumose texture and some occur as anhedral aggregates. In the plumose quartz veins, the grains are aligned perpendicular to the rock fabric (fracture-filling). Fine-grained, anhedral quartz is part of the matrix.
Sericite	37		Sericite-rich bands are intercalated with fine-grained biotite-rich bands They are contorted and deformed and contain numerous grains of minute rutile.
Biotite	20	<0.5	Fine-grained biotite is intercalated with sericite and quartz. Some are replaced by chlorite.
Chlorite	10		Chlorite is interstitial to biotite, it generally replaces biotite.
Talc	3		Fine-grained talc is localized and interstitial to some chlorite.

Accessory Minerals: Pyrite, hematite, carbonaceous material, apatite, rutile, magnetite

Sample Number: 1206 **Rock Type: Graphite-sericite schist**

Petrographic Description:

This extensively deformed graphitic schist is a shear zone-related rock. The matrix of the rock is predominantly fine-grained quartz and the quartz-rich bands alternate with sericite and graphite-rich bands. The sericite-graphite bands are contorted and fragmented. Minor biotite seams occur within sericite, and most are partly replaced by chlorite. The rock was originally probably a sediment, consisting of alternating quartz-sericite + graphite bands. That graphite was part of the original rock is evident from the texture, as sericite-graphite bands are contorted and fragmented. Deformation is extensive, quartz in the matrix is partly flattened and isoclinal folding was noted in the sericite-graphite band, and some quartz aggregates are boudinaged by sericite-graphite bands. Fine-grained rutile is commonly disseminated in the sericite-rich bands. Anhedral pyrite was originally abundant in the rock, but it is partly replaced by hematite. The coarse-grained pyrite are fractured and fractures are filled by hematite veins, and presently, pyrite occurs as inclusions in hematite.Pyrite was present in the original rock prior to deformation, as they parallel the rock fabric.

Mineral	%	Grain size(mm)	Comments
Quartz	60	<0.3-0.5	Anhedral, fine-grained quartz is part of the matrix. Some quartz grains are flattened and stretched, and some occur in granoblastic aggregates. The latter is boudinaged by sericite-graphite-rich bands. Most quartz grains are strained and have undulose extinction. Disseminated graphite is part of some quartz-rich domains.
Sericite	24		Sericite occurs in up to 3mm wide bands. These bands alternate with the quartz-rich bands. Graphite seams and veinlets are intimately associated with the sericite-rich bands. The sericite bands are contorted, deformed and fragmented, suggesting their presence prior to deformation.
Graphite	10		The "graphite" is not crystalline, thus, it is more like very fine carbonaceous material. This material, which was part of the original rock, is, disseminated throughout and also occurs as veinlets within the sericite bands. The veinlets are deformed and fragmented.

Pyrite	3	<0.3-2.5	Anhedral pyrite occurs within the sericite-graphite bands, as well as within the quartz-rich matrix. Most grains are included in hematite, which formed from the breakdown of pyrite. The coarse-grained pyrite are fractured and fractures are filled by hematite.
Biotite	2	<0.3	Very fine-grained biotite veinlets occur within the sericite-rich bands.
Hematite	1		Hematite (more like amorphous Fe oxide) replaces some of the pyrite.

Accessory Minerals: Rutile, apatite, chlorite

Sample Number: 1493 **Rock Type: Sediment**

Petrographic Description:

A very fine-grained, weakly sheared sediment, consisting predominantly of quartz, biotite, minor graphite and sericite. Although the quartz is locally weakly flattened, the overall texture does not suggest significant tectonic deformation. Quartz-biotite bands alternate with biotite-quartz bands - in the latter, biotite dominates. Although biotite alignment parallels the rock fabric, this may be the function of the original texture in the sediment. Anhedral pyrite clusters also parallel the rock fabric. very fine-grained leucoxene (after magnetite) is part of the matrix.

Mineral	%	Grain size(mm)	Comments
Quartz	50	av. <0.5	Fine-grained, anhedral quartz grains in the rock are weakly flattened, have undulose extinction, and slightly embayed grain boundaries. It is uncertain whether the quartz acquired this texture as the result of some deformation and strain, or it developed during "packing" of grains at the time of sediment deposition.
Biotite	45	<0.3	Fine-grained biotite parallels the rock fabric. It is part of the biotite-quartz and quartz-biotite bands.
Pyrite	2	<0.5	Anhedral pyrite forms aggregates which parallel the rock fabric. A late pyrite vein also cross-cuts the rock.
Graphite	3		Fine carbonaceous material is disseminated through the rock.

Accessory Minerals: Leucoxene, sericite, chlorite, apatite, magnetite, carbonate

Sample Number: 1507 **Rock Type: Sediment**

Petrographic Description:

Well laminated, sheared and deformed rock; it consists predominantly of quartz, sericite, biotite, graphite and pyrite. Some pyrite are intergrown with sphalerite, both of which parallel the rock fabric. Some sericite-rich bands are Fe-stained and superficially resemble biotite. Anhedral pyrite are most abundant within quartz-sericite bands, although a few subrounded poikiloblasts over-grow the rock fabric. Graphite (non -crystalline carbonaceous material) is interstitial to sericite-rich bands. Deformation is evident from some of the contorted sericite-graphite bands and the locally stretched, flattened quartz in the matrix. Fragmentation of biotite-graphite-rich bands suggests their presence prior to deformation (thus, sediment laminae were present prior to deformation). Coarse-grained muscovite aggregate is boudinaged by a carbonate-sericite-rich band.

Mineral	%	Grain size(mm)	Comments
Quartz	60	av. <0.5	Fine-grained quartz occurs in alternating bands with sericite, graphite and biotite. More or less equigranular within the bands, there is a gradation in grain size between bands. Some are recrystallized to fine-grained granoblastic aggregates.
Sericite	20		Sericite occurs in weakly anastomosing veins. Some sericite-rich bands are Fe-stained and contain fine-grained Fe-oxide (after magnetite).
Biotite	10	<0.5	Biotite aggregates locally occur with sericite. They were distinguished by their deep brown pleochroism from sericite.
"Graphite"	7		The so-called graphite is non-crystalline, carbonaceous material which occurs as veinlets within sericite and it is disseminated in quartz.
Pyrite	3	<0.5-1.0	Most pyrite are anhedral grains with resorbed grain boundaries, and parallel the rock fabric. A few grains are subrounded poikiloblasts which over grow quartz and sericite-rich bands.

Accessory Minerals: Carbonate, rutile, apatite, sphalerite, magnetite.

Sample Number: 1605A **Rock Type: Tuff?**

Petrographic Description:

A silicified, sheared rock. The presence of a few relict plagioclase phenocrysts suggests that some fragments were derived from a felsic volcanic protolith. The phenocrysts are boudinaged by biotite stringers. The matrix of the rock consists predominantly of fine-grained quartz and biotite, and minor interstitial relict plagioclase. Numerous quartz veins (some are fragmented) parallel the rock fabric, suggesting their presence prior to deformation. The quartz in the veins are recrystallized to granoblastic aggregates. Biotite is abundant, it is disseminated through the rock and also occurs as veinlets which parallel the rock fabric. The dominant sulfide is pyrrhotite, which occurs as stretched, flattened grains and parallel the rock fabric.

Mineral	%	Grain size(mm)	Comments
Quartz	64	<0.3-0.5	Fine-grained, flattened quartz makes up most of the rock matrix. Quartz veins, which parallel the rock fabric, represent silicification in the rock, and the veins evidently pre-dated shearing. All quartz in the veins have recrystallized to granoblastic aggregates.
Biotite	30	<0.5	Titaniferous biotite (deep brown pleochroism) is part of the matrix. It also occurs in veins and stringers. They all parallel the rock fabric, but some boudinage relict plagioclase phenocrysts. Biotite-rich bands in the rock superficially resemble lamination, but the texture suggests that these parallel bands formed as the result of shearing.
Plagioclase	5	<0.3-3.5	The presence of several subhedral plagioclase phenocrysts in the rock suggests that at least in part, the protolith was a volcanic rock. Plagioclase phenocrysts are boudinaged by biotite-quartz bands. Their composition is not possible to determine, as the twin lamellae are partly obliterated, but appear to be a sodic variety (oligoclase-andesine). Very fine-grained, untwinned plagioclase also occurs in the matrix and is interstitial to quartz.
Pyrrhotite	1	<0.5-1.0	Most pyrrhotite occur as deformed, stretched

grains which parallel the rock fabric. They were either present prior to shearing, or crystallized during shearing. Some grains are attached to minor fine-grained sphalerite and chalcopyrite (both are rare)

Accessory Minerals: Rutile, sphalerite, sericite, carbonate, pyrite, chalcopyrite

Sample Number: 1600 **Rock Type: Tuff - metavolcanic rock?**

Petrographic Description:

This rock is a fine-grained variety of the previous sample, 1605A, and consists predominantly of quartz and biotite. Shearing is apparent from the flattened quartz-rich matrix. Although the original texture of the rock is completely destroyed, the presence of one partly recrystallized plagioclase phenocryst and a few euhedral plagioclase phenocrysts suggests a volcanic protolith for the rock. One of the phenocrysts is a perthite, which implies a felsic composition for the original volcanic rock. The rock is silicified, as is evident from the presence of numerous quartz veinlets - some of which pre-dated, and some post-dated shearing. As in the previous sample (1605A), the quartz in the veins are recrystallized to granoblastic aggregates. Biotite is disseminated throughout the matrix, but also segregated into stringers and biotite-quartz-rich bands (shearing affect?). Fine-grained rutile occurs in the biotite stringers.

Mineral	**%**	**Grain size(mm)**	**Comments**
Quartz	65	av. <0.5	Very fine-grained quartz makes up most of the rock matrix. The grains are flattened and some show evidence of recrystallization. Quartz also occurs in fràgmented veins, which suggests that the rock was silicified prior to shearing and deformation. One late quartz vein cross-cuts the rock fabric. All quartz in the veins have recrystallized to granoblasic aggregates.
Biotite	30	<0.3	Fine-grained biotite is part of the matrix. It also occurs in discontinuous stringers which parallel the rock fabric. Some of these stringers boudinage quartz-aggregates.
Plagioclase	1	up to 1.0	The presence of relict plagioclase phenocrysts suggests that the rock had a felsic volcanic protolith. One phenocryst is a perthite (intergrowth of Na-K-rich feldspars - exsolution lamellae).
Fe-oxide	4		Amorphous Fe-oxide occurs throughout the rock. It most commonly over-prints the quartz veins.

Accessory Minerals: Rutile, sericite, pyrite, pyrrhotite

Sample Number: 1274 **Rock Type: Chert-chemical sediment?**

Petrographic Description:

An extensively silicified, very fine-grained cherty rock. It consists of microcrystalline quartz matrix with minor carbonate and biotite, which is cross-cut by coarse-grained quartz veins and quartz-albite veins. The quartz in the veins have ragged, embayed grain boundaries, suggesting disequilibrium.. There is no evidence of shearing or deformation on the microscopic scale. All veins are randomly oriented. Fine-grained carbonate is part of the matrix and it also occurs in the veins. Very fine-grained biotite is interstitial to quartz in the matrix and it forms selvages on some quartz veins. Euhedral-anhedral pyrite is locally abundant, and is spatially associated with the quartz veins.

Mineral	%	Grain size(mm)	Comments
Quartz	86	<0.3-1.0	Microcrystalline, equigranular quartz makes up most of the matrix of the rock. Late quartz veins cross-cut the siliceous matrix and some are intergrown with coarse-grained albite. In the veins, quartz are strained, they have undulose extinction and are partly recrystallized.
Albite	3	av. 1.0	Stubby, euhedral albite occurs in the quartz veins, where they form interlocking aggregates with quartz.
Carbonate	5	av. <0.5	Fine-grained carbonate is interstitial to quartz in the matrix, and also occurs as aggregates within the quartz veins. The dark color of the coarser grains suggests an Fe-rich composition (ankerite?).
Pyrite	1	<0.2-0.5	Fine-grained pyrite occurs in matrix bounded by quartz veins. Some euhedral pyrite is included in the quartz veins.
Biotite	5	<0.3	Very fine-grained biotite is interstitial to cherty quartz in the matrix. It also occurs in aggregates, forming selvages to some quartz veins.

Accessory Minerals: Rutile, Fe-oxide

Sample Number: 1426 **Rock Type: Sediment**

Petrographic Description:

A weakly silicified quartz-sericite rock. Very fine-grained, equigranular, the rock is probably a metasediment. There is no evidence for the presence of feldspars (interstitial or phenocrystic) in the rock. Minor quartz veinlets parallel the rock fabric. Sericite is the second most abundant mineral. It is generally interstitial to quartz and small sericite veinlets define deformation, as they are locally contorted. On the whole however, the quartz grains are only weakly flattened, and although the hand specimen shows isoclinal folding, there is not much evidence of mylonitization and shearing on the microscopic scale. Fe-oxide staining and small, amorphous Fe-oxide grains over-print the quartz veinlets and are also associated with the sericite-veins.

Mineral	**%**	**Grain size(mm)**	**Comments**
Quartz	70	<0.5	Quartz makes up most of the matrix. It also occurs in distinct veins where quartz is recrystallized and form semi-granoblastic aggregates. All quartz grains in the matrix are unhedral and weakly flattened. Some of the quartz form pressure shadows on Fe-oxide-rich fragments.
Sericite	25		Sericite in interstitial to matrix quartz and also occurs as randomly oriented, and locally deformed veinlets. These veins are kink-banded, suggesting deformation.
Fe-oxide	5	variable	Amorphous Fe-oxide over-prints some of the quartz veins and stain the sericite veinlets.

Accessory Minerals: Rutile, pyrite, biotite

Sample Number: 1396 **Rock Type: Sediment**

Petrographic Description:

This rock is very similar to sample 1426. However, stretching and lineation of grains are more pronounced. The fine-grained quartz in the matrix is flattened and boudinaged by sericite and biotite stringers. More coarse-grained quartz aggregates are recrystallized, rotated, and boudinaged by sericite and biotite. They probably represent recrystallized quartz clasts and fragmented quartz veins. Biotite and sericite are interstitial to the fine-grained matrix, and occur as small, deformed stringers. Fe-oxide staining affected mostly the sericite-biotite-rich bands. Euhedral pyrite occurs locally, and are most commonly associated with the quartz veins and some quartz aggregates.

Mineral	%
Quartz	60
Sericite	30
Biotite	4
Fe-oxide	5
Pyrite	1
Rutile	trace

Sample Number: 1301 **Rock Type: Sediment**

Petrographic Description:

A very fine-grained quartz-rich sediment with interstitial sericite and biotite. The rock consists of fine-grained quartz, biotite, sericite and carbonate - all of which are very fine-grained. Euhedral pyrite is disseminated through the rock. Quartz veins are relatively abundant, and some of the quartz is partly replaced by carbonate. There is not much evidence of deformation on the thin section scale and the quartz in the matrix lacks flattening. Weak lamination is evident, as biotite (+quartz)-rich bands alternate with sericite (+quartz)-rich bands. The mineralogy of this rock is comparable to the previous 2 samples (1426 & 1396), but they lack textural evidence for deformation, shearing and flattening.

Mineral	%	Grain size(mm)	Comments
Quartz	60	<0.5	Fine-grained, anhedral quartz constitutes most of the matrix in the rock. Quartz also occurs in veins which cross-cut the rock fabric, but some veins parallel the rock fabric. Most have undulose extinction.
Biotite	20	<0.5	Biotite is part of the rock matrix, it is interstitial to matrix quartz, and forms biotite-rich bands. Some form small biotite aggregates, as well as biotite stringers.
Sericite	10		Sericite is often intergrown with biotite, and is part of the fine-grained matrix. Some occur in small stringers.
Pyrite	2	<0.3-0.6	Euhedral-anhedral pyrite over-grows the rock fabric. Some are poikiloblasts.
Carbonate	8	<0.3-0.5	Carbonate is disseminated through the matrix. It also occurs in aggregates along quartz veinlets. The color of the mineral suggests an Fe-rich dolomite.

Accessory Minerals: Rutile, magnetite, Fe-oxide

More like
"caliche"

moly.

Sample Number: 1914 **Rock Type: Fragmental**

Petrographic Description:

This Fe-rich rock consists of various rock fragments, such as fine-grained quartz-feldspar-sericite-rich fragments, and albite-oligoclase and quartz clasts. They are all included in a hematite-oxy-hydroxide matrix. The fine-grained fragments and feldspar clasts are subrounded, and the quartz clasts are angular. This would suggest that the fine-grained fragments and feldspar clasts were transported to their present location and have a distal origin, alternatively, they were "milled" by granulation. The Fe-rich matrix consists of hematite and oxy-hydroxide and it replaces some of the plagioclase clasts. The mineralogy and texture of the fine-grained fragments (predominantly fine-grained quartz and feldspars with some sericite) and the clasts suggests that this fragmental was derived from a feldspar porphyry.

The matrix also contains numerous sphalerite grains with specs of chalcopyrite (chalcopyrite disease), chalcopyrite aggregates, galena and minor molybdenite.

Mineral	**%**	**Grain size(mm)**	**Comments**
Plagioclase	20	0.5-3.5	Plagioclase clasts are weakly subrounded and have a narrow compositional range of albite-oligoclase, and lesser andesine. Most are single clasts, but also occur in aggregates. They were probably derived from a feldspar porphyry - thus the wide range in grain size. Plagioclase also occurs in fine-grained aggregates with quartz - most likely representing the matrix of the porphyry.
Quartz	10	<0.5-3.0	Quartz occurs as broken clasts, as well as fine-grained interlocking aggregates with plagioclase. They generally have undulose extinction. The fine-grained quartz is part of the fine-grained matrix in the fragments.
Fragments	30	fine-grained	The fragments were derived from what appears to be the matrix of a feldspar (+quartz) porphyry. They consist of quartz, plagioclase, sericite, biotite and lesser carbonate.
Oxy-hydroxide	40		Amorphous oxy-hydroxide matrix poikilitically encloses all of the above fragments and clasts.

Accessory Minerals: Sphalerite, chalcopyrite, galena, rutile, carbonate, sericite, biotite, magnetite, pyrite, molybdenite.

Sample Number: 1428 **Rock Type: Quartz vein with wallrock fragments**

Petrographic Description:

An inequigranular quartz vein, consisting of sericite-rich wallrock fragments and pyrite. A composite vein, which is made up of at least two quartz vein generations. The quartz in the vein has ragged, embayed grain boundaries, and undulose extinction. Most grains are granulated and contain fine-grained granular quartz between grain boundaries (mortar texture). The individual grains are extensively strained and consist of mosaic-like domains. Wallrock fragments consist predominantly of contorted sericite veins, some of which are kink-banded. Deformation of sericite post-dated inclusion in the quartz vein. An earlier albite-quartz vein included in the late vein is, deformed and fragmented, and the albite-quartz aggregates are wrapped around by kink-banded sericite. Euhedral pyrite occurs within quartz, as well as the sericite-rich fragments. Most pyrite are rimmed by magnetite-hematite and fractures are filled by hematite. A few grains of galena and fine-grained sphalerite were identified in the pyrite-rich domain of the quartz vein.

Primary fluid inclusions in quartz (in the vein) have a significant CO_2 component.

Mineral	**%**	**Grain size(mm)**	**Comments**
Quartz	70	<0.5-4.0	Anhedral, strained quartz makes up most of the vein. This composite vein contains deformed fragments of a an earlier quartz-albite vein. Quartz are partly recrystallized at the grain boundaries and their texture suggests disequilibrium. Fine-grained granoblastic quartz is interstitial to the large, strained grains.
Sericite	20		Sericite-rich fragments are considered to have been derived from the wallrock. Sericite occurs in deformed kink-banded veins.They are included in the late quartz vein. Minor sericite also occurs in the earlier quartz-albite vein.
Albite	2	0.5-1.5	Stubby, equant albite is intergrown with quartz in an earlier vein. This early vein is deformed (bent) and included in the late quartz vein.
Pyrite	8	up to 1.5	Euhedral-subhedral pyrite are randomly distributed in the quartz vein. Most are rimmed by magnetite and hematite, and some are spatially associated with galena.

Accessory Minerals: Carbonate, rutile, galena, magnetite-hematite

Sample Number: 1427 **Rock Type: Sediment**

Petrographic Description:

This rock is practically identical to samples 1426 and 1396. It is laminated and consists of very fine-grained quartz, sericite, minor biotite, pyrite and Fe-oxide. A few zircons were identified in one of the quartz-rich bands. Its spatial association with corroded small grains of rutile suggests that they represent a localized heavy mineral concentrate. Several zircon-shaped holes (adjacent to the zircon grains) in the thin section probably contained zicons originally, but were removed during grinding. The concentration of detrital zircon and rutile is consistent for a sedimentary origin for the rock. Sericite is interstitial to the fine-grained quartz matrix, and also occurs as small veinlets, defining the rock fabric. Biotite appears to cross-cut lamination. Anhedral pyrite parallel the rock fabric. Some are rimmed by Fe-oxide. Fe-oxide is common, and it also parallels the rock fabric.

Mineral	%	Grain size(mm)	Comments
Quartz	70	<0.3-0.6	Fine-grained quartz makes up most of the rock. Quartz also occurs in small, parallel veinlets.
Sericite	24		Sericite is interstitial to quartz and also forms wispy veinlets, weakly boudinaging some quartz aggregates.
Biotite	5	<0.5	Most biotite grains are perpendicular to the sericite and quartz veins, suggesting their relatively late crystallization.
Pyrite	1	<03-0.6	Most pyrite parallel the rock fabric and occur as anhedral, elongate grains within the Fe-oxide-rich bands. Many are rimmed by Fe-oxide.

Accessory Minerals: carbonate, zircon, rutile, albite, magnetite, apatite

Sample Number: 1465A **Rock Type: Quartz vein + wallrock**

Petrographic Description:

An extensively granulated quartz vein - it is almost identical to sample 1428, only it contains a larger wallrock fragment. Quartz in the vein is granulated with fine-grained mortar quartz between large grains. Quartz show evidence of strain and deformation (undulose extinction), and grain boundaries are ragged, embayed, suggesting disequilibrium crystallization. The wallrock fragments are sericite-rich, containing anastomosing sericite veins, some of which are strongly deformed. The matrix quartz in the wallrock is very fine-grained and flattened - suggesting shearing. Sulfides are more abundant in the sericite-altered wallrock than in the quartz vein. They include euhedral-subhedral pyrite, minor, very` small grains of molybdenite and covellite. The latter is rare. Fine-grained biotite occurs with some of the pyrite.

The quartz vein contains numerous primary fluid inclusions. The wide range in liquid/vapor ratio in the fluid inclusions suggests boiling in the fluid during quartz vein formation. And some of the fluid inclusions also contain CO_2 liquid in addition to H_2O (common in quartz veins of Archean lode gold deposits).

Mineral	%	Grain size(mm)	Comments
Quartz	74	0.3-4.0	Quartz in the vein is strained and have undulose extinction, and in the wallrock fragments, the fine-grained matrix quartz is stretched and flattened. This implies that the rock was sheared prior to quartz vein generation. Quartz in the vein is granulated and fine-grained granular quartz is interstitial to the large grains (mortar texture).
Sericite	20		Sericite is part of the assemblage in the wallrock fragments. It occurs as weakly deformed and kink-banded parallel veins. Fine-grained sericite is also interstitial to fine-grained quartz in the matrix of the wallrock fragments. Sericite veins boudinage some of the more coarse-grained quartz in the wallrock.
Pyrite	5	<0.3-1.5	Euhedral and subhedral pyrite generally parallels the sericite veins, and pyrite is most abundant in the wallrock fragments. Some are rimmed by Fe-oxide.
Biotite	1	<0.5	Fine-grained biotite aggregates rim some of the

pyrite, and occur as fine-grained aggregates along the pyrite-rich domains.

Accessory Minerals: Carbonate (ankerite?), molybdenite, rutile, magnetite

Sample Number: 1465B **Rock Type: Silicified sediment**

Petrographic Description:

The rock is an extensively silicified sediment, consisting of fine-grained quartz, sericite, carbonate and pyrite. Numerous quartz veins intrude into the sericitized rock, suggesting late silicification. Some quartz veins contain a few stubby albite crystals. The albite-bearing veins cross-cut the rock fabric. Most quartz are strained , have undulose extinction and ragged, embayed grain boundaries. Some carbonate aggregates occur on vein selvages and within the veins, and others in the sericite-rich veins are boudinaged by sericite. The only difference between the present rock and sample 1465A is, the presence and relative abundance of carbonate in the present rock.

Mineral	%
Quartz	55
Sericite	22
Carbonate	10
Biotite	5
Pyrite	8
Galena	trace
Rutile	trace
Molybdenite	trace

Sample Number: 1328 **Rock Type: Quartz-albite vein**

Petrographic Description:

A quartz vein with significant albite. Albite occurs as stubby, euhedral grains and form interlocking aggregates with quartz. Quartz is extensively strained and recrystallized and albite is interstitial to recrystallized quartz. The grain boundaries of quartz are ragged, and the presence of fine-grained quartz aggregates between the large grains suggest granulation of the vein. On the whole, quartz in the vein has a mosaic texture (resembling of jigsaw puzzle). Minor wallrock fragments are included in quartz. They consist of fine-grained sericite and a mixture of fine-grained quartz and albite. Late carbonate occurs between some recrystallized quartz in the vein.

Pyrite is the most abundant sulfide. It occurs as fractured anhedral, or unfractured euhedral grains. Some are intergrown with galena, chalcopyrite, and sphalerite. Galena is the second most abundant sulfide in the vein. Sphalerite has inclusions of minute chalcopyrite (chalcopyrite disease). Galena, chalcopyrite and sphalerite all post-dated pyrite. Some occur in stringers and some form rims on pyrite.

Mineral	%
Quartz	80
Albite	10
Pyrite	6
Galena+ sphalerite+ Chalopyrite	2
Sericite	1
Carbonate	1
Rutile	trace
Epidote	trace
biotite	trace

Sample Number: 1409 **Rock Type: Albite-quartz veins in sediment**

Petrographic Description:

A siliceous sediment with carbonate and minor sericite. The rock is cross-cut my numerous coarse to fine-grained albite ± quartz veins. Albite forms granoblastic aggregates and in the smaller veins they are intergrown with some quartz. The matrix of the sediment is very fine-grained with interstitial sericite and carbonate-sericite veinlets cross-cutting the rock. Euhedral pyrite aggregates occur in albite veins and pyrite is rimmed by carbonate. Carbonate veinlets are interstitial to fractured albite aggregates and veins. Minor molybdenite, galena and sphalerite also occur in association with pyrite; moly forms rims on some pyrite.

GOLD veinlet was identified in a fractured pyrite. The same fracture is also filled by minute galena vein.

Mineral	%	Grain size(mm)	Comments
Albite	35	<0.5-4.0	Albite occurs as coarse-grained interlocking aggregates and as veins which cross-cut the rock. Albite pre-dated carbonate and some sericite, as both form rims on albite. Pyrite, which contains the GOLD veinlet, occurs in an albite vein which was partly altered to carbonate.
Quartz	35	<0.3-2.5	Fine-grained quartz is part of the sediment matrix. Quartz also occurs with some albite in veins.They are anhedral, strained and have undulose extinction and mosaic (jigsaw) texture.
Sericite	5		Sericite is interstitial to quartz and occurs with late carbonate which forms rims on pyrite and cross-cuts albite.
Pyrite	20	<0.3-3.5	Most pyrite are euhedral. They occur in albite veins and aggregates. Most are fractured, some are fragmented and rimmed by a mixture of sericite and carbonate. Some pyrite contain minute pyrrhotite inclusions. GOLD vein occurs in fractured pyrite.
Carbonate	5	variable	Anhedral carbonate represents a late alteration,

as carbonate is generally associated with sericite veinlets which form rims on pyrite. Carbonate stringers also occur in fractured albite aggregates.

Accessory Minerals: Rutile, biotite, galena, molybdenite, chalcopyrite

Sample Number: 1556 **Rock Type: Fragmental or tuff with quartz-carbonate vein**

Petrographic Description:

A large part of the rock consists of quartz-carbonate vein. The wallrock fragment consists of quartz-sericite bands and biotite-chlorite bands. Biotite is partly replaced by chlorite and carbonate is rimmed by biotite-chlorite. Carbonate represents an early mineral, more or less associated with the quartz vein, whereas biotite and chlorite post-dated the vein.Quartz in the vein is granulated (mortar texture), deformed, it has undulose extinction and mosaic texture. Sericite occurs in anastomosing veins in the wallrock fragment 'and the veins show evidence of deformation. Pyrite stringers occur in the sericite veins and sphalerite and subhedral pyrite occurs in the carbonate-rich zones.

Mineral	%
Quartz vein	80
Carbonate	5
Sericite	10
Biotite	2
Chlorite	3
Pyrite	0.5

Sample Number: 1469 **Rock Type: Silicified sediment**

Petrographic Description:

A silicified, very fine-grained sediment. Small quartz veins cross-cut the rock. They have random orientation and partly recrystallized (semi-granoblastic texture). Two vein generations were observed from the cross-cutting relationships. Sericite and minor carbonate in this siliceous rock, post-dated silicification. Sericite is interstitial to matrix quartz and carbonate most commonly occurs in the quartz veins, partly replacing quartz. Minor, very fine-grained biotite is disseminated through the rock. It locally occurs in a biotite-rutile veinlet. The local abundance of rutile suggests that rutile is probably a heavy mineral concentrate in the rock. Minor, elongate, anhedral pyrite grains parallel the rock fabric.

Mineral	**%**	**Grain size(mm)**	**Comments**
Quartz	70	<0.3-1.0	Quartz occùrs as very fine-grained matrix, and as the more coarse-grained veins. The matrix quartz is unflattened, and lacking in significant deformation. Quartz in the veins are partly recrystallized to semi-granoblastic aggregates.
Sericite	27		Fine-grained sericite is disseminated though the rock and is interstitial to matrix quartz. Minor sericite veinlets parallel the rock fabric.
Carbonate	1	<0.5	Fine-grained carbonate is most common in some quartz veins, where they occur in the center of the veins, or on the selvages.
Biotite	2	<0.3	Biotite occurs in small stringers and as fine-grained aggregates within the fine-grained matrix. It post-dated sericite.

Accessory Minerals: Rutile, pyrite, pyrrhotite, tourmaline

Sample Number: 1425 **Rock Type: Sediment**

Petrographic Description:

This rock is almost identical to the previous sample (1469), but it contains much fewer quartz veins and the matrix quartz is somewhat flattened (suggesting some shearing). Other differences are, the lack of carbonate and the lesser amount of biotite.

Mineral	%
Quartz	70
Sericite	25
Biotite	1
Pyrite+ Fe oxide	4
Rutile	trace

Sample Number: 1356 **Rock Type: Feldspar porphyry**

Petrographic Description:

An altered feldspar porphyry. The rock consists of zoned plagioclase phenocrysts, biotite and epidote aggregates, all set in a matrix of fine-grained quartz and feldspars. The plagioclase phenocrysts are partly replaced by dark Fe-rich carbonate, or they are saussuritized (contain fine-grained sericite-carbonate-epidote aggregates). The original mafic phenocrysts have been replaced by biotite and epidote aggregates. Some of the epidote are metamict and when included in biotite, they have a dark pleochroic halo (radiation damage from the REE and U in epidote-allanite grains). Relict amphibole fragments are present in some of the biotite aggregates, where titanite occurs on biotite rims. Some biotite are primary, and occur as slender prismatic phenocrysts, and some are secondary. Rutile, monazite and allanite are accessory minerals. A few small, euhedral pyrite grains occur in the matrix, and are rimmed by hematite.

Mineral	%	Grain size(mm)	Comments
Plagioclase	50	1.0-3.0	Euhedral plagioclase phenocrysts are strongly zoned and most are significantly altered. The most common replacement after plagioclase is, fine-grained carbonate. Carbonate grains pseudomorph the Ca-rich zoned rims of the feldspars and the center of plagioclase grains commonly contain inclusions of epidote, biotite, sericite and carbonate. Some altered plagioclase are rimmed by narrow rims of albite. Due to alteration and strong zoning, the composition of plagioclase could not be determined. However, the Ca-rich replacement minerals imply that the original plagioclase was calcic.
Quartz	30	<0.3-0.5	Most quartz occur as fine-grained, anhedral aggregates in the matrix. Some anhedral, broken quartz clasts were also identified.
Biotite	10	<0.5-2.5	Most biotite are secondary, but some of the prismatic, single grains are primary. The secondary biotite occurs in aggregates, some partly replace the original amphibole in the rock. The pleochroism of biotite is very dark brown-green.
Epidote	10	<0.5-1.5	Epidote is a secondary mineral, it occurs with biotite, replacing amphibole phenocrysts. While

			epidote in biotite aggregates is relatively coarse-grained, clinozoisite (after plagioclase) in the quartz matrix is fine-grained.
Amphibole	0.5	av. 0.5	Relict, dark green amphibole fragments are interstitial to biotite-epidote aggregates.

Accessory Minerals: Allanite, titanite, sericite, zircon, rutile, carbonate, apatite

Sample Number: 1358 **Rock Type: Diorite**

Petrographic Description:

An extensively altered diorite. It consists predominantly of relict, partly recrystallized plagioclase and quartz and the rock is cross-cut by numerous carbonate + biotite veins. The biotite veins rim the carbonates, or they are intergrown with carbonate. Carbonate aggregates also form a network on the partly recrystallized plagioclase. Originally a medium-grained equigranular rock, most plagioclase are fragmented and partly recrystallized. The rock contains aggregates of secondary quartz which are interstitial to plagioclase. Most biotite veins are Fe-stained and contain aggregates of rutile.

Mineral	%	Grain size(mm)	Comments
Plagioclase	50	0.5-3.0	The present composition of plagioclase is, oligoclase - although it originally may have been more calcic prior to alteration. Most grains are unzoned, fragmented, they occur in anhedral aggregates intergrown with quartz.
Quartz	15	variable	Most quartz are secondary and occur in aggregates interstitial to plagioclase. They are strained and have undulose extinction.
Biotite	12	variable	Biotite occurs mostly in parallel veins which cross-cut the rock. Most veins are anastomosing and are stained by Fe-oxide. Carbonate is interstitial to some veins, and the textural relationship suggests that the biotite veins post-dated carbonate in the rock.
Carbonate	20	<0.5-3.0	Anhedral carbonate occurs in aggregates which over-grow secondary quartz and some plagioclase, but most commonly occurs as veins which cross-cut the rock. They are almost always rimmed by biotite veins. Their color suggests that they are either Fe-rich dolomite or ankerite.
Sericite	3		Sericite partly replaces plagioclase and it also occurs in the matrix.

Accessory Minerals: Rutile, apatite, pyrite, Fe-oxide

Sample Number: 1381 **Rock Type: Gabbro**

Petrographic Description:

A coarse-grained, extensively altered and strongly fractionated gabbro. The rock contains a significant amount of graphic quartz over-growing plagioclase, and some graphic quartz is interstitial to altered plagioclase. Plagioclase is partly replaced by carbonate, epidote, chlorite and biotite-sericite. The twinning is destroyed in most grains, thus, the composition cannot be determined. Extinction angle measured in one grain suggests that the present feldspar is oligoclase. However, the carbonate-epidote replacement of several grains suggests an originally more calcic composition (prior to alteration). Secondary minerals in the rock include fine-grained secondary quartz (interstitial to plagioclase), biotite, chlorite, epidote, sericite, carbonate and rutile. Chlorite is abundant, it occurs in aggregates (probably replacing mafic minerals) and as veins, which partly replace biotite veins. Fine-grained epidote commonly occurs within the chlorite-rich domains where it was probably contemporaneous with chlorite (after primary calcic amphibole). Magnetite and pyrite occur in chlorite-biotite veins, pyrite was probably introduced with chlorite.

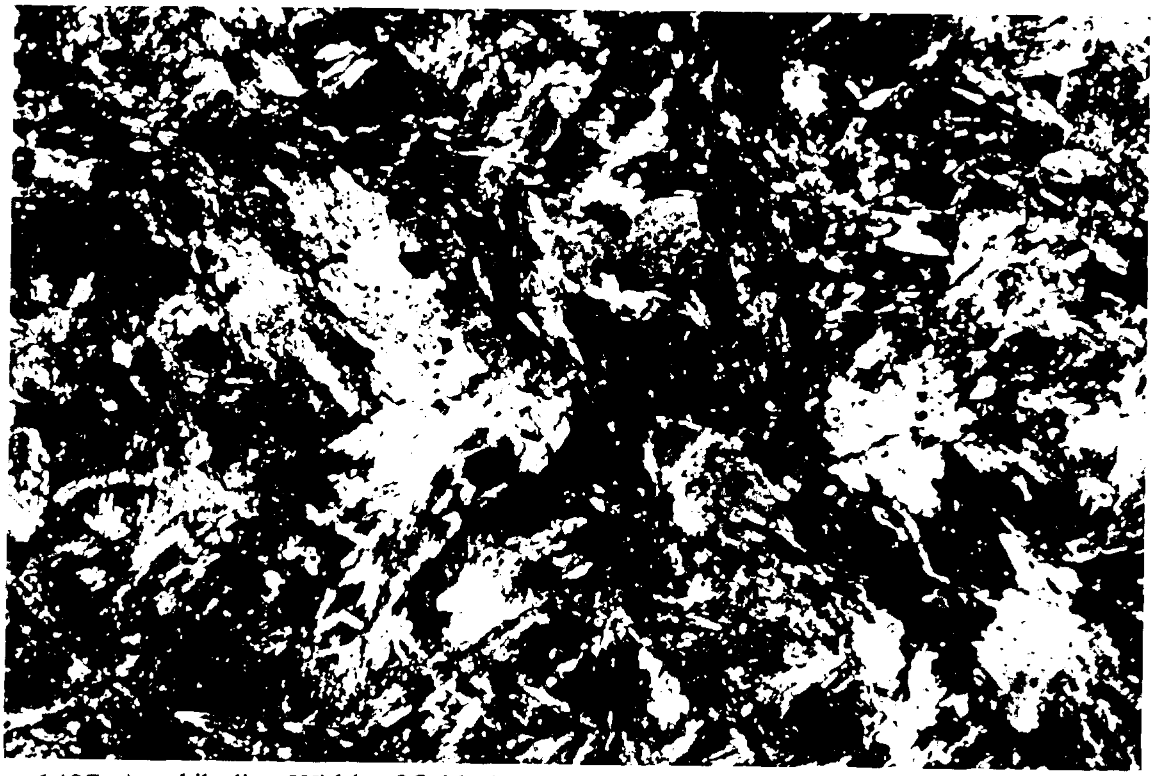
Mineral	**%**	**Grain size(mm)**	**Comments**
Plagioclase	64	0.5-4.0	Coarse-grained plagioclase is weakly zoned, extensively altered and partly recrystallized. Several grains are rimmed by graphic quartz, suggesting that the rock probably represents an extreme differentiate of a gabbro. Most grains are saussuritized and granulated.
Chlorite	15		Coarse-grained Fe-rich chlorite (dark green pleochroism) occurs as replacement after primary mafic minerals (probably amphibole), it is intergrown with some epidote, and it occurs in veins. Some are replacement after biotite.
Quartz	12	variable	Graphic quartz is primary, it is interstitial to plagioclase, and also forms rims on plagioclase. Secondary quartz are anhedral aggregates which are interstitial to the feldspars and chlorite. Some may have crystallized from the breakdown of calcic plagioclase to the more sodic oligoclase.
Epidote	5	av. 0.5-1.0	Fe-rich epidote is interstitial to chlorite, and probably crystallized from the breakdown of

			mafic phenocrysts such as amphibole. Fine-grained epidote (clinozoisite) is also part of the alteration assemblage in plagioclase.
Carbonate	2	variable	Anhedral, fine-grained carbonate partly replaced plagioclase, and it occurs in some chlorite-epidote-rich domains.
Biotite	1	<0.5	Biotite pre-dated chlorite in the veins. Most biotite grains are almost completely replaced by chlorite.
Pyrite	1	<0.5-1.0	Anhedral pyrite is most common in chlorite veins, and it occurs with magnetite.

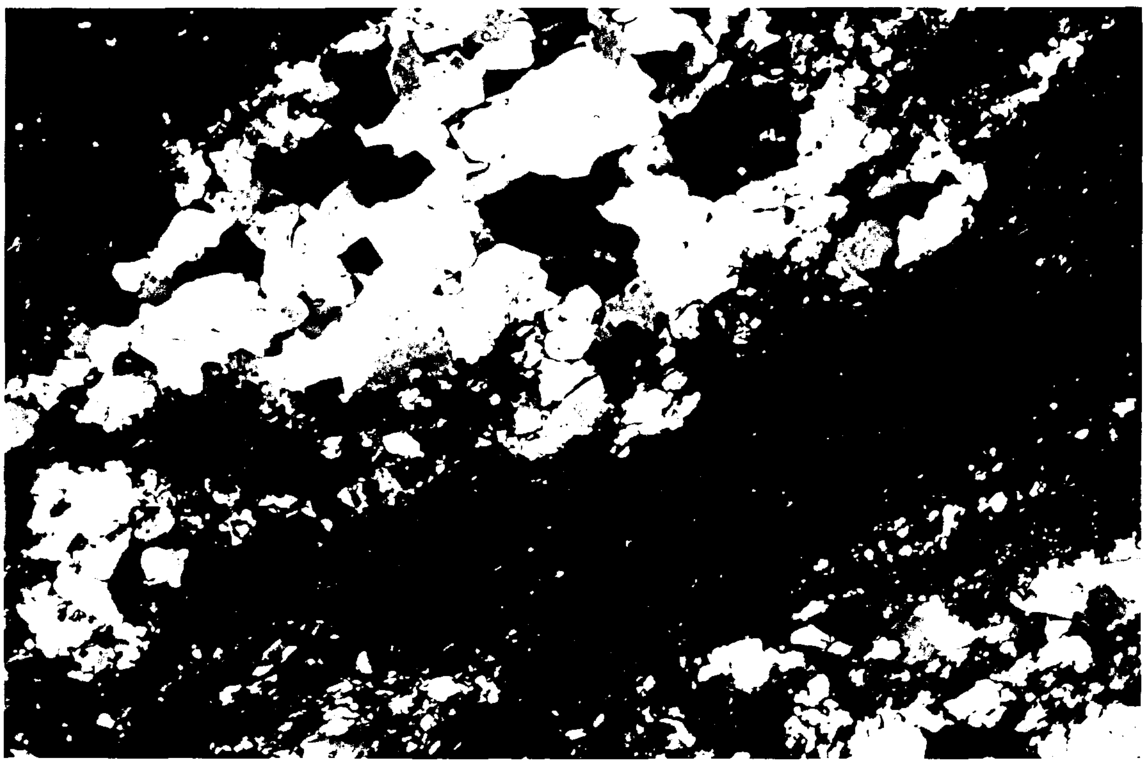
Accessory Minerals: Rutile, albite magnetite, sericite, chromite

PHOTOMICROGRAPHS

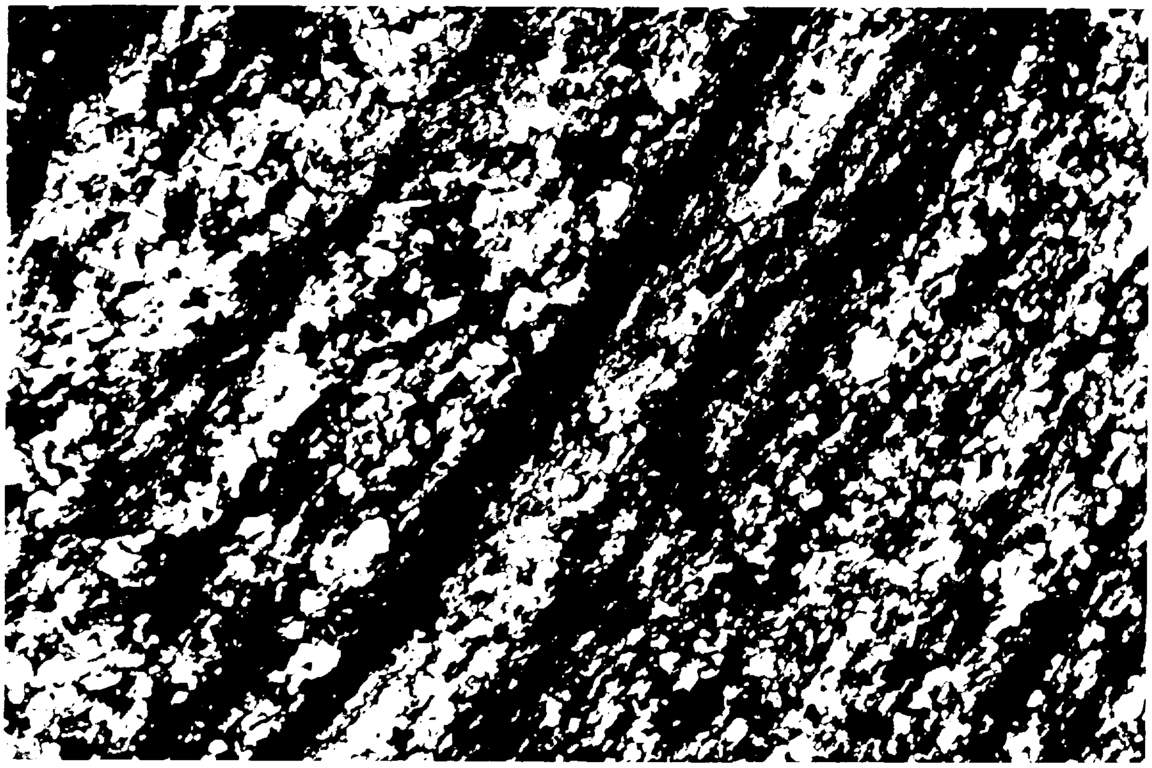
Ppl = Plane polarized light
XN = Crossed nicols
Refl. light = Reflected light



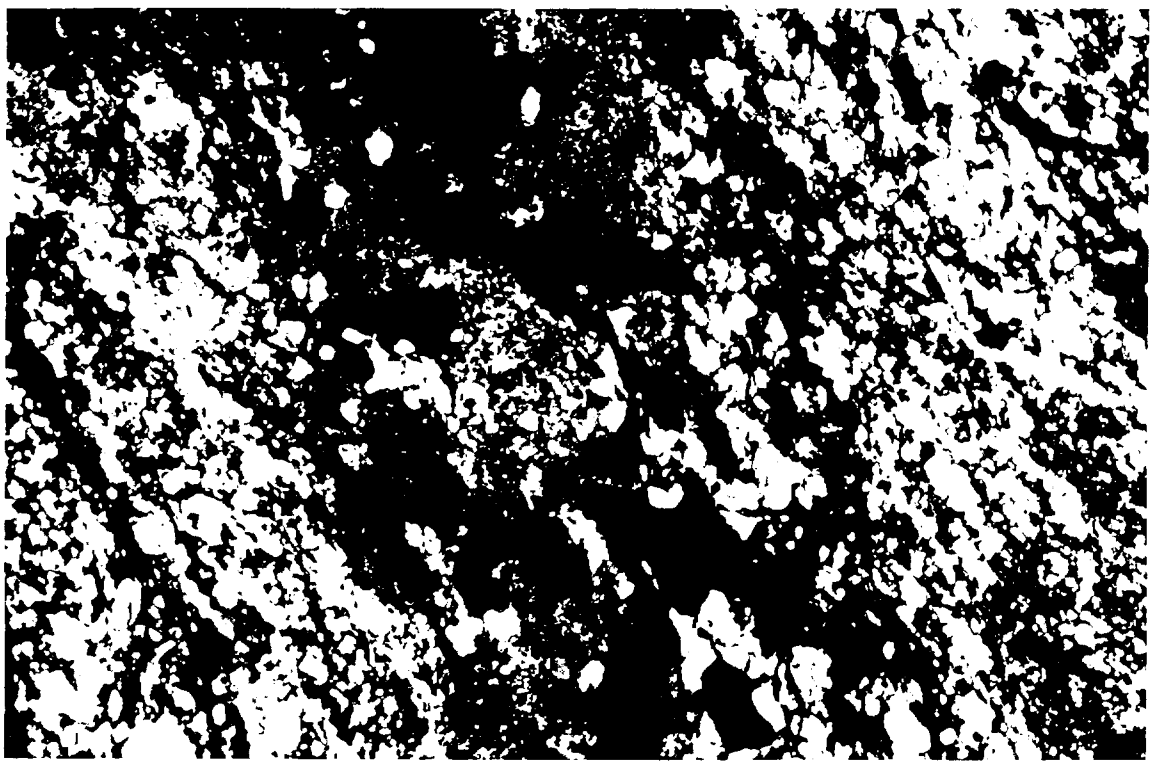
1497. Amphibolite. Width of field: 4mm. XN.



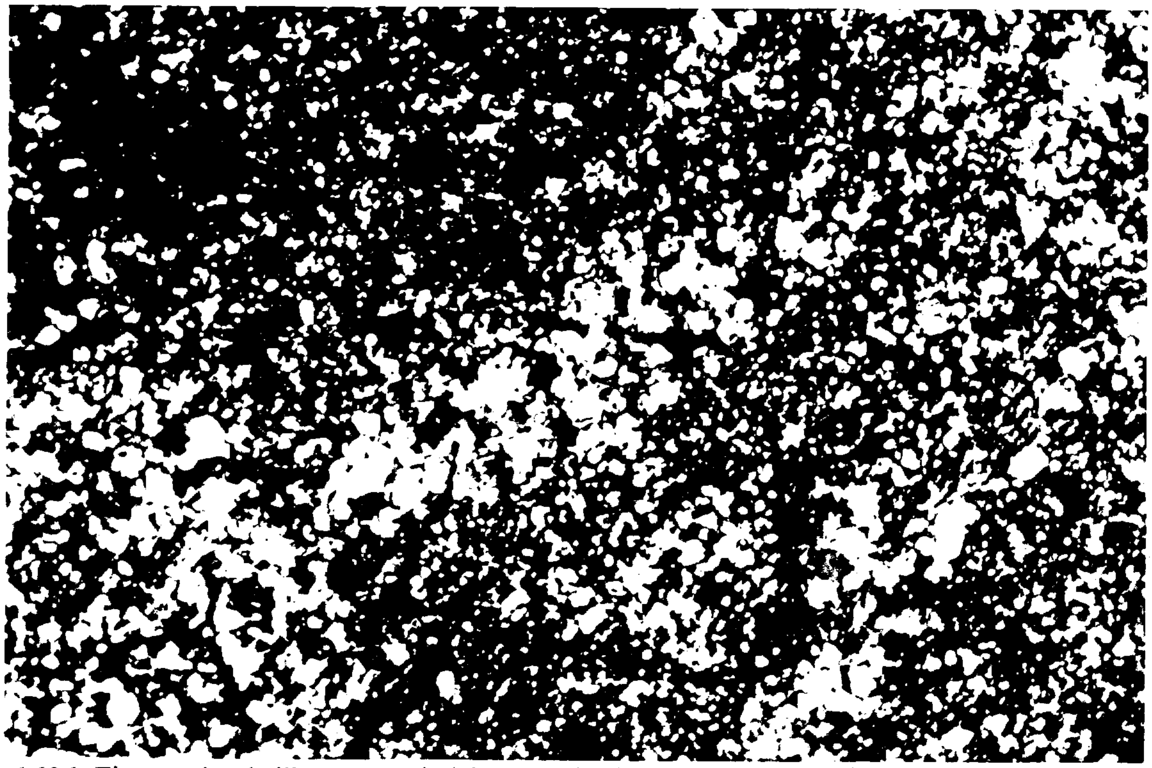
1414. Fragmented quartz aggregates ("amygdules") are boudinaged by fine-grained amphibole-epidote-rich matrix (dark). Width of field: 4mm. XN.



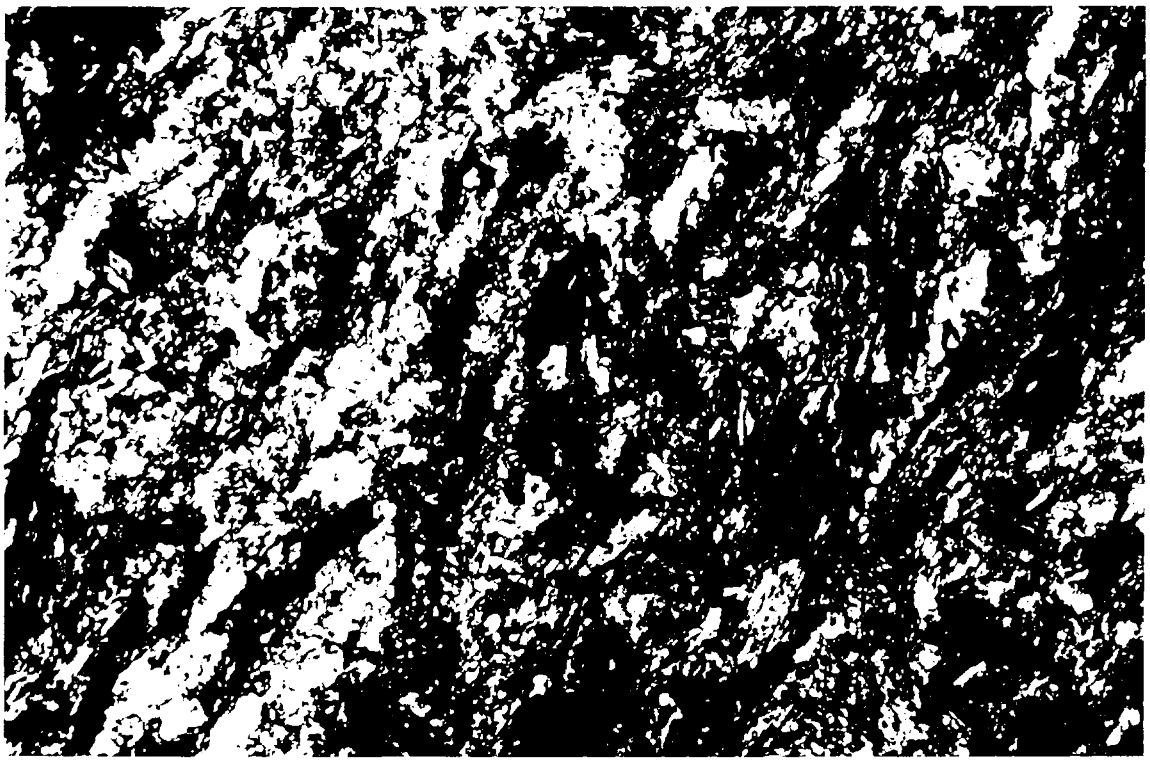
1410. Siliceous sediment with dark Fe-stained, fine-grained carbonate-sericite bands. Width of field: 4mm. XN.



1410. Carbonate band (brown) with pyrite (blk.) in siliceous matrix. Width of field: 1.7mm. XN.



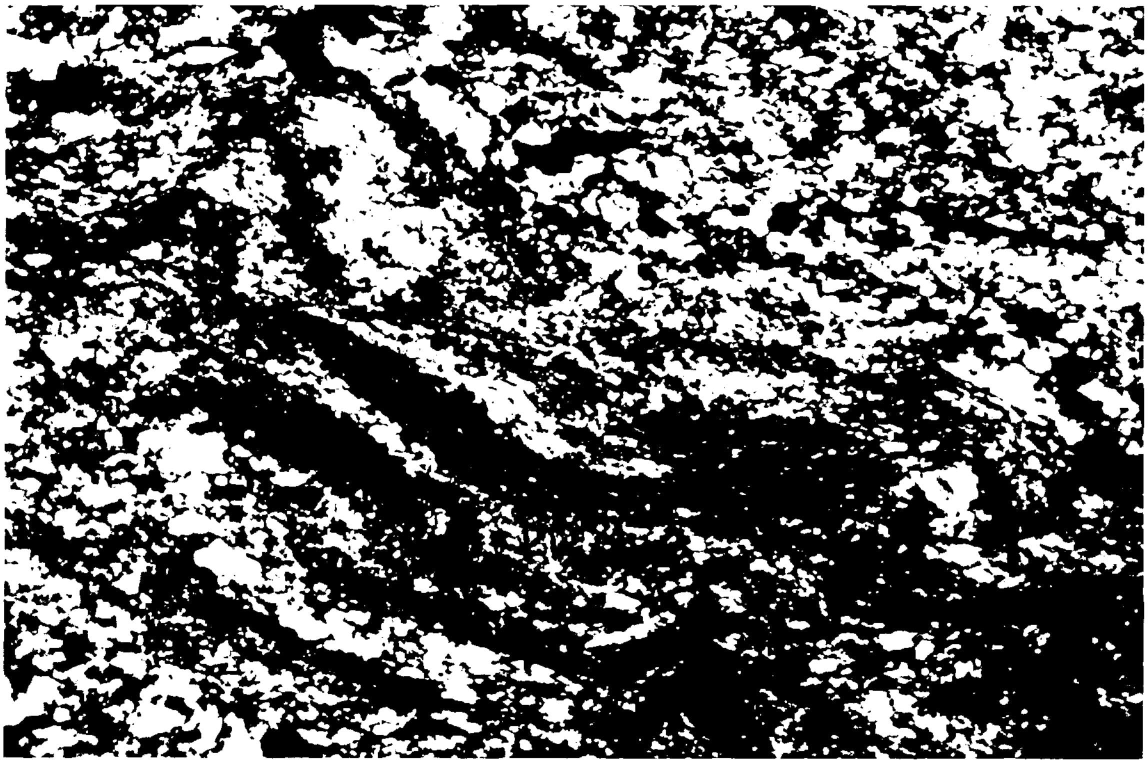
1606. Fine-grained siliceous rock (chert?) with interstitial biotite (brown). Width of field: 4mm. XN.



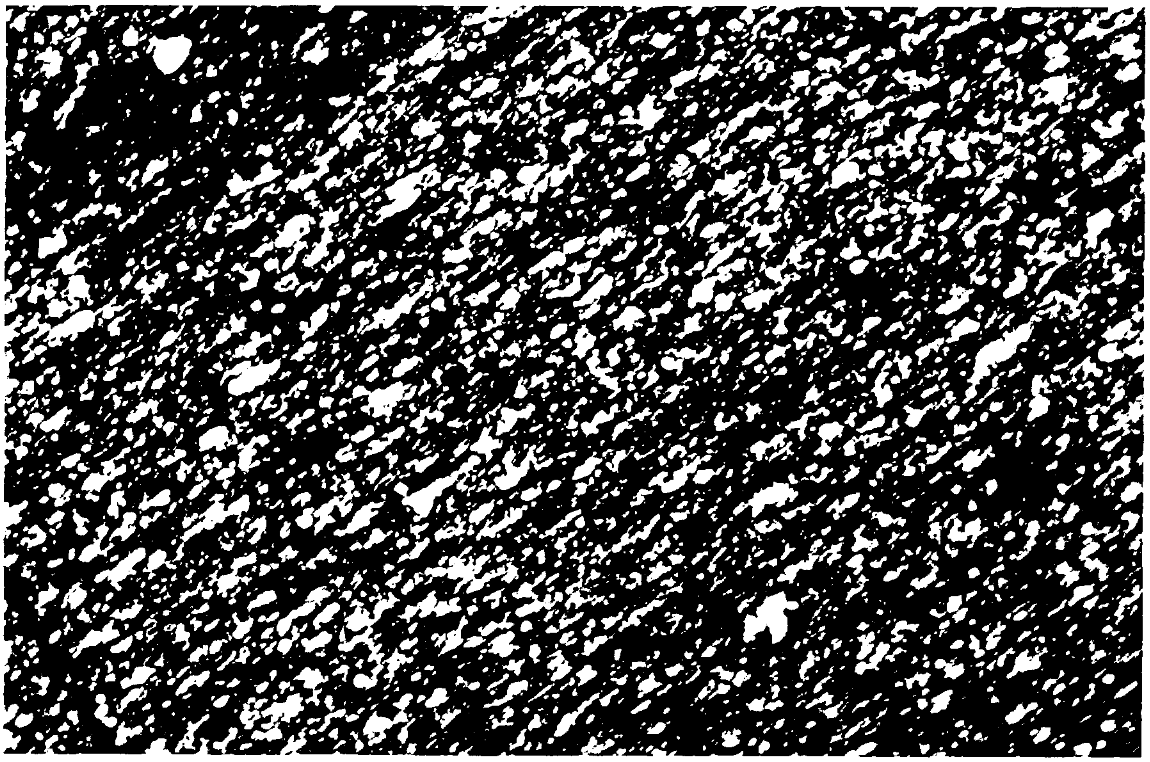
1278. Altered metagabbro with recrystallized amphibole (green and brown) and recrystallized plagioclase + quartz (light). Width of field: 4mm. XN.

1919. Sericite (green) and biotite (brown) bands with fracture-filling quartz vein (light). Quartz grains are perpendicular to rock fabric. Width of field: 4mm. XN.

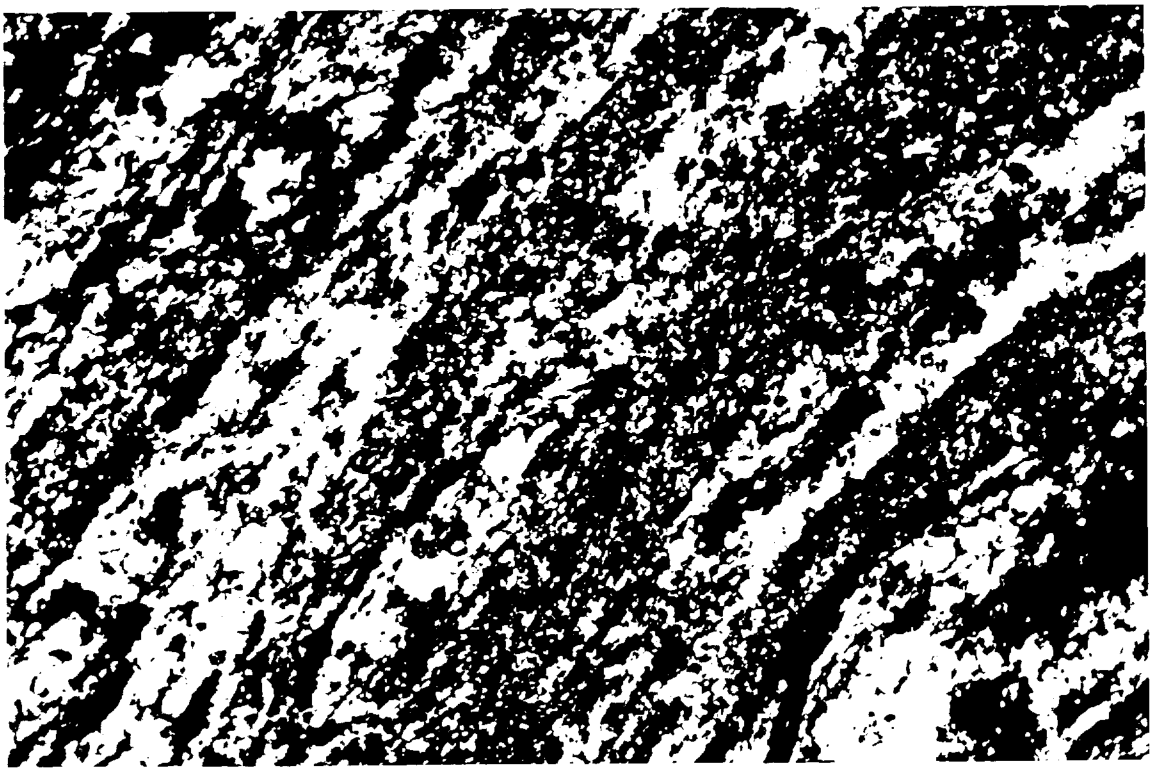
1206. Black, contorted graphite in deformed sediment. Width of field: 4mm. Ppl.



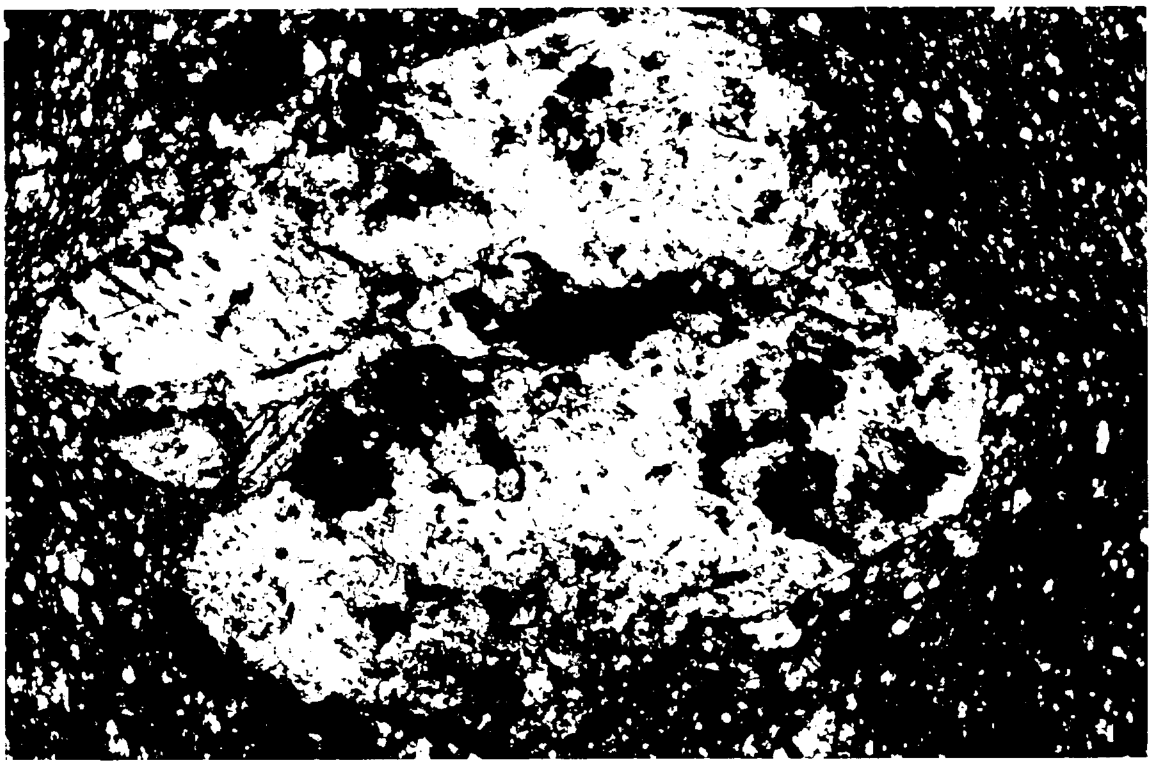
1206. Same as before, but with crossed nicols.



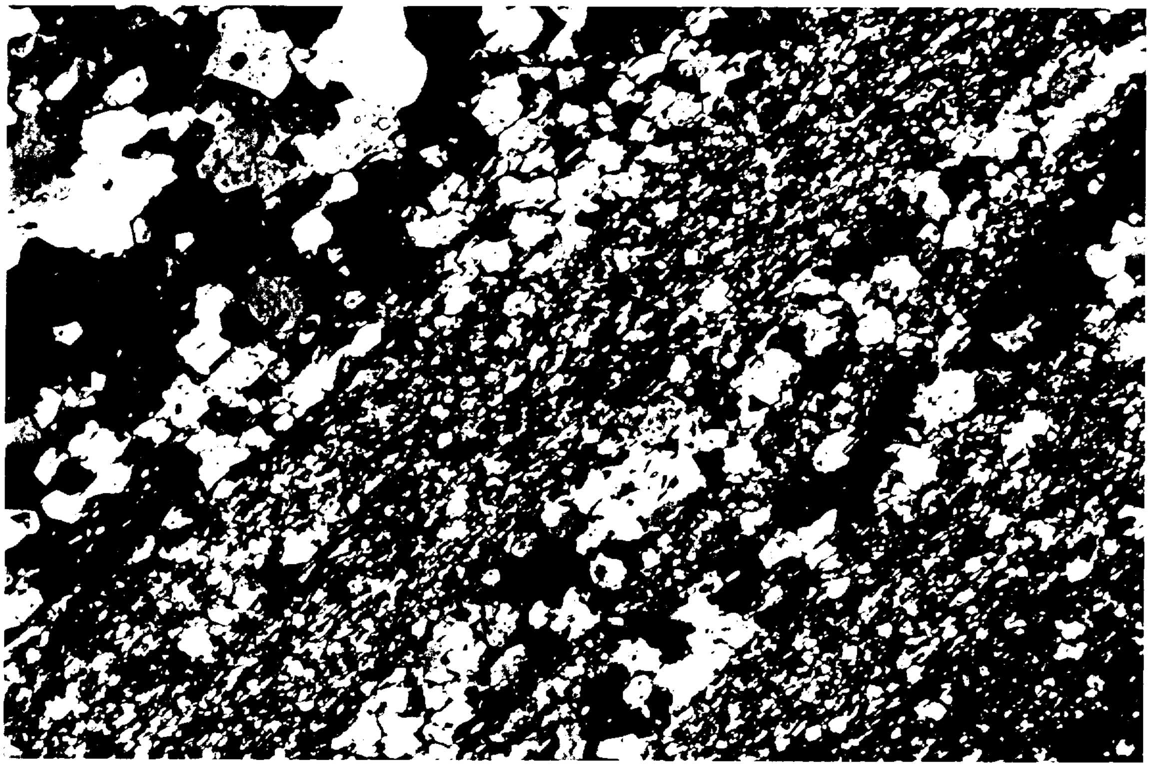
1293. Very fine-grained, weakly sheared biotite-rich (brown) sediment. Width of field: 4mm. XN.

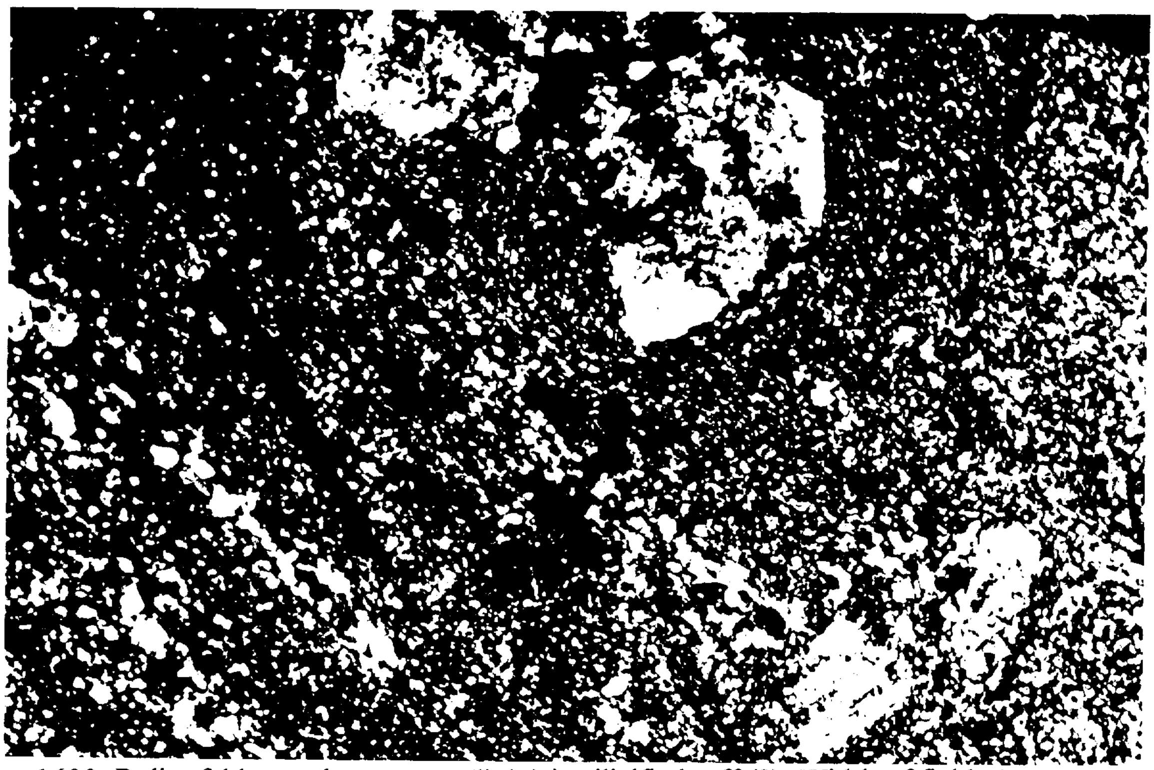


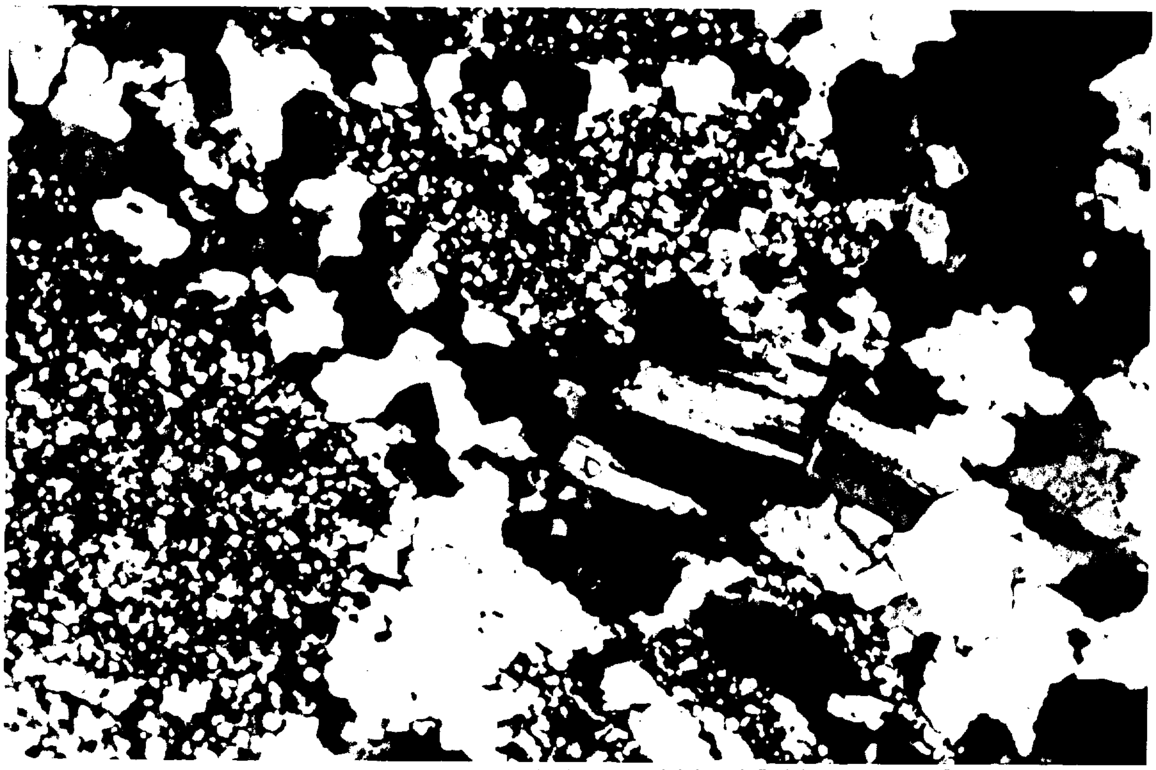
1507. Well laminated, sheared sediment with black graphite. Width of field: 4mm. Ppl.



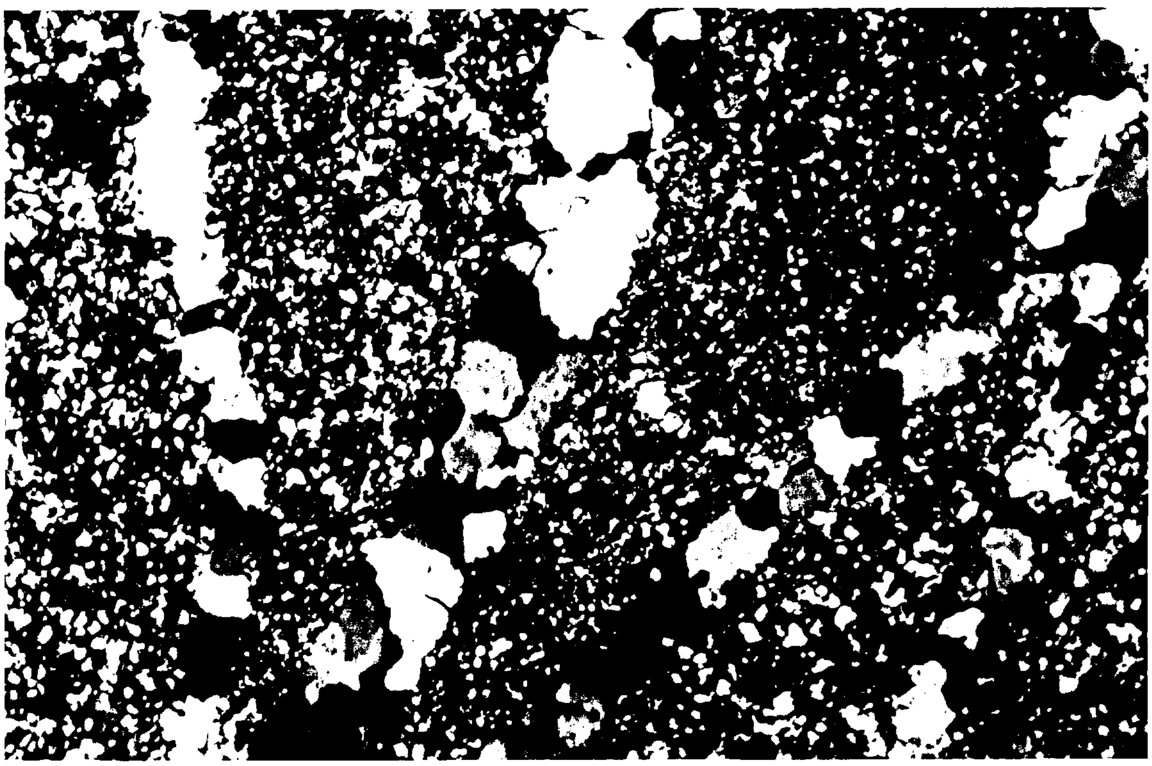
1605A. Large plagioclase phenocryst (light) in tuff (?) wrapped around by biotite + quartz matrix. Width of field: 4mm. XN.


1605A. Quartz veins in tuff (?). Width of field: 4m. XN.


1600. Relict feldspar phenocrysts (light) in silicified tuff (?). Width of field: 4mm. XN.



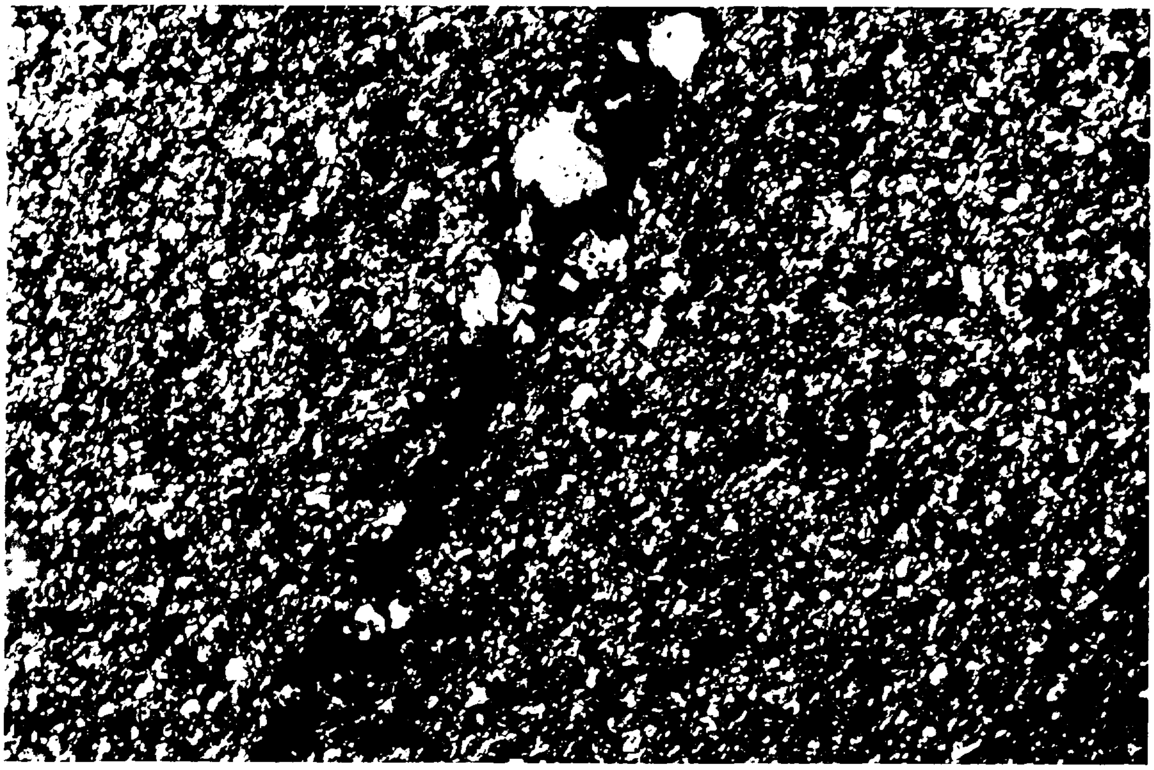
1274. Quartz-albite veins in fine-grained chert. Width of field: 4mm. XN.



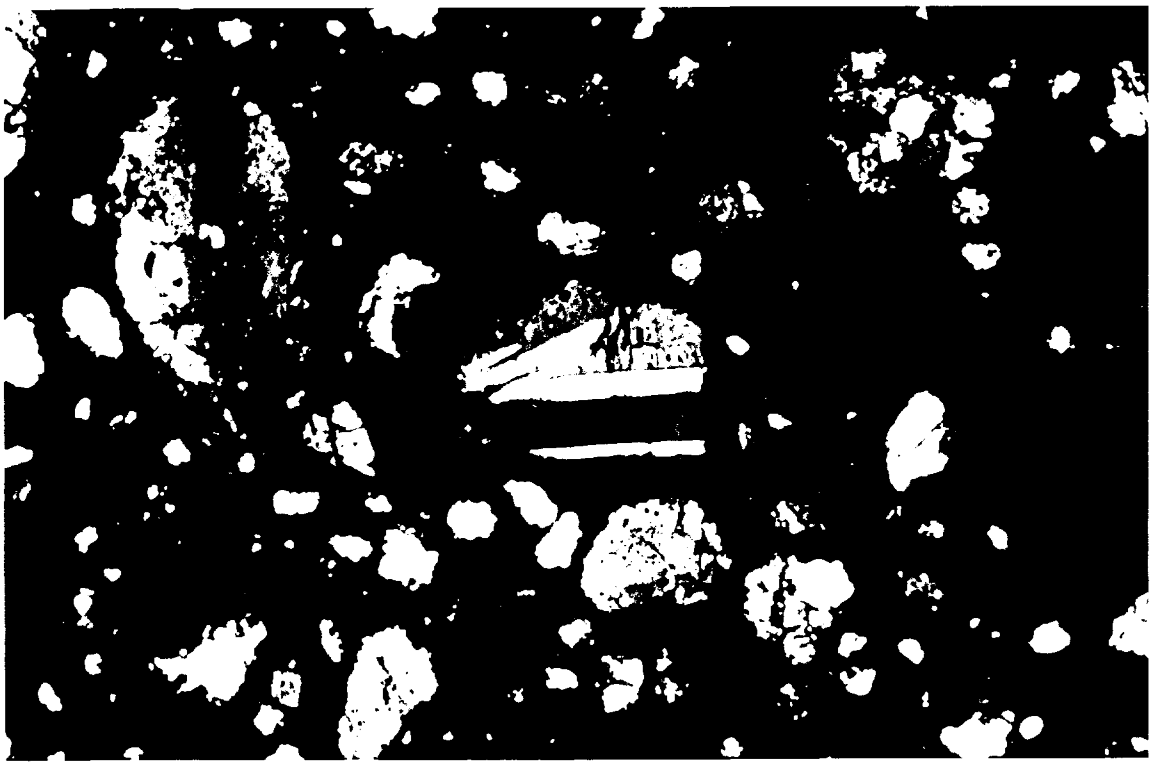
1274. Above chert with several quartz veins. Width of field: 4mm. XN.


1426. Sericite vein (pink) with Fe-staining in sediment. Width of field: 4mm. XN.

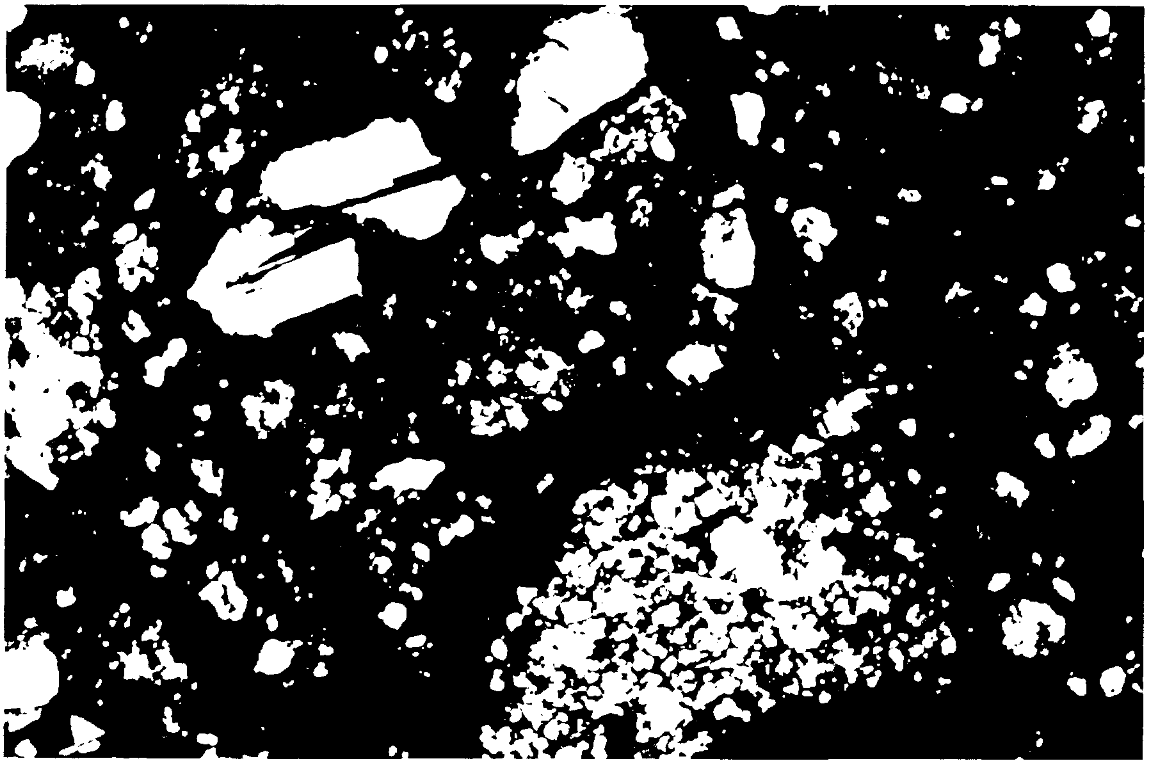

1396. Fine-grained sediment with weakly anastomosing sericite veinlets. Width of field: 4mm. XN.



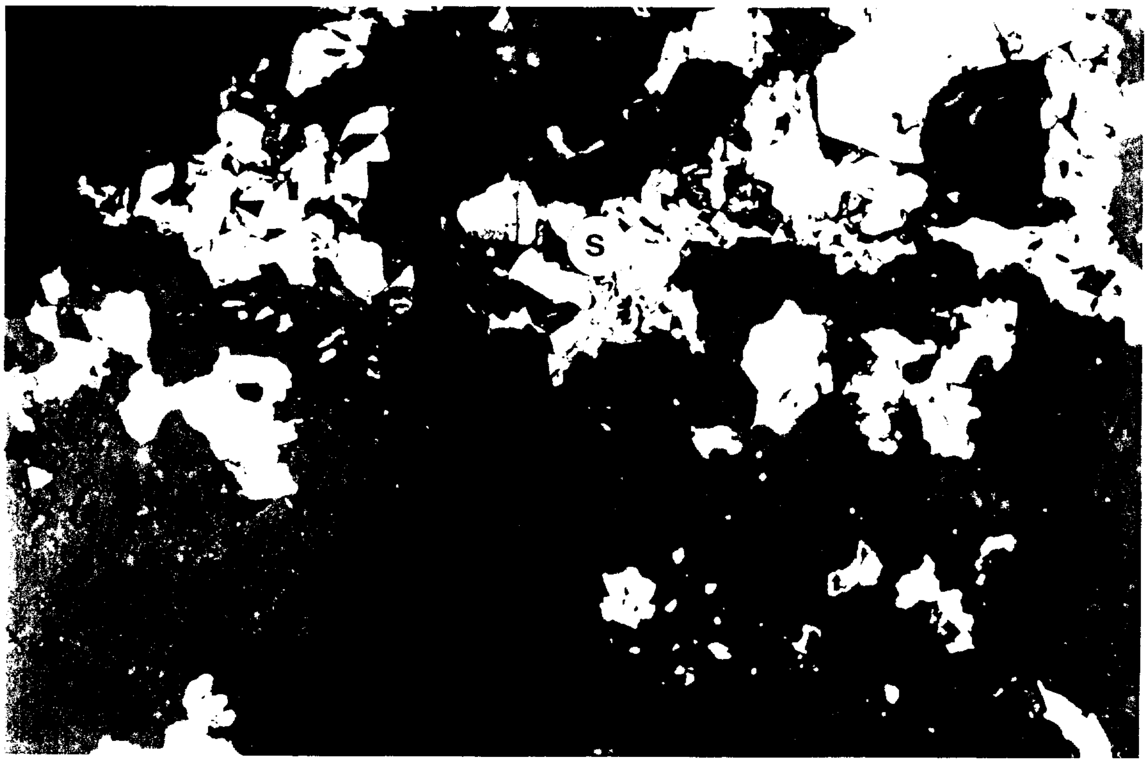
1301. Fine-grained biotite-rich sediment with quartz vein. Width of field: 4mm. XN.



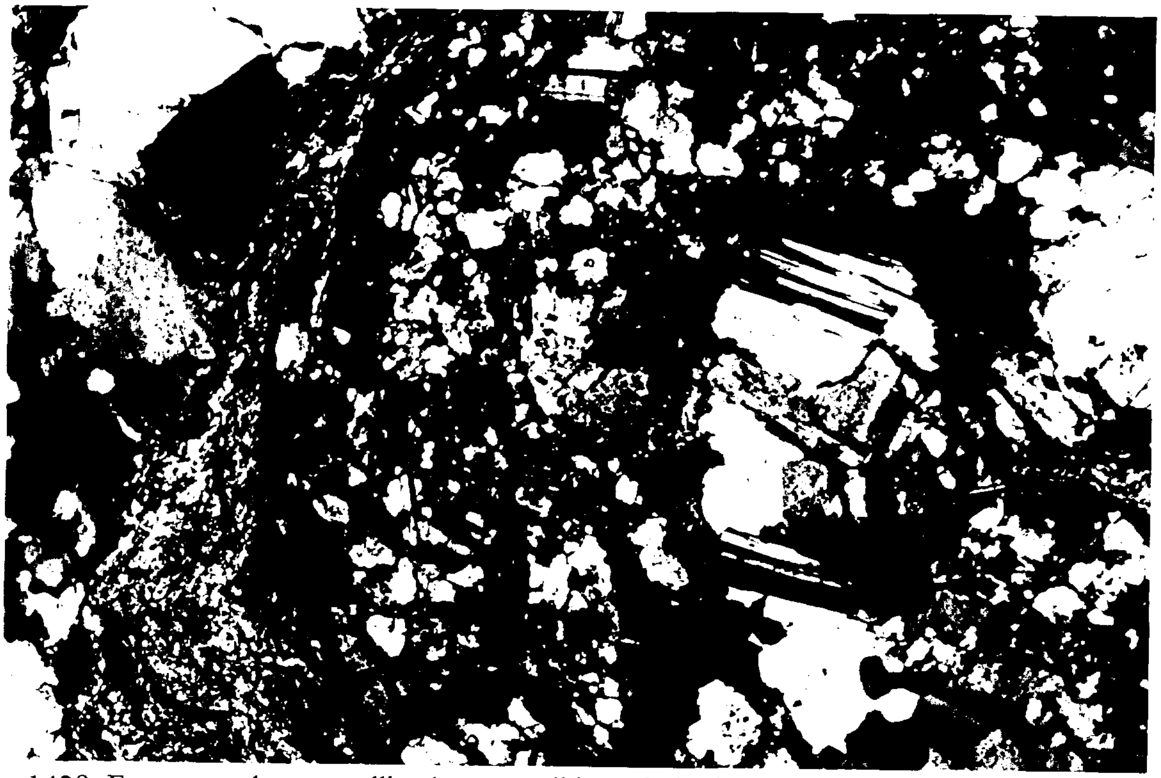
1914. Twinned plagioclase phenocrysts inclusions in black Fe-oxide matrix. Width of field: 4mm. XN.



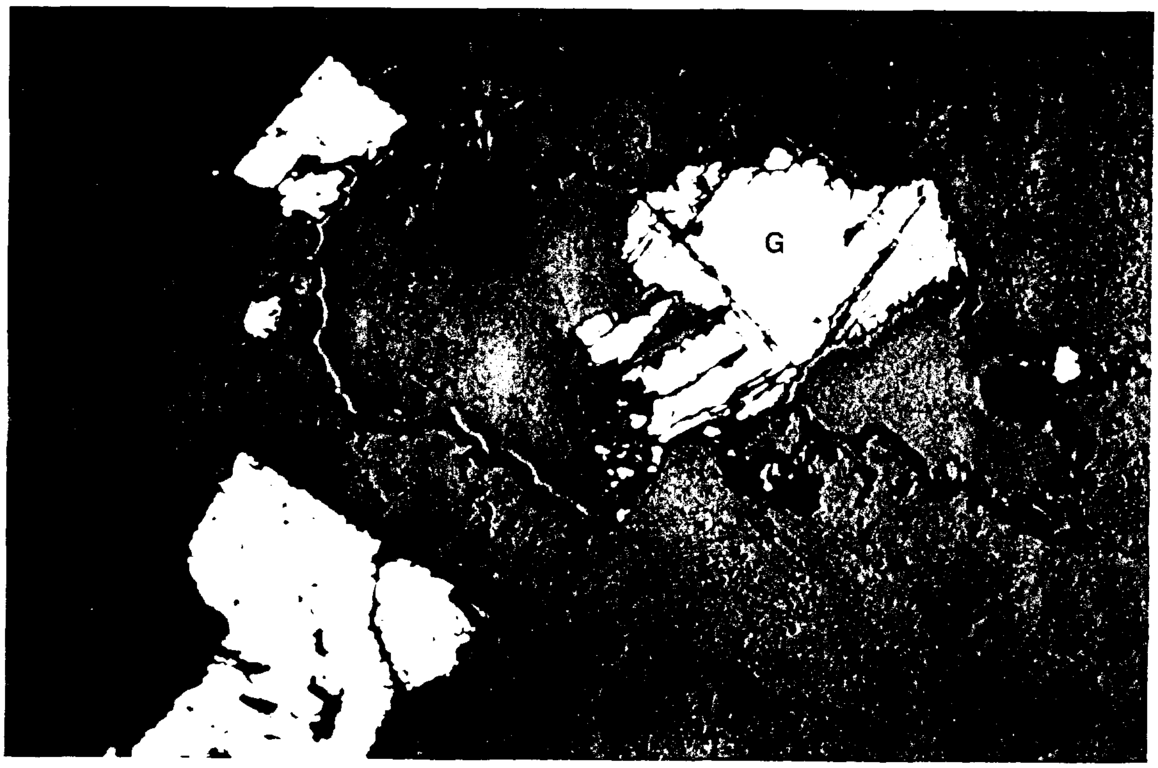
1914. Inclusions of broken plagioclase clasts and fragments of fine-grained quartz-feldspar aggregates in black Fe-oxide matrix. Width of field: 4mm. XN.



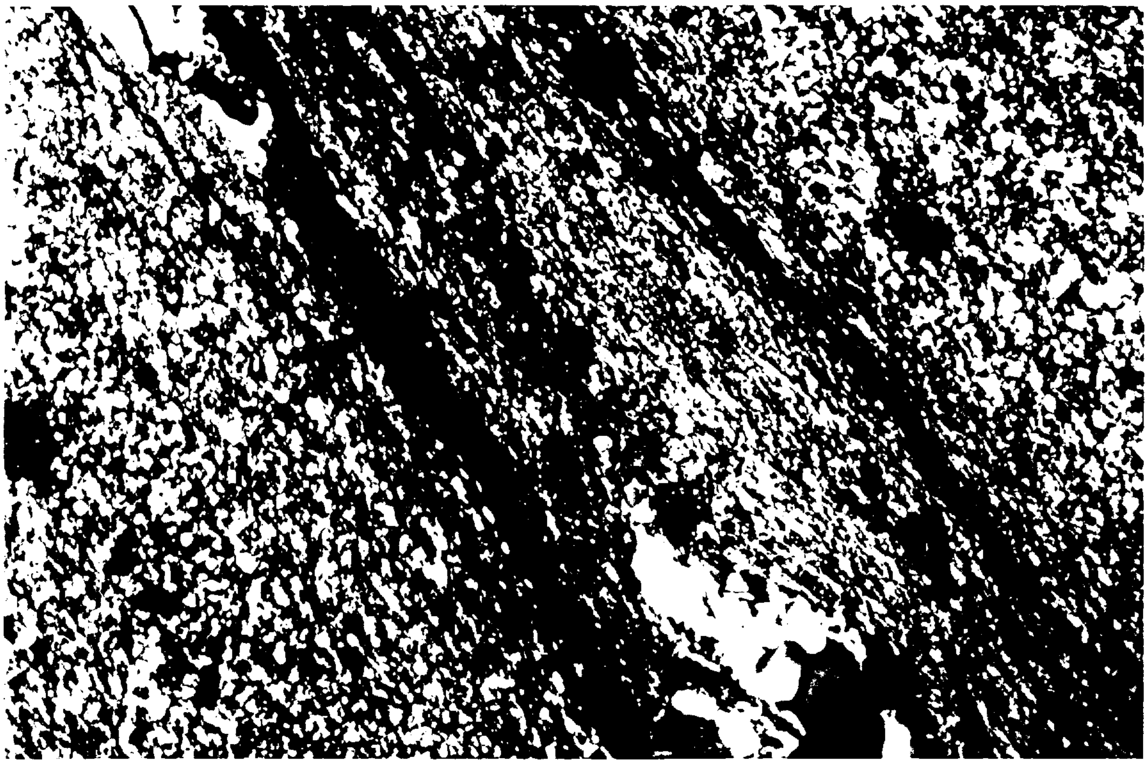
1914. Sphalerite (s) with chalcopyrite disease (minute light inclusions in sphalerite). Width of field: 0.9mm. Refl. light.



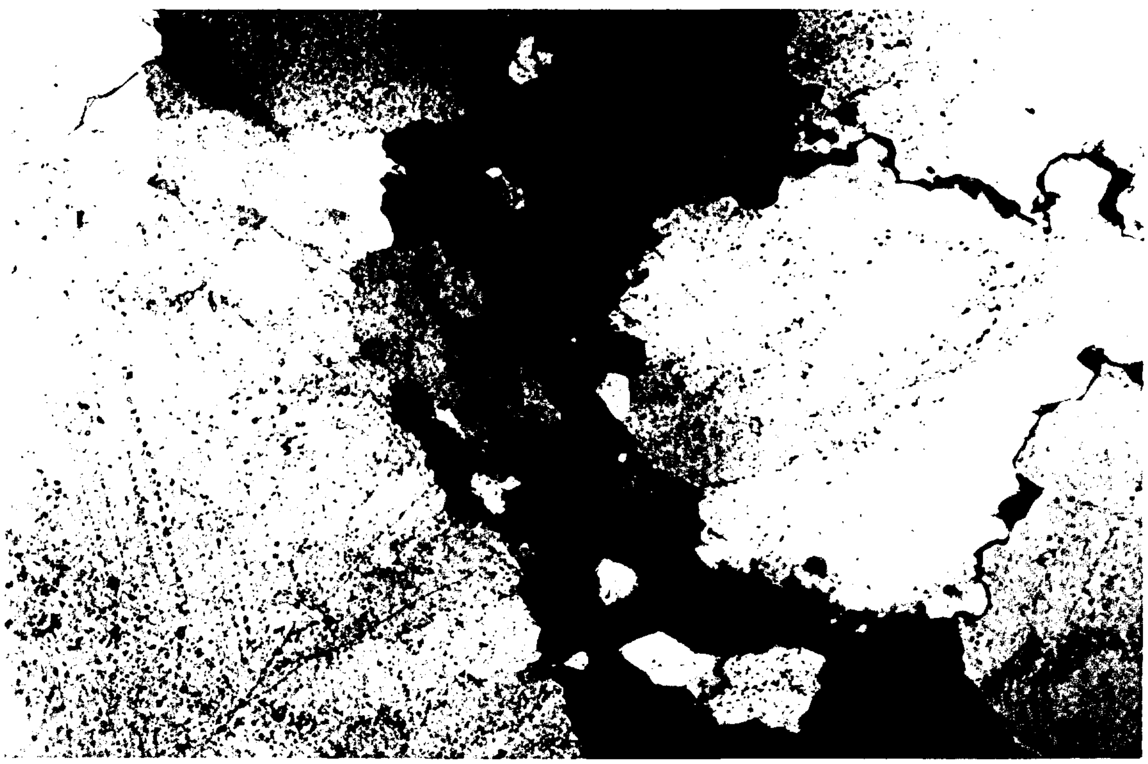
1428. Fragmented-recrystallized quartz-albite vein is rimmed by sericite vein. All included in coarse-grained quartz vein (upper left). Width if field: 4mm. XN.



1428. Galena (g) and pyrite in quartz vein. Width of field: 4mm. Refl. light.

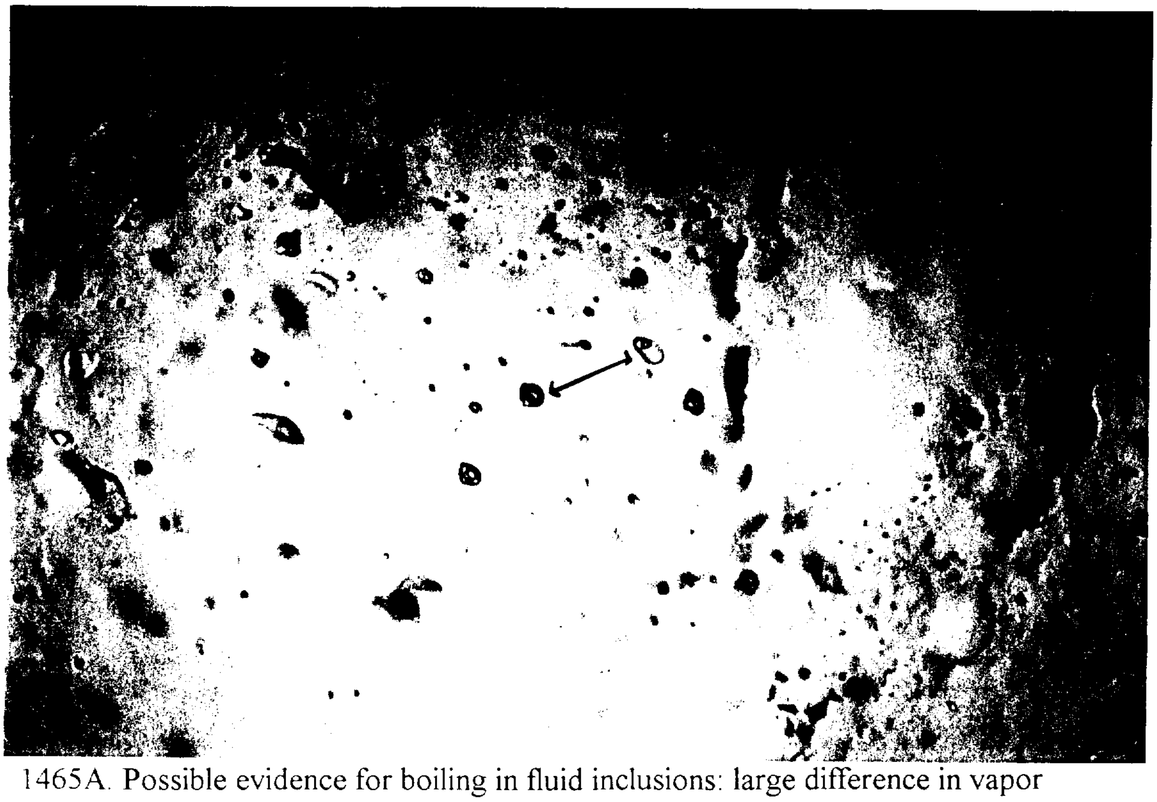


1427. Well laminated sediment with sericite-rich and quartz-rich bands. Width of field: 4mm. XN.

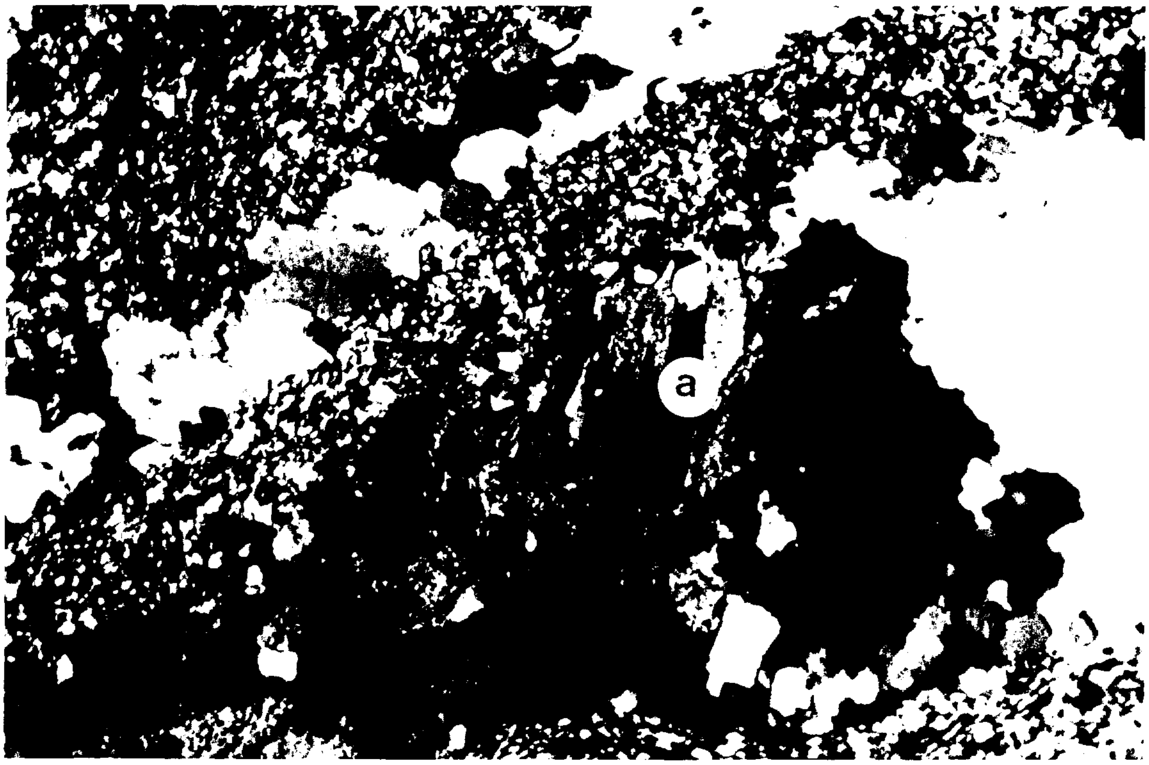


1465A. Coarse-grained quartz (in quartz vein) with mortar texture (fine-grained, granulated quartz). Note ragged grain boundaries. Width of field: 4mm. XN.

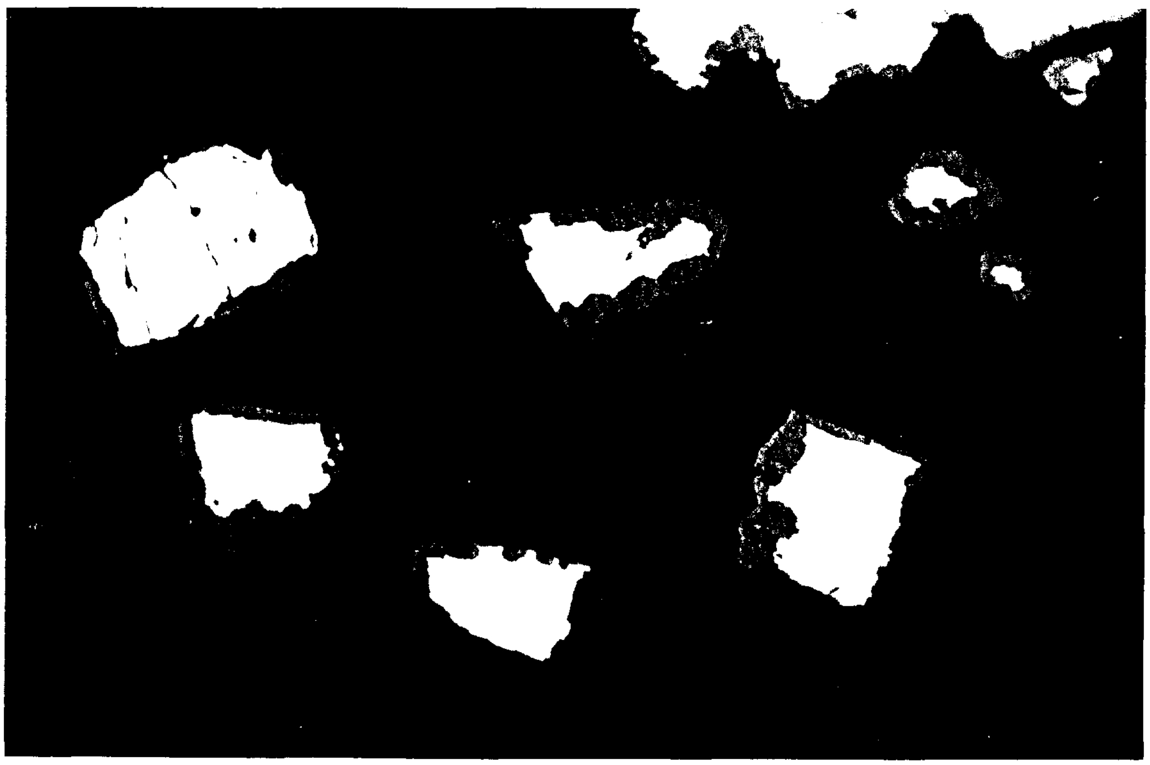
1465A. Primary fluid inclusions in quartz. Width of field: 0.45mm. Ppl.



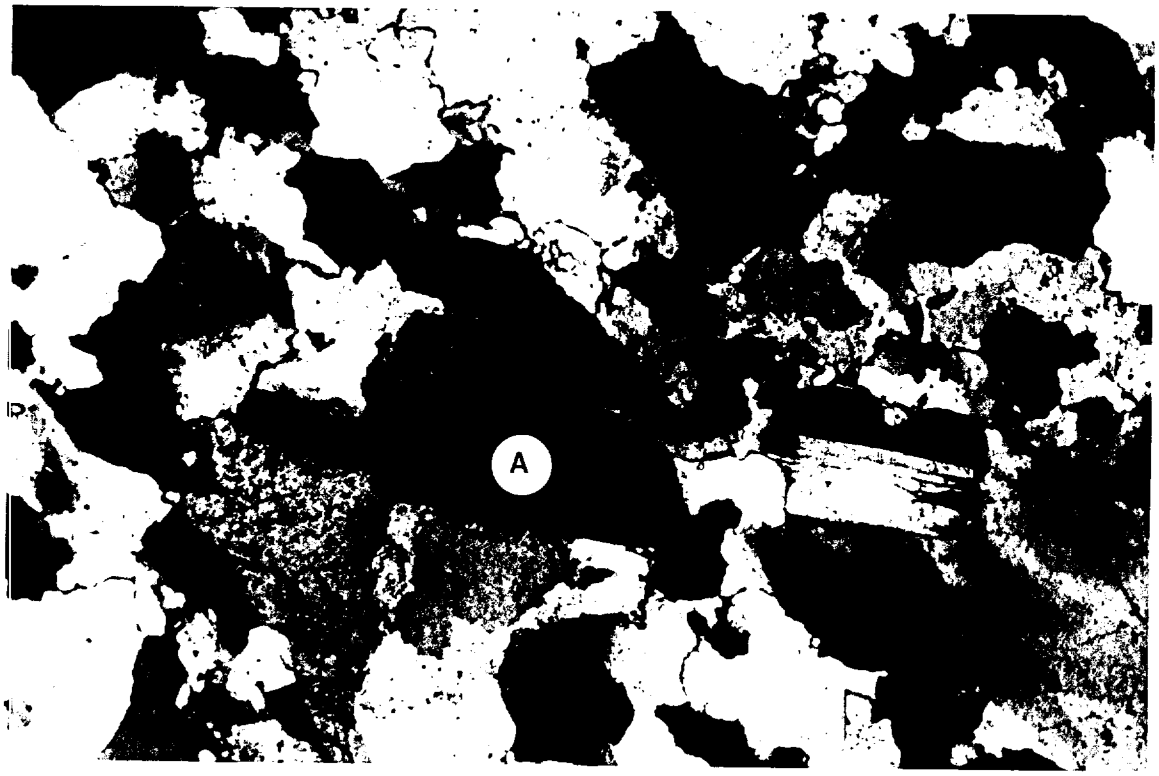
1465A. Possible evidence for boiling in fluid inclusions: large difference in vapor bubble sizes between 2 adjacent inclusions (arrow). Width of field: 0.45mm. Ppl.



1465B. Albite in quartz-carbonate vein (a) within sericite-carbonate-rich sediment.

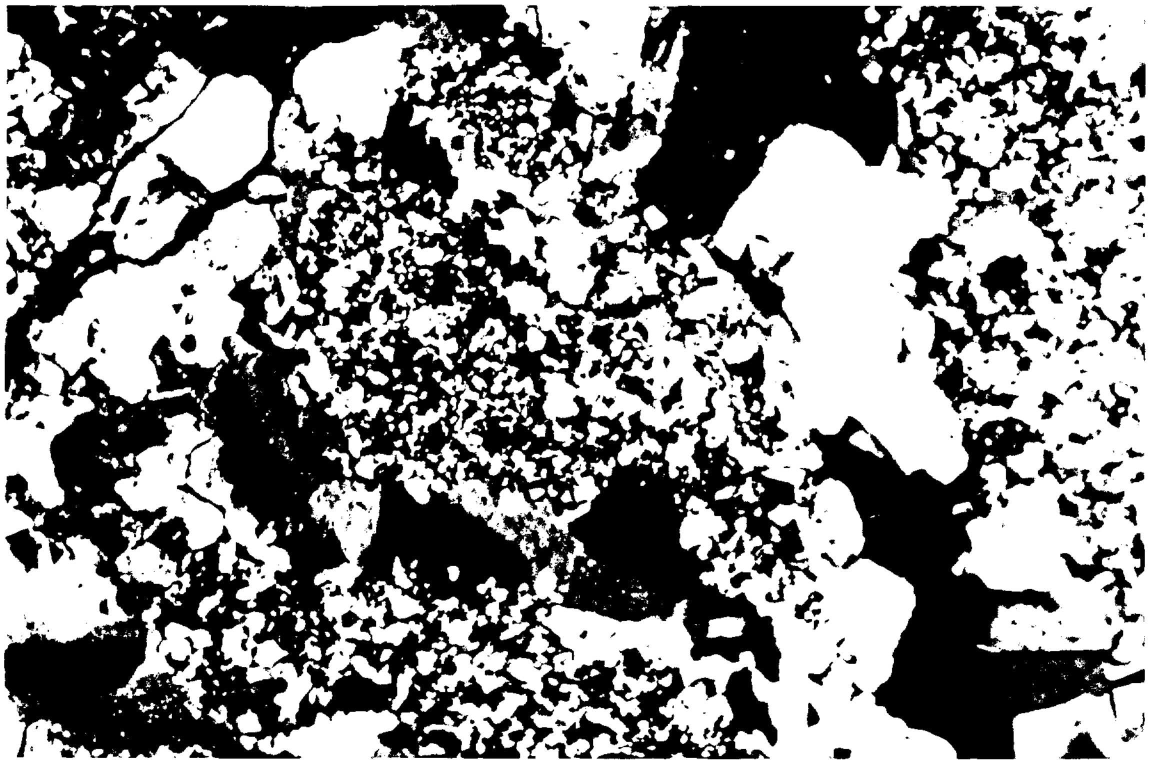


1465B. Pyrite grains are rimmed by hematite. Width of field: 4mm. Refl. light.

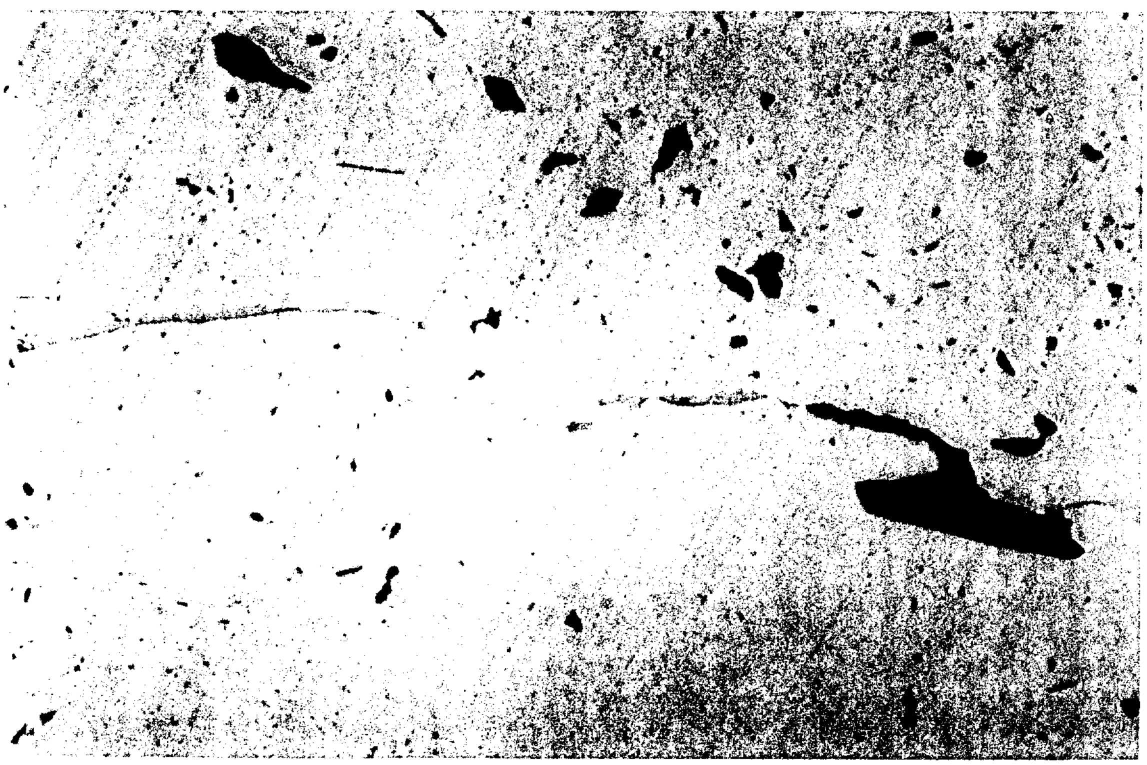


1328. Albite (a) in quartz vein. Width of field: 4mm. XN.

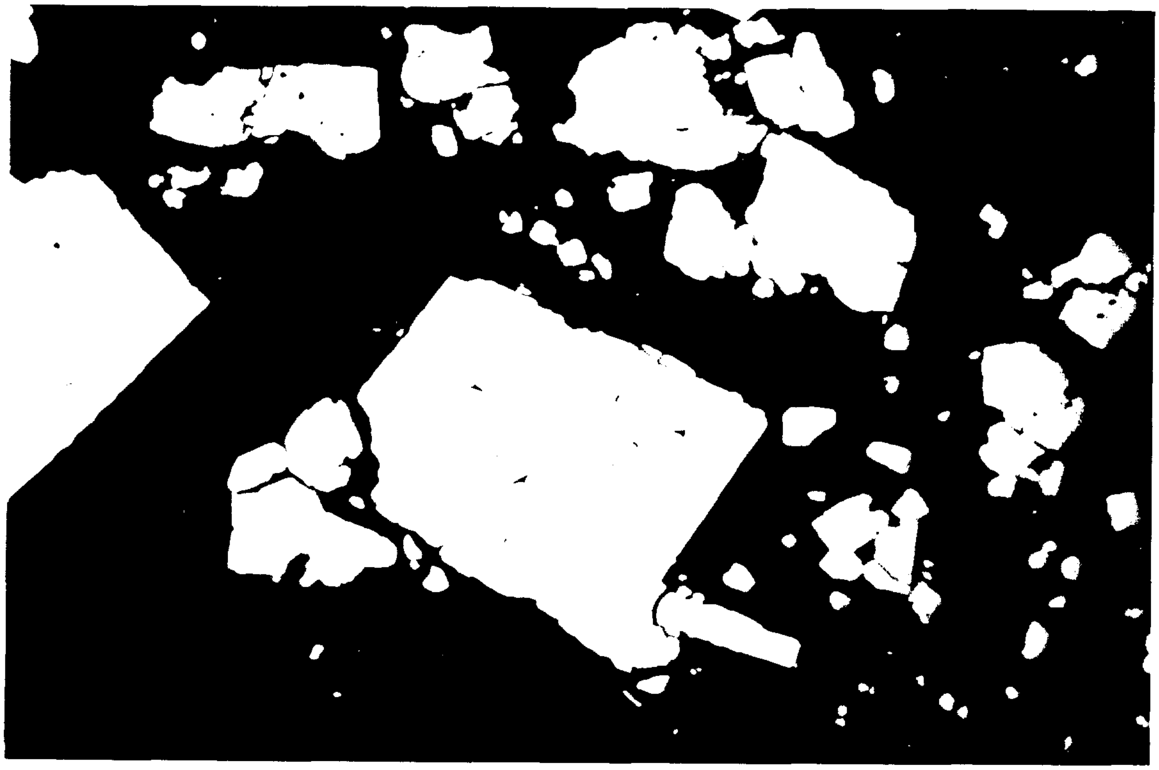
1328. Galena (g) with euhedral pyrite. Width of field: 4mm. Refl. light.



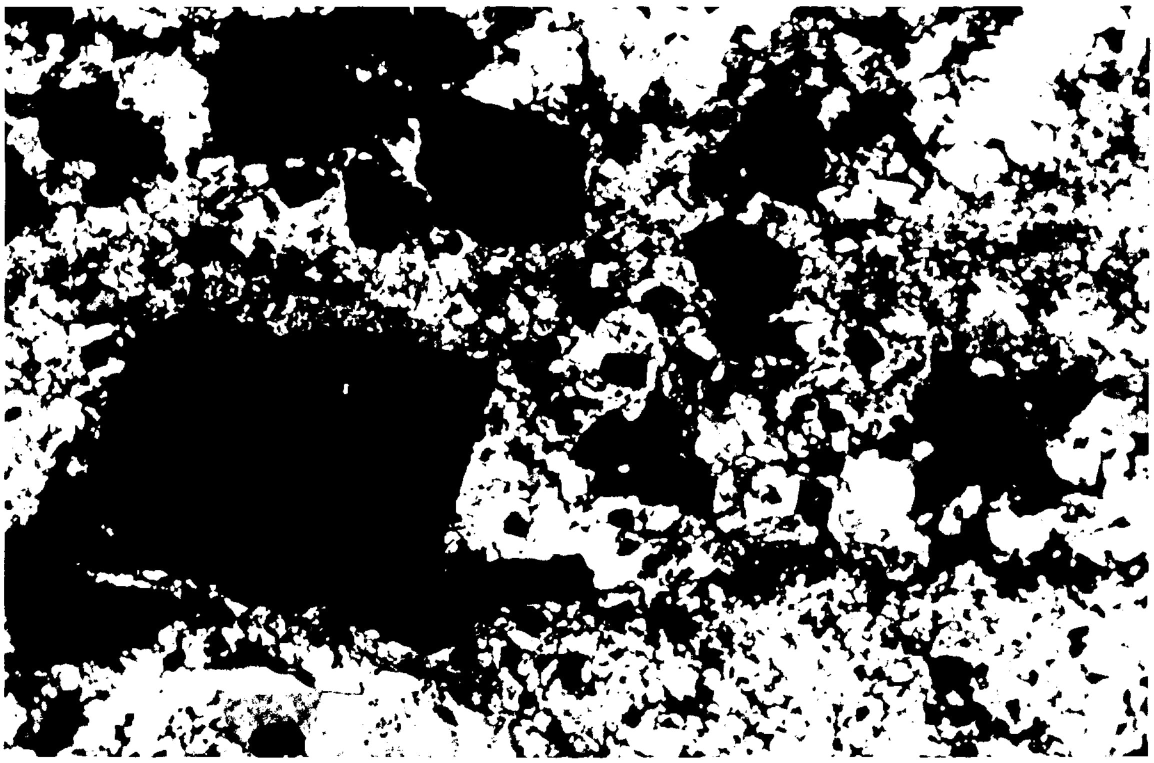
1409. Coarse-grained albite-quartz veins in sediment. Width of field: 4mm. XN.



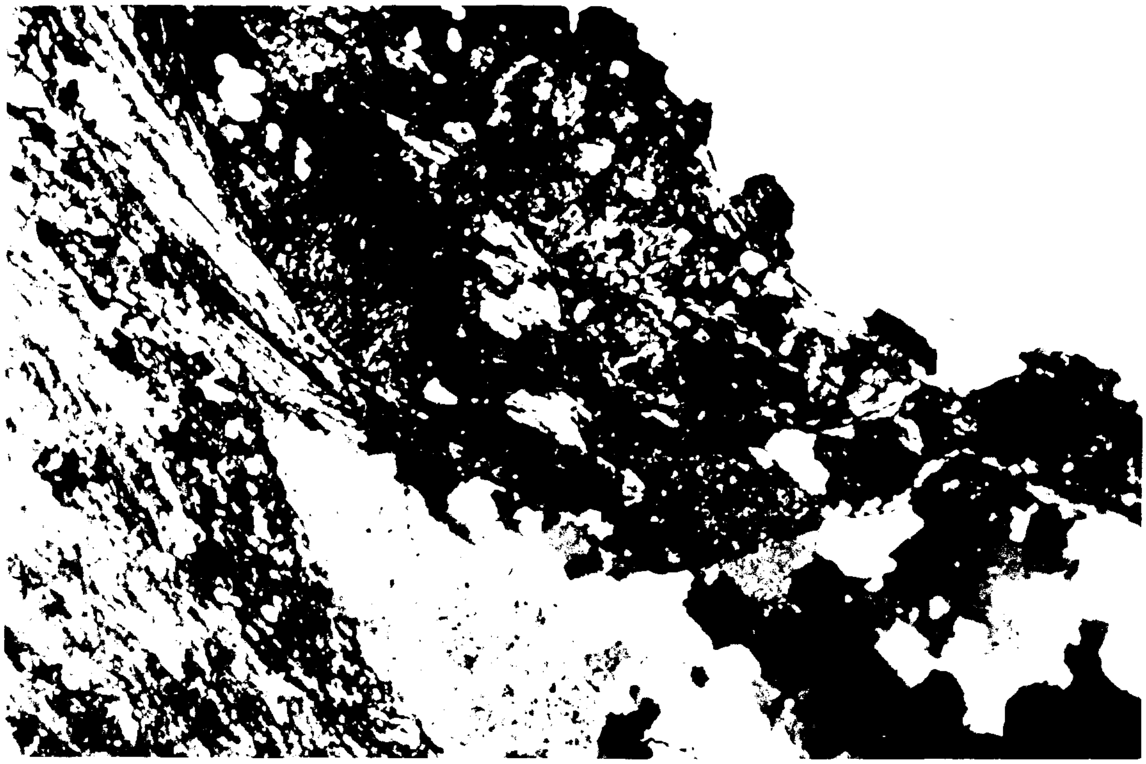
1409. Minute gold vein (lt. yellow) in pyrite fracture. Rest of fracture is filled by galena. Width of field: 0.45mm. Rfl. light.



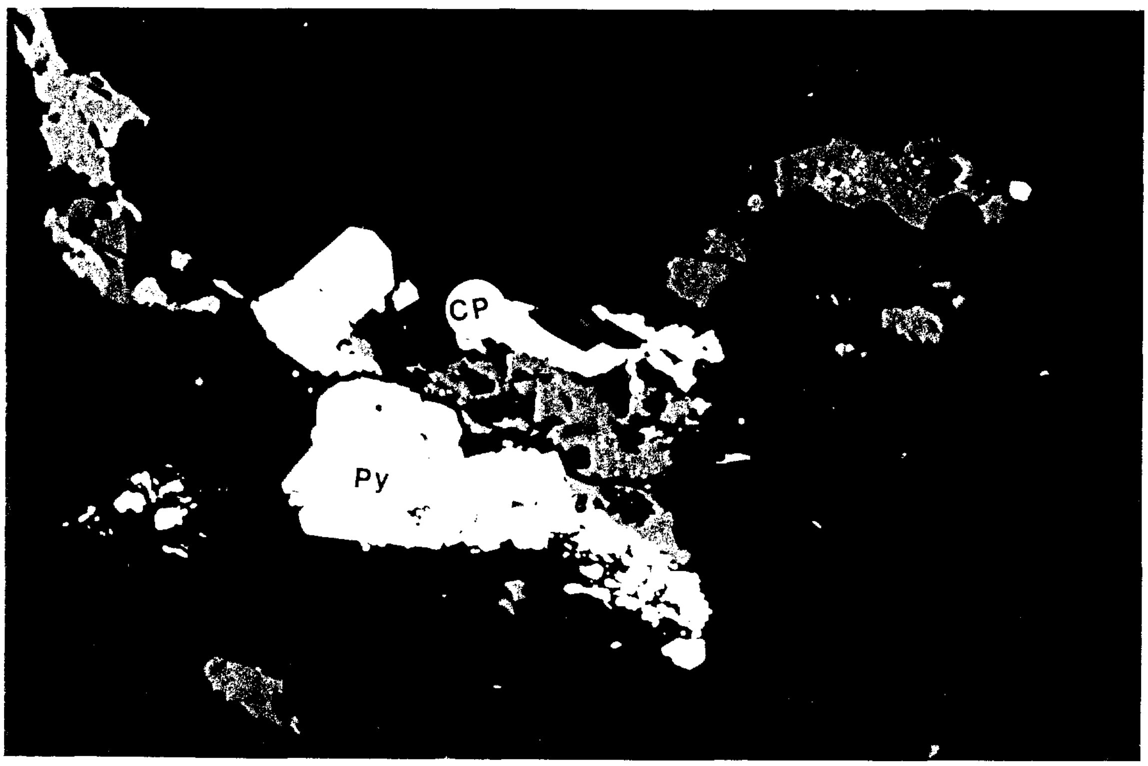
1409. Pyrite grain (largest) that contains the gold. Width of field: 4mm. Refl. light.



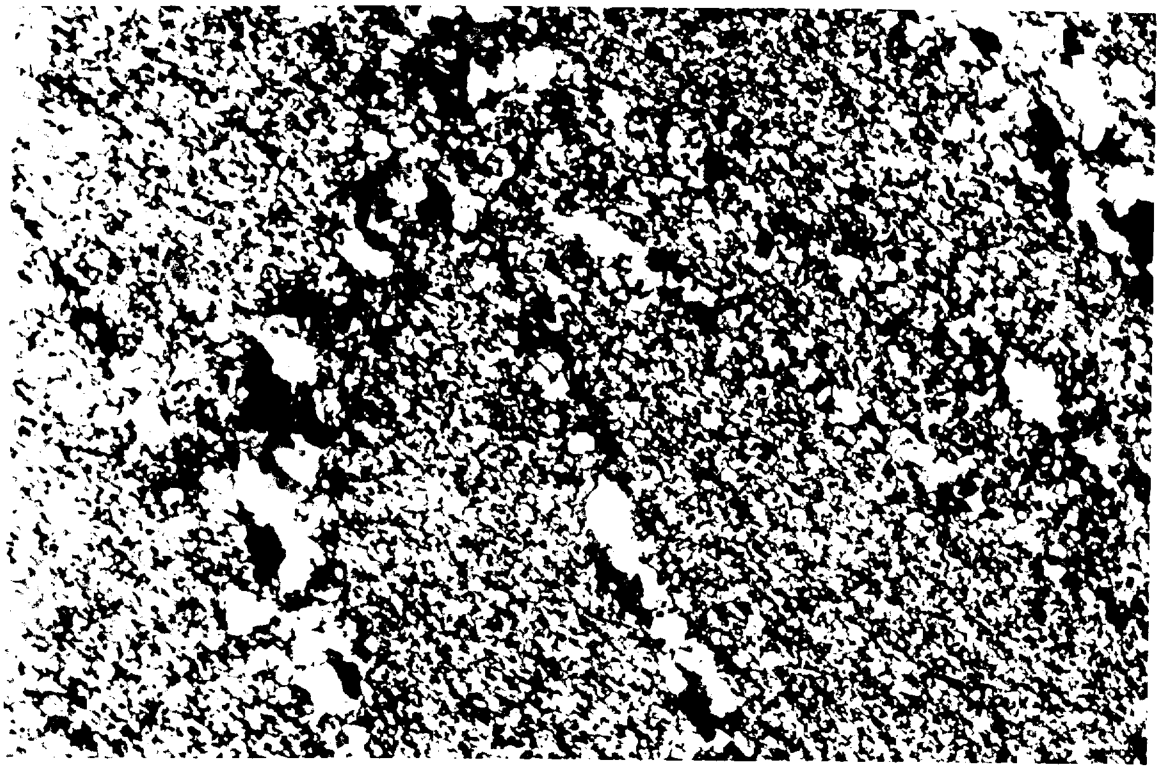
1409. Same as above, with transmitted light & XN. Pyrite occur in an albite-quartz vein and they are rimmed by carbonate.



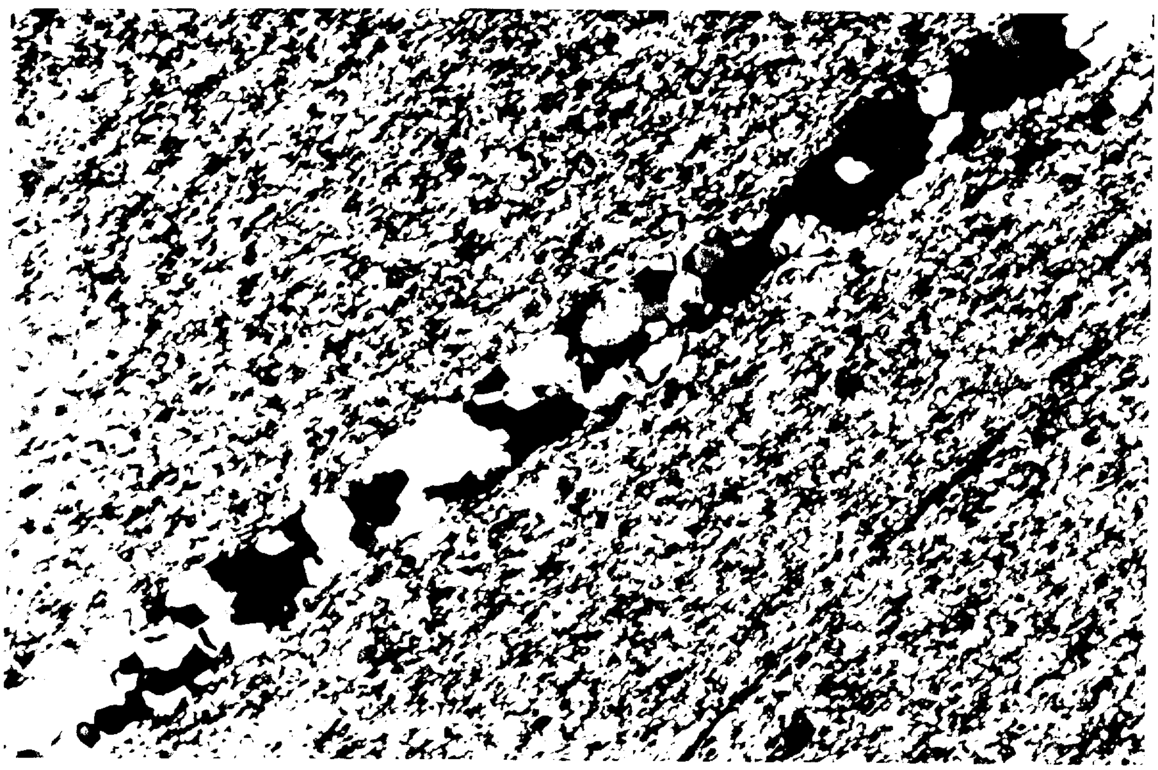
1556 Sericite-carbonate-rich wallrock in quartz vein. Width of field: 4mm. XN.



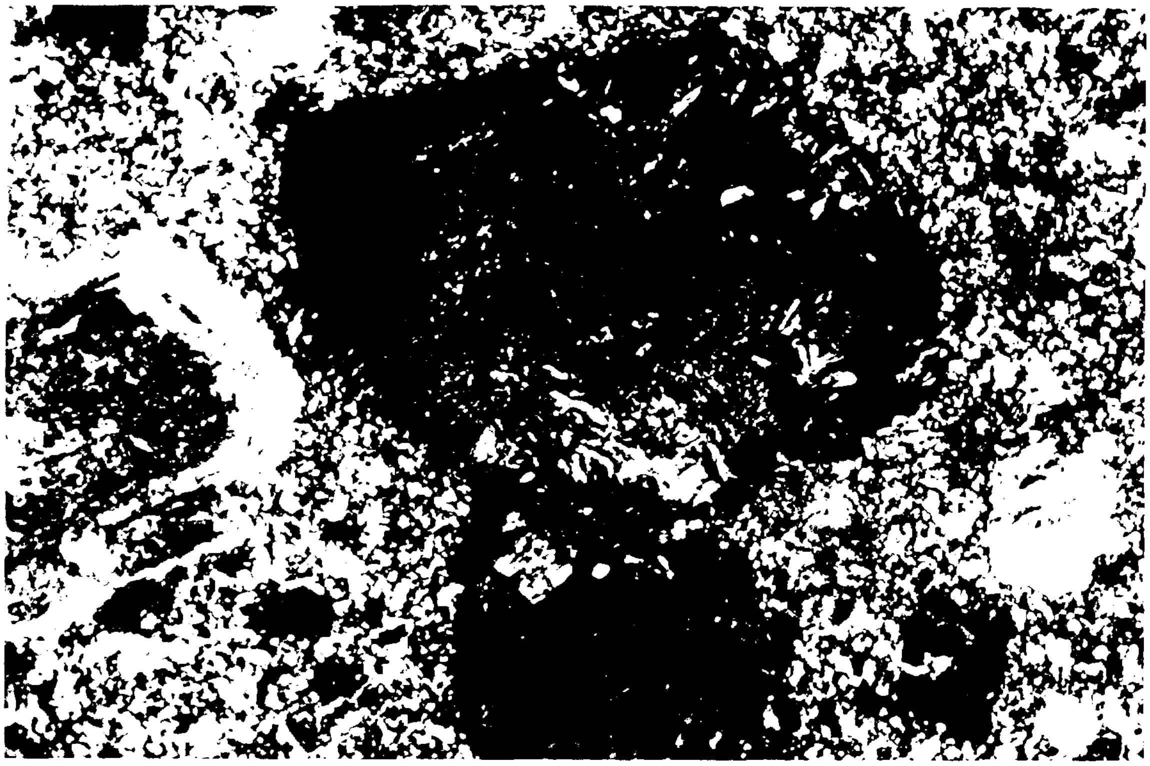
1556. Pyrite (Py), Chalcopyrite (cp) and sphalerite (med. gray) in quartz vein. Width of field: 0.9mm. Refl. light.



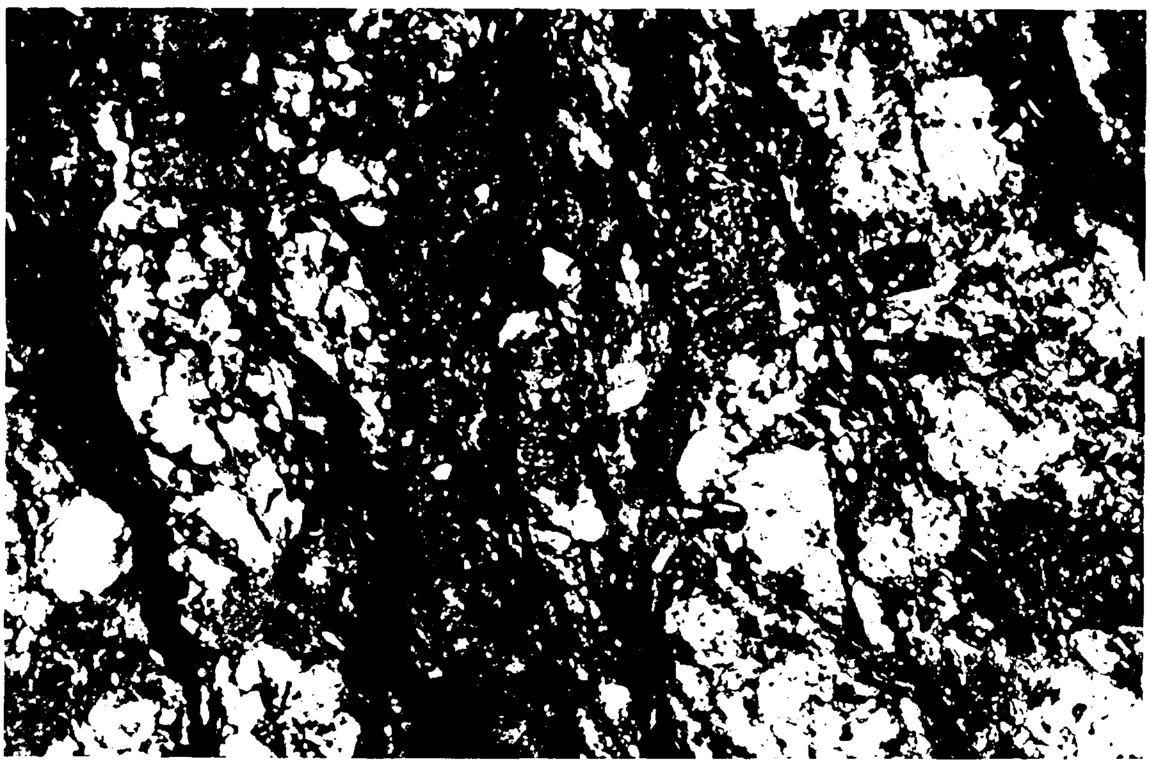
1469 Silicified sericite-rich sediment. Width of field: 4mm. Xn.



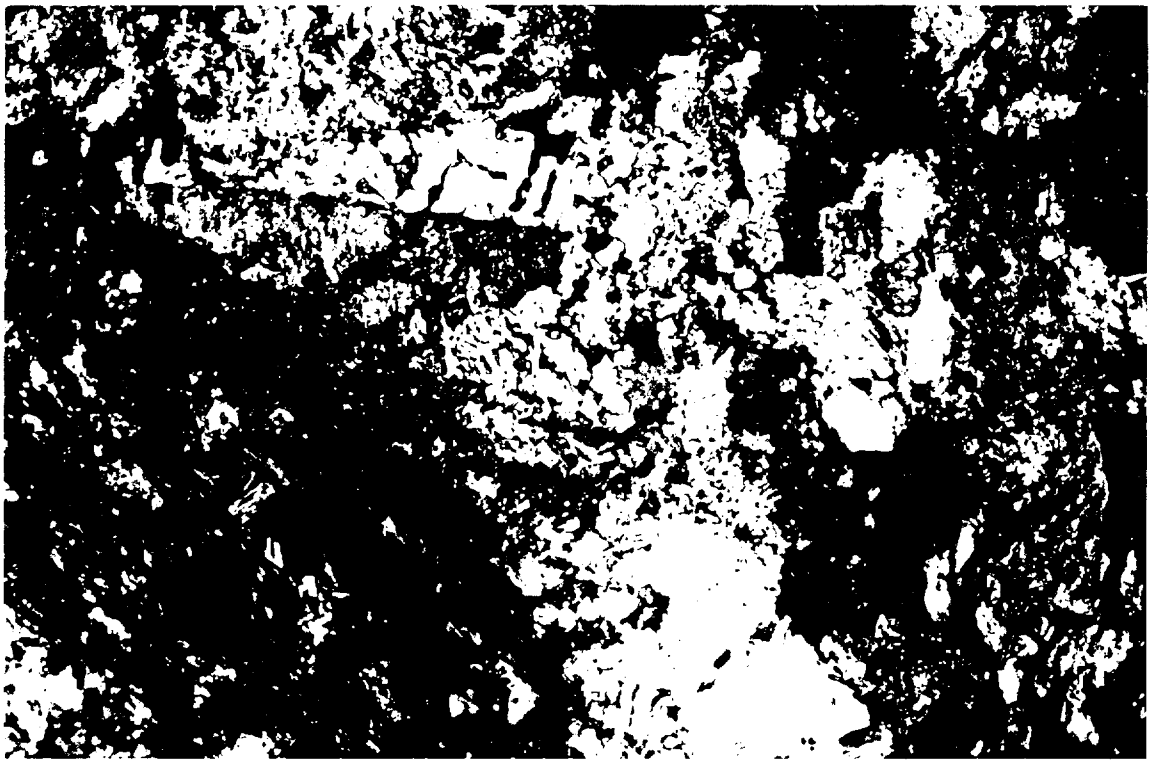
1425. Weakly sheared sediment with quartz vein. Width of field: 4mm. XN.



1356. Zoned and altered plagioclase in feldspar porphyry. Width of field: 4mm. XN.



1358. Fragmented, recrystallized diorite is cross-cut by dark carbonate (+biotite) veins. Width of field: 4mm. XN.



1381. Altered gabbro. Dark areas are, chlorite + epidote and light areas are altered plagioclase with interstitial graphic quartz. Width of field: 4mm. XN.

APPENDIX 7.

Drill logs by CGI on core recovered by Micham Exploration in 1984 and 1987

Empress Project

Hole Number: 4410-87-1
Project: Empress East
Northing:
Easting:
Azimuth: 000
Inclination: -50
Depth: 400.0 ft
Started: Jan.24, 1987
Completed: Jan. 26, 1987

0.00 9.00 (OVERBURDEN)

9.00 216.00 (FELDSPAR-PHYRIC MAFIC VOLCANIC)

Unit consists of greyish green mafic volcanic, weak to moderately foliated into diffuse bands and occasional stringer like laminations. Rock is fine grained, amphibolitized, with fine chloritized to biotitic amphiboles locally discernible. Fine white anhedral feldspars, generally <1mm, up to 2%, are locally observed, along with very fine disseminated carbonate specks and leucoxene. Overall, rock is moderately chloritized, locally dark green or displaying chloritic wisps and stringers. A subtle brownish tinge is present were the core is more biotitic. It is moderately carbonatized (calcite) accompanied by weak local bleaching. Core is non magnetic. Foliation is moderate at 56 deg. tca. Quartz-calcite±hematite stringers, 1-2%, mostly hairthin to <3mm, at all angles. Minor fracture infilling by quartz-calcite-chlorite-hematite, subparallel tca, accompanied by weak hematization of the wallrock. Pyrite <0.5%, disseminated.

10.00	12.00	Quartz-calcite veinlet, 5cm wide, accomapanied by moderate carbonate and hematite alteration along the margins. No apparent sulphides.
25.00	30.00	Moderately sheared interval, accompanied by greenish white "felsic" banding or segregation, less than 10cm thick, generally consisting of weak epidote and carbonate. Interval is weakly to moderately biotitic. Pyrite <0.5%, fine disseminated, occasionally flaky on fracture planes.
74.50	75.50	Quartz-calcite veining 40%, with weak hematization of the wallrock. No sulphides noted.
85.00	85.50	Gouged core, at 57-60 deg. tca.
85.00	91.00	Fine disseminated garnets, over 5% locally

149.85 154.00 (Moderate Alteration Zone)
Rock is bleached to light grey, moderately silicified, cherty, possibly carbonatized. Moderately sheared at 70 deg. tca, locally brecciated. Rock appears finely laminated locally, probably due to deformation. Difficult to determine protolith due to deformation, and the fact that core was previously sampled. Quartz-calcite stringers are minor, as fine bands locally, diffuse. Very weakly sericitic. Pyrite very fine and wispy, <1%.

154.00 157.20 Silicification abruptly decreases to nil. Possible contact near 154.00 between the cherty horizon and the mafic volcanic.

157.20 169.15 Fine grained and homogenous interval, weakly foliated at 62 deg. tca. Relatively weakly altered, chloritic. Quartz-calcite±hematite stringers 1-25. Pyrite trace.

169.15 197.70 (Weak Alteration Zone)
Core appears weakly silicified, weakly carbonatized, and shows brownish tinge suggesting the presence of very fine biotite. The schistosity or foliation is moderate at 53 to 58 deg. tca, defining subtle laminations (see rep.). Quartz-calcite stringers, with trace hematite, hairthin to <2mm, at all angles but mostly parallel to schistosity, 2-3%. Pyrite 0.5% as fine seams mostly parallel to schistosity, but sometimes cross-cutting it. Some stretched carbonate ovoids are locally present, 3 to 10mm long, may represent carbonate infilled amygdules.

197.70 216.00 Similar to interval previously described at 157.20-169.15. Fine grained, dark grey. Weakly foliated at 45 to 50 deg. tca. Quartz-carbonate stringers 1%. Pyrite trace.

216.00 346.00 (MINERALIZED/ALTERED STRUCTURAL ZONE)

Interval consists of moderate to strongly sheared mafic volcanic rocks, cross-cut by several gabbroic dykelets, accompanied by quartz veins and quartz-calcite stringers, weak to strong alteration (carbonate, silica, biotite, chlorite, sericite, hematite), and sulphidization.

The mafic volcanics are fine grained, light brownish grey, weakly bleached, due to the presence of finely disseminated biotite, and pervasive weak to strong carbonatization (calcite) and silicification. Sericitization varies from weak to moderate near the center of the zone, and chlorite is more locally observed, weak to moderate. The core is weakly to strongly magnetic locally, relating to fine disseminated magnetite, which locally occurs as narrow semi-massive bands. The schistosity increases from weak to strong towards the center of the zone, and angles are predominantly around 60 deg. tca, locally changing up to 30 deg. tca and accompanied by weak folding. Quartz-calcite±hematite-specularite-chlorite stringers are pervasive, 5-8%(?), at all angles, higly disrupted, folded, sheared. The sulphides consists of pyrite and chalcopyrite (ratio of 90:10), 1% to 3% locally, which occur as fine disseminations and as very fine seams which infill microfractures, and often cross-cut both foliation and quartz veins. They also occur within the dykelets, suggesting that most of the mineralization is a late event. In some places however, the sulphides appear along the margins to the veinlets, indicating contemperaneous emplacement.

216.00 221.00 Fine grained mafic volcanic, weakly altered. Pyrite <1%, in association with a quartz-calcite stringer.

221.00 222.50 (Gabbroic Dyke)
Light greyish green, bleached by pervasive calcite alteration. Medium grained, with chloritized amphiboles scattered within a carbonatized fine groundmass. Non-magnetic. Upper contact sharp at 60 deg. tca. Non-foliated, but sheared at 45 deg. tca near lower contact, accompanied by quartz-calcite-hematite stringers. Pyrite trace, disseminated.

222.50 246.00 Weak to moderately altered, carbonatized (calcite), and biotitic as expressed by subtle brownish tinge. Hard core, possibly weakly silicified. Non magnetic, except nearing end of interval, between 245 and 246. Garnitiferous between 232 and 233. Foliation is still generally weakly developped, at 69 deg. tca. Quartz-calcite±hematite stringers 1-2%, locally vuggy. Most notably, interval starts showing occasional fine seams of pyrite, <1%, and trace of chalcopyrite, along the foliation planes mostly, but also along microfractures cross-cutting foliation.

246.00 261.00 (Highly Altered Mafic to Intermediate Dyke-?)
Deformation and alteration increases abruptly, to strong. Upper contact sharp at approx. 70 deg. tca, lower contact not well defined. Rock is greenish grey, and appears more granular, intrusive, gabbroic, although individual minerals can not be discerned. Rock is strongly and pervasively carbonatized (calcite), weakly to moderately sericitic and chloritic, with possible very weak hematization the unit a faint purplish hue. Silicification is moderate to strong. Interval is non magnetic. Rock is strongly scheared at 35 to 70 deg. tca, deformed, with intricate weak folding, crenulations. Quartz-calcite±hematite stringers are pervasive, highly deformed, disrupted, folded, cross-cutting, but mostly subparallel to the schistosity. Trace of tourmaline is also present within very minor later quartz stringers, also deformed (ie. 249 ft).

246.00 261.00 Trase pyrite and chalcopyrite, as fine disseminations.

261.00 276.00 Abrupt increase in mineralization, accompanied by the first appearance of magnetite and specularite. Rock is purplish grey to to orange grey and green, highly altered, to what is essentially a quartz-sericite-chlorite-carbonate schist. The protolith is difficult to identify, but locally appears to be mafic. Locally, the rock displays textures which indicate the possible presence of dykelets similar to the one described above. Strongly sheared, deformed, with weak folding, at 70 deg. tca mostly. Pervasive quartz-calcite stringers at all angles, deformed, as before. Minor later quartz-hematite veinlets are observed, <1%, subparallel to schistosity, deformed, which are also cross cut by quartz-calcite stringers, deformed, disrupted. Pyrite 1-3%, and trace chalcopyrite, occur as fine disseminations and as seams and stringers, both within the host rock, along the schistosity planes, and within quartz-carbonate stringers which may cross cut the schistosity. The interval is also characterized by fine disseminated magnetite to semi-massive stringers, which is locally hematized, giving the rock a purplish to orange hue.

276.00	278.55	Interval is distinct by the presence of white to semi-translucent quartz veinlets, deformed, cross-cutting the schistosity. Most appear barren, but others may contain sulphides. Core is locally ground. Schistosity at 55 deg. tca. Pyrite 1-3%, trace chalcopyrite.
278.55	280.15	Quartz vein, barren, with chlorite infilling fractures at all angles, which themselves contain 1% pyrite and trace chalcopyrite.
280.15	283.15	Highly altered mafic volcanic, silicified, carbonatized, weakly chloritized, with finely disseminated magnetite, weakly hematized, sheared at 50 deg. tca. Pervasive quartz-calcite stringers as before, mostly parallel to schistosity. Later quartz veinlets, 10%, locally cross cutting schistosity, barren. Overall, pyrite 2-3%, trace chalcopyrite.
283.15	290.45	Essentially 100% white quartz vein, barren. Notably, only the wallrock xenoliths (1%) are mineralized, with up to 5% fine to coarse pyrite cubes.
290.45	294.60	Over 80% quartz veining, and 20% wallrock fragments, which appear to be intrusive, similar, to the dyke previously observed at 246.0 to 261.0 ft. Silicification strong. Scheared at 60 deg. tca. Notably, the quartz vein is here mineralized, with up to 15% pyrite and 2-3% chalcopyrite locally. Notably as well, the dyke is here strongly mineralized as well, with locally up to 3-4% pyrite and 1-

		2% chalcopyrite. Overall, the interval contains 1-2% pyrite, and <0.5% chalcopyrite.
294.60	298.30	Highly altered mafic volcanic as previously described, to quartz-chlorite-sericite-carbonate schist, and 10% quartz veining. Pyrite 2%, trace chalcopyrite. Schistosity at 62 deg. tca.
298.30	300.10	Over 95% quartz vein, white, with 0.5% fine pyrite, and wallrock xenolith with fine to coarse pyrite disseminations and seams, 5% locally. Overall, 1% pyrite.
300.10	309.80	Quartz veining, 30%, within rubbly mafic volcanic, highly altered to a quartz-sericite-chlorite schist. Magnetite is locally semi-massive, and hematite is weak. Pyrite 2%, and trace chalcopyrite.
309.80	346.00	Bull white quartz veining essentially dissappears, but hairthin quartz-calcite stringers are still present, at all angles, sheared, mostly parallel to schistosity, locally pervasive. Alteration is moderate and decreases to weak downhole. It consists mostly of silicification, and weak carbonate alteration. Sericite is absent, but biotite rich bands are common. Overall, rock is grey to dark grey. Schistosity is moderate at about 65 deg. tca. Rock is still moderately to weakly magnetic. Pyrite occurs as fine seams, sometimes parallel to schistosity, sometimes cross cutting it, and on occasions in association with quartz-carbonate stringers, although not always. Overall, pyrite <1%. Chalcopyrite not observed.

346.00 400.00 (MAFIC VOLCANIC?)

Same rock as previously observed from 309.8 to 346.0, but alteration is generally decreasing downhole. The core is grey to dark grey, fine grained, almost looks like a siltstone, but displays no apparent bedding. Rock displays many biotite-rich wispy bands however, which locally define apparent laminations, but these are thought to be the result of alteration and deformation. Overall, rock is moderate to weakly biotitic, weakly carbonatized. Moderate to weakly magnetic. Diffuse to irregular quartz-calcite-chlorite±hematite stringers are common, 2-3%, disrupted, at various angles, mostly parallel to schistosity. Schistosity is moderate at 55 to 60 deg. tca. Pyrite 0.5%, as fine seams. No chalcopyrite noted.

400.00 END OF HOLE.

Hole Number: 4410-87-2
Project: Empress
Northing:
Easting:
Azimuth: 000
Inclination: -50
Depth: 451.0 ft

0.00 4.00 (OVERBURDEN)

4.00 197.50 (FELDSPAR-PHYRIC MAFIC INTRUSIVE?)

Unit consists of greyish green mafic rock, **probably intrusive**, generally weakly foliated, moderately in places into diffuse bands and occasional stringer like laminations. Rock is fine to medium grained, amphibolitized, with fine chloritized to biotitic amphiboles locally discernible. Fine white anhedral feldspars, generally <1mm, up to 2%, are locally observed, along with very fine disseminated carbonate specks and leucoxene. Overall, rock is moderately chloritized, locally dark green or displaying chloritic wisps and stringers. A subtle brownish tinge is present were the core is more biotitic. It is moderately carbonatized (calcite) accompanied by weak local bleaching. Core is non magnetic. Foliation is weak to moderate, very oblique tca, generally between 15 to 30 deg. tca. Quartz-calcite±hematite stringers, 1-2%, mostly hairthin to <3mm, at all angles. Minor fracture infilling by quartz-calcite-chlorite-hematite, subparallel tca, accompanied by weak hematization of the wallrock. Pyrite <0.5%, disseminated.

4.00 33.00 (Moderate Alteration Zone)
Rock is moderately sheared at 20 deg. tca, moderately chloritized, moderate to strongly carbonatized, and is brownish green, indicating the presence of fine biotite, locally discernible as biotite rich stringers and bands. The core is blocky, with hematite on fractures. Pyrite trace, disseminated.

13.85 17.60 Weakly silicified interval, accompanied by weak pervasive hematization. Pyrite trace.

33.00 64.00 Relatively homogenous section, weakly feldspar phyric, generally weakly foliated at 15 to 20 deg. tca. Pyrite trace.

64.00 73.50 (Moderate Shear Zone)

64.00 67.60 White quartz vein, barren, with irregular margins, chloritic.

67.60 72.60 Moderately sheared at 20 deg. tca. Irregular quartz stringers, parallel to schistosity, also deformed. Weakly silicified. Trace of finely disseminated pyrite.

72.60	73.50	Similar to above, about 40% veining, sheared, bleached, with weak silicification, carbonatized, and weak pervasive hematization. No apparent sulphides.
73.50	169.50	Homogenous interval of relatively weakly altered and deformed mafic rock. Weakly chloritic. Choritic amphiboles locally discernible. Foliation weak at 15 deg. tca. Quartz-calcite±hematite stringers and bands, 1%, at various angles. Pyrite trace.

169.50 197.50 (Moderately Sheared/Altered Contact? Zone)
Rock is becoming fine grained, moderately sheared at 15 to 30 deg. tca., with locally broken core, ground. Zone may represent a contact zone with the underlying unit. Weak to moderately silicified, cherty in minor places. Carbonate alteration very weak to nil. Faint brownish tinge locally, indicative of fine biotite. Magnetic in areas of most intense mineralization, due to presence of fine pyrrhotite stringers, and possibly fine magnetite. Pyrite <1% to 2% in places, as fine seams either parallel to schistosity, and other time cross cutting it. Trace of chalcopyrite. Quartz-carbonate stringers 2%.

169.50	170.80	Weak pervasive hematization. Moderately silicified. Pyrite trace.

197.50 231.50 (AMYGDULAR TO FELDSPAR-PHYRIC MAFIC VOLCANIC)

No definite contacts observed, but core is now very fine grained, and locally displays possible quartz-carbonate amygdules, 1-2mm across (ie. 207 ft.). Minor fine subhedral feldspar phenocrysts are locally observed as well. Weakly chloritic and biotitic. Weak foliation at 15 to 40 deg. tca. Hairthin quartz-calcite±hematite stringers at various angles, 1%. Pyrite trace. Non magnetic.

197.50	203.00	Moderately sheared, due to proximity to above structural zone. Biotite-rich stringers common. Fine garnets, 1-2mm locally visible.
226.50	229.50	Rock is gradually becoming coarser, gabbroic.
229.50	231.50	Contact zone? Core is moderately to strongly sheared, at 22 deg. tca., fine grained. Moderately chloritized, with chlorite infilling fractures parallel to schistosity. Notably, Very fine wispy pyrite parallel to schistosity as well, 1-2%.

231.50 255.50 (FINE TO MEDIUM-GRAINED GABBRO)

Contacts are arbitrarely assumed to correspond with moderate to strong sheared intervals. Massive and relatively homogenous section, medium grey, fine to medium grained, with chloritic amphiboles up to 3mm locally discernible, definitely intrusive. Fine feldspar phenocrysts locally visible as well. Weak pervasive carbonate (calcite) alteration. Non magnetic. Foliation weak at approx. 35 deg.tca. Quartz-calcite stringers 1%. Faint hematization along margins to some stringers. Pyrite trace, fine disseminated.

255.50 300.45 (FELDSPAR-PHYRIC MAFIC VOLCANIC)

Interval is similar to previously described volcanic intersection located between 197.5 to 231.5 ft. Core is very fine grained, dark grey, homogenous, massive, possibly intrusive. Fine anhedral to subhedral feldspar phenocrysts are locally discernible, 1 to 2mm, <0.5%. Fine quartz-carbonate infilled vesicles(?) are also present locally (ie. 276 ft). Alteration appears weak, but core is very hard, most likely silicified, weakly biotitic locally. Foliation mostly weak at 20 deg. tca. Quartz-calcite stringers 1%. Pyrite 0.5%, as fine seams, parallel to the foliation planes.

255.50	257.20	Contact zone, moderately sheared at 18 deg. tca. Bleached to light brownish grey, carbonatized, possibly biotitic. Weakly brecciated, with chlorite infilling fractures. Fine wispy pyrite, 0.5%.
257.20	272.00	Interval is weakly sheared at 18 to 20 deg. tca. Weak bleaching due to carbonate locally, and weakly biotitic. Moderately chloritized over short intervals. Pyrite seams 0.5%, along schistosity planes. Core is possibly weakly silicified (see wr).
272.00	300.45	Core is weakly foliated, but pyrite seams and occasional stringers still present, <1%. Core still appears weakly silicified, weakly to moderately chloritized.

300.45 405.00 (MINERALIZED/ALTERED STRUCTURAL ZONE)

Interval consists of moderate to strongly sheared contact zone between mafic volcanic rocks and a gabbroic intrusive. It is accompanied by narrow quartz veinlets and and quartz-calcite stringers, weak to strong alteration (carbonate, silica, biotite, chlorite, sericite, hematite), and sulphidization. The intensity of alteration, quartz veining and mineralization is much less than that observed in the overlying intersection by hole 87-1. The interval is only locally magnetic.

The contact between the mafic volcanics and the intrusive is unclear, but appears to be somewhere in the vicinity of 369 ft. The mafic volcanics are fine grained, brownish to greenish grey, weakly bleached, due to the presence of finely disseminated biotite, and pervasive weak to strong carbonatization (calcite) and silicification. Sericitization is nearly absent, but increases to weak and locally moderate near the center of the zone, between 358 to 388. Chlorite is more locally observed, weak to moderate. The core is generally not magnetic, except where alteration and mineralization is the strongest (ie. 375.5ft); The magnetic intervals are usually purplish, due to weak hematization. The schistosity increases from weak to strong towards the center of the zone, and angles vary from 25 to 45 deg. tca., accompanied by weak folding. Quartz-calcite±hematite-specularite-chlorite stringers are pervasive, 3%(?), at all angles, highly disrupted, folded, sheared. The sulphides consists of 1-2% pyrite, 5% locally, and trace chalcopyrite. They occur as fine disseminations and as very fine seams mostly parallel to schistosity, but sometime cross cutting it. They also occur within quartz veinlets, and along their margins.

300.45 358.50 Alteration is weak to moderate, by silica, carbonate, and chlorite to biotite. Pyrite 1-2%. Very minor hematization, along fracture planes mostly.

358.50 388.40 Interval of most intense alteration and mineralization. Rock essentially consists of a quartz-chlorite-sericite-carbonate schist, but some textures still indicate that it is partly derived from the alteration of the mafic volcanic and from the gabbroic intrusive rocks. Schistosity mostly around 30 deg. tca. Quartz veining 3-4%, with no individul veinlets exceeding 5cm in width. Interval is locally strongly silicified, weakly hematized, moderately magnetic. Pyrite increase to 5% locally, overall less than 2%. Only a trace of chalcopyrite is observed.

388.40 405.00 Rock is moderately silicified, strongly carbonatized (calcite), possibly weakly sericitic, bleached. Unit appears to be entirely intrusive (see wr). Pyrite <1% overall.

405.00 451.00 (MODERATE TO WEAKLY ALTERED GABBRO)

The unit grades downhole from a strongly carbonatized gabbro, bleached, light yellowish grey, to a relatively unaltered gabbro near 451 ft. The carbonate is pervasive, accompanied by 2-3% quartz-calcite stringers at all angles tca. Weakly chloritic, with chloritized amphiboles, within a possibly weakly sericitic groundmass. Schistosity is moderate at 15 deg. tca, gradually decreasing in intensity downhole. Pyrite 1%, and trace chalcopyrite, as fine disseminations and seams, sometimes cross cutting schistosity, decreasing to 0.5% disseminated near EOH.

435.40 441.00 (Lamprophyre Dyke)
Dark brownish green dyke, with chloritic biotite phenocrysts, 1mm aver., contained

within a strongly carbonatized groundmass. Locally strongly chloritized, greasy. Moderately magnetic. Core is weakly foliated, locally scheared, gouged near contacts. Quartz-calcite and chlorite stringers infilling fractures, 2%. No pyrite noted.

451.00 END OF HOLE.

Hole Number: 4410-87-3
Project: Empress
Northing:
Easting:
Azimuth: 000
Inclination: -50
Depth: 472.0 ft
Started: Jan.29, 1987
Completed: Feb. 1, 1987

0.00 45.00 (OVERBURDEN)

45.00 111.50 (MAFIC VOLCANIC, MAFIC DYKES, AND ALTERED ZONES)

Fine grained, greenish grey to brownish grey massive mafic volcanic. Moderate to strongly carbonatized, bleached, moderately chloritic, feels greasy. Brownish tinge due to very fine biotite disseminations. Schistosity weak to moderate, at 42 deg. tca. Quartz-calcite stringers and veinlets, various angles, minor, 1%. Non magnetic. Pyrite 0.5% fine disseminated to very minor wisps.

45.00 55.45 Schistosity at 42 deg tca. Dusty pyrite seams to stringers ,1%, parallel to schistosity, locally cross cutting it.

55.45 65.00 (Lamprophyric to Gabbroic Dyke)
Brownish grey, fine to medium grained, with discernible chloritized mafic minerals, 1 to 2mm in dia. Carbonate specks also scattered throughout. Groundmass is strongly carbonatized, moderately chloritized, and appears to contain very fine biotite. This dyke is lamprophyric to gabbroic. Fine quartz-calcite stringers, 1%. Essentially non-foliated, massive, except near sharp upper contact, where it is moderately sheared at 30 deg. tca. The lower contact is not well defined. No sulphides noted.

65.00 70.00 Moderately silicified interval, with trace of fine disseminated pyrite.

70.00 70.50 Gouged core.

70.50 81.75 Fine grained mafic volcanic, massive, with no apparent foliation. Alteration is very weak.

80.00 81.75 Core is gradually becoming weakly bleached, yellowish green, reflecting an increase to pervasive and strong carbonate alteration (calcite), accompanied by very weak sericitization. Weakly sheared at 60 deg. tca.

81.75 95.80 (Moderate to Strongly Altered Zone)
Moderately to strongly silicified interval, accompanied by weak sericitization. Minor bluish grey quartz stringers, <1%, parallel to the moderate schistosity, at 55 deg. tca. Moderately blocky core. Pyrite seams and very fine stringers, 1%.

95.80 101.30 This interval is strongly chloritic and carbonatized, fine grained. Core is strongly fractured. May be part of the underlying lamprophyre dyke.

101.30 105.00 (Lamprophyre Dyke)
Upper contact fractured, lower contact sharp but irregular, at less than 30 deg. tca. Brownish green, with fine biotite phenocrysts (1mm), within a strongly carbonatized and chloritized groundmass. Moderately magnetic. Minor quartz-calcite stringers. Essentially non foliated. Minor wallrock xenoliths. No sulphides noted.

105.00 111.50 Fine grained, dark grey mafic volcanic(?). Very faint foliation very oblique tca. Core may show weak increasing silicification downhole, nearing the contact with the granodiorite. Moderately chloritized and carbonatized. Pyrite <0.5%, as fine disseminations.

111.50 129.00 (GRANODIORITE)

Massive pinkish grey granitic rock, weakly hematized. Medium grained, with white to pinkish feldspar phenocrysts, up to 1cm, aver. 1-2mm, occasional quartz phenocrysts (1-2mm), and amphiboles, contained within a finer groudmass of quartz, feldspar, and mafic minerals. Non foliated. Non magnetic. Quartz-calcite stringers, trace. Pyrite trace, disseminated. Upper and lower contacts are sharp but irregular, at less than 15 deg. tca.

129.00 149.00 (MAFIC VOLCANIC)

Massive and fine grained, grey mafic volcanic(?). Essentially non foliated, except near contacts, at 25 deg. tca. Weakly chloritic. Moderately carbonatized near contacts, with <1% pyrite seams infilling fractures at various angles. Overall, pyrite <0.5%, disseminated. No leucoxene noted. Non magnetic. Quartz-calcite stringers <1%, diffuse, subparallel to ca, infilling fractures.

149.00 174.35 (GRANODIORITE/FAULT ZONE)

As previously described, massive, porphyritic, non foliated. Moderate to strongly fractured core. Hematization moderate, pervasive, increasing to strong near lower contact. Lower contact sharp at 30 deg. tca. Pyrite trace, fine disseminated. Minor epidote on some fractures.

174.35 205.70 (ALTERED GABBRO)

Light pinkish grey to grey intrusive rock, massive. The unit is fine to medium grained, with chloritized and diffuse mafic phenocrysts locally discernible, contained within a highly carbonatized (calcite) groundmass, accompanied by weak chloritization and hematization. The alteration generally decreases downhole. Patchy and weak epidotization in places. Foliation is nearly absent, but increases to moderate locally, at 20 deg. tca. Non magnetic. Pyrite trace, fine disseminated.

199.00 200.50 Granodiorite Dykelet.
As previously described, massive. Contacts sharp but variable, from 30 to 80 deg.tca.

205.70 227.00 (GRANODIORITE/FAULT ZONE)

As previously described, moderate to strongly fractured. Weakly hematized. Trace pyrite.

227.00 258.00 (MAFIC INTRUSIVE/VOLCANIC)

Massive, fine grained mafic volcanic, or possibly intrusive due to homogenous texture. Greenish grey, weakly chloritic and carbonatized. Foliation very weak, at less than 40 deg. tca. Pyrite trace.

258.00 269.00 (GRANODIORITE)

Granitoid, as previously described, weakly hematized. Moderately fractured core. Quartz calcite stringers 1%, barren. Pyrite trace.

269.00 331.85 (MAFIC INTRUSIVE/VOLCANIC)

Dark grey, fine grained and very homogenous section, similar to previously described mafic unit at 227 to 258 ft. Upper contact at 45 deg tca. Section is so homogenous and massive that it may be interpreted as a dyke. Quartz-calcite stringers mostly hairthin, at various angles, <1%. Weakly chloritic and carbonatized. Pyrite <0.5%.

269.00 286.00 Weakly silicified and locally very weakly sericitic, probably due to proximity to granodiorite dyke. Moderately chloritized. Fine biotite is probably also present, accounting for the local weak brownish tinge. Weak foliation locally at 40 deg. tca. Pyrite and pyrrhotite 0.5%, as fine seams and disseminations.

331.85 459.70 (MINERALIZED/ALTERED STRUCTURAL ZONE)

Interval consists of moderate to strongly sheared mafic volcanic rocks, cross-cut by several gabbroic dykelets, accompanied by quartz veins and quartz-calcite stringers, weak to strong alteration (sericite, silica, carbonate, chlorite), and sulphidization. Quartz veins comprise up to 15% of the interval, whereas fine quartz-calcite stringers are pervasive. Pyrite and chalcopyrite (ratio of 95:5) occur mostly as fine seams, disseminations and splashes, up to 5% locally, overall 1-2%.

331.85 349.55 Mafic volcanic as previously described, abruptly begins to be mineralized, with pyrite seams at various angles but mostly parallel to schistosity, 1 to 2%. The alteration also increases downhole, to moderate to strong silicification, moderate carbonatization, and weak to moderate sericitization. Locally moderately magnetic, due to the presence of fine magnetite (ie. 344). Schistosity moderate at 55 to 65 deg. tca. Quartz veining minor, <1%.

349.55 368.30 (Highly Altered Gabbroic Dyke)
Highly altered rock, weakly chloritic, moderately sericitized and silicified, strongly carbonatized. Rock displays granular texture and displays chloritized mafic phenocrysts locally, with overall characteristics indicating it is most likely a highly altered gabbro dyke. Strongly schistose, at 40 deg. tca. Interval may include highly altered wallrock xenoliths as well. Quartz veining up to 15cm wide, <5%, at various angles. Pyrite fine disseminations to wisps, 1%.

369.30 432.85 Interval of most intense sericitization, silicification and mineralization. The rock is essentially a quartz-sericite-carbonate schist, of undetermined origin.

369.30 384.60 Quartz veining 5%, associated with trace galena and sphalerite (ie. 376 ft). Pyrite 5% locally, 2-3% overall.

384.60 386.45 Quartz vein, with wallrock xenolith highly mineralized. Vein itself contains minor pyrite seams, 0.5%.

386.45 394.90 Quartz veining <1%. Pyrite 2-3% locally. Schistosity at 65 deg. tca.

394.90	396.85	Quartz vein, with <0.5% chalcopyrite splashes, and 1% pyrite.
396.85	403.30	Quartz-sericite schists, with 3% pyrite, nearly massive locally. Schistosity at 56 deg. tca.
403.30	409.20	Large bull white quartz-carbonate vein, with <0.5% disseminated pyrite. No chalcopyrite noted.
409.20	423.35	Quartz-sericite schist, sheared at 65 to 85 deg. tca. Pyrite 2-3% disseminated to seams.
423.35	426.00	Quartz-calcite vein with massive pyrite bands and patches up to 15cm wide. Overall, 10% pyrite, and trace chalcopyrite.
426.00	432.85	Interval includes one quartz vein about 20cm wide. Schistosity at 65 deg. tca.
432.85	435.00	Gabbroic Dykelet Highly carbonatized, moderately silicified, schistose at less than 15 deg. tca. No quartz veining. Contains 1% pyrite near the margins.
435.00	454.35	Strongly silicified mafic rock, possibly intrusive. Grey green, very dense. Also strongly carbonatized, sheared at 47 deg. tca. Essentially non sericitized. Moderately magnetic in places. Quartz veining 2%. Pyrite 1%, 2% locally.
454.35	459.70	Quartz-sericite-carbonate schist, with fine minor disseminated magnetite. Very weakly hematized, pinkish yellow. Quartz veining 2-3%. Pyrite seams and disseminations, <1%.

459.70 472.00 (MAFIC VOLCANIC)

Strongly altered mafic rock, bleached to light grey, and displaying local gabbroic textures. Weakly silicified, strongly carbonatized, weakly chloritic. Moderate to strong schistosity at 35 deg. tca. Pyrite not observed. Quartz-calcite stringers at all angles, 1%. Weakly magnetic in places.

472.00 END OF HOLE

Hole Number: 4410-87-4
Project: Empress
Northing:
Easting:
Azimuth: 000
Inclination: -70
Depth: 546.0 ft
Started: Feb.1, 1987
Completed: Feb.3, 1987

0.00 35.00 (OVERBURDEN)

35.00 98.00 (MAFIC VOLCANIC)

Unit consists of grey mafic volcanic, weakly foliated at 26 deg. tca. Rock is fine grained, amphibolitized, and very homogenous, massive. Alteration is generally weak, chloritic, carbonatized. Quartz-calcite stringers are very minor, <1%, at various angles, irregular, infilling fractures. Pyrite <0.5%, as fine disseminations and occasional stringers parallel to the weak foliation.

35.00 54.00 Moderately blocky core.

70.50 98.20 (Altered Contact/Dyke Zone)
Interval consists of moderate to locally strongly altered mafic volcanic rock, cross cut by several dykes of gabbroic to lamprophyric composition.

70.50 73.00 Gradual increase in alteration of the mafic volcanic, with moderate sericitization and carbonatization. Moderately sheared at 40 deg. tca., weakly ondulated. Hairthin quartz-calcite stringers, diffuse, sheared, pervasive. Very fine pyrite seams parallel to schistosity planes, 1%.

73.00 78.00 Rock becomes strongly silicified, with occasional sericitic bands at 35 deg. tca. Pyrite <1%, 2% in places, mostly as very fine seams infilling fractures, not always parallel to schistosity.

78.00 88.90 (Mafic/Lamprophyric Dyke)
Upper contact sharp at 47 deg. tca. Massive, homogenous, and non foliated grey rock, weakly pinkish grey, bleached, by pervasive strong carbonate alteration (calcite), and very weak hematization. Weakly chloritized. Fine grained, but occasional fine mafic minerals (biotite?) can be discerned. Weakly silicified. Quartz-calcite stringers <1%. No sulphides noted.

82.50	82.60	Narrow band of strong pervasive hematization, brick red.
88.90	94.00	Rubbly core, probably due to previous sampling. Probably a mafic volcanic sliver, bleached to light grey, strongly carbonatized, locally silicified, weakly hematized. Pyrite trace.
94.00	98.20	Mafic/Lamprophyric Dyke Same as previously described at 78.0 to 88.9 ft, but coarser grained near the top.
97.00	98.20	Fractured core, with over 15% calcite stringers infilling the fractures. Core is gouged over 20cm.

98.20 177.10 (ALTERED MAFIC TO INTERMEDIATE INTRUSIVE)

Contact is arbitrarily chosen, since the lamprophyric dyke above grades into these mixed phases of gabbroic to locally intermediate-looking intrusives. Light grey to greenish grey, very weakly purplish, generally fine grained, but with diffuse and chloritized mafic phenocrysts, which increase in size up to 4mm in places. Where it is fine grained, minute feldspar phenocryst (<1mm) can be observed. Overall, rock grades in and out from a gabbroic to more dioritic look, and is probably related to the multiphase granitoids in the area. Non to weakly foliated, at about 20 deg. tca, very oblique. Minor moderate shears locally, infilled by chlorite. Core is moderate to strongly bleached by pervasive carbonate alteration (calcite), and by very very weak hematization, which gives the rock a purplish tinge. Weakly chloritized. Not magnetic. Quartz-calcite stringers, 1-2%, irregular, infilling fractures where weak shearing has occured. Pyrite disseminations 1% locally, 0.5% overall.

98.20	132.00	Light orange grey interval, bleached, carbonatized and weakly hematized. Blocky core, with irregular fracture infillings by calcite stringers, 2%.
132.00	172.00	Orange tinge decreases as core becomes non-hematized. The rock is light grey, still bleached by carbonate, but this also seams to be decreasing downhole. Varies from gabbroic to dioritic in texture.
172.00	177.10	Rock grades into an intermediate feldspar porphyry. Still light grey, weakly carbonatized, but groundmass is becoming finer grained, probably intermediate in composition. Fine feldspar phenocryst, <1mm, 2-3%, are now visible. Pyrite trace.

177.10 341.00 (MAFIC INTRUSIVE)

Upper contact not very obvious, but appears to coincide with a 10cm wide moderate shear accompanied by quartz-carbonate-chlorite veining, at 45 deg. tca. The unit is very massive, grey to greenish grey, and generally looks mafic although some intervals appear either weakly silicified, or are of intermediate composition. This unit is probably related to the above mafic to intermediate intrusion. The rock is generally fine grained, but locally becomes medium grained over narrow interval, more like a gabbro, with discernible chloritic mafic, and fine feldspar phenocrysts. Locally very weakly feldspar-phyric. Weakly chloritic, non carbonatized. Weakly magnetic in places. Foliation absent to very weak, with minor discrete zone where it is moderately developed at about 20 deg. tca. Quartz-calcite stringers <1%, hairthin. Pyrite 0.5%, as fine seams and disseminations.

237.00 253.00 Weakly mineralized interval, with 1% pyrrhotite-pyrite seams, infilling chloritic microfractures parallel to the weak schistosity at 28 deg. tca. Trace of chalcopyrite. Moderately chloritized, with fine garnets scattered throughout.

242.10 Semi-massive pyrrhotite as patchy stringer, 2cm wide.

245.70 247.70 Pyrrhotite and lesser pyrite, up to 15% locally, 3-5% overall.

336.00 341.00 Appearance of minor patchy "felsic" bands, greenish white, consisting of fine epidote and carbonate. Moderate discrete shearing at 15 deg. tca. Trace of pyrrhotite and chalcopyrite seams infilling a chloritic fractures parallel to schistosity, nearing lower contact.

341.00 421.10 (FINE-GRAINED MAFIC VOLCANIC/INTRUSIVE)

Greenish grey, very fine grained mafic unit, quite massive, featureless and homogenous, possibly intrusive. The appearance of possible varioles near 350.5 to 253.3 ft however, suggest it may be volcanic. Foliation is very poorly developped. Non carbonatized, weakly chloritic. Non magnetic. Hairthin quartz-calcite stringers, <0.5%, accompanied by very fine pyrite wisps (<0.5%), at all angles.

341.00 353.30 (Moderate to Strongly Altered Contact Zone)
Abrupt occurrence of alteration defines an apparent contact at 47 deg. tca. near 341 ft.and near 353.30. Core is brownish green, moderately biotitic, locally strongly silicified, with weak pervasive calcite, and moderate chlorite in places. Fine garnet disseminations. Schistosity is moderate at 39 to 41 deg. tca. Quartz-calcite stringers, 2%, diffuse, parallel to schistosity. Weakly magnetic in places. Pyrrhotite-pyrite seams

parallel to shistosity, and sometime cross cutting it, infilling microfractures, <1% overall, 2% in places.

341.00	345.25	Interval of most intense alteration and mineralization.
350.50	353.30	Some peculiar "spherulites" or "variole-like" features of quartz-carbonate, 1 to 5mm across occur in abundance locally, nearly defining felsic bands.
353.30	358.00	The alteration described above abruptly dissappears.
404.00		Mafic dykelet, 2cm wide, as described below.
409.90	411.00	Gabbroic to Lamprophyric Dyke Fine grained, brownish green, with fine chloritized mafic minerals (biotite phenocrysts?) locally discernible, <1%. Strongly carbonatized, with very fine biotite accounting for brownish tinge. Weakly chloritized. Very faint foliation, very oblique tca. Upper contact sharp at 28 deg. tca, accompanied by weak hematization of the wallrock. Lower contact sharp but irregular. Unmineralized.
411.00	419.50	Mafic volcanic essentially as before, possibly becoming very weakly silicified. Fine biotite wisps locally visible. Foliation or schistosity weak at 25 deg. tca.
419.50	421.10	Gabbroic to Lamprophyric Dyke As previously described, brown-green, with very fine biotite, and minor discernible biotite phenocrysts. Strong pervasive carbonate (calcite), and moderately chloritized. Very faint foliation very oblique tca. Upper and lower contacts very oblique tca, at less than 15 deg. Notably, the contacts clearly cross cut the schistosity of the enclosing rock.

421.10 520.75 (MINERALIZED/ALTERED STRUCTURAL ZONE)

Interval consists of moderate to strongly sheared mafic volcanic rocks, cross-cut by several dykes of various composition, accompanied by quartz veins and quartz-calcite stringers, weak to strong alteration (carbonate, silica, biotite, chlorite, sericite, hematite), and sulphidization. Overall, the intensity of alteration, mineralization and quartz veining does not seem as important as in hole 87-1 or 84-7(?).

421.10	432.50	Rock abruptly becomes moderate to strongly sheared, at about 35

		deg. tca, weakly folded. Appears to consist essentially of a highly altered mafic volcanic, possibly including minor mafic intrusions. Moderate to strongly silicified and carbonatized (calcite), with sericitization increasing dowhole from very weak local seams to moderate and pervasive, accompanied by weak hematization. Rock is locally laminated, moderately magnetic. Quartz veining up to 3cm wide, very minor, <1%. Pyrite fine disseminated to seams, parallel to schistosity, <1% overall, 2-3% locally.
433.50	435.15	Feldspar Porphyry Contacts sharp at about 44 deg. tca. Pinkish grey, medium grained, with 1 to 2mm feldspar phenocrysts, contained within a groundmass of quartz, feldspar, and 1% fine mafic minerals. Relatively fresh looking, although pervasively and moderately carbonatized and hematized. This dyke is somewhat similar to the previously described granodiorite observed in hole 87-3?, and is most certainly related to it. Very weakly foliated. Pyrite disseminations 0.5%.
435.15	447.30	Mixed interval of altered mafic volcanics and felsic quartz-eye porphyry dykelets. The mafic are highly carbonatized, weak to moderately sericitized chloritized, sheared. Some intervals are finely laminated(?), and strongly magnetic. Locally, the sericitization abruptly increases to very strong over intervals up to 3ft wide, and the core is bright yellow, with occasional minute (<1mm) quartz eyes. These intervals of quartz-sericite-carbonate schist are probably derived from the alteration of felsic quartz-eye porphyry dykelets. The contacts are unclear as the core is highly broken up due to previous sampling. Fine dusty magnetite is also found within this unit. There seems to be less mineralization within the felsics than within the mafic intervals. Pyrite <1% overall, as disseminations and seams, increasing to 5% over 30cm near lower contact with quartz vein at 447.30 ft. Quartz veining <1%.
447.30	449.95	Quartz veining, with trace disseminated pyrite.
449.95	473.50	As before, mostly highly altered mafic volcanic, moderately sericitized, with one 30 cm wide quartz-eye sericite-carbonate schist. Quartz veining 3-5%. Hematite staining on some shistosity planes. Schistosity mostly at 15 to 50 deg. tca. Tight folding observed at least in one place, near 459 ft. Magnetite laminations and fine disseminations locally. Pyrite 1% disseminated to seams.

473.50	477.40	All mafic volcanic, highly altered, strongly silicified, moderately sericitized, chloritic, carbonatized, locally. Some textures suggest flow brecciation. Quartz veining up to 30%, less than 40cm wide. Magnetite is disseminated to semi-massive, in close association with the quartz veins. Pyrite 10% locally, to semi-massive patches (<1cm wide). Overall, 2% pyrite, and trace chalocopyrite.
475.40	477.40	Quartz vein, brecciated, with 10% pyrite within wallrock xenoliths. Carbonatized, hematized weakly, magnetic.
477.40	520.75	Interval consists entirely of highly altered mafic volcanic, strongly silicified, carbonatized, chloritic, with generally weak sericitization. Schistosity is moderate to strong at 30 to 51 deg. tca., locally folded. Quartz veining 5-8%. Minor hematite sometimes in association with the veins. Magnetite common along the margins to the veins as well, as stringers, disseminations, locally massive. Pyrite 5% locally, overall 1-2%, and <0.5% chalcopyrite.

520.75 546.00 (MODERATELY ALTERED MAFIC VOLCANIC)

Sheared mafic volcanic, possibly a sheared flow breccia, with decreasing alteration from strong to moderate going downhole. Core is green to brownish green, displaying patchy bleaching, moderate to strongly carbonatized, moderately chloritized, weakly silicified, locally biotitic. Schistosity moderate, rotating from 15, to 35, to 45 near the end of the hole. Quartz-calcite-chlorite±hematite stringers are irregular, infilling fractures at all angles, 1%. Non magnetic. Pyrite <0.5%, as occasional seams.

546.00 End of Hole.

Hole Number: 4410-87-5
Project: Empress
Northing:
Easting:
Azimuth: 000
Inclination: -60
Depth: 1006.0 ft
Started: Feb.3, 1987
Completed: Feb.7, 1987

0.00 17.00 (OVERBURDEN)

17.00 49.50 (MAFIC INTRUSIVE AND GRANITIC DYKES)

Interval consists of fine to medium grained mafic rocks, cross-cut by several granite to granodiorite dykes.

17.00	29.15	Gabbro Mafic rock, grey, amphibolitized, displaying coarse biotite phenocrysts up to 2mm near the top, to fine grained near the bottom of the interval. Most likely intrusive, massive, with very weak foliation at 39 deg. tca. Weakly chloritized, non carbonatized. Moderately magnetic. Quartz-calcite±hematite stringers minor, 1%. Pyrite <0.5% as disseminations and wisps. Trace of chalcopyrite.
29.15	34.85	Granite to Granodiorite Dyke Upper contact sharp at 42 deg. tca. Lower contact irregular at 40 deg. Grey to pinkish grey granite. Medium grained, equigranular, with quartz, feldspar, chloritized amphiboles and biotite. Dyke is non foliated, weakly fractured, with minor irregular fractures often parallel tca, infilled by quartz and/or chlorite. Pyrite trace, up to 1% along a fracture plane.
34.85	46.00	Mafic Intrusive/Volcanic(?) Very similar to interval previously described at 17 to 29.15 ft, but mostly fine grained, massive, and most likely intrusive, although it may also have resulted from an amphibolitized mafic volcanic. Weak to moderately chloritized. Pyrite 1% disseminated locally, <0.5% overall.
46.00	48.00	Granite Dykelet, with 10cm of wallrock sliver. Biotite 2-3%.

Pyrite trace. Contacts sharp at 50 to 70 deg. Wallrock shows weak carbonatization and slight increase in chloritization, over a couple of feet.

49.50 125.00 (MODERATELY ALTERED STRUCTURAL ZONE/MAFIC VOLCANIC)

The host rock is light to dark grey, to black, very fine grained, and is most likely an altered mafic volcanic, although very difficult to tell due to the highly broken nature of the core, in part relating to previous sampling. Fine feldspar phenocrysts are also locally developped (ie. 53 ft), but these are not common. Minor garnets also present locally. The rock is weak to moderately sheared at 60 deg. tca. Alteration consists of weak to moderate silicification, weak carbonatization and chloritization and weak to moderate sericitization. Hematization is minor, and occurs mostly along some fracture planes subparallel tca. Weakly magnetic. Quartz-calcite veining is very minor, <1%, and is accompanied in places by strong epidote and weak hematite along the margins, less than 10cm wide in all. Pyrite <0.5%, as occasional wisps and dissemination.

103.00 106.00 Mafic Dyke
Unfoliated fragments of a mafic dyke, strongly carbonatized, similar to those gabbroic to lamprophyric dykelets previously observed. Unit contains <0.5% disseminated pyrite.

120.00 125.00 Garnets are becoming abundant, over 5%, 2-3mm in dia.

125.00 165.50 (WEAKLY ALTERED MAFIC VOLCANIC)

Very fine grained mafic volcanic, grey, moderately foliated at 48 to 53 deg. tca., into diffuse stringer-like laminations which almost give the rock a sedimentary texture. Blocky core. Magnetic, weak to moderately. Garnets are common, <1% overall, usually defining stringers. The core appears weakly silicified, and is weak to possibly moderately chloritic in places. Weak calcite alteration, and very weak sericitization as hairthin wispy stringers scattered throughout. Quartz-calcite±hematite stringers <0.5%, at all angles. Minor hematite on some fractures. Pyrite occurs as fine seams parallel to the schistosity, 1-2% locally, 1% overall. There seems to be more sulphides within this interval than within the more intensely altered preceding interval.

125.00 131.00 Most garnitiferous interval, up to 15% locally.

161.00 165.50 Same as general description. No apparent epidotization. Weak hematization on fractures and along their margins.

165.50 193.10 (MAFIC VOLCANIC)

Similar to overlying interval, but overall appears less altered, not silicified. Weakly chloritic, and carbonatized. Very faint hematization, pervasive, in places. Schistosity weak to moderate at 52 deg. tca. Locally weakly brecciated, with subtle angular fragments (lapilli-size) discernible in places. Possibly flow auto-brecciation,but not clear since this texture is not strongly developped., Many fractures are infilled by quartz-calcite or chlorite seams, and have resulted from tectonic brecciation. Rock is not magnetic. Occasional quartz-calcite-chlorite veinlets subparallel tca. Pyrite trace, with occasional minor wisps along fracture planes.

193.10 201.00 (MAFIC DYKE)

Upper contacts at 42 deg. tca, accompanied by weak brecciation of the wallrock. The lower contact is sheared at about 30 deg. tca. Core is pinkish green, bleached, medium grained, with very diffuse mineralogy, about 1mm or less, of chloritized mafics and hematized feldspars. Homogenous, very weakly foliated, with strong and pervasive carbonatization, weak hematization. Non magnetic. Pyrite <0.5% disseminated.

201.00 346.00 (MAFIC VOLCANIC/INTRUSIVE?)

Core is green to greyish green, mostly fine grained but with discernible chloritized amphiboles throughout. Quite homogenous, very weakly foliated at about 50 to 55 deg. tca., possibly intrusive, but most likely volcanic since further downhole, the core displays fine grained intervals and an overall texture more typical of amphibolitized mafic volcanics. Weakly chloritized and carbonatized. Quartz-calcite±hematite stringers <0.5%, at various angles. Pyrite trace.

252.00 291.50 (Weak Alteration/Deformation Zone)
Interval displays several discrete local moderate shears, less than 50cm wide, accompanied by weak sericitization, moderate chloritization, and associated with 1% pyrite wisps and seams, parallel to the schistosity. Carbonate alteration is generally weak. Quartz-calcite±epidote stringers and veinlets, generally <1cm wide, at all angles, 2%.

256.50 259.50 Interval includes a 12cm wide quartz-calcite-chlorite-hematite vein, at 50 deg. tca., accompanied by moderate to strong carbonate and weak sericitization along the margins, over the entire interval. Schistosity is locally moderate, and rotate from 20 to 55 deg. tca. Minor pyrite seams, ,1%, occur parallel to the schistosity.

259.50 291.50 Schistosity at 45 to 47 deg. mostly. Pyrite <1%.

291.50 304.00 (Highly Altered Fault Zone)

Core is strongly brecciated/fractured, ground, and gouged locally. Strongly silicified to carbonatized, weakly hematized. Pyrite 2% locally, <1% overall.

291.50 297.90 Interval is locally strongly silicified, almost cherty, with grey, white and orange laminations(?) in places, 1 to 5mm, at 50 deg. tca, probably as a result of the schistosity. In other places, the core is strongly bleached to light yellowish grey, weakly sericitic, strongly carbonatized. The schistosity changes angles to very oblique tca in places, and shows strong brecciation, partially healed/flooded by carbonate. Strongly fractured core. Weak hematization and very strong carbonatization (calcite), pervasive. Non magnetic. Pyrite seams 2% near the beginning of the interval, down to a trace of fine disseminations further downhole.

297.90 301.00 Core shows a transition downhole, from strong shearing at 40 to 20 deg. tca, to a strongly brecciated to gouged interval, partially healed by a carbonate mud or matrix. Strongly carbonatized, weakly sericitic, not silicified. Pyrite seams 2% locally, <0.5% overall.

301.00 304.00 Ground core, moderately chloritic, carbonatized. No sulphides noted.

304.00 346.00 (Weak Alteration Zone)

Similar to the alteration zone located above the fault zone described above. Rock shows weak to minor localized moderate shears, accompanied by very weak sericitization but pervasive and strong carbonatization. Schistosity weak to moderate at 45 deg. tca, weakly folded. Weak fracturing healed by irregular 1 to 2% quartz-calcite±hematite stringers. Pyrite <0.5%, fine disseminated.

315.00 315.50 Gouged core/mud seam.

346.00 800.95 (MAFIC VOLCANIC, WEAKLY ALTERED)

Monotonous section of relatively unaltered and undeformed mafic volcanic rocks. Generally fine grained, grey, amphibolitized. Grain size increases locally, over one or two metre intervals, but these gradations are perfectly transitional. Weakly chloritic, moderately in places. Calcite alteration is generally weak, but increases to pervasive and moderate in the vicinity of veining. Weak to strongly magnetic. Foliation is weak, at 57 deg. tca. Hairthin quartz-calcite±hematite-epidote stringers <1%, at all angles. Pyrite 1% locally, but generally <0.5%, as wisps and seams along the foliation planes.

400.80 402.30 Weakly silicified and hematized interval, strongly carbonatized, in

		association with a 1cm quartz-carbonate stringer, at 58 deg. tca. Pyrite trace.
410.00	411.00	Weak brecciation, healed by calcite stringers. Host is weakly bleached by pervasive carbonate (calcite) and weak hematite.
411.00	476.00	Moderate to strongly magnetic, apparently in association with an increase in grain size, becoming gabbroic, but no contacts observed. Further downhole, the core becomes finer grained again, and is still weakly to moderately magnetic. Foliation weak at 51 deg. tca.
626.0	646.00	Weak bleaching, in association with weak silicification, and pervasive moderate to strong calcite alteration. Very weak sericite may be present, accounting for faint yellowish tinge. Schistosity is weak, but appears to show some folding and weak brecciation, at 48 to <20 deg. tca. Quartz-calcite stringers <1%, sheared, to quartz-calcite-hematite veinlets <2cm wide, at various angles, 1-2%, with weak to strong hematization of the margins. Pyrite trace to <0.5%, wispy.
621.00	628.00	Weak silicification, accompanied by fine biotitic laminations, as a result of alteration and shearing at 35 deg. tca. Pyrrhotite wisps and dissemination, very fine, 0.5%.
626.00	628.00	Trace of chalcopyrite, in association with a pyrrhotite-chlorite stringer parallel to the schistosity at 35 deg.
628.00	726.00	Core is becoming weakly feldspar-phyric in places, <1-2%, generally <1mm.
731.70	761.50	(Local Alteration Zones)
731.70	733.85	Weak to moderately silicified, cherty in some places, moderately sheared at 65 deg. tca. Minor sericite stringers and wisps. Pyrite trace.
733.00	741.00	Weakly silicified, finely biotitic, with minor magnetite bands, at 40 deg. tca. Garnets up to 10% locally. Essentially a lean iron-formation. Pyrrhotite wisps <0.5%.
747.35	751.45	Moderate to strongly silicified interval, accompanied by 10 to 15% quartz-calcite veining. Weakly sericitized, but includes one diffuse

		and strongly seritized 10cm band containing trace quartz-eyes, probably a highly altered quartz-porphyry dykelet. Scheared to brecciated at 60 deg. tca., with fracture infilling by quartz and sericite. Pyrite <0.5%, up to a semi-massive 0.5cm band adjacent to one quartz vein. Non magnetic.
751.45	761.50	Fine grained, dark grey, moderately silicified, with minor sericite wisps and stringers. Weakly carbonatized and biotitic. Schistosity moderate at 40 deg. tca. Non magnetic. Pyrite 0.5% as fine disseminations and minor wisps along schistosity planes.
761.50	800.95	Fairly homogenous interval, massive, weakly carbonatized, chloritic, locally weakly biotitic. Schistosity weak at 30 deg. tca. Pyrite and pyrrhotite wisps, <0.5%.
767.00	768.00	Moderately fractured core.
784.00	792.00	Hematite staining on some fracture planes.

800.95 818.10 (MINERALIZED/STRONGLY ALTERED STRUCTURAL ZONE)

Interval consists of moderate to strongly sheared mafic volcanic rocks, accompanied by quartz veins (5%?) and quartz-calcite stringers, weak to strong alteration (carbonate, silica, chlorite, sericite, hematite), and minor sulphidization. No magnetite and no base metal minerals noted. Overall, the intensity of alteration, mineralization and quartz veining is much less important than that observe in hole 87-1 to 4).

800.95	804.50	Moderate to strongly silicified mafic volcanic, weakly chloritic, weakly to moderately sericitize, and strongly carbonatized, pervasive. Includes a very late 1 to 2cm calcite-quartz veinlet subparallel tca, barren. Schistosity moderate to strong at 45 to 55 deg.tca. Pyrite seams and wisps, parallel to the shistosity planes, 2% locally, 0.5% overall.
804.50	808.15	Same as above, but no quartz veining. Pyrite <1%.
808.15	811.35	Same, including a 15cm wide quartz vein, with 1% pyrite seams along the margins. Overall, pyrite 1%, also as very fine disseminations.
811.35	816.50	Strongly fractured core, ground in places. Weakly silicified, moderately sericitic. Strongly carbonatized (calcite). Includes a

7cm wide quartz vein, with 1% pyrite along the margins. Strongly schisose at 53 deg. tca. Pyrite 0.5%.

816.50	818.10	Strongly silicified and carbonatized interval, pinkish yellow, with pervasive weak to strong hematite alteration. Also moderately sericitized, with trace of very fine quartz eyes, suggesting it may include a remnant quartz-porphyry dykelet, although no obvious contacts were observed. Schistosity strong at 58 deg. tca. Includes quartz-calcite-epidote-chlorite stringers, late. Trace pyrite.

818.10 1006.00 (MAFIC VOLCANIC)

Unit consists of moderately foliated mafic volcanic rock, , defining alternating bands and shades of grey, to greenish grey, to dark grey, depending on the intensity of alteration, and mineral segregation into chloritic versus biotitic bands, etc. Definitely not a tuff, but may include a minor sedimentary component of interflow sediments (turbidites, mudstone). Schistosity at 23 to 37 deg. tca. Overall, weak to moderately chloritized, weakly biotitic, weak to locally strongly carbonatized (calcite). Quartz-calcite stringer 1%, all angles. Pyrite wisps and fine disseminations, <0.5%. Weakly magnetic in association with the biotite.

818.10	824.80	Alteration zone described above ends fairly abruptly, with weak silicification still reamaining.
840.00	841.50	Lamprophyre Dykelet Strongly altered (calcite, chlorite), sheared at <30 deg. tca. No sulphides noted.
847.20	851.00	Weak silicification-sericitization zone, strongly carbonaized, accompanied by 0.5% fine pyrite overall, 1% locally, and possibly pyrrhotite.

912.15 916.95 (Lamprophyre Dyke)

Contacts sharp at 85 deg. tca. Biotite-phyric, strongly chloritized, with pervasive carbonate. Non foliated. Strongly magnetic.

921.75	936.00	Strongly carbonatized, with moderate biotite as bands and stringers throughout. Moderate schistosity at 43 deg. tca. Quartz-calcite stringers 2-3%, sheared. Pyrite wisps, <0.5%.
936.00	1006.00	As previously described. Core is gradually becoming more grey, seems overall less altered.

1006.00 END OF HOLE.

Hole Number: 4410-87-6
Project: Empress
Northing:
Easting:
Azimuth: 000
Inclination: -50
Depth: 500.0 ft
Started: Feb.7, 1987
Completed: Feb.18, 1987

0.00 22.00 (OVERBURDEN)

22.00 70.40 (GARNITIFEROUS MAFIC VOLCANIC/FAULT ZONE)

Rock is very dark grey, fine grained, and is very dense, appears silicified, with over 10% garnets up to 1cm in dia. Rock almost looks like an iron formation, but is non magnetic, and shows no laminations or bedding, is quite massive, and is weakly foliated at 73 deg. tca.. Weak to moderately chloritized. No carbonate. Moderate to strongly fractured core, locally ground, with chlorite on fracture planes. Quartz-calcite stringers, as a trace, infilling fractures. Pyrite trace.

45.00	45.50	Intermediate Feldspar Porphyry Dykelet Contacts fractured. Greenish grey dyke, medium grained, with anhedral pinkish feldspars, 2-3mm, 10%, contained within a strongly chloritized and carbonatized groundmass of finer feldspar, quartz, and altered mafic minerals. Most likely related to the granodiorite intrusion in the vicinity. Very weak foliation at 45 to 50 deg. tca. No sulphides noted.
56.00	59.00	Mafic/Carbonatite(?) Dyke Contacts fractured, approximately located. Rock is yellowish green, homogenous, fine grained, with subtle 1to 3mm subhedral mineral scattered throughout, over 25%, also yellowish green. Rock is strongly "carbonatized", with pervasive calcite, weakly chloritic. Very faint foliation at 35 deg. tca. Trace of hairthin quartz-calcite stringers. No sulphides noted.
65.00	70.40	As previously described. Rock is very dense, either very siliceous or silicified. Less than 1% quartz-calcite veining. Pyrite less than 1%, as fine blebs, wisps, and dissemination.

70.40 155.80 (ALTERED/MINERALIZED STRUCTURAL ZONE)

Interval consists of moderate to strongly sheared mafic volcanic rocks, with possible cherty interflow sediments, accompanied by weak to strong alteration (carbonate, silica, chlorite, sericite), and 1% pyrite. Several dykelets of various composition, from mafic to felsic, and lamprophyre dykelets, equally altered, are also observed cross cutting the zone. Notably, this zone **is not** characterized by significant quartz veining (only 1-2%, narrow and discrete veinlets), and appears to be located too far south to correlate with the main Empress Stucture.

70.40 73.50 Alteration rapidly increase to strong silicification, weak sericitization, and very faint hematization in places. Moderately schistose, laminated, at 70 deg. tca. Protolith appears to be the equivalent of the rock above the alteration zone. Pyrite 1% disseminated to fine wisps, 2% nearing next interval.

73.50 75.00 Possible felsic dyke, pink to yellowish grey, aphanitic to granular, like a highly altered granodioritic rock in places. Strongly silicified and carbonatized, weak to moderately hematized. Sheared at 70 deg. tca, possibly folded, with 10 to 15% very fine pyrite disseminations and wisps, and seams even cross cutting the schistosity. No definite contacts, but most of it is definitely intrusive.

75.00 103.80 Essentially highly altered mafic volcanic as previously described above, very fine grained, siliceous or highly silicified, with weak to moderate sericitization and chloritization, accompanied by local carbonatization. Strongly cherty in places, with fine laminations, parallel to the schistosity, suggesting narrow possible chemical sediment horizons, <30cm wide. Some felsic dykes are also suspected, as suggested by sudden changes in alteration intensities and style. A definite quartz-eye porphyry dykelet, <20cm wide, is observed near 95.5ft, sheared, weakly sericitized, with very fine disseminated pyrite. Overall, rocks are strongly schistose at about 70 deg. tca. Narrow slivers of lamprophyre dykelets can be observed, subparallel tca, also seemingly silicified (but not mineralized). Pyrite seams, wisps and disseminations, <1%. Magnetic locally.

103.80 107.25 (Lamprophyre Dyke)
Contact subparallel tca, highly irregular, brecciated, indicating the rapid emplacement of the dyke, across the previously scheared host rock, as indicated by the scattered wallrock xenoliths. The lamprophyre is light grey, fine grained, with biotite phenocrysts set within a fine carbonate groundmass. The dyke appears weakly

silicified, is dense and relatively hard for a lamprophyre. Shows no fabric, and is not mineralized. Dyke is also cross-cut by 10% late calcite-chlorite veinlets, at less than 15 deg. tca.

107.25 155.80 Similar to the unit the unit previously described above the lamprophyre dyke, with moderate to strong alteration. Rock is moderate to strongly schistose at 65 to 75 deg. tca, and is locally brecciated. Interval probably includes some highly altered gabbroic dykelets as previously described, but no definite contacts could be defined. Pyrite disseminations and seams, 2% locally, 1% overall.

155.80 291.00 (MAFIC INTRUSIVE)

No contacts observed. Transition probably occurs somewhere in the overlying alteration zone. Rock is fine grained, greenish grey, very homogenous, massive, most likely intrusive. Chloritized mafic minerals are locally discernible. Still very dense, but does not appear to be silicified, except perhaps within the first 2-3m near the beginning of the interval. Weakly choritized, non carbonatized, weak to moderately magnetic. Essentially non-foliated. Quartz-calcite stringers, <0.5%. Pyrite wisps and disseminations, trace.

155.80 161.00 Moderately chloritized, perhaps weakly silicified, with <1% very fine pyrite wisps, parallel to the weak foliation at 55 deg. tca.

291.00 397.15 (MAFIC VOLCANIC, INTERFLOW SEDIMENTS, ALTERATION ZONES)

Rock is greenish grey, fine grained, displaying weak to moderate schistosity, accompanied by a whole series on alternating alteration zones, 1 to 6m wide, which may correspond with the location of possible interflow sediments.

291.00 304.25 (Alteration Zone)
Upper transition into the zone from above 192ft is missing, due to a spilled core box. The rock is moderate to strongly silicified, locally cherty, possibly albitized, to a brownish buff color in places. Moderately sericitized locally, and difficult to determine protolith. Strongly sheared at 50 to 65 deg. tca, with at least one nose of a fold visible. Quartz veining essentially absent. Pyrrhotite mostly, 1 to 2%, and trace pyrite, as seams, wisps, infilling fractures, generally parallel to schistosity planes.

304.25 332.10 Fine grained mafic volcanic, displaying subtle laminations locally, possibly indicating the presence of sediments, although not definitive. Shistosity is weak to moderate at about 50 deg. tca.

Weakly to moderately chloritized, with strong chlorite on fracture planes. Carbonate very weak. Weakly silicified nearing the alteration zones. Pyrite trace.

332.10 339.25 (Alteration Zone)
As previously described between 291.0 to 304.25 ft. Strongly silicified, cherty, with some definite laminations of dark grey mudstone and chert in places, confirming the presence of sediments. Also 2% quartz veining, semi-translucent, often associated with the sulphides. Schistosity moderate to strongy at 50 deg. tca. Pyrrhotite and minor pyrite, as seams and wisps, 1 to 2%.

339.25 350.20 Fine grained mafic volcanic, similar to interval at 304.25 to 332.10ft.

350.20 374.90 (Alteration Zone)
Similar to previously described alteration zones located above. Moderate to strongly silicified, locally cherty, locally laminated, parallel to the strong schistosity at 70 to 80 deg. tca. Calcite weak to strong. Sericite weak to moderate. Pyrrhotite and minor pyrite, 5% in places, 1 to 2% overall. Minor quartz veining, 1-2%, also sometimes containing pyrrhotite.

365.00 367.00 Moderately graphitic schist, with intricate folding.

374.90 397.15 Back into fine grained mafic volcanic, weakly foliated, with pyrite-pyrrhotite trace. Quartz-calcite stringers, diffuse, parallel to the foliation, 3%, at 55 to 80 deg. tca., sometimes rotating subparallel to core axis.

397.15 435.20 (MINERALIZED/ALTERED STRUCTURAL ZONE)

Similar to previously described zones above, but distinct by the presence of about 15% quartz veining, and distinct by the presence of at least one felsic dyke.

397.15 418.90 Moderate to strongly silicified mafic volcanic, accompanied by quartz veins up to 15cm wide, 10% overall. Weak to moderately sericitized and chloritized, pervasive calcite alteration strong in places. Sheared, folded, even the quartz veins are folded, with main schistosity at 62 deg tca. Pyrite and pyrrhotite, very finely disseminated to seams and wisps, 2%.

418.90 421.15 Felsic Dyke
Light grey, medium grained, with quartz and feldspar mostly,

granitic, with 2-3% chloritized mafic minerals, and subtle feldspar phenocrysts. Essentially an altered granodiorite to granitic dyke, moderately silicified, weakly carbonatized, moderately sheared at 50 deg. tca. Pervasive quartz veining at all angles throughout, over 50%, barren. Pyrite trace.

421.15 425.55 Quartz-sericite-chlorite schist, with 15% barren quartz veins, sheared, brecciated. Pyrite <1%, and trace of galena along the margins to one vein.

430.50 435.20 Schist as above, including one at least 30cm moderately graphitic. Pyrite <0.5%.

435.20 500.00 (MODERATELY ALTERED MAFIC VOLCANIC, MINOR SEDIMENTS)

435.20 450.80 Fine to medium grained mafic volcanic, with occasional vesicular-like features, infilled by chlorite. Alteration is weak, to chlorite, and possibly weakly silicified. Pyrite stringers, <0.5%.

450.80 457.15 (Altered Zone)
Moderate to strongly silicified, locally cherty, brecciated. Minor dark grey mudstone laminations, parallel to the shistosity at 72 deg. tca. Pyrite seams 2% in places, <1% overall.

457.15 500.00 Short silicified interval occur, over <1m intervals, as previously described. Sulphides are very minor, <0.5%, as occasional seams and stringers. The host rock shows minor local laminations at 80 deg. tca, suggesting the presence of minor sediments mixing with the mafic volcanics.

481.00 500.00 The schistosity and alteration increases to moderate, at 53 deg. tca. Locally chloritized, locally more silicified, with trace pyrite.

491.00 497.00 Strongly schistose and chloritized, essentially a chlorite schist, with minor biotite. No contacts observed.

495.00 500.00 Moderately chloritized mafic volcanic, feels greasy. Weakly carbonatized. Botom of interval may be silicified, is very dense, and relatively hard for a chlorite schist. Sheared moderately at 60 deg. tca. Trace pyrite. Rod smears common, may affect ICP.

P.S. The hole was stopped prematurely in a moderately to strongly altered chlorite zone.

500.00	END OF HOLE

Hole Number: 4410-87-7A
Project: Empress
Northing:
Easting:
Azimuth: 000
Inclination: -50
Depth: 501.0 ft
Started: Feb.8, 1987
Completed: Feb.10, 1987

0.00 20.00 (OVERBURDEN)

20.00 198.80 (MAFIC INTRUSIVE/VOLCANIC)

Rock is mostly fine grained, but changes to gabbroic between 50 to 90 ft., with no apparent contact, and is quite massive, with no apparent flow textures. Most likely intrusive. Some faint banding is observed, defined by more felsic to mafic intervals, probably due to regional metamorphism and deformation. Foliation is weak to moderate over short intervals, at 48 deg. tca. Weakly chloritized, non magnetic. Quartz calcite stringers 1 to 2%, at various angles. Pyrite <1%.

71.60 74.00 Moderately bleached by pervasive weak to moderate calcite alteration, accompanied by weak silicification relating to very irregular quartz-calcite stringers infilling fractures resulting from weak brecciation. Pyrite fine disseminations 2-3% locally, 1% overall.

198.80 261.90 (MODERATELY ALTERED MAFIC VOLCANIC, MINOR SEDIMENTS)

Moderate to strong alteration zone within mafic volcanics, minor interflow sediments (locally graphitic). Moderate to strongly silicified, locally cherty. Chlorite weak to strong, carbonate (calcite) weak to very strong. Schistosity moderate to strong at 70 to 75 deg. tca., often rotating, with local weak folding. Quartz veining, all less than 1cm wide, 2-3%, pervasive, sheared, brecciated.

215.65 220.65 Finely laminated locally (0.5cm), by alternating cherty grey layers and dark grey graphitic mudstone layers. Define graphite on some planes. Laminations parallel to the schistosity at 56 deg. tca.

220.65	261.90	Fine grained mafic volcanic, very massive, essentially non foliated, but with local minor possible quartz-carbonate amygdules. Non magnetic, relatively unaltered, but possibly weakly silicified, seems very dense especially nearing the alteration zones. Pyrite <0.5%, as occasional wisps and seams, often in association with 1 to 2mm quartz-calcite stringers.

261.90 308.65 (MINERALIZED/ALTERED STRUCTURAL ZONE)

Moderate to strongly altered zone, displaying alternating intensities of carbonatization, silicification, and sericitization, and weak chloritization. Very minor local and weak hematization. Essentially a quartz-sericite-carbonate schist locally. Possible trace of very fine quartz-eyes is sometimes discerned within the most sericitic intervals; These intervals were probably derived from highly altered and deformed felsic dykelets, although contacts are not observed. The interval locally shows <1cm laminations, cherty grey and dark grey (mudstone) suggesting the possibility of minor interflow sediments. Schistosity is moderate to strong at 50 deg. tca., with weak folding. Quartz veining comprises about 50% of the interval, mostly as one large vein. Pyrite and minor pyrrhotite as seams, stringers, wisps and disseminations, mostly parallel to the schistosity planes, 5% locally, 2% overall. Galena and chalcopyrite are also present within the veins, traces overall. The rock is moderately magnetic in places, and this relates to fine pyrrhotite but also fine disseminated to stringer magnetite.

261.90	263.05	Missing core.
263.05	288.95	As described above. Quartz veining, no wider than 5cm, 2 to 3%. Pyrite 1 to 2% overall, within the host and also within the veins.
288.95	302.00	Over 90% quartz veining, with wallrock inclusions containing 1-2% pyrite as well. The veins also contain occasional pyrite cubes, seams and even semin-massive blebs and patches. Galena is also fairly common within the veins, <0.5% overall. Trace of chalcopyrite.

308.65 358.00 (MAFIC VOLCANIC, MODERATELY ALTERED)

Similar to previously described interval above the alteration zone, with mostly fine grained mafic volcanic, locally displaying bleached intervals with correlate with diffuse felsic to biotitic banding, minor. Foliation is weak at 49 deg. tca. Weakly chloritic. Possibly amygdular in places. Pyrite fine disseminated to occasional wisps, <0.5%.

358.00 362.75 (QUARTZ-SERICITE SCHIST - STRONG ALTERATION ZONE)

Rock altered to a quartz-sericite schist, strongly schistose at 70 deg. tca. Pyrrhotite and pyrite seams and disseminations <1%. Margins to the zone are moderately chloritized, very weakly sericitized and silicified.

362.75 501.00 (MAFIC VOLCANIC, MODERATELY ALTERED AND SHEARED)

Overall, finer grained than above, most definitely a mafic volcanic, weak to locally moderately foliated, as define by diffuse biotite-rich bands and stringers-like features, at 53 to 60 deg. tca. Possible weak flow brecciation in places, subtle. Minor offsets and disruptions (1cm) of the foliation along occasional fractures very oblique tca., <20 deg., healed by quartz-calcite stringers. Weak to moderately chloritized. Occasional narrow silicified intervals. Minor garnets locally. Quartz-calcite stringers <1%. Pyrite and pyrrhotite wisps and disseminations, <0.5%.

469.40 474.00 (Moderate to Strong Alteration/Shear Zone)
Moderate to strongly altered, bleached to light green. Strongly chloritized, and and weakly sericitized. Diffuse biotite bands throughout. Moderate to strongly schistose, at 52 deg. tca, rotating to 15 deg. over 25cm, where the core is nearly gouged to a mud seam. Contains nearly 1% dusty pyrite disseminations locally.

501.00 END OF HOLE

Hole Number: 4410-87-8
Project: Empress
Northing:
Easting:
Azimuth: 000
Inclination: -80
Depth: 497.0 ft
Started: Feb.11, 1987
Completed: Feb.15, 1987

0.00 25.00 (OVERBURDEN)

25.00 273.50 (MAFIC VOLCANIC/INTRUSIVE)

Rock is mostly fine grained, grey to greenish grey, very massive, with no apparent flow textures, and looks intrusive, but locally displays possible amygdules of quartz-carbonate. Very gradually and over long intervals (ie.3 to 5m), the grain size may increase, but the rock never gets to be really gabbroic. Foliation is very weak at 30 deg. tca. Weakly chloritized, and weakly magnetic. Quartz calcite stringers <0.5%, at various angles. Pyrite trace.

26.10 29.90 (Strong Alteration Zone)
Drill hole collared into a strong alteration zone, silicified, sericitized, carbonatized (calcite), essentially a quartz-sericite-carbonate schist. Schistosity strong at 60 deg. tca, with local strong folding. Pyrite seams along the schistosity planes, <1%. The alteration dissipates rapidly outside the zone, and the margins appear silicified as though this altered unit comprised a different lithological unit, perhaps sediments, perhaps a felsic dyke. No definite contacts, nor bedding can be recognized, due to the intense alteration and deformation.

29.90 35.00 Alteration abruptly dissipates, and schistosity rotates away from the zone, from 35 to 42 deg. tca. The begining of this interval appears strongly amygdular, possibly variolitic (see rep.).

60.00 105.00 Weakly blocky core, fractured mostly very oblique tca, with chlorite coating on the fracture planes.

273.50 308.00 (AMYGDULAR MAFIC VOLCANIC)

Greenish grey, very fine grained, definite mafic volcanic, with 1 to 2mm amgydules, up to 0.75cm, <1%, defining bands. Non magnetic, weakly chloritic. Very weakly foliated, at 25 to

30 deg. tca, defined by weak and diffuse biotitic bands. Quartz-calcite stringers <0.5%. Pyrite trace.

273.50 282.00 (Alteration Zone)
Possible contact zone. Interval is characterized by the abrupt occurrence of fine biotite-chlorite and pervasive carbonate near 273.50 ft, accompanied by an increase to a strong cherty quartz-sericite schist from 274.0 to 276.65 ft. Alteration then decreases downhole, from a biotite-chlorite-carbonate schist, to weak alteration near 282.00ft. Schistosity is strong at 47 to 35 deg. tca, rotating. Pyrite occurs as fine seams, 2% locally, 1% overall, parallel to the schistosity.

308.00 377.50 (CHLORITIZED MAFIC DYKE/FAULT ZONE)

Upper contact sharp but irregular, oblique to core axis, and chilled over 0.75m, accompanied by moderate to strong and pervasive chloritization. Unit is mostly fine grained, very massive, non foliated, dark greenish grey, weak to moderately chloritized, grading downhole into a fine-grained gabbro. The unit is moderately to strongly fractured, with chlorite infillings, at all angles tca, very irregular. Quartz-calcite stringers absent, except near lower contact. Weak to moderately magnetic. Pyrite trace.

321.00	335.00	Center of the fault zone, strongly fractured, locally ground.
357.00	358.00	Ground core.
377.50	378.55	Very fine grained, looks chilled, possibly part of the mafic dyke. Looks weakly silicified, moderately chloritic, feels greasy. Sheared/brecciated, with late quartz-calcite-hematite stringers infilling the irregular fractures, 5%. Pyrite trace.

378.55 421.20 (MINERALIZED/ALTERED STRUCTURAL ZONE)

Moderate to strongly altered zone, displaying alternating intensities of carbonatization, silicification, and sericitization, and weak chloritization. Very minor local and weak hematization. Essentially a quartz-sericite-carbonate-chlorite schist locally. The most sericitic intervals may have been derived from the alteration of felsic dykelets, although no contacts are observed, too sheared and altered. Schistosity is moderate to strong at 20 to 35 deg. tca., with weak folding. Quartz veining comprises about 10-15% of the interval, up to 50cm in width. Pyrite (no pyrrhotite?) as seams, stringers, wisps and disseminations, mostly parallel to the schistosity planes, 1 to 2% locally, 1% overall. No galena noted, and trace chalcopyrite occurs in close association with the veins. The rock is moderately magnetic in places, and this relates to fine disseminated to stringer magnetite. A greyish tinge is sometimes noted, not magnetic, possibly very fine molybdenum(?), on some schistosity planes.

378.55	383.20	Looks like a highly altered mafic volcanic, possibly a dyke, now a chlorite-carbonate-sericite-quartz schist. Schistosity at 20 deg. tca. Quartz-carbonate veining 2-3%, fine quartz-calcite stringers pervasive. Pyrite 1 to 2%.
383.20	385.45	Quartz vein with locally strong and pervasive hematite alteration. Pyrite and chalcopyrite, 0.5%.
385.45	392.65	Highly altered mafic rock, silicified, carbonatized, locally strongly magnetic, due to fine disseminated magnetite. Quartz veinlets, semi-translucent, parallel to schistosity, often folded and sheared, 5%. Schistosity at 28 deg. tca. Pyrite <1%, disseminated, also within the quartz veinlets.
392.65	394.15	Quartz vein, barren, with minor mineralized wallrock xenoliths.
394.15	418.80	Mixed quartz-chlorite-sericite-carbonate schist and veining, perhaps 3%. Pyrite 1%.
418.80	421.20	Mafic Dykelet Light yellowish green, altered mafic dyke. Moderately silicified, weakly sericitized, with pervasive and strong calcite alteration. Contacts are not well defined, appear to be very oblique to ca., at <20 deg. tca. Pyrite <1%, as disseminations and along fractures.

421.20 497.00 (MAFIC VOLCANIC)

Fine grained mafic volcanic, weakly chloritic, with weak foliation very oblique tca. Quartz-calcite stringers 1%, mostly parallel to the foliation. Pyrite stringers and seams, <0.5%.

421.20	427.00	Moderately altered, brown colored near the top 30cm, accompanied by fine disseminated biotite, weak chlorite and pervasive carbonate alteration. Schistosity at <20 deg. tca. Pyrite seams, trace, even cross cutting the schistosity.
434.50	436.50	Core becomes fine grained, purplish brown, almost cherty, as it includes (25%) one very diffuse contact at 17 deg. tca, with a possible intermediate to felsic dykelet, or possibly just an alteration effect (silicified/feldspathized?). Very fine pyrite wisps and

extremely fine seams, both along the schistosity and cross cutting it, 4% locally, <1% overall, seemingly highest in concentration near the possible contact.

436.50 442.00 (Lamprophyre Dyke)
Contacts sharp but irregular. The apparent intermediate dyke described above and the mafic volcanic are cross cut by a lamprophyre dyke, subparallel to core axis, at nearly 90 deg. across the strong schistosity of the wallrock. Biotite-phyric, within a chlorite-carbonate groundmass. Strongly magnetic. Dyke includes mineralized felsic dyke xenoliths, 2%, as described above (see rep. of 438.2ft).

461.15 472.00 (Alteration Zone)
As before, silicified to locally cherty interval, with minor highy altered gabbroic dykelets. Quartz veining 2%. Schstosity at 30 deg. tca. Pyrite and pyrrhotite <1% overall, as seams infilling fractures, cross cutting schistosity in places, also along fractures within the quartz veins.

472.00 495.00 Relatively unaltered mafic volcanics, perhaps weakly silicified near the above alteration zone.

495.00 497.00 Moderately silicified interval, weakly sericitized and chloritized, sheared at <35 deg. tca. Quartz flooding, with sheared quartz veinlets, semi-translucent. Some micro-folding as defined by intricately folded chlorite seams. Pyrite 0.5%, as micro-seams parallel to the schistosity.

497.00 END OF HOLE.

Hole Number: 4410-87-9
Project: Empress
Northing:
Easting:
Azimuth: 000
Inclination: -50
Depth: 600.0 ft
Started: Feb.15, 1987
Completed: Feb.18, 1987

0.00	32.00	(OVERBURDEN)	
32.00	218.00	(MAFIC INTRUSIVE/VOLCANIC)	
	32.00	116.00	Fine Grained Mafic Rock Rock is greenish grey, fine grained, amphibolitized. Quite homogenous, massive, and probably intrusive. Weakly foliated at 45 deg. tca. Weakly chloritized, non carbonatized. Weakly magnetic in places. Quartz-calcite stringers <0.5%, at various angles. Pyrite 0.5% as fine wisps parallel to the foliation.
	32.0	48.00	Moderately blocky core. Includes one narrow shear at 32 deg. tca, betwenn 48.5 and 49.0 ft., infilled by chlorite-calcite-quartz stringers, and 2% stringer pyrite.
	116.00	176.00	Medium Grained Mafic Rock Interval is perfectly transitional with overlying mafic rock, but rapidly becomes medium grained, gabbroic in places. Amphibolitized, weakly chloritic, with weak to moderate pervasive carbonate alteration. Schistosity weak to moderate, more apparent then within the upper unit, at 45 to 46 deg. tca, defining diffuse mafic to felsic banding in places. Pyrite 0.5% disseminated.
	163.40	165.80	Weak silicification and epidotization, in association with two <1cm wide quartz-epidote veinlets. Pyrite-pyrrhotite trace.
	176.00	218.00	Fine Grained Mafic Rock Similar to previously described interval located between 32 and 116 ft. Fine grained, very homogenous, massive, possibly intrusive. Chloritized amphiboles locally discernible. Weakly

foliated at 50 deg. tca. Pyrite <0.5%.

218.00 251.20 (MAFIC VOLCANIC AND MAFIC DYKES/CONTACT ZONE)

Interval exhibits two silicified intervals, cross cut by narrow gabbroic dykelets. The second interval is definitely related to the emplacement of the underlying granodiorite dyke.

218.00	226.80	Weak to strongly silicified interval, almost cherty in places. Moderately carbonatized, minor chlorite on fracture planes. Schistosity moderate to strong at about 60 deg. tca., pseudolaminated locally. Weakly sericitic. Magnetite seams common. Pyrite 1-2%, as seams and disseminations.
226.80	235.00	Mafic rock (volcanic?) moderately silicified and chloritized, gradually decreasing to weak downhole. Schistosity moderate at 55 deg. tca. Strongly carbonatized. Pyrite seams <0.5%.
228.30	228.60	
235.00	239.00	Mafic Dykes Light grey, fine grained, strongly carbonatized, with a purplish tinge due to very faint hematization. Moderately sheared, and contacts sharp, at various angles from 55 to 80 deg. tca. Non mineralized. These dykes are of the same generation as the altered gabbroic dykelets and the mafic to intermediate dykes so far described from the vicinity. Although their contacts are sharp, these dykes have similar textures to the surrounding mafic rocks, volcanics, and are not easily recognized.
239.00	251.20	Mafic rocks (volcanic?) show gradual increase in schistosity downhole, rotating from 42 deg. to 15 deg. tca. at the contact with the granodiorite. Carbonatization also increases downhole to very strong and pervasive, whereas sericitization increases to moderate. Probably weakly silicified. Pyrite is wispy, <0.5% overall.
244.00	245.00	Mafic dykelet as previously described, moderately sericitized, strongly sheared at 42 deg. tca. No sulphides noted.
245.00	251.20	Pyrite 1%, as wisps and disseminations. Includes one 10cm wide and one 15cm wide barren quartz vein, parallel to the shistosity.

251.20 260.55 (GRANODIORITE/FELDSPAR PORPHYRY)

Orange to purplish grey and moderately altered felsic dyke, moderately altered along the upper contact by sericite. Overall, weak to moderately hematized and carbonatized, bleached, weak to moderately sheared near the contacts at 36 to 49 deg. tca. Mineralogy is diffuse, with feldspar phenocrysts up to 5mm, aver. 2mm scattered throughout, 3%, weakly hematized, and various amounts of mafic minerals (amphiboles?), anhedral, diffuse, 5% locally. The groundmass is generally fine to medium grained, consisting of quartz, feldspar, and mafic minerals. The dyke is identical to a dykelet observed in 87-4, around 435ft. It is porphyritic, but closely related to the granodiorite intrusive. Pyrite fine disseminated, <1%.

260.55 289.25 (MAFIC VOLCANIC)

As previously described mafic volcanic rocks located above the dyke. Fine grained to locally gabbroic, generally weakly altered, chloritized, carbonatized. Foliation is weak, to moderate locally, at 52 deg. tca. Quartz-calcite stringers <1%, diffuse, all angles. Pyrite 0.5% fine disseminated to wisps.

260.55	263.50	Moderately chloritized, strongly carbonatized, with minor sericite. Moderately sheared at 50 deg. tca. Pyrite 1% at the contact, rapidly decreasing to a trace.
285.00	289.25	Gradual increase in bleaching to yellowish green, accompanied by pervasive carbonate, moderate chlorite, and weak sericitization. Schistosity moderate at 60 deg. tca, variable, weakly folded. Pyrite trace.

289.25 335.75 (MINERALIZED/ALTERED STRUCTURAL ZONE)

Interval consists of moderate to strongly sheared mafic volcanic rocks, quartz-sericite schist (derived from altered interflow sediments and felsic dykes) accompanied by quartz veining (5%?) and quartz-calcite stringers, weak to strong alteration (carbonate, silica, chlorite, sericite, hematite), and 1-2% sulphides. Magnetite is also noted. Gabbroic to dioritic dykes are also observed cross cutting the zone. Overall, the intensity of sericitization is less than previously observed in some other holes, and the zone is relatively narrow.

289.25	290.90	Moderate to strongly sericitized,with weak hematization, strong pervasive carbonate, and moderate silicification. Sheared at 53 deg. tca., folded. Trace of possible quartz-eyes, very fine.
290.90	292.60	Bull white quartz vein, at about 80 deg. tca. Pyrite disseminations

and fine wisps, <1%, <1% galena and trace chalcopyrite, mostly along the margins.

292.60	295.85	Essentially a quartz-sericite-chlorite-carbonate schist, including a 10cm wide quartz vein, and smaller other ones, perhaps 15% in all. The margins to the veins are highly silicified, weakly hematized, and contain up to 3-4% very fine disseminated pyrite. Includes a gabbroic to dioritic dyke between 293.7 and 294.7 ft. The dyke is highly carbonatized, moderately silicified, weakly sericitized, schistose at 67 deg. tca, and also contains 1% disseminated pyrite. Overall, intervall contains 1% pyrite.
295.85	299.50	Quartz-sericite-chlorite schist, including 70% quartz-calcite-hematite veins, with <1% pyrite seams and disseminations, within the quartz and within the wallrock.
299.50	307.50	Mafic volcanic, moderately silicified, strongly carbonatized, and very weak sericitization. Minor very fine biotite. Schistosity at 53 deg. tca. Pyrite 1% disseminated.
307.50	312.00	Strongly silicified interval, moderately sericitized, with 10-15% quartz veining, often containing pyrite stringers. Overall, 1% pyrite.

312.00 323.10 (Altered Gabbroic Dyke)
Highly altered gabbroic dyke, similar to the previously described mafic to intermediate dykelets, but strongly sheared, deformed, at about 45 to 55 deg. tca. Essentially a chlorite-sericite-carbonate-quartz schist, with pyrite seams and disseminations, <1%.

323.10	325.75	Quartz-sericite-carbonate schist, strongly sheared at 59 deg. tca. , possibly a felsic dyke? Pyrite 1%.
325.75	335.75	Mafic volcanic, weak to strongly silicified and carbonatized. Veining is absent except for one late quartz-calcite veinlet subparallel to ca., barren. No sericite. Moderate schistosity at 61 deg. tca. Pyrite 1% as wisps and seams, with minor pyrrhotite.

335.75 375.00 (MAFIC VOLCANIC)

Fine to medium-grained massive mafic volcanic, grey green, locally gabbroic. Weakly foliated, at approx. 45 deg. tca. Some narrow intervals, <30cm wide, are darker grey, appear weakly silicified, and contain fine biotite, weakly magnetic. Weakly choloritized. Diffuse banding into more felsic to more mafic intervals. Very fine garnets locally noted. Quartz-calcite stringers <1%, at various angles. Pyrite-pyrrhotite wisps and disseminations, <0.5%.

335.75	340.00	Alteration is essentially out. No contacts can be observed.

375.00 600.00 (MODERATELY ALTERED MAFIC VOLCANIC/MINOR SEDIMENTS)

Unit is transitional with the massive flow described above. Fine grained, dark grey to green, displaying intricate textures suggesting discrete local flow brecciation, defined by angular subtle fragments, lapilli-size, often chloritized, others more carbonatized. Difficult to tell since rock is weak to moderately foliated, at 60 to 65 deg. tca, often defining more chloritized to more biotized and magnetic bands. Overall, weak to moderately chloritized and carbonatized. Pyrite-pyrrhotite <1%.

375.00	388.40	Highly silicified to nearly cherty interval, with weak to moderate sericitization. Show local apparent laminations, 1-2mm to 1cm, of alternating dark grey to light yellowish green, at 70 deg. tca. Difficult to identify protolith, possibly highly altered and sheared mafic flow top, perhaps including some interflow sediments. Some grey to semi-translucent quartz veining is also present, sheared and brecciated, 2-3%. Pyrite and pyrrhotite seams, parallel to schistosity, 1-2%.
401.00	402.5	Includes a 2cm wide quartz vein, at 60 deg. tca., with 25% pyrrhotite, 1% chalcopyrite.
402.50	406.10	Alteration increases to moderate downhole, silica, carbonate, biotite, with moderate schistosity at 59 deg. tca. Pyrite trace.
406.10	407.30	Quartz-calcite veining, 25%, with silicified and carbonatized wallrock. Pyrrhotite stringers, disseminations, over 5%, abundant magnetite, locally massive, and <0.5% chalcopyrite.
420.00	432.00	Weakly sericitized interval, with moderate schistosity at 54 deg. tca, centered on a narrow shear at 425.5ft, infilled by quartz-calcite-chlorite. Pyrite trace.
435.40	436.40	Calcite-quartz-hematite vein, at 35 deg. tca, barren.
448.75	450.80	Moderately silicified, with weak epidote(?) patches, very dense core. Pyrrhotite 1-2%.

450.80	485.00	The discrete apparent brecciation is gradually disappearing, and core is becoming more homogenous, more massive. Schistosity still moderate at about 60 deg. tca.
478.50	479.65	
490.00	491.00	Lamprophyre Dykelets Dark green to black, biotite phryic, within a carbonate-chlorite groundmass. Contacts sharp and mostly very oblique, at less than <20 deg. tca.
491.00	600.00	Relatively homogenous section, fine grained, green to dark grey, weakly magnetic, almost like a siltstone in places, but no bedding, and definitely volcanic. Foliation at 52 deg. tca. Moderately chloritized, but not carbonatized. Pyrite trace.

548.00 570.00 (Strong Chlorite Alteration Zone)
Core becomes light green, bleached, but does not appear to be carbonatized. Strongly chloritized, essentially a chlorite schist, moderately foliated at 52 deg. tca. Minor quartz-calcite stringers, hairthin. No sulphides noted. No apparent contacts.

570.00	600.00	Trace of pyrrhotite blebs. Minor discrete shears at 27 deg. tca., chloritized.

600.00 END OF HOLE.

Hole Number: 4410-87-10
Project: Empress
Northing:
Easting:
Azimuth: 000
Inclination: -70
Depth: 516.0 ft
Started: Feb.18 1987
Completed: Feb.21, 1987

0.00 30.00 (OVERBURDEN)

30.00 246.00 (MAFIC INTRUSIVE/VOLCANIC)

Rock is greenish grey, fine grained, amphibolitized. Quite homogenous, massive, and could possibly be intrusive. Weakly foliated at 27-30 deg. tca. Weakly chloritized, non carbonatized. Weakly magnetic in places. Quartz-calcite stringers <0.5%, at various angles. Pyrite 0.5% as fine wisps parallel to the foliation.

31.15 42.35 (Strongly Altered Zone)
Core is strongly silified, weak to moderately sericitized, and locally carbonatized. The core is moderately sheared at 48 to 54 deg. tca. Quartz-carbonate veining, 2-3%. Interval consist mostly of altered mafic, but is locally cherty grey, highly siliceous, and most definitely includes at least one highly altered felsic dyke, with remnant textures of a granodiorite(?) between 40.25 and 40.75 ft, although no clear contacts are observed. Pyrite 0.5%, as fine wisps.

P.S. Core box was dropped after logging, and only one sample of cumulate chips was therefore taken for assay, across the zone.

42.35 47.00 Alteration abruptly dissipated.

246.00 253.45 (Moderate to Strong Alteration Zone)
Similar to previously described alteration zone, silicified, weak to moderately carbonatized, sericitized, weakly chloritized. Discrete semi-translucent to grey quartz stringers, 3-4%. Schistosity strong at 45 deg. tca, folded to brecciated in places. Pyrrhotite and lesser pyrite stringers to nearly massive bands in places, overall 3%.

246.00 329.75 (MAFIC VOLCANIC/INTRUSIVE)

253.45 258.50 Weakly bleached interval, by carbonate and very minor sericite, in association with diffuse and barren quartz-calcite stringers, 8%, at 33 deg. tca.

273.60 275.50 Strongly sheared at 45 deg. tca. Strongly sericitized and carbonatized. No apparent contact to indicate it may be a dyke. Dusty pyrite, trace.

275.50 296.00 Possibly amygdular in places, with 2 to 5mm ovoids of quartz and carbonate, up 20% locally. Fine anhedral feldspar phenocryst discernible.

303.00 304.00 Ground core.

321.00 326.00 Core shows very weak alteration near the bottom of the interval, to epidotization(?). Core is also very dense, possibly silicified. Carbonate alteration is also pervasive. Schistosity increasing to moderate, very oblique tca, <15 deg. Pyrite ,1% disseminated.

326.00 329.75 (Altered Contact Zone)
Rapidly increasing from moderate to strong alteration, weak to moderately silicified, weakly sericitized, strongly carbonatized (calcite). Diffuse quartz-carbonate stringers, diffuse, pervasive. Strongly sheared at 38 deg. tca., rotating at 29 deg. at the contact with the lower dyke. Weakly magnetic. Pyrite trace?

329.75 335.00 (GRANODIORITE/FELDSPAR PORPHYRY)

Orange to purplish grey and moderately altered felsic dyke. Weak to moderately hematized and carbonatized, bleached, weak to moderately sheared near the contacts at 29 to 45 deg. tca. Mineralogy is diffuse, more or less equigranular, with anhedral feldspar phenocrysts up to 5mm locally discernible. The groundmass is generally fine to medium grained, consisting of quartz, feldspar, and chloritic mafic minerals. The dyke is identical to a dykelet observed in 87-4, around 435ft, and in hole 87-9. It is porphyritic, but closely related to the granodiorite intrusive. Quartz-calcite-chlorite stringers <0.5%. Pyrite fine disseminated, <0.5%, to 1% on some chloritic fracture planes.

335.00 346.00 (MAFIC INTRUSIVE/VOLCANIC)

335.00 340.50 (Altered Contact Zone)

Identical to altered zone located above the dyke. Alteration and schistosity decreasing downhole from strong to moderate, at 45 deg. tca. Moderately chloritic. Pyrite trace.

340.50	346.00	Massive interval, gabbroic, relatively unaltered, and very weakly foliated at 43 deg.

346.00 385.30 (MINERALIZED/ALTERED STRUCTURAL ZONE)

Interval consists of moderate to strongly sheared mafic volcanic rocks, accompanied by quartz veining (15%?) and quartz-calcite stringers, weak to strong alteration (carbonate, silica, chlorite, sericite, hematite), and 1-2% sulphides. Magnetite is not noted. Gabbroic to dioritic dykes and lamprophyre dykelets are also observed cross cutting the zone. Overall, the intensity of alteration and mineralization appears stronger than within hole 87-9, and is wider, but this may be related to the steeper drilling angle.

346.00	354.00	Alteration of the mafic volcanic abruptly increases downhole, to what is essentially a quartz-sericite-carbonate-chlorite schist. The rock is locally cherty, very fine grained, and may include felsic dykelets, although no contacts were observed. Schistosity is very strong at 28 deg. tca, with weak folding. Pyrite <1%, as seams parallel to the schistosity.
354.00	356.00	Over 90% quartz veining, with 1% pyrite, <1% chalcopyrite and galena, infilling microfractures. Hematite along fractures as well.
356.00	371.50	Mixed highly altered mafic volcanic, and various dykes. Quartz veining 2-3%. Pyrite <1-2%.
357.00	357.50	Lamprophyre dykelet, with biotite phenocrysts, withing a carbonate and chlorite groundmass. Contacts sharp at 55 deg. tca. Notably, even this dyke is weakly silicified, although it is not foliated. No sulphides noted.
366.20	367.00	Mafic dyke, gabbroic, as previously described. Contacts not well defined. Moderately schistose at 56 deg. tca. Silicified, carbonatized, non-mineralized.
368.00	368.50	Possible felsic dyke. Rock is cherty pink, aphanitic, very siliceous, sheared, and mineralized, with 1-2% pyrite. No observed contacts.
371.50	374.30	Quartz veining, 75%, with <0.5% pyrrhotite, and trace chalcopyrite. The other 25% consists of quartz-sericite-carbonate-

chlorite schist.

374.30 378.65 Quartz veining 25%, hosted by a chloritized, carbonatized, and silicified mafic volcanic. Pyrite <1%, with trace pyrrhotite and chalcopyrite.

378.65 385.30 Strongly to moderately altered mafic volcanic, gradually decreasing in intensity downhole. Strongly schistose at 50 deg. tca, folded. Pyrite <1% disseminated to wisps. Sericitization weak.

385.30 516.00 (MAFIC VOLCANIC AND INTERFLOW SEDIMENTS)

Following the alteration zone described above, the core remains fine grained but is relatively much less altered. It varies from green to dark grey however, is moderately foliated in places, and defines laminations and bands representing minor turbitite sequences of interflow sediments. These laminations, are at 40 to 55 deg. tca. No top determination could be obtained. Overall, alteration is weak to moderate, chloritized, and weakly carbonatized, biotitic in places. Garnets locally observed. Some sedimentary intervals, <1m wide, appear weakly sericitized. Quartz-calcite stringers are diffuse, mostly parallel to the schistosity, 2%. Pyrite <1% disseminated to wisps.

428.45 434.15 (Moderately Silicified Zone)
Interval, weakly sericitized. Schistosity at 58 deg. tca. Pyrite 1%, as fine disseminations and wisps and seams.

450.00 453.00 (Strongly Silicified Interval)
Strongly silicified, flooded by greyish cherty quartz veins, at about 35 deg. tca, accompanied by 1% pyrite and trace pyrrhotite.

516.00 END OF HOLE.

Hole Number: 441-84-7
Project: Empress
Northing:
Easting:
Azimuth: 000
Inclination: -50
Depth: 399.5 ft
Started: Mar. 26, 1984
Completed: Mar. 28, 1984

0.00 9.00 (OVERBURDEN)

9.00 41.00 (FELDSPAR-PHYRIC MAFIC VOLCANIC)

Unit consists of grey mafic volcanic, weak to moderately foliated into diffuse and more felsic looking bands and occasional stringer like laminations. Rock is fine grained, amphibolitized, with very fine chloritized to biotitic amphiboles sometimes discernible. Fine white anhedral feldspars, generally <1mm, up to 2%, are locally observed. Overall, the rock is weakly chloritized, and very weakly carbonatized locally. Core is non magnetic. Foliation is weak to moderate at 48 deg. tca. Quartz-calcite±hematite stringers, 1-2%, mostly hairthin to <3mm, at all angles, disrupted, weakly folded locally. Pyrite <0.5%, disseminated, to occasional seams parallel to schistosity.

9.00 22.00 (Fault Zone)
Locally strongly fractured core, at various angles, with minor hematite coating on some fracture planes.

36.00 41.00 Fine grained, weakly feldspar phyric, gradually becoming more schistose downhole, at 47 deg. tca. Alteration also gradually increases, by chlorite and carbonate.

41.00 184.10 (MINERALIZED/ALTERED STRUCTURAL ZONE)

Interval consists of moderate to strongly sheared mafic volcanic rocks and possible minor interflow sediments, cross-cut by several gabbroic dykelets, accompanied by quartz veins and quartz-calcite stringers, weak to strong alteration (sericite, silica, carbonate, chlorite), and sulphidization. Quartz veins comprise less than 3% of interval, whereas fine quartz-calcite stringers are pervasive. Pyrite and chalcopyrite (ratio of 95:5) occur mostly as fine seams, disseminations and splashes, up to 5% locally, overall 1-2%.

41.00	90.00	The mafic volcanics are fine grained, light brownish grey, weakly bleached, due to the presence of finely disseminated biotite, and pervasive weak to strong carbonatization (calcite) and weak to moderate silicification. Sericitization varies from weak to moderate, and seams to be associated with the stronger mineralization.
41.00	43.00	Moderately altered, by carbonate, silica, chlorite and biotite. Pyrite 1% as wisps and seams. Schistosity moderate at 33 deg. tca.
43.00	48.00	Becoming moderately schistose, at 55 to 60 deg. tca., almost laminated. Moderately carbonatized and chloritic, brownish green, biotitic. Becomes gradually strongly silicified downhole, almost cherty near 48 ft. Fine quartz-calcite stringers mostly parallel to schistosity are pervasive. Pyrite 1%, as very fine wisps parallel to schistosity.
48.00	53.00	Rock is strongly altered and scheared, at 35 to 55 deg. tca. Moderately to strongly silicified, moderately chloritic, weak to moderately sericitized, also biotitic. Late but highly sheared quartz stringers, 1%. Pyrite 5-10% locally, 3% overall, as seams, stringers, mostly parallel to schistosity, often in association with early quartz-calcite stringers, pervasive.
53.00	70.00	Similar to interval above, but alteration increases locally to the point where the rock is essentially a quartz-sericite-chlorite-carbonate schist. A very faint orange tinge locally suggests the presence of hematite. Rock is non magnetic. Schistosity at 50 to 65 deg. tca. Pyrite 5% locally, overall 2%.
70.00	85.00	Mafic rock quickly becomes non sericitic, although still moderately carbonatized, chloritized, and silicified. The texture is locally gabbroic, weakly magnetic, and this unit may be intrusive. Schistosity is weaker, at 55 deg. tca. Pyrite 0.5%, fine disseminated to very minor seams.

85.00 149.00 (Strongly Altered Zone)
Zone of most intense alteration. Most of the interval consists of a highly altered rock, essentially a quartz-sericite-carbonate±chlorite schist, probably of mafic origin. The rock is locally fine grained and may have been derived from a mafic volcanic, but in other areas it appears more granular, possibly of intrusive origin. The rock is locally pseudolaminated (sediments?), strongly sheared, weakly folded, at variable angles from 60 to 90 deg. tca.

85.00	90.00	Quartz veining 1%, no larger than 5cm wide. Core is strongly silicified and moderately sericitic. Pyrite 5% locally, overall 2%, gradually increasing downhole.
90.00	92.00	Diorite Dyke Highly altered, light greenish grey, dioritic, medium grained, with 3% chloritized mafics (2-3mm across, anhedral), fine quartz phenocrysts (2mm, 1%) and over 20% anhedral white feldspar phenocrysts, within a strongly carbonatized groundmass. Moderately silicified, moderately schistose. Quartz stringers cross cutting at various angles. Sulphides not observed.
92.00	117.00	Quartz-sericite-carbonate schist as previously described. Quartz veining, up to 2cm wide, 1%. Pyrite 1%, as fine disseminations and seams parallel to schistosity. Trace of chalcopyrite associated with fine pyrite seams along the margins to occasional quartz stringers.
117.00	149.00	Chalcopyrite splashes becoming very common, spatially associated with the quartz±calcite veins.
117.00	126.70	Quartz±tourmaline veinlets, <2cm wide, irregular, as a stockwork, less than 5%. Pyrite and chalcopyrite seams and splashes, overall 2%, including <0.5% chalcopyrite. The chalcopyrite is found both within some quartz veins, and along schistosity planes, but appears to be spatially in proximity to these veins.
126.70	127.50	Quartz vein, with contacts nearly perpendicular tca. Contains 1% sulphides, including fine disseminated to wispy pyrite, splashes of chalcopyrite, sphalerite crystal (rusty brown, up to 5mm), seemingly surrounded and included with fine galena.
127.50	129.00	Quartz-sericite schist, with 3-5% pyrite.
129.00	130.40	Quartz vein, with 10% wallrock inclusions. Contacts sharp near perpendicular tca. Pyrite stringers, wisps to coarse cubes, 3%. Chalcopyrite splashes, within the vein, <1%.
130.40	142.00	Strongly broken core, ground. Essentially mixed quartz-sericite schist and quartz veining. Pyrite 1-2%. Strong chalcopyrite splash in one vein, nearly 50% over 1cm, near 134.5 ft. Overall, <1% chalcopyrite.

142.00 144.00 Quartz vein, with <1% pyrite and chalcopyrite.

144.00 149.00 Strongly broken core, ground. Includes 25% quartz veining, and 75% quartz-sericite schist. Pyrite 1-2%, trace chalcopyrite, and trace galena near 145 ft.

149.00 155.30 (Mafic Intrusive)

Core abruptly becomes non-sericitic, green, and looks like an mafic intrusive (?), with fine discernible chloritized mafic minerals. Weak to moderately chloritized, silicified and carbonatized. Schistosity moderate at 40 to 45 deg. tca. Quartz veining <1%. Pyrite 0.5%, fine disseminated to occasional seams.

155.30 164.40 Strongly broken core, in part due to previous sampling (splitting). Rock is mostly a quartz-sericite-carbonate schist, with schistosity angles variable at 60 to 90 deg. tca. May include some mafic intrusive sections. Quartz veining 2%. Pyrite 5% locally, 1% overall.

164.40 176.00 (Mafic Dyke)

Similar to previously described interval at 149 to 155.3 ft. Medium grained to fine grained, with discernible chloritized mafic minerals. Locally looks gabbroic. Weak to moderately silicified, carbonatized, and chloritized. Schistosity weak to moderate at 45 deg. tca. Pyrite and pyrrhotite, <0.5% fine disseminated to occasional wisps.

164.40 166.00 Chilled contact zone(?). Rock is very fine grained, dark grey, moderately sheared at 67 deg. tca. Chloritized, silicified, biotitic.

176.00 184.10 Quartz-sericite schist, locally more chloritic. Notably the rock is still pseudolaminated, as before, but shows some minor dark grey intervals which may be of sedimentary origin (mudstone?). May therefore comprise minor interflow sediments, although no clear evidence is observed. Schistosity is moderate to strong at 70 to 90 deg. tca., with very weak folding. Pyrite <1%, as fine seams. No chalcopyrite observed. Quartz veining is nearly absent.

184.10 399.50 (SHEARED MAFIC VOLCANIC AND MINOR SEDIMENTS)

Interval displays stringer-like laminations and bands, very diffuse, anywhere from 2-3mm to over 30cm in thickess, defined by alternating grey to greenish and brownish grey to dark grey intervals. Some intervals look like a sheared mafic volcanic, other interval look like a mudstone. Protolith is difficult to determine, but is here interpreted as probably being a sheared mafic volcanic and possibly minor interflow sediments, although no definite beds or graded bedding have been observed, possibly obliterated by the moderate foliation, at 50 to 80 degrees tca. , mostly around 60 to 70 deg. Moderately chloritic and biotitic, weakly carbonatized. The abundance of biotite in place gives the rock a strong brown tinge. Cherty or strongly silicified interval, generally less than 50cm are noted in minor places. Garnets up to 2-3mm across are locally visible, within certain bands. Locally, some stretched "amygdules" of chlorite and carbonate are noted, up to 1cm long. Quartz-calcite stringers at all angles but mostly parallel to schistosity are observed, 3%, often disrupted, offset, weakly folded. Pyrite <0.5%. Pyrrhotite much more common, 1-2% locally, <1% overall, as seams and stringers, accompanied by trace chalcopyrite.

184.10	207.00	Moderately altered, generally decreasing away from the above structural zone, chloritic and biotitic. Locally strongly silicified, almost cherty, and accompanied by 1-2% pyrite seams. Moderate schistosity at 62 deg. tca.
207.00	225.2.00	Relatively massive section, probably a massive mafic flow, fine grained, moderately chloritic.
225.20	230.40	Cherty or strongly silicified interval, weakly laminated or sheared near 90 deg. tca. Weak to moderately sericitized. Pyrite seams <1%, sometimes cross cutting the schistosity.

399.50 End of hole.

Hole Number: 441-84-8
Project: Empress
Northing:
Easting:
Azimuth: 000
Inclination: -80
Depth: 300.9 ft
Started: Mar. 28, 1984
Completed: Mar. 29, 1984

0.00 38.00 (GABBRO/MASSIVE MAFIC FLOW)

Fine to medium-grained mafic rock, most likely intrusive, with discernible amphiboles, weakly chloritized.

12.00	15.00	Moderate alteration zone. Carbonatized and silicified, moderately. Quartz-calcite stringers <1cm across, perhaps 5%. Pyrite 1%, as seams. Chalcopyrite trace.

38.00 215.80 (MISSING CORE)

215.80 238.00 (MAFIC VOLCANIC, WEAKLY ALTERED)

Mafic volcanic, weakly silicified locally, accompanied by narrow 1-2cm quartz veinlets, and pyrite and pyrrhotite seams, ,1%.

238.00 300.90 (MAFIC VOLCANIC/MAFIC SEDIMENT?)

Rock is identical to bottom unit intersected in 4410-87-1. Mafic volcanic, possibly including minor interflow sediments. Core is grey, fine grained, and almost looks like a fine siltstone locally, although no apparent bedding is observed. Biotite-rich wispy bands are common, suggesting alteration and deformation. Moderately sheared at 33 degrees tca. Moderately chloritized in places.

300.90 END OF HOLE.

Appendix 8

APPENDIX 8.

Gold and ICP Data - 1999 Core resampling program

Empress Project

APPENDIX 8
Gold and ICP Data - DDH 4410-87-1
Empress Project

SAMPLE	FROM	TO	INTERVAL	494.000	2118	2119	2120	557	2121	2122	2123	2124	2125	2126	2127	2128	2150	2130	2131	2132	2151
	(ft)	(ft)	(ft)	Au	Ag	Al	As	B	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	Hg	K	La
				g/tonne	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm
87-1-001	71.50	74.50	3.00	<0.005	0.2	3.07	6	<10	20	<0.5	<2	3.51	<0.5	23	99	12	5.19	10	<1	0.11	<10
87-1-002	74.50	75.50	1.00	0.015	<0.2	2.18	<2	<10	<10	<0.5	<2	10.8	<0.5	19	93	48	4.04	<10	<1	0.05	10
87-1-003	75.50	79.50	4.00	<0.005	<0.2	2.09	<2	<10	10	<0.5	<2	2.49	<0.5	16	69	8	3.51	<10	<1	0.1	<10
87-1-004	146.00	149.85	3.85	<0.005	<0.2	2.48	<2	<10	10	<0.5	<2	2.54	<0.5	22	70	59	4.99	<10	<1	0.13	10
87-1-005	149.85	154.00	4.15	<0.005	0.2	1.62	<2	<10	30	<0.5	<2	1.57	3	23	103	153	3.09	<10	<1	0.33	10
87-1-006	154.00	157.20	3.20	<0.005	<0.2	2.13	6	<10	20	<0.5	<2	2.61	<0.5	24	98	63	3.92	<10	<1	0.16	<10
87-1-007	157.20	162.00	4.80	<0.005	<0.2	2.16	<2	<10	10	<0.5	<2	2.55	<0.5	20	87	60	3.35	<10	<1	0.1	<10
87-1-008	162.00	165.00	3.00	<0.005	<0.2	2.32	<2	<10	10	<0.5	<2	3.15	<0.5	26	93	78	4.28	<10	<1	0.1	<10
87-1-009	165.00	169.15	4.15	<0.005	<0.2	2.36	<2	<10	10	<0.5	<2	2.77	<0.5	23	94	62	4.05	<10	<1	0.1	<10
87-1-010	169.15	174.10	4.95	<0.005	<0.2	2.92	<2	<10	70	<0.5	<2	3.05	<0.5	28	113	77	5.28	10	<1	0.39	10
87-1-011	174.10	179.10	5.00	<0.005	<0.2	2.81	<2	<10	50	<0.5	<2	2.9	<0.5	25	99	108	5.03	<10	<1	0.53	10
87-1-012	179.10	184.00	4.90	<0.005	<0.2	2.13	<2	<10	50	<0.5	<2	2.88	<0.5	23	91	92	4.21	<10	<1	0.33	10
87-1-013	184.00	189.00	5.00	<0.005	<0.2	2.63	<2	<10	120	<0.5	<2	2.41	<0.5	23	104	55	4.45	<10	<1	0.7	10
87-1-014	189.00	194.00	5.00	<0.005	<0.2	2.65	2	<10	100	<0.5	<2	2.55	<0.5	18	88	46	4.61	10	<1	0.7	10
87-1-015	194.00	197.70	3.70	<0.005	<0.2	2.28	<2	<10	70	<0.5	<2	1.98	<0.5	21	86	115	4.62	10	<1	0.46	10
87-1-016	197.70	202.00	4.30	<0.005	<0.2	1.9	<2	<10	50	<0.5	<2	2.03	<0.5	18	67	52	3.38	<10	<1	0.15	<10
87-1-017	202.00	206.00	4.00	<0.005	<0.2	2.08	<2	<10	30	<0.5	<2	2.42	<0.5	20	83	22	3.35	<10	<1	0.12	10
87-1-018	206.00	211.00	5.00	<0.005	<0.2	2.28	6	<10	30	<0.5	<2	2.41	<0.5	17	76	24	3.87	<10	<1	0.13	10
87-1-019	211.00	216.00	5.00	<0.005	<0.2	2.08	<2	<10	30	<0.5	<2	3.49	<0.5	18	67	68	4.07	<10	<1	0.14	10
87-1-020	216.00	221.00	5.00	<0.005	<0.2	2.12	2	<10	20	<0.5	<2	2.08	<0.5	19	76	85	4.53	10	<1	0.08	10
87-1-021	221.00	226.00	5.00	<0.005	<0.2	2.46	<2	<10	30	<0.5	<2	4.12	<0.5	25	267	99	3.98	<10	<1	0.13	30
87-1-022	226.00	231.00	5.00	<0.005	<0.2	2.41	<2	<10	60	<0.5	<2	3.89	<0.5	24	60	64	4.74	10	<1	0.28	10
87-1-023	231.00	236.00	5.00	<0.005	<0.2	4.31	<2	<10	210	<0.5	<2	2.61	<0.5	42	60	70	8.04	10	<1	1.44	10
87-1-024	236.00	241.00	5.00	<0.005	<0.2	4.17	<2	<10	180	<0.5	<2	2.27	<0.5	40	54	68	7.73	<10	<1	1.1	10
87-1-025	241.00	246.00	5.00	0.005	<0.2	4.33	4	<10	240	<0.5	<2	2.29	<0.5	42	59	58	7.55	10	<1	1.03	<10
87-1-026	246.00	250.90	4.90	<0.005	<0.2	2.07	<2	<10	330	<0.5	<2	6.22	<0.5	21	250	19	3.29	<10	<1	0.62	10
87-1-027	250.90	254.00	3.10	<0.005	<0.2	2.52	4	<10	110	<0.5	<2	5.65	<0.5	18	220	7	4.94	<10	<1	0.57	10
87-1-028	254.00	256.00	2.00	0.050	<0.2	3.12	<2	<10	40	<0.5	<2	2.83	<0.5	28	97	50	7.57	<10	<1	0.21	<10
87-1-029	256.00	261.00	5.00	0.025	<0.2	2.48	<2	<10	60	<0.5	<2	7.44	<0.5	29	122	52	5.95	<10	<1	0.21	<10
87-1-030	261.00	265.90	4.90	0.130	0.2	2.22	6	<10	60	<0.5	<2	6.8	<0.5	32	147	161	7.01	<10	<1	0.2	<10
87-1-031	265.90	269.80	3.90	2.470	0.2	2.19	<2	<10	30	<0.5	<2	6.65	<0.5	50	103	149	8.8	<10	<1	0.16	<10
87-1-032	269.80	272.55	2.75	0.040	<0.2	2.57	<2	<10	10	<0.5	<2	7.02	<0.5	40	82	77	7.16	<10	<1	0.18	<10
87-1-033	272.55	276.00	3.45	0.805	0.2	1.32	<2	<10	10	<0.5	<2	9.17	<0.5	45	67	147	4.35	<10	<1	0.21	<10
87-1-034	276.00	278.55	2.55	0.405	0.4	2.5	6	<10	20	<0.5	<2	4.16	<0.5	54	111	57	8.61	<10	<1	0.1	<10
87-1-035	278.55	280.15	1.60	0.135	<0.2	0.34	<2	<10	20	<0.5	<2	1.13	<0.5	9	230	10	1.36	<10	<1	0.03	<10
87-1-036	280.15	283.15	3.00	1.105	0.4	1.84	6	<10	50	<0.5	<2	5.82	<0.5	46	99	65	7.22	<10	<1	0.27	<10
87-1-037	283.15	286.00	2.85	0.140	<0.2	0.22	<2	<10	10	<0.5	<2	0.55	<0.5	6	289	13	1.08	<10	<1	0.02	<10
87-1-038	286.00	290.45	4.45	0.090	<0.2	0.04	<2	<10	<10	<0.5	<2	0.27	<0.5	1	254	1035	0.43	<10	<1	<0.01	<10
87-1-039	290.45	292.60	2.15	0.075	<0.2	0.95	4	<10	50	<0.5	<2	7.53	<0.5	11	199	306	2.07	<10	<1	0.19	10
87-1-040	292.60	294.60	2.00	0.380	0.2	0.18	<2	<10	10	<0.5	<2	2.86	<0.5	5	220	1095	0.95	<10	<1	0.03	<10
87-1-041	294.60	298.30	3.70	0.530	0.2	2.52	<2	<10	60	<0.5	<2	5.16	<0.5	43	85	441	6.36	<10	<1	0.17	<10
87-1-042	298.30	300.10	1.80	0.265	0.2	0.76	<2	<10	60	<0.5	<2	1.84	<0.5	13	237	27	2.7	<10	<1	0.03	<10
87-1-043	300.10	302.30	2.20	0.110	0.4	1.12	<2	<10	70	<0.5	<2	7.64	<0.5	36	94	138	4.59	<10	<1	0.2	<10
87-1-044	302.30	304.80	2.50	0.055	0.2	1.76	8	<10	30	<0.5	<2	5.15	0.5	27	159	164	5.95	<10	<1	0.15	<10
87-1-045	304.80	309.80	5.00	0.215	0.4	1.96	16	<10	90	<0.5	<2	4.69	3.5	33	76	580	5.26	<10	<1	0.2	<10
87-1-046	309.80	313.65	3.85	0.015	0.2	3.07	74	<10	90	<0.5	<2	4.71	0.5	32	75	223	8.22	<10	<1	0.37	<10
87-1-047	313.65	316.90	3.25	<0.005	<0.2	3.27	<2	<10	90	<0.5	<2	2.93	<0.5	40	102	59	4.86	<10	<1	0.43	<10
87-1-048	316.90	321.90	5.00	<0.005	<0.2	3.33	<2	<10	40	<0.5	<2	3.46	<0.5	34	89	56	4.93	<10	<1	0.18	<10
87-1-049	321.90	326.00	4.10	<0.005	<0.2	3.45	10	<10	50	<0.5	<2	3.55	<0.5	35	100	59	4.51	<10	<1	0.3	<10
87-1-050	326.00	331.00	5.00	<0.005	<0.2	3.89	12	<10	80	<0.5	<2	3.18	<0.5	45	111	96	5.47	<10	<1	0.56	<10
87-1-051	331.00	336.00	5.00	<0.005	<0.2	4.32	<2	<10	160	<0.5	<2	3.89	<0.5	39	123	75	4.68	<10	<1	0.73	<10

87-1-052	336.00	341.00	5.00	<0.005	<0.2	3.65	<2	<10	160	<0.5	<2	3.21	<0.5	35	103	77	4.63	<10	<1	0.61	<10
87-1-053	341.00	346.00	5.00	<0.005	<0.2	3.96	14	<10	160	<0.5	<2	3.17	<0.5	37	114	68	4.84	10	<1	0.79	<10
87-1-054	346.00	351.00	5.00	<0.005	<0.2	4.04	2	<10	90	<0.5	<2	3.63	<0.5	40	107	87	4.68	<10	<1	0.55	<10
87-1-055	351.00	356.00	5.00	<0.005	<0.2	3.36	6	<10	90	<0.5	<2	3.07	<0.5	32	91	81	3.85	<10	<1	0.44	<10

APPENDIX 8
Gold and ICP Data - DDH 4410-87-1
Empress Project

SAMPLE	FROM (ft)	TO (ft)	INTERVAL (ft)	2134 Mg %	2135 Mn ppm	2136 Mo ppm	2137 Na %	2138 Ni ppm	2139 P ppm	2140 Pb ppm	551 S %	2141 Sb ppm	2142 Sc ppm	2143 Sr ppm	2144 Ti %	2145 Tl ppm	2146 U ppm	2147 V ppm	2148 W ppm	2149 Zn ppm
87-1-001	71.50	74.50	3.00	1.9	565	<1	0.09	42	1330	8	0.03	2	14	31	0.25	<10	<10	140	<10	108
87-1-002	74.50	75.50	1.00	1.3	740	<1	0.03	32	1140	2	0.14	<2	14	45	0.18	<10	<10	111	<10	68
87-1-003	75.50	79.50	4.00	1.02	485	<1	0.18	27	1050	<2	0.01	<2	9	37	0.2	<10	<10	96	<10	52
87-1-004	146.00	149.85	3.85	1.67	605	<1	0.11	29	1260	4	0.14	<2	13	34	0.26	<10	<10	137	<10	104
87-1-005	149.85	154.00	4.15	0.88	500	11	0.03	31	500	46	0.78	<2	5	17	0.18	<10	<10	45	<10	1800
87-1-006	154.00	157.20	3.20	0.83	665	<1	0.18	48	1350	2	0.16	<2	14	32	0.25	<10	<10	116	<10	142
87-1-007	157.20	162.00	4.80	0.86	550	<1	0.24	46	1250	<2	0.13	<2	12	42	0.24	<10	<10	106	<10	62
87-1-008	162.00	165.00	3.00	1.18	575	<1	0.21	55	1250	2	0.18	<2	14	32	0.28	<10	<10	128	<10	48
87-1-009	165.00	169.15	4.15	1.23	590	<1	0.19	51	1140	<2	0.18	<2	15	39	0.26	<10	<10	137	<10	48
87-1-010	169.15	174.10	4.95	1.29	745	<1	0.16	50	1250	2	0.18	2	18	25	0.29	<10	<10	158	<10	92
87-1-011	174.10	179.10	5.00	0.99	780	<1	0.17	47	1270	8	0.28	<2	15	30	0.29	<10	<10	131	<10	88
87-1-012	179.10	184.00	4.90	0.61	755	<1	0.19	40	1200	<2	0.22	<2	16	28	0.27	<10	<10	118	<10	78
87-1-013	184.00	189.00	5.00	0.92	600	<1	0.15	36	1150	6	0.17	<2	14	27	0.27	<10	<10	123	<10	80
87-1-014	189.00	194.00	5.00	0.93	795	<1	0.17	31	1090	<2	0.1	<2	17	29	0.25	<10	<10	105	<10	88
87-1-015	194.00	197.70	3.70	0.86	695	3	0.14	31	1210	<2	0.24	<2	16	20	0.23	<10	<10	114	<10	84
87-1-016	197.70	202.00	4.30	1.16	370	<1	0.18	34	1440	<2	0.11	<2	10	25	0.18	<10	<10	85	<10	52
87-1-017	202.00	206.00	4.00	1.23	425	<1	0.2	39	1540	<2	0.07	<2	11	31	0.17	<10	<10	110	<10	116
87-1-018	206.00	211.00	5.00	1.36	505	<1	0.23	33	1440	<2	0.05	<2	13	31	0.17	<10	<10	106	<10	72
87-1-019	211.00	216.00	5.00	1.15	680	<1	0.18	28	1580	<2	0.23	2	14	32	0.2	<10	<10	76	<10	68
87-1-020	216.00	221.00	5.00	1.56	550	<1	0.17	31	1600	2	0.28	<2	14	32	0.24	<10	<10	84	<10	60
87-1-021	221.00	226.00	5.00	1.85	650	<1	0.08	75	1760	4	0.17	<2	11	137	0.19	<10	<10	96	<10	96
87-1-022	226.00	231.00	5.00	1.18	745	<1	0.08	39	1230	<2	0.19	2	12	41	0.24	<10	<10	105	<10	90
87-1-023	231.00	236.00	5.00	2.09	1060	<1	0.04	68	1380	<2	0.25	<2	11	31	0.33	<10	10	194	<10	112
87-1-024	236.00	241.00	5.00	2.42	855	<1	0.03	71	1350	2	0.19	<2	11	30	0.29	<10	10	180	<10	118
87-1-025	241.00	246.00	5.00	2.52	815	<1	0.01	75	1310	4	0.17	4	8	37	0.2	<10	10	164	<10	132
87-1-026	246.00	250.90	4.90	2.06	705	<1	0.03	85	710	4	0.06	<2	12	94	0.05	<10	<10	71	<10	88
87-1-027	250.90	254.00	3.10	1.45	685	<1	0.03	89	620	2	0.03	2	12	79	0.04	<10	<10	76	<10	120
87-1-028	254.00	256.00	2.00	1.38	525	<1	0.01	66	1320	6	0.15	<2	16	42	<0.01	<10	<10	78	<10	82
87-1-029	256.00	261.00	5.00	0.86	1050	1	0.01	79	1050	6	0.21	<2	10	89	<0.01	<10	<10	84	<10	90
87-1-030	261.00	265.90	4.90	0.9	920	<1	<0.01	70	960	2	0.95	2	6	64	<0.01	<10	<10	66	<10	90
87-1-031	265.90	269.80	3.90	1.58	915	1	0.03	111	1110	2	1.63	<2	8	87	0.01	<10	10	197	<10	102
87-1-032	269.80	272.55	2.75	1.73	1030	<1	<0.01	103	1030	<2	0.16	2	4	79	0.03	<10	<10	116	<10	102
87-1-033	272.55	276.00	3.45	0.64	930	<1	<0.01	89	1040	4	0.85	2	3	81	<0.01	<10	<10	77	<10	52
87-1-034	276.00	278.55	2.55	1.05	590	24	0.01	107	930	4	1.82	6	7	45	<0.01	<10	10	111	<10	62
87-1-035	278.55	280.15	1.60	0.12	145	6	<0.01	15	110	<2	0.32	2	1	8	<0.01	<10	<10	12	<10	8
87-1-036	280.15	283.15	3.00	0.94	925	1	0.02	97	1090	6	1.67	4	9	92	0.01	<10	<10	136	<10	82
87-1-037	283.15	286.00	2.85	0.07	85	4	<0.01	14	100	2	0.35	<2	<1	9	<0.01	<10	<10	9	<10	6
87-1-038	286.00	290.45	4.45	0.02	30	1	<0.01	6	40	<2	0.13	<2	<1	8	<0.01	<10	<10	2	<10	2
87-1-039	290.45	292.60	2.15	0.77	730	<1	0.04	43	600	<2	0.26	<2	8	187	<0.01	<10	<10	44	<10	100
87-1-040	292.60	294.60	2.00	0.09	165	1	<0.01	19	60	4	0.51	<2	1	154	<0.01	<10	<10	4	<10	24
87-1-041	294.60	298.30	3.70	1.19	750	5	0.01	79	930	2	1.1	<2	8	118	<0.01	<10	<10	110	<10	64
87-1-042	298.30	300.10	1.80	0.27	225	12	<0.01	26	210	2	0.8	<2	5	23	<0.01	<10	<10	39	<10	32
87-1-043	300.10	302.30	2.20	0.54	1055	1	0.03	76	960	6	1.52	<2	13	119	<0.01	<10	<10	109	<10	102
87-1-044	302.30	304.80	2.50	0.77	955	3	<0.01	54	490	2	0.99	<2	5	79	<0.01	<10	<10	58	<10	118
87-1-045	304.80	309.80	5.00	0.55	795	1	0.01	47	990	10	0.85	<2	7	65	<0.01	<10	10	37	<10	788
87-1-046	309.80	313.65	3.85	1.09	1345	<1	0.05	100	720	12	1.21	<2	11	56	0.07	<10	10	112	<10	468
87-1-047	313.65	316.90	3.25	1.23	705	<1	0.15	106	1010	2	0.21	<2	9	28	0.3	<10	10	148	<10	122
87-1-048	316.90	321.90	5.00	1.36	745	<1	0.19	89	1100	2	0.2	<2	11	38	0.27	<10	<10	151	<10	96
87-1-049	321.90	326.00	4.10	1.01	735	<1	0.22	100	1100	<2	0.23	<2	11	39	0.3	<10	<10	150	<10	98
87-1-050	326.00	331.00	5.00	1.17	760	<1	0.2	132	1210	4	0.47	<2	12	31	0.33	<10	<10	209	<10	122
87-1-051	331.00	336.00	5.00	1.22	725	<1	0.26	93	1050	4	0.24	<2	10	40	0.29	<10	<10	185	<10	84

87-1-052	336.00	341.00	5.00	1.42	685	<1	0.22	85	1040	2	0.19	<2	9	27	0.26	<10	<10	156	<10	82
87-1-053	341.00	346.00	5.00	1.56	670	<1	0.22	94	1060	8	0.17	<2	8	32	0.29	<10	<10	169	<10	90
87-1-054	346.00	351.00	5.00	1.2	635	<1	0.23	98	1120	8	0.31	2	8	34	0.28	<10	<10	160	<10	78
87-1-055	351.00	356.00	5.00	1.12	550	<1	0.24	82	1080	2	0.2	<2	8	32	0.22	<10	<10	141	<10	68

APPENDIX 8
Gold and ICP Data - DDH 4410-87-2
Empress Project

SAMPLE	FROM (ft)	TO (ft)	INTERVAL (ft)	494.000 Au g/tonne	2118 Ag ppm	2119 Al %	2120 As ppm	557 B ppm	2121 Ba ppm	2122 Be ppm	2123 Bi ppm	2124 Ca %	2125 Cd ppm	2126 Co ppm	2127 Cr ppm	2128 Cu ppm	2150 Fe %	2130 Ga ppm	2131 Hg ppm	2132 K %	2151 La ppm
87-2-056	4.00	9.00	5.00	<0.005	<0.2	2.45	<2	<10	10	<0.5	<2	4.38	<0.5	29	77	116	5.02	<10	<1	0.11	10
87-2-057	9.00	13.85	4.85	<0.005	<0.2	3.75	4	<10	<10	<0.5	<2	4.6	<0.5	34	304	50	6.58	10	<1	0.06	30
87-2-058	13.85	17.60	3.75	<0.005	0.6	2.9	<2	<10	10	<0.5	<2	2.64	<0.5	28	94	90	5.91	<10	<1	0.16	<10
87-2-059	17.60	23.00	5.40	<0.005	<0.2	2.92	<2	<10	20	<0.5	<2	2.76	<0.5	28	87	75	5.4	<10	<1	0.27	<10
87-2-060	23.00	28.00	5.00	<0.005	<0.2	2.32	<2	<10	10	<0.5	<2	3.15	<0.5	21	68	34	4.23	<10	<1	0.15	10
87-2-061	28.00	33.00	5.00	<0.005	<0.2	2.44	<2	<10	20	<0.5	<2	3.24	<0.5	22	78	46	4.4	<10	<1	0.23	<10
87-2-062	33.00	38.00	5.00	<0.005	<0.2	1.92	<2	<10	<10	<0.5	<2	2.87	<0.5	20	61	67	3.55	<10	<1	0.11	<10
87-2-063	59.00	64.00	5.00	<0.005	<0.2	2.81	<2	<10	<10	<0.5	<2	2.58	<0.5	24	72	37	5.05	10	<1	0.09	<10
87-2-064	64.00	67.60	3.60	<0.005	<0.2	1.22	<2	<10	<10	<0.5	<2	3.21	<0.5	8	198	6	2.29	<10	<1	0.01	<10
87-2-065	67.60	72.60	5.00	<0.005	0.2	2.64	12	<10	<10	<0.5	<2	3.74	<0.5	26	93	63	4.99	<10	<1	0.07	<10
87-2-066	72.60	73.50	0.90	<0.005	<0.2	3.01	6	<10	<10	<0.5	<2	3.17	<0.5	28	101	60	6.25	10	<1	0.07	<10
87-2-067	73.50	77.60	4.10	<0.005	<0.2	1.62	<2	<10	<10	<0.5	<2	1.98	<0.5	13	38	26	2.56	<10	<1	0.08	<10
87-2-068	165.00	169.50	4.50	<0.005	<0.2	1.74	<2	<10	<10	<0.5	<2	1.96	<0.5	17	48	24	3.02	<10	<1	0.08	<10
87-2-069	169.50	170.80	1.30	<0.005	<0.2	1.58	18	<10	<10	<0.5	<2	7.1	<0.5	37	87	58	3.42	<10	<1	0.04	10
87-2-070	170.80	173.00	2.20	<0.005	<0.2	2.72	16	<10	10	<0.5	<2	4.56	<0.5	25	252	55	4.77	10	<1	0.14	30
87-2-071	173.00	178.00	5.00	<0.005	<0.2	2.23	<2	<10	20	<0.5	<2	2.86	<0.5	20	68	83	4.08	<10	<1	0.17	<10
87-2-072	178.00	180.30	2.30	<0.005	<0.2	3.74	4	<10	240	<0.5	<2	1.5	<0.5	33	86	60	7.07	10	<1	1.4	<10
87-2-073	180.30	185.00	4.70	<0.005	<0.2	1.82	2	<10	40	<0.5	<2	1.33	2	18	95	103	3.73	<10	<1	0.28	10
87-2-074	185.00	187.70	2.70	<0.005	0.6	2.36	2	<10	40	<0.5	<2	2.09	<0.5	43	86	359	6.63	<10	<1	0.28	<10
87-2-075	187.70	191.05	3.35	0.005	0.2	1.79	<2	<10	50	<0.5	<2	1.49	2	30	96	151	3.78	<10	<1	0.54	10
87-2-076	191.05	193.70	2.65	<0.005	<0.2	2.82	<2	<10	80	<0.5	<2	3.38	<0.5	24	125	61	4.63	<10	<1	0.39	<10
87-2-077	193.70	195.10	1.40	<0.005	<0.2	2.78	14	<10	110	<0.5	<2	1.73	<0.5	30	145	107	5.75	<10	<1	0.75	10
87-2-078	195.10	197.50	2.40	<0.005	<0.2	2.64	<2	<10	40	<0.5	<2	3.71	<0.5	30	112	122	4.74	<10	<1	0.2	<10
87-2-079	197.50	203.00	5.50	<0.005	<0.2	2.67	<2	<10	60	<0.5	<2	2.79	<0.5	30	127	66	5.04	<10	<1	0.36	<10
87-2-080	203.00	207.80	4.80	<0.005	<0.2	2.29	<2	<10	30	<0.5	<2	3.27	<0.5	25	92	110	4.58	<10	<1	0.21	<10
87-2-081	226.50	229.50	3.00	<0.005	<0.2	1.84	<2	<10	100	<0.5	<2	1.69	<0.5	16	316	10	2.92	<10	<1	0.51	10
87-2-082	229.50	231.50	2.00	<0.005	<0.2	3.85	<2	<10	220	<0.5	<2	2	<0.5	31	143	101	7.69	10	<1	0.68	10
87-2-083	231.50	236.50	5.00	<0.005	<0.2	1.84	<2	<10	120	<0.5	<2	2.04	<0.5	17	270	46	2.85	<10	<1	0.55	10
87-2-084	251.00	255.50	4.50	<0.005	<0.2	1.71	8	<10	30	<0.5	<2	2.56	<0.5	17	275	14	2.92	10	<1	0.11	10
87-2-085	255.50	257.20	1.70	<0.005	<0.2	3.56	<2	<10	90	<0.5	<2	1.62	<0.5	34	97	61	6.47	10	<1	0.48	10
87-2-086	257.20	262.30	5.10	<0.005	<0.2	2.93	<2	<10	180	<0.5	<2	2.24	<0.5	24	86	44	5.67	10	<1	0.77	10
87-2-087	262.30	267.30	5.00	<0.005	<0.2	2.46	<2	<10	90	<0.5	<2	2.38	<0.5	23	77	66	4.83	<10	<1	0.53	10
87-2-088	267.30	272.00	4.70	<0.005	<0.2	2.13	<2	<10	40	<0.5	<2	2.48	<0.5	23	54	92	4.58	<10	<1	0.24	10
87-2-089	272.00	276.50	4.50	<0.005	<0.2	2.05	<2	<10	20	<0.5	<2	2.37	<0.5	20	53	78	4.41	<10	<1	0.16	10
87-2-090	276.50	281.40	4.90	<0.005	<0.2	2.2	<2	<10	10	<0.5	<2	2.73	<0.5	18	57	44	4.51	10	<1	0.14	10
87-2-091	281.40	286.30	4.90	<0.005	<0.2	2.1	4	<10	10	<0.5	<2	2.23	<0.5	19	56	104	4.62	<10	<1	0.12	10
87-2-092	286.30	291.00	4.70	<0.005	<0.2	2.16	<2	<10	10	<0.5	<2	2.28	<0.5	20	61	25	4.23	<10	<1	0.13	<10
87-2-093	291.00	295.50	4.50	<0.005	<0.2	2.29	<2	<10	10	<0.5	<2	2.6	<0.5	27	67	32	4.42	<10	<1	0.14	<10
87-2-094	295.50	300.45	4.95	'<0.005	<0.2	2.18	<2	<10	10	<0.5	<2	2.76	<0.5	16	56	35	4.34	<10	<1	0.14	10
87-2-095	300.45	305.00	4.55	<0.005	<0.2	3.13	2	<10	110	<0.5	<2	2.07	<0.5	27	48	73	6.47	<10	<1	0.86	10
87-2-096	305.00	310.00	5.00	<0.005	<0.2	2.69	<2	<10	110	<0.5	<2	2.31	<0.5	34	38	94	5.43	<10	<1	0.82	<10
87-2-097	310.00	315.00	5.00	<0.005	<0.2	3.21	2	<10	150	<0.5	<2	1.93	<0.5	32	40	51	6.33	<10	<1	1.18	<10
87-2-098	315.00	320.00	5.00	<0.005	<0.2	4.13	6	<10	130	<0.5	<2	2.99	<0.5	33	36	55	7.61	10	<1	1	<10
87-2-099	320.00	325.00	5.00	<0.005	<0.2	3.58	2	<10	180	<0.5	<2	2.12	<0.5	32	38	57	6.16	10	<1	1.23	10
87-2-100	325.00	330.00	5.00	<0.005	<0.2	3.6	8	<10	260	<0.5	<2	2.59	<0.5	34	45	64	6.03	10	<1	1.55	10
87-2-101	330.00	335.00	5.00	<0.005	<0.2	3.32	<2	<10	210	<0.5	<2	2.77	<0.5	36	50	117	5.76	<10	<1	1.31	<10
87-2-102	335.00	340.00	5.00	<0.005	<0.2	3.72	<2	<10	200	<0.5	<2	3.16	<0.5	33	41	77	6.42	10	<1	1.24	<10
87-2-103	340.00	345.00	5.00	<0.005	<0.2	4.34	<2	<10	140	<0.5	<2	2.47	<0.5	39	41	62	7.56	10	<1	0.78	<10
87-2-104	345.00	350.00	5.00	<0.005	<0.2	4.33	6	<10	240	<0.5	<2	3.59	<0.5	39	41	48	7.23	10	<1	1.2	10
87-2-105	350.00	355.00	5.00	<0.005	<0.2	4.7	16	<10	470	<0.5	<2	4.37	<0.5	37	42	55	7.97	10	<1	1.16	<10
87-2-106	355.00	358.50	3.50	<0.005	<0.2	4.41	6	<10	100	<0.5	<2	3.61	<0.5	38	44	110	7.49	10	<1	0.64	<10
87-2-107	358.50	362.70	4.20	0.005	0.6	4.4	<2	<10	40	<0.5	<2	3	0.5	36	47	74	9.48	10	<1	0.26	10

SAMPLE	FROM (ft)	TO (ft)	INTERVAL (ft)	494.000 Au g/tonne	2118 Ag ppm	2119 Al %	2120 As ppm	557 B ppm	2121 Ba ppm	2122 Be ppm	2123 Bi ppm	2124 Ca %	2125 Cd ppm	2126 Co ppm	2127 Cr ppm	2128 Cu ppm	2150 Fe %	2130 Ga ppm	2131 Hg ppm	2132 K %	2151 La ppm
87-2-108	362.70	365.00	2.30	0.010	1.2	2.79	16	<10	30	<0.5	<2	5.56	0.5	60	53	102	6.95	<10	<1	0.25	10
87-2-109	365.00	370.00	5.00	<0.005	<0.2	3.71	14	<10	60	<0.5	<2	4.26	<0.5	32	141	48	7.1	<10	<1	0.43	10
87-2-110	370.00	373.40	3.40	0.060	<0.2	2.61	2	<10	80	<0.5	<2	2.45	<0.5	28	132	121	5.25	<10	<1	0.44	10
87-2-111	373.40	375.75	2.35	0.015	<0.2	1.51	16	<10	50	<0.5	<2	2.32	<0.5	18	117	62	3.88	<10	<1	0.44	30
87-2-112	375.75	378.85	3.10	0.025	<0.2	1.98	<2	<10	90	<0.5	<2	4.1	<0.5	23	187	91	3.99	<10	<1	0.66	10
87-2-113	378.85	382.15	3.30	0.110	<0.2	2.51	<2	<10	80	<0.5	<2	6.15	<0.5	28	137	296	5.82	<10	<1	0.53	10
87-2-114	382.15	385.55	3.40	0.035	<0.2	3.69	2	<10	90	0.5	<2	5.41	<0.5	25	71	59	7.62	10	<1	0.73	10
87-2-115	385.55	388.40	2.85	0.195	<0.2	2.3	<2	<10	100	<0.5	<2	5.75	<0.5	26	123	104	5.83	<10	<1	0.67	10
87-2-116	388.40	391.20	2.80	1.230	0.2	3.66	18	<10	40	0.5	<2	4.28	<0.5	27	73	87	7.33	<10	<1	0.22	<10
87-2-117	391.20	395.00	3.80	<0.005	<0.2	3.16	<2	<10	50	1	<2	6.18	<0.5	23	53	44	6.72	<10	<1	0.26	<10
87-2-118	395.00	400.00	5.00	0.020	<0.2	3.14	8	<10	150	<0.5	<2	6.48	<0.5	23	64	47	6.37	<10	<1	0.46	10
87-2-119	400.00	405.00	5.00	<0.005	<0.2	2.43	6	<10	90	<0.5	<2	5.29	<0.5	21	228	41	3.65	<10	<1	0.29	10
87-2-120	405.00	410.00	5.00	0.005	<0.2	2.86	<2	<10	130	<0.5	<2	4.08	<0.5	19	317	56	3.31	10	<1	0.52	10
87-2-121	410.00	415.00	5.00	0.010	<0.2	2.99	<2	<10	270	<0.5	<2	3.6	<0.5	22	330	43	3.3	10	<1	1.16	10
87-2-122	415.00	420.00	5.00	<0.005	<0.2	3.25	8	<10	350	<0.5	<2	3.94	<0.5	22	360	39	3.49	10	<1	1.38	10
87-2-123	420.00	425.00	5.00	<0.005	<0.2	2.91	<2	<10	330	<0.5	<2	3.24	<0.5	20	352	21	3.25	10	<1	1.3	10
87-2-124	425.00	430.00	5.00	<0.005	<0.2	2.96	6	<10	310	<0.5	<2	3.35	<0.5	20	346	31	3.3	10	<1	1.24	10
87-2-125	430.00	435.40	5.40	<0.005	<0.2	2.58	<2	<10	280	<0.5	<2	2.29	<0.5	21	333	9	3.14	10	<1	1	10
87-2-126	435.40	441.00	5.60	<0.005	<0.2	3.23	<2	<10	430	0.5	<2	4.76	<0.5	32	190	73	5.42	10	6	0.78	30
87-2-127	441.00	446.00	5.00	<0.005	<0.2	2.2	6	<10	270	<0.5	<2	2.05	<0.5	19	300	22	2.58	10	<1	0.93	10
87-2-128	446.00	451.00	5.00	<0.005	<0.2	2.27	<2	<10	150	<0.5	<2	2.7	<0.5	18	288	53	2.65	10	<1	0.6	10

APPENDIX 8
Gold and ICP Data - DDH 4410-87-2
Empress Project

SAMPLE	FROM (ft)	TO (ft)	INTERVAL (ft)	2134 Mg %	2135 Mn ppm	2136 Mo ppm	2137 Na %	2138 Ni ppm	2139 P ppm	2140 Pb ppm	551 S %	2141 Sb ppm	2142 Sc ppm	2143 Sr ppm	2144 Ti %	2145 Tl ppm	2146 U ppm	2147 V ppm	2148 W ppm	2149 Zn ppm
87-2-056	4.00	9.00	5.00	1.17	705	<1	0.12	32	1370	6	0.28	<2	13	34	0.23	<10	<10	140	<10	92
87-2-057	9.00	13.85	4.85	2.96	920	<1	0.04	100	1950	<2	0.1	<2	14	68	0.26	<10	<10	170	<10	110
87-2-058	13.85	17.60	3.75	1.47	800	<1	0.06	41	1250	6	0.18	<2	10	42	0.39	<10	10	142	<10	94
87-2-059	17.60	23.00	5.40	1.29	900	<1	0.1	39	1040	2	0.1	<2	10	47	0.33	<10	<10	133	<10	98
87-2-060	23.00	28.00	5.00	1.06	710	<1	0.15	30	890	<2	0.07	<2	11	42	0.29	<10	<10	121	<10	66
87-2-061	28.00	33.00	5.00	0.82	735	<1	0.19	34	840	2	0.07	2	12	36	0.36	<10	<10	121	<10	80
87-2-062	33.00	38.00	5.00	0.77	580	<1	0.19	31	860	<2	0.12	<2	10	25	0.28	<10	<10	97	<10	58
87-2-063	59.00	64.00	5.00	1.64	585	<1	0.1	38	1390	<2	0.07	<2	12	26	0.24	<10	10	122	<10	102
87-2-064	64.00	67.60	3.60	0.69	375	<1	0.02	15	350	<2	0.01	<2	7	13	0.12	<10	<10	62	<10	48
87-2-065	67.60	72.60	5.00	1.37	685	<1	0.07	43	1190	2	0.09	2	12	52	0.29	<10	<10	132	<10	106
87-2-066	72.60	73.50	0.90	1.77	735	<1	0.07	45	1220	<2	0.11	2	16	28	0.31	<10	<10	179	<10	150
87-2-067	73.50	77.60	4.10	0.66	360	<1	0.15	22	1240	6	0.08	<2	6	17	0.18	<10	<10	65	<10	62
87-2-068	165.00	169.50	4.50	1.05	390	<1	0.09	21	1280	<2	0.07	<2	6	20	0.17	<10	<10	79	<10	56
87-2-069	169.50	170.80	1.30	1.3	665	1	0.04	26	1230	14	0.39	2	12	112	0.14	<10	10	112	<10	126
87-2-070	170.80	173.00	2.20	2.21	705	<1	0.1	81	1650	4	0.05	<2	16	120	0.21	<10	10	131	<10	112
87-2-071	173.00	178.00	5.00	0.78	630	<1	0.18	26	1030	8	0.21	<2	11	36	0.27	<10	<10	118	<10	100
87-2-072	178.00	180.30	2.30	1.74	675	<1	0.1	45	1440	2	0.22	<2	10	17	0.44	<10	<10	187	<10	174
87-2-073	180.30	185.00	4.70	0.91	575	5	0.04	24	430	12	0.52	<2	5	20	0.16	<10	<10	43	<10	916
87-2-074	185.00	187.70	2.70	1.54	835	4	0.03	43	440	18	1.39	2	6	18	0.15	<10	<10	71	<10	342
87-2-075	187.70	191.05	3.35	0.8	590	5	0.04	40	560	2	1.04	2	4	19	0.15	<10	<10	45	<10	1150
87-2-076	191.05	193.70	2.65	0.77	760	<1	0.18	52	1230	16	0.2	<2	16	36	0.24	<10	<10	157	<10	118
87-2-077	193.70	195.10	1.40	1.08	690	<1	0.08	55	1170	6	0.38	<2	10	24	0.3	<10	10	136	<10	328
87-2-078	195.10	197.50	2.40	0.77	735	<1	0.21	53	1290	6	0.35	<2	14	44	0.29	<10	<10	130	<10	116
87-2-079	197.50	203.00	5.50	0.98	765	3	0.16	54	990	2	0.18	<2	17	32	0.31	<10	<10	161	<10	100
87-2-080	203.00	207.80	4.80	0.96	745	<1	0.22	45	1060	16	0.21	2	13	33	0.27	<10	<10	121	<10	210
87-2-081	226.50	229.50	3.00	1.63	465	<1	0.08	61	770	6	<0.01	<2	5	39	0.2	<10	<10	66	<10	64
87-2-082	229.50	231.50	2.00	3.14	980	<1	0.01	71	1330	10	0.51	<2	9	67	0.48	<10	10	123	<10	108
87-2-083	231.50	236.50	5.00	1.77	410	<1	0.1	63	710	16	0.1	<2	5	62	0.19	<10	<10	66	<10	48
87-2-084	251.00	255.50	4.50	1.76	510	<1	0.08	66	720	2	0.01	<2	8	45	0.19	<10	<10	72	<10	74
87-2-085	255.50	257.20	1.70	2.24	930	<1	0.01	48	1550	6	0.35	<2	12	76	0.44	<10	<10	128	<10	70
87-2-086	257.20	262.30	5.10	1.48	870	<1	0.12	40	1360	<2	0.12	<2	15	30	0.32	<10	<10	121	<10	96
87-2-087	262.30	267.30	5.00	0.87	790	<1	0.16	35	1240	<2	0.18	2	15	25	0.26	<10	<10	111	<10	82
87-2-088	267.30	272.00	4.70	0.93	705	3	0.16	30	1510	8	0.42	2	13	23	0.27	<10	<10	83	<10	108
87-2-089	272.00	276.50	4.50	1.11	650	<1	0.19	26	1510	2	0.23	2	14	18	0.2	<10	10	76	<10	62
87-2-090	276.50	281.40	4.90	1.1	835	<1	0.21	27	1470	6	0.14	2	16	18	0.18	<10	<10	95	<10	72
87-2-091	281.40	286.30	4.90	1.17	670	<1	0.21	27	1550	12	0.29	<2	15	13	0.18	<10	<10	86	<10	88
87-2-092	286.30	291.00	4.70	1.32	590	<1	0.14	32	1140	8	0.14	<2	10	13	0.27	<10	10	99	<10	100
87-2-093	291.00	295.50	4.50	1.31	640	<1	0.2	46	1340	6	0.23	<2	12	17	0.28	<10	<10	109	<10	70
87-2-094	295.50	300.45	4.95	1.13	760	<1	0.22	26	1310	2	0.09	<2	16	18	0.18	<10	<10	95	<10	182
87-2-095	300.45	305.00	4.55	1.3	1205	<1	0.09	46	1300	10	0.25	4	11	23	0.41	<10	<10	145	<10	90
87-2-096	305.00	310.00	5.00	1.22	1175	<1	0.07	53	1000	<2	0.25	<2	9	26	0.38	<10	<10	148	<10	68
87-2-097	310.00	315.00	5.00	1.63	1120	<1	0.06	57	1260	2	0.15	<2	9	18	0.48	<10	<10	169	<10	60
87-2-098	315.00	320.00	5.00	2.13	1345	<1	0.09	61	1400	2	0.14	<2	14	26	0.57	<10	<10	201	<10	88
87-2-099	320.00	325.00	5.00	1.75	1030	<1	0.12	59	1310	4	0.16	<2	12	18	0.42	<10	<10	176	<10	106
87-2-100	325.00	330.00	5.00	1.58	975	<1	0.11	63	1270	2	0.2	<2	12	22	0.43	<10	<10	189	<10	116
87-2-101	330.00	335.00	5.00	1.37	975	<1	0.06	63	1210	2	0.31	<2	8	19	0.41	<10	<10	154	<10	116
87-2-102	335.00	340.00	5.00	1.77	960	<1	0.1	60	1310	2	0.24	<2	10	21	0.28	<10	<10	174	<10	128
87-2-103	340.00	345.00	5.00	2.46	990	<1	0.04	67	1400	<2	0.19	<2	9	26	0.27	<10	10	178	<10	144
87-2-104	345.00	350.00	5.00	1.97	1095	7	0.01	68	1350	2	0.15	6	13	45	0.15	<10	<10	153	<10	132
87-2-105	350.00	355.00	5.00	1.96	1190	<1	0.01	68	1280	<2	0.16	<2	14	59	0.14	<10	10	150	<10	134
87-2-106	355.00	358.50	3.50	2.07	1115	<1	0.01	62	1130	6	0.34	<2	11	36	0.08	<10	10	129	<10	162
87-2-107	358.50	362.70	4.20	1.74	1170	1	0.01	50	600	6	1.58	<2	11	32	0.01	<10	10	65	<10	330

SAMPLE	FROM (ft)	TO (ft)	INTERVAL (ft)	2134 Mg %	2135 Mn ppm	2136 Mo ppm	2137 Na %	2138 Ni ppm	2139 P ppm	2140 Pb ppm	551 S %	2141 Sb ppm	2142 Sc ppm	2143 Sr ppm	2144 Ti %	2145 Tl ppm	2146 U ppm	2147 V ppm	2148 W ppm	2149 Zn ppm
87-2-108	362.70	365.00	2.30	0.87	1135	1	0.02	46	560	8	2.04	<2	8	55	<0.01	<10	<10	41	<10	286
87-2-109	365.00	370.00	5.00	1.69	1200	<1	0.01	71	900	<2	0.52	<2	14	62	0.01	<10	<10	89	<10	200
87-2-110	370.00	373.40	3.40	1.36	730	1	0.04	43	630	2	0.84	<2	11	41	0.05	<10	<10	88	<10	112
87-2-111	373.40	375.75	2.35	0.79	585	1	0.05	18	140	8	1.01	<2	4	30	0.04	<10	<10	19	<10	88
87-2-112	375.75	378.85	3.10	1.04	670	<1	0.03	53	490	2	0.96	<2	7	57	0.05	<10	<10	51	<10	148
87-2-113	378.85	382.15	3.30	0.98	1320	<1	0.01	55	940	4	1.07	<2	11	108	0.03	<10	<10	65	<10	172
87-2-114	382.15	385.55	3.40	1.66	1490	<1	0.01	39	1440	2	0.35	<2	19	80	0.06	<10	<10	100	<10	166
87-2-115	385.55	388.40	2.85	1.2	1270	5	0.04	49	1060	4	1.1	<2	19	96	0.06	<10	10	103	<10	110
87-2-116	388.40	391.20	2.80	2.1	1060	<1	0.01	42	1420	2	1.15	2	15	56	<0.01	<10	10	110	<10	124
87-2-117	391.20	395.00	3.80	1.27	1415	<1	0.01	34	1500	6	0.22	<2	25	97	<0.01	<10	10	79	<10	140
87-2-118	395.00	400.00	5.00	1.2	1425	<1	0.01	34	1490	4	0.19	2	23	93	0.02	<10	<10	73	<10	104
87-2-119	400.00	405.00	5.00	1.91	805	<1	0.03	72	780	2	0.11	<2	11	91	0.02	<10	<10	72	<10	78
87-2-120	405.00	410.00	5.00	2.9	585	<1	0.04	79	630	<2	0.05	<2	12	97	0.07	<10	<10	86	<10	64
87-2-121	410.00	415.00	5.00	3.13	560	<1	0.05	86	630	2	0.13	<2	12	123	0.13	<10	<10	90	<10	58
87-2-122	415.00	420.00	5.00	3.55	660	<1	0.05	88	650	<2	0.11	<2	13	136	0.17	<10	10	97	<10	72
87-2-123	420.00	425.00	5.00	3.18	605	<1	0.07	80	630	2	0.15	<2	11	115	0.15	<10	<10	87	<10	82
87-2-124	425.00	430.00	5.00	3.23	570	<1	0.08	82	660	<2	0.1	<2	10	134	0.18	<10	<10	86	<10	64
87-2-125	430.00	435.40	5.40	3.4	410	<1	0.11	73	640	2	0.12	<2	6	145	0.17	<10	<10	67	<10	48
87-2-126	435.40	441.00	5.60	7.52	555	<1	0.19	204	2150	6	0.18	2	11	558	0.35	<10	<10	144	<10	58
87-2-127	441.00	446.00	5.00	2.44	370	<1	0.1	68	670	2	0.11	4	5	109	0.17	<10	<10	64	<10	48
87-2-128	446.00	451.00	5.00	2.49	460	<1	0.08	70	640	2	0.09	<2	5	75	0.15	<10	<10	66	<10	50

APPENDIX 8
Gold and ICP Data - DDH 4410-87-3
Empress Project

SAMPLE	FROM	TO	INTERVAL	494.000	2118	2119	2120	557	2121	2122	2123	2124	2125	2126	2127	2128	2150	2130	2131	2132	2151
	(ft)	(ft)	(ft)	Au	Ag	Al	As	B	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	Hg	K	La
				g/tonne	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm
87-3-174	45.00	50.00	5.00	<0.005	<0.2	3.08	<2	<10	60	<0.5	<2	1.48	<0.5	25	76	63	5.19	10	<1	0.39	<10
87-3-175	50.00	55.45	5.45	<0.005	<0.2	4.36	<2	<10	190	<0.5	<2	2.15	<0.5	30	93	82	6.64	10	<1	1.73	<10
87-3-176	55.45	60.00	4.55	<0.005	<0.2	3.08	<2	<10	150	<0.5	<2	3.38	<0.5	21	285	21	3.5	10	<1	1.99	10
87-3-177	60.00	65.00	5.00	<0.005	<0.2	2	<2	<10	60	<0.5	<2	1.9	<0.5	13	154	25	2.32	<10	<1	1.3	20
87-3-178	65.00	70.00	5.00	<0.005	<0.2	1.36	<2	<10	40	<0.5	<2	0.64	<0.5	7	50	33	1.93	<10	<1	0.7	20
87-3-179	70.00	75.00	5.00	<0.005	<0.2	3.06	<2	<10	80	<0.5	<2	1.1	<0.5	22	84	51	4.8	10	<1	0.61	10
87-3-180	75.00	80.00	5.00	<0.005	<0.2	2.7	<2	<10	20	<0.5	<2	1.15	<0.5	24	74	50	4.68	10	<1	0.15	<10
87-3-181	80.00	81.75	1.75	<0.005	<0.2	2.77	<2	<10	40	<0.5	<2	1.57	<0.5	23	77	50	4.66	10	<1	0.24	<10
87-3-182	81.75	85.00	3.25	<0.005	<0.2	1.6	<2	<10	40	<0.5	<2	0.36	0.5	5	74	38	2.99	<10	<1	0.48	20
87-3-183	85.00	90.00	5.00	<0.005	<0.2	1.81	10	<10	70	<0.5	<2	0.87	1	20	53	79	3.26	<10	<1	0.77	10
87-3-184	90.00	94.00	4.00	<0.005	<0.2	2.38	<2	<10	100	<0.5	<2	0.81	<0.5	17	46	44	4.04	10	<1	1.11	10
87-3-185	94.00	95.80	1.80	<0.005	<0.2	1.54	8	<10	40	<0.5	<2	1.85	1	30	37	112	4.19	<10	<1	0.33	10
87-3-186	95.80	101.30	5.50	<0.005	<0.2	5.04	<2	<10	50	1.5	<2	1.82	<0.5	26	70	161	7.59	10	<1	0.46	<10
87-3-187	101.30	105.00	3.70	<0.005	<0.2	2.69	<2	<10	210	1.5	<2	10.35	<0.5	65	283	117	6.86	20	<1	0.4	50
87-3-188	105.00	108.50	3.50	<0.005	<0.2	4.4	<2	<10	60	0.5	<2	2.29	<0.5	33	164	61	8.09	10	<1	0.37	<10
87-3-189	108.50	111.50	3.00	<0.005	<0.2	2.24	<2	<10	40	<0.5	<2	1.43	<0.5	24	158	55	4.58	10	<1	0.18	<10
87-3-190	111.50	115.95	4.45	<0.005	<0.2	0.87	<2	<10	50	<0.5	<2	0.83	<0.5	7	87	16	1.26	<10	<1	0.32	10
87-3-191	125.00	129.00	4.00	<0.005	<0.2	0.85	<2	<10	100	<0.5	<2	0.62	<0.5	7	80	18	1.28	<10	<1	0.4	<10
87-3-192	129.00	133.70	4.70	0.005	<0.2	1.77	<2	<10	30	<0.5	<2	1.13	<0.5	19	40	72	3.7	10	<1	0.14	10
87-3-193	144.00	149.00	5.00	<0.005	<0.2	2.76	<2	<10	80	<0.5	<2	1.99	<0.5	25	52	66	5.26	10	<1	0.37	<10
87-3-194	149.00	151.95	2.95	<0.005	<0.2	0.75	<2	<10	40	<0.5	<2	0.68	<0.5	6	86	13	1.05	<10	<1	0.18	<10
87-3-195	170.00	174.35	4.35	<0.005	<0.2	0.85	<2	<10	50	<0.5	<2	1.13	<0.5	7	81	19	1.32	<10	<1	0.12	10
87-3-196	174.35	179.00	4.65	<0.005	<0.2	2.5	<2	<10	290	<0.5	<2	2.97	<0.5	20	287	33	3.15	10	<1	1.16	10
87-3-197	265.00	269.00	4.00	<0.005	<0.2	0.79	<2	<10	10	<0.5	<2	1.01	<0.5	6	68	10	1.46	<10	<1	0.05	10
87-3-198	269.00	274.00	5.00	0.005	<0.2	3.28	<2	<10	40	<0.5	<2	3.62	<0.5	26	103	27	5.81	10	<1	0.26	<10
87-3-199	274.00	279.00	5.00	<0.005	<0.2	2.52	<2	<10	90	<0.5	<2	3.35	<0.5	27	109	68	5.08	10	<1	0.44	<10
87-3-200	279.00	284.00	5.00	<0.005	<0.2	2.7	<2	<10	<10	<0.5	<2	3.15	<0.5	29	89	216	5.29	10	<1	0.08	<10
87-3-201	284.00	289.00	5.00	<0.005	<0.2	2.91	<2	<10	<10	<0.5	<2	4.41	<0.5	27	101	70	5.51	10	<1	0.07	<10
87-3-202	329.60	331.85	2.25	<0.005	<0.2	1.62	<2	<10	<10	<0.5	<2	2.31	<0.5	16	64	63	3.18	<10	<1	0.07	10
87-3-203	331.85	335.00	3.15	0.010	<0.2	3.19	<2	<10	150	<0.5	<2	2.14	0.5	28	80	142	6.71	10	<1	0.76	10
87-3-204	335.00	340.00	5.00	<0.005	<0.2	2.61	<2	<10	90	<0.5	<2	2.25	1.5	30	79	106	5.16	<10	<1	0.34	<10
87-3-205	340.00	345.00	5.00	0.010	<0.2	2.07	<2	<10	140	<0.5	<2	2.24	2	30	68	118	4.63	<10	<1	0.48	<10
87-3-206	345.00	349.85	4.85	0.015	<0.2	1.62	<2	<10	100	<0.5	<2	1.34	1.5	21	86	116	4.15	<10	<1	0.28	<10
87-3-207	349.85	355.00	5.15	<0.005	<0.2	2.87	<2	<10	70	0.5	<2	3.85	<0.5	24	248	45	4.73	10	<1	0.23	10
87-3-208	355.00	360.00	5.00	<0.005	<0.2	2.52	<2	<10	90	<0.5	<2	4.49	0.5	22	203	78	4.29	10	<1	0.29	10
87-3-209	360.00	365.00	5.00	<0.005	<0.2	2.22	<2	<10	150	0.5	<2	4.67	<0.5	20	255	33	3.61	10	<1	0.44	10
87-3-210	365.00	368.30	3.30	<0.005	<0.2	3.09	<2	<10	30	0.5	<2	3.48	<0.5	19	263	36	4.83	10	<1	0.11	10
87-3-211	368.30	372.40	4.10	0.025	1.2	1.53	<2	<10	60	<0.5	<2	3.74	4.5	47	60	260	5.98	<10	<1	0.13	<10
87-3-212	372.40	375.60	3.20	0.020	<0.2	0.71	<2	<10	40	<0.5	<2	3.1	0.5	7	72	47	1.74	<10	<1	0.19	10
87-3-213	375.60	380.60	5.00	0.055	1.4	0.56	<2	<10	30	<0.5	<2	2.7	6	18	96	242	2.57	<10	<1	0.17	20
87-3-214	380.60	384.60	4.00	0.080	1	0.71	8	<10	40	<0.5	<2	1.35	6	33	73	292	3.28	<10	<1	0.21	20
87-3-215	384.60	386.45	1.85	0.005	0.8	0.13	<2	<10	10	<0.5	<2	1.06	<0.5	5	233	12	0.69	<10	<1	0.05	<10
87-3-216	386.45	390.85	4.40	0.045	0.8	0.8	<2	<10	30	<0.5	<2	4.77	2	43	66	264	3.89	<10	<1	0.18	10
87-3-217	390.85	394.90	4.05	0.145	1.2	0.43	20	<10	30	<0.5	<2	3.27	2	23	84	142	2.7	<10	<1	0.21	10
87-3-218	394.90	396.85	1.95	0.140	0.8	0.2	<2	<10	110	<0.5	<2	5.53	0.5	21	141	1200	1.77	<10	<1	0.01	<10
87-3-219	396.85	400.85	4.00	0.070	0.6	0.72	<2	<10	30	<0.5	<2	3.1	2	49	48	170	4.08	<10	<1	0.16	10
87-3-220	400.85	403.30	2.45	0.160	0.6	0.85	16	<10	60	<0.5	<2	3.12	3	40	60	183	4.49	<10	<1	0.23	10
87-3-221	403.30	405.00	1.70	<0.005	<0.2	0.03	<2	<10	60	<0.5	<2	5.92	<0.5	1	151	6	0.29	<10	<1	<0.01	<10
87-3-222	405.00	409.20	4.20	<0.005	<0.2	0.02	<2	<10	1010	<0.5	<2	9.62	<0.5	1	120	6	0.52	<10	<1	<0.01	<10
87-3-223	409.20	414.30	5.10	0.055	0.2	0.6	10	<10	80	<0.5	<2	3.08	2	51	82	276	3.06	<10	<1	0.25	10
87-3-224	414.30	419.05	4.75	0.015	<0.2	0.77	<2	<10	50	<0.5	<2	3.49	0.5	11	57	71	2.37	<10	<1	0.2	10

SAMPLE	FROM (ft)	TO (ft)	INTERVAL (ft)	494.000 Au g/tonne	2118 Ag ppm	2119 Al %	2120 As ppm	557 B ppm	2121 Ba ppm	2122 Be ppm	2123 Bi ppm	2124 Ca %	2125 Cd ppm	2126 Co ppm	2127 Cr ppm	2128 Cu ppm	2150 Fe %	2130 Ga ppm	2131 Hg ppm	2132 K %	2151 La ppm
87-3-225	419.05	423.35	4.30	0.020	<0.2	0.89	<2	<10	30	<0.5	<2	2.98	<0.5	17	56	58	3.08	<10	<1	0.25	10
87-3-226	423.35	426.00	2.65	0.225	0.2	0.12	<2	<10	<10	<0.5	<2	3.56	1.5	150	78	125	12.3	<10	<1	0.03	<10
87-3-227	426.00	428.00	2.00	0.015	<0.2	0.34	<2	<10	30	<0.5	<2	2.04	<0.5	14	80	16	2.1	<10	<1	0.09	<10
87-3-228	428.00	432.85	4.85	0.040	0.2	0.78	<2	<10	40	<0.5	<2	2.6	0.5	20	70	205	2.92	<10	<1	0.22	10
87-3-229	432.85	435.00	2.15	<0.005	<0.2	2.74	<2	<10	70	0.5	<2	4.44	<0.5	21	209	32	3.52	10	<1	0.54	10
87-3-230	435.00	439.40	4.40	0.170	0.2	1.57	2	<10	50	<0.5	<2	4.15	1	28	103	194	4.95	<10	<1	0.21	<10
87-3-231	439.40	443.60	4.20	0.010	<0.2	2.23	<2	<10	40	<0.5	<2	6.76	<0.5	29	60	91	6.44	10	<1	0.14	<10
87-3-232	443.60	445.50	1.90	0.020	<0.2	2.01	<2	<10	40	<0.5	<2	6.77	<0.5	36	40	140	5.85	<10	<1	0.15	<10
87-3-233	445.50	450.50	5.00	<0.005	<0.2	2.48	<2	<10	50	<0.5	<2	4.26	<0.5	37	44	67	6.23	10	<1	0.11	<10
87-3-234	450.50	454.35	3.85	0.075	<0.2	1.38	<2	<10	130	<0.5	<2	3.96	<0.5	34	47	66	5.3	<10	<1	0.48	<10
87-3-235	454.35	459.70	5.35	0.015	<0.2	0.85	<2	<10	50	<0.5	<2	6.34	<0.5	31	35	95	4.91	<10	<1	0.24	<10
87-3-236	459.70	464.00	4.30	<0.005	<0.2	3.11	<2	<10	100	<0.5	<2	5.17	<0.5	26	187	52	4.99	10	<1	0.4	10
87-3-237	464.00	469.00	5.00	<0.005	<0.2	3.03	<2	<10	180	<0.5	<2	3.16	<0.5	37	42	67	6.23	10	<1	0.58	<10
87-3-238	469.00	472.00	3.00	<0.005	<0.2	2.7	<2	<10	60	<0.5	<2	3.15	<0.5	36	43	72	6.05	10	<1	0.23	<10

APPENDIX 8
Gold and ICP Data - DDH 4410-87-3
Empress Project

SAMPLE	FROM (ft)	TO (ft)	INTERVAL (ft)	2134 Mg %	2135 Mn ppm	2136 Mo ppm	2137 Na %	2138 Ni ppm	2139 P ppm	2140 Pb ppm	551 S %	2141 Sb ppm	2142 Sc ppm	2143 Sr ppm	2144 Ti %	2145 Tl ppm	2146 U ppm	2147 V ppm	2148 W ppm	2149 Zn ppm
87-3-174	45.00	50.00	5.00	2.69	405	2	0.05	41	1230	<2	0.16	<2	7	17	0.18	<10	<10	101	<10	78
87-3-175	50.00	55.45	5.45	3.45	655	2	0.03	45	1230	<2	0.4	<2	14	31	0.36	<10	<10	160	<10	106
87-3-176	55.45	60.00	4.55	2.77	580	<1	0.03	73	640	<2	0.06	<2	11	41	0.16	<10	<10	75	<10	104
87-3-177	60.00	65.00	5.00	1.72	325	2	0.02	40	420	2	0.11	<2	5	31	0.11	<10	<10	35	<10	94
87-3-178	65.00	70.00	5.00	0.95	170	3	0.01	10	200	2	0.19	<2	1	11	0.05	<10	<10	11	<10	198
87-3-179	70.00	75.00	5.00	2.69	460	2	0.04	44	960	<2	0.06	<2	9	20	0.2	<10	<10	97	<10	98
87-3-180	75.00	80.00	5.00	2.53	405	<1	0.06	52	1020	<2	0.05	<2	8	17	0.13	<10	<10	94	<10	86
87-3-181	80.00	81.75	1.75	2.45	460	1	0.05	52	990	<2	0.04	<2	11	21	0.16	<10	<10	102	<10	120
87-3-182	81.75	85.00	3.25	0.99	230	2	0.03	6	220	6	0.36	<2	1	11	0.05	<10	<10	10	<10	222
87-3-183	85.00	90.00	5.00	1.2	260	3	0.03	23	640	26	0.76	<2	3	17	0.07	<10	<10	25	<10	744
87-3-184	90.00	94.00	4.00	1.62	400	2	0.03	12	1220	6	0.41	<2	6	15	0.16	<10	<10	52	<10	336
87-3-185	94.00	95.80	1.80	0.82	335	2	0.02	30	980	8	1.32	<2	3	28	0.02	<10	<10	29	<10	798
87-3-186	95.80	101.30	5.50	3.67	680	1	0.01	27	1210	<2	0.19	<2	16	42	0.09	<10	<10	152	<10	122
87-3-187	101.30	105.00	3.70	3.91	1380	<1	0.05	319	2670	<2	0.25	<2	14	617	0.29	<10	<10	207	<10	98
87-3-188	105.00	108.50	3.50	4.61	715	1	0.03	48	1270	2	0.16	<2	18	77	0.12	<10	<10	188	<10	112
87-3-189	108.50	111.50	3.00	2.26	365	<1	0.07	34	1480	<2	0.11	<2	11	36	0.14	<10	<10	124	<10	70
87-3-190	111.50	115.95	4.45	0.68	165	<1	0.06	13	350	2	0.04	<2	1	51	0.07	<10	<10	27	<10	50
87-3-191	125.00	129.00	4.00	0.64	155	1	0.07	13	370	2	0.04	<2	1	37	0.09	<10	<10	26	<10	50
87-3-192	129.00	133.70	4.70	1.54	255	1	0.07	15	1470	<2	0.12	<2	4	14	0.12	<10	<10	89	<10	50
87-3-193	144.00	149.00	5.00	2.24	435	<1	0.05	24	1490	<2	0.11	<2	6	29	0.19	<10	<10	127	<10	80
87-3-194	149.00	151.95	2.95	0.55	140	<1	0.06	12	300	<2	0.03	<2	1	47	0.07	<10	<10	19	<10	42
87-3-195	170.00	174.35	4.35	0.68	155	<1	0.07	15	360	2	0.07	<2	2	44	0.09	<10	<10	25	<10	40
87-3-196	174.35	179.00	4.65	2.75	455	<1	0.04	77	650	<2	0.08	<2	8	59	0.19	<10	<10	73	<10	78
87-3-197	265.00	269.00	4.00	0.57	205	1	0.07	12	340	2	0.05	<2	2	27	0.06	<10	<10	27	<10	24
87-3-198	269.00	274.00	5.00	2.2	720	1	0.07	49	1620	<2	0.07	<2	14	40	0.26	<10	<10	148	<10	94
87-3-199	274.00	279.00	5.00	1.37	630	1	0.12	50	1810	<2	0.17	<2	14	37	0.22	<10	<10	141	<10	94
87-3-200	279.00	284.00	5.00	1.64	580	<1	0.13	57	1600	<2	0.23	<2	11	36	0.25	<10	<10	119	<10	88
87-3-201	284.00	289.00	5.00	2.12	605	<1	0.11	56	1770	<2	0.17	<2	13	54	0.2	<10	<10	124	<10	78
87-3-202	329.60	331.85	2.25	0.7	495	<1	0.17	29	1530	<2	0.12	<2	11	22	0.14	<10	<10	67	<10	62
87-3-203	331.85	335.00	3.15	1.32	925	3	0.04	43	1420	<2	0.77	<2	8	20	0.19	<10	<10	68	<10	534
87-3-204	335.00	340.00	5.00	1.2	645	1	0.04	42	1280	<2	0.5	<2	6	17	0.23	<10	<10	80	<10	598
87-3-205	340.00	345.00	5.00	0.97	670	1	0.02	44	1040	<2	0.64	<2	4	17	0.18	<10	<10	64	<10	748
87-3-206	345.00	349.85	4.85	0.6	395	3	0.01	39	420	6	0.85	<2	4	20	0.03	<10	<10	28	<10	496
87-3-207	349.85	355.00	5.15	2.13	540	1	0.02	89	700	2	0.27	<2	11	50	0.04	<10	<10	61	<10	116
87-3-208	355.00	360.00	5.00	1.68	580	<1	0.02	73	570	4	0.39	<2	10	55	0.04	<10	<10	57	<10	362
87-3-209	360.00	365.00	5.00	2.02	555	<1	0.02	79	610	2	0.15	<2	10	78	0.09	<10	<10	63	<10	58
87-3-210	365.00	368.30	3.30	2.38	505	<1	0.01	77	620	2	0.14	<2	10	33	0.03	<10	<10	60	<10	266
87-3-211	368.30	372.40	4.10	0.35	475	2	0.01	67	850	14	2.59	<2	11	38	<0.01	<10	<10	46	<10	2360
87-3-212	372.40	375.60	3.20	0.14	360	3	<0.01	11	240	6	0.47	<2	1	28	<0.01	<10	<10	6	<10	350
87-3-213	375.60	380.60	5.00	0.08	300	3	<0.01	26	200	96	1.8	<2	<1	21	<0.01	<10	<10	4	<10	1945
87-3-214	380.60	384.60	4.00	0.11	160	7	<0.01	35	300	46	2.32	<2	<1	15	<0.01	<10	<10	4	<10	2300
87-3-215	384.60	386.45	1.85	0.02	90	3	<0.01	6	30	68	0.33	<2	<1	10	<0.01	<10	<10	1	<10	20
87-3-216	386.45	390.85	4.40	0.16	465	2	0.01	47	560	16	2.32	<2	1	48	<0.01	<10	<10	7	<10	1345
87-3-217	390.85	394.90	4.05	0.06	330	4	<0.01	27	240	54	2.31	<2	<1	47	<0.01	<10	<10	3	<10	782
87-3-218	394.90	396.85	1.95	0.1	300	7	<0.01	25	50	14	1.26	<2	1	516	<0.01	<10	<10	1	<10	60
87-3-219	396.85	400.85	4.00	0.24	410	4	<0.01	47	480	4	2.91	<2	1	44	<0.01	<10	<10	6	<10	1115
87-3-220	400.85	403.30	2.45	0.32	415	4	0.01	46	570	4	3.37	<2	2	52	0.01	<10	<10	15	<10	1430
87-3-221	403.30	405.00	1.70	0.06	325	<1	<0.01	3	30	12	0.03	<2	<1	631	<0.01	<10	<10	1	<10	16
87-3-222	405.00	409.20	4.20	0.11	310	<1	<0.01	3	10	26	0.28	<2	<1	1390	<0.01	<10	<10	<1	<10	8
87-3-223	409.20	414.30	5.10	0.12	470	5	<0.01	32	330	<2	2.22	<2	<1	57	<0.01	<10	<10	10	<10	844
87-3-224	414.30	419.05	4.75	0.23	535	2	<0.01	18	390	<2	0.78	<2	<1	68	<0.01	<10	<10	6	<10	362

SAMPLE	FROM (ft)	TO (ft)	INTERVAL (ft)	2134 Mg %	2135 Mn ppm	2136 Mo ppm	2137 Na %	2138 Ni ppm	2139 P ppm	2140 Pb ppm	551 S %	2141 Sb ppm	2142 Sc ppm	2143 Sr ppm	2144 Ti %	2145 Tl ppm	2146 U ppm	2147 V ppm	2148 W ppm	2149 Zn ppm
87-3-225	419.05	423.35	4.30	0.37	490	1	<0.01	16	640	<2	1.02	<2	1	48	<0.01	<10	<10	10	<10	114
87-3-226	423.35	426.00	2.65	0.07	315	3	0.01	335	50	2	>5.00	<2	1	232	<0.01	<10	10	1	<10	218
87-3-227	426.00	428.00	2.00	0.13	190	19	0.02	18	130	2	1.59	<2	<1	95	<0.01	<10	<10	2	<10	42
87-3-228	428.00	432.85	4.85	0.34	365	5	<0.01	21	240	<2	1.84	<2	<1	47	<0.01	<10	<10	5	<10	236
87-3-229	432.85	435.00	2.15	2.26	690	1	0.01	73	650	<2	0.15	<2	5	97	0.05	<10	<10	38	<10	130
87-3-230	435.00	439.40	4.40	0.88	755	5	<0.01	37	620	2	1.91	<2	3	78	0.01	<10	<10	37	<10	308
87-3-231	439.40	443.60	4.20	1.16	1230	<1	<0.01	51	1120	2	0.57	<2	4	113	0.03	<10	<10	87	<10	240
87-3-232	443.60	445.50	1.90	0.94	1090	<1	<0.01	57	1380	2	0.79	<2	4	131	0.04	<10	<10	75	<10	206
87-3-233	445.50	450.50	5.00	1.26	840	<1	0.01	64	1240	2	0.33	<2	5	60	0.07	<10	<10	109	<10	216
87-3-234	450.50	454.35	3.85	0.9	800	<1	0.01	52	1350	2	0.85	<2	6	91	0.05	<10	<10	101	<10	122
87-3-235	454.35	459.70	5.35	0.59	1110	<1	0.02	52	1150	4	0.59	<2	6	89	<0.01	<10	<10	53	<10	206
87-3-236	459.70	464.00	4.30	2.09	810	<1	0.01	68	920	2	0.19	<2	10	88	0.07	<10	<10	94	<10	124
87-3-237	464.00	469.00	5.00	1.58	640	<1	<0.01	62	1360	2	0.27	<2	5	42	0.18	<10	<10	126	<10	152
87-3-238	469.00	472.00	3.00	1.6	615	<1	<0.01	64	1260	2	0.18	<2	10	63	0.19	<10	<10	133	<10	178

APPENDIX 8
Gold and ICP Data - DDH 4410-87-4
Empress Project

SAMPLE	FROM (ft)	TO (ft)	INTERVAL (ft)	494.000 Au g/tonne	2118 Ag ppm	2119 Al %	2120 As ppm	557 B ppm	2121 Ba ppm	2122 Be ppm	2123 Bi ppm	2124 Ca %	2125 Cd ppm	2126 Co ppm	2127 Cr ppm	2128 Cu ppm	2150 Fe %	2130 Ga ppm	2131 Hg ppm	2132 K %	2151 La ppm
87-4-239	70.50	73.00	2.50	<0.005	<0.2	3.55	<2	<10	60	<0.5	<2	2.77	<0.5	27	67	71	5.92	10	<1	0.41	<10
87-4-240	73.00	78.00	5.00	<0.005	<0.2	2.14	<2	<10	170	<0.5	<2	1.27	<0.5	13	66	50	3.68	10	<1	1.04	10
87-4-241	110.00	115.00	5.00	<0.005	<0.2	2.12	<2	<10	20	<0.5	<2	2.84	<0.5	19	295	40	3.19	10	<1	0.12	10
87-4-242	172.00	177.10	5.10	<0.005	<0.2	1.32	<2	<10	40	<0.5	<2	2.49	<0.5	15	253	36	2.09	10	<1	0.15	10
87-4-243	177.10	182.00	4.90	<0.005	<0.2	2.93	<2	<10	20	<0.5	<2	1.55	<0.5	23	49	46	5.07	10	<1	0.08	<10
87-4-244	237.00	242.00	5.00	<0.005	<0.2	2.01	<2	<10	90	<0.5	<2	1.5	<0.5	45	101	270	4.2	<10	<1	0.59	<10
87-4-245	242.00	245.70	3.70	<0.005	<0.2	1.99	<2	<10	40	<0.5	<2	2.16	<0.5	35	82	278	4.13	<10	<1	0.29	<10
87-4-246	245.70	247.70	2.00	<0.005	<0.2	1.8	<2	<10	10	<0.5	<2	3.2	<0.5	63	53	863	6.6	<10	<1	0.15	<10
87-4-247	247.70	253.00	5.30	<0.005	<0.2	1.77	<2	<10	50	<0.5	<2	1.4	<0.5	40	89	172	3.54	<10	<1	0.39	<10
87-4-248	336.00	341.00	5.00	<0.005	<0.2	1.56	<2	<10	30	<0.5	<2	2.63	<0.5	18	68	79	3.07	<10	<1	0.17	<10
87-4-249	341.00	345.25	4.25	<0.005	<0.2	1.96	<2	<10	180	<0.5	<2	2.41	3.5	26	94	197	5.02	10	<1	0.66	10
87-4-250	345.25	350.50	5.25	<0.005	<0.2	2.43	<2	<10	110	<0.5	<2	2.02	<0.5	22	69	86	5.3	<10	<1	0.88	10
87-4-251	350.50	353.30	2.80	<0.005	<0.2	2.24	<2	<10	110	<0.5	<2	2.83	<0.5	24	96	105	5.29	<10	<1	0.92	<10
87-4-252	353.30	358.00	4.70	<0.005	<0.2	1.43	<2	<10	40	<0.5	<2	1.83	1	18	57	72	3.06	<10	<1	0.15	<10
87-4-253	416.00	419.50	3.50	<0.005	<0.2	1.65	<2	<10	40	<0.5	<2	2.56	<0.5	17	75	32	3.36	<10	<1	0.2	10
87-4-254	419.50	421.10	1.60	<0.005	<0.2	3.34	<2	<10	80	<0.5	<2	3.84	<0.5	21	249	3	4.9	10	<1	0.45	10
87-4-255	421.10	426.00	4.90	<0.005	<0.2	2.73	<2	<10	150	<0.5	<2	3.29	<0.5	37	99	79	5.63	10	<1	0.94	10
87-4-256	426.00	431.00	5.00	0.020	<0.2	2.14	<2	<10	140	<0.5	<2	4.82	<0.5	37	59	99	7.43	10	<1	0.91	10
87-4-257	431.00	433.50	2.50	0.190	<0.2	1.44	<2	<10	130	<0.5	<2	5.23	0.5	36	64	94	6.19	<10	<1	0.83	<10
87-4-258	433.50	435.15	1.65	<0.005	<0.2	0.61	<2	<10	60	<0.5	<2	2.46	<0.5	8	85	20	1.89	<10	<1	0.09	10
87-4-259	435.15	438.80	3.65	0.010	<0.2	1.25	<2	<10	230	<0.5	<2	5.57	<0.5	38	76	51	5.6	<10	<1	0.8	<10
87-4-260	438.80	442.60	3.80	<0.005	<0.2	1.88	<2	<10	70	<0.5	<2	4.56	<0.5	34	63	93	6.23	<10	<1	0.17	<10
87-4-261	442.60	447.30	4.70	0.045	<0.2	0.65	<2	<10	30	<0.5	<2	4.73	<0.5	24	79	132	4.08	<10	<1	0.23	<10
87-4-262	447.30	449.95	2.65	0.060	<0.2	0.21	<2	<10	<10	<0.5	<2	1.52	<0.5	6	181	19	1.13	<10	<1	0.04	<10
87-4-263	449.95	453.20	3.25	0.135	<0.2	0.56	<2	<10	10	<0.5	<2	4.63	<0.5	31	96	58	4.91	<10	<1	0.11	<10
87-4-264	453.20	455.55	2.35	0.040	<0.2	0.48	<2	<10	40	<0.5	<2	3.15	<0.5	28	105	77	3.69	<10	<1	0.19	<10
87-4-265	455.55	458.50	2.95	0.170	<0.2	0.75	<2	<10	50	<0.5	<2	4.03	2	18	63	106	4.97	<10	<1	0.34	10
87-4-266	458.50	462.25	3.75	0.015	<0.2	1.04	<2	<10	<10	<0.5	<2	8.37	<0.5	35	47	83	3.41	<10	<1	0.12	<10
87-4-267	462.25	466.00	3.75	0.080	<0.2	1.8	<2	<10	10	<0.5	<2	4.86	<0.5	41	87	92	5.79	<10	<1	0.14	<10
87-4-268	466.00	470.15	4.15	0.020	<0.2	1.35	<2	<10	20	<0.5	<2	6.1	<0.5	42	60	73	4.37	<10	<1	0.18	<10
87-4-269	470.15	473.50	3.35	0.045	<0.2	1.39	<2	<10	50	0.5	<2	3.96	<0.5	38	100	121	4.82	<10	<1	0.23	<10
87-4-270	473.50	475.40	1.90	0.005	<0.2	0.25	<2	<10	10	<0.5	<2	0.75	<0.5	9	267	8	1.08	<10	<1	0.07	<10
87-4-271	475.40	477.40	2.00	3.150	<0.2	1	<2	<10	10	<0.5	<2	3.77	<0.5	22	164	19	4.58	<10	<1	0.06	<10
87-4-272	477.40	482.30	4.90	0.025	<0.2	1.8	<2	<10	10	<0.5	<2	6.1	<0.5	32	69	54	6.07	<10	<1	0.13	<10
87-4-273	482.30	486.00	3.70	0.110	<0.2	1.23	<2	<10	10	<0.5	<2	4.35	<0.5	28	96	92	4.84	<10	<1	0.15	<10
87-4-274	486.00	491.00	5.00	0.395	<0.2	1.66	<2	<10	20	0.5	<2	7.37	<0.5	24	78	75	4.61	<10	<1	0.15	<10
87-4-275	491.00	496.00	5.00	0.050	0.2	1.62	<2	<10	10	0.5	<2	3.84	<0.5	24	165	215	5.09	<10	<1	0.1	<10
87-4-276	496.00	499.70	3.70	0.020	<0.2	1.81	<2	<10	10	<0.5	<2	5.46	0.5	21	103	145	9.81	<10	<1	0.1	<10
87-4-277	499.70	505.15	5.45	0.040	<0.2	1.45	<2	<10	10	<0.5	<2	7.11	1	24	67	170	7.28	<10	<1	0.15	<10
87-4-278	505.15	508.60	3.45	0.060	<0.2	1.26	<2	<10	40	<0.5	<2	3.78	3	17	72	47	3.51	<10	<1	0.27	<10
87-4-279	508.60	512.75	4.15	0.030	0.2	1.54	<2	<10	10	0.5	<2	5.92	2	19	81	159	3.99	<10	<1	0.12	<10
87-4-280	512.75	516.50	3.75	0.010	<0.2	3.62	<2	<10	<10	0.5	<2	4.73	<0.5	32	75	79	8.57	10	<1	0.07	<10
87-4-281	516.50	520.75	4.25	<0.005	<0.2	2.55	<2	<10	10	<0.5	<2	5.37	<0.5	38	82	64	4.81	<10	<1	0.23	<10
87-4-282	520.75	526.00	5.25	<0.005	<0.2	3.16	<2	<10	70	<0.5	<2	2.98	<0.5	45	97	76	5.94	10	<1	0.51	<10
87-4-283	526.00	528.50	2.50	0.010	<0.2	2.93	<2	<10	60	<0.5	<2	2.84	<0.5	48	99	116	5.57	10	<1	0.27	<10
87-4-284	528.50	533.50	5.00	<0.005	<0.2	2.23	<2	<10	10	<0.5	<2	2.79	<0.5	33	77	52	4.33	<10	<1	0.09	<10
87-4-285	533.50	538.50	5.00	<0.005	<0.2	2.72	<2	<10	<10	<0.5	<2	3.44	<0.5	37	89	80	5.51	<10	<1	0.05	<10
87-4-286	538.50	543.50	5.00	0.010	<0.2	3.36	<2	<10	60	<0.5	<2	3.97	<0.5	41	108	85	6.53	10	<1	0.33	<10
87-4-287	543.50	546.00	2.50	<0.005	<0.2	3.71	<2	<10	10	<0.5	<2	3.17	<0.5	34	89	80	7.34	10	<1	0.06	<10

APPENDIX 8
Gold and ICP Data - DDH 4410-87-4
Empress Project

SAMPLE	FROM (ft)	TO (ft)	INTERVAL (ft)	2134 Mg %	2135 Mn ppm	2136 Mo ppm	2137 Na %	2138 Ni ppm	2139 P ppm	2140 Pb ppm	551 S %	2141 Sb ppm	2142 Sc ppm	2143 Sr ppm	2144 Ti %	2145 Tl ppm	2146 U ppm	2147 V ppm	2148 W ppm	2149 Zn ppm
87-4-239	70.50	73.00	2.50	3.05	545	1	0.02	37	1200	<2	0.4	<2	13	35	0.13	<10	<10	135	<10	70
87-4-240	73.00	78.00	5.00	1.43	320	1	0.03	18	410	2	0.32	<2	6	20	0.11	<10	<10	44	<10	124
87-4-241	110.00	115.00	5.00	2.74	385	<1	0.03	77	690	<2	0.15	<2	9	62	0.14	<10	<10	66	<10	40
87-4-242	172.00	177.10	5.10	1.37	325	<1	0.05	51	610	<2	0.09	<2	3	59	0.11	<10	<10	41	<10	38
87-4-243	177.10	182.00	4.90	2.38	450	1	0.05	22	1410	<2	0.09	<2	7	24	0.26	<10	<10	99	<10	78
87-4-244	237.00	242.00	5.00	0.83	395	4	0.14	85	1540	<2	0.51	<2	9	18	0.17	<10	<10	132	<10	74
87-4-245	242.00	245.70	3.70	0.69	475	9	0.18	59	1510	<2	0.51	<2	8	23	0.14	<10	<10	96	<10	66
87-4-246	245.70	247.70	2.00	0.69	1420	3	0.13	77	1140	<2	1.56	<2	6	13	0.13	<10	<10	59	<10	64
87-4-247	247.70	253.00	5.30	0.67	455	1	0.09	85	1460	<2	0.25	<2	6	15	0.14	<10	<10	103	<10	74
87-4-248	336.00	341.00	5.00	0.83	510	4	0.13	23	890	<2	0.09	<2	8	29	0.2	<10	<10	79	<10	70
87-4-249	341.00	345.25	4.25	1.13	605	4	0.04	39	540	2	1.03	<2	8	19	0.23	<10	<10	65	<10	1845
87-4-250	345.25	350.50	5.25	0.97	955	1	0.07	31	1430	<2	0.3	<2	8	19	0.3	<10	<10	68	<10	140
87-4-251	350.50	353.30	2.80	0.89	950	1	0.07	38	1480	8	0.4	<2	9	27	0.31	<10	<10	83	<10	138
87-4-252	353.30	358.00	4.70	0.8	400	4	0.12	36	1670	34	0.17	<2	8	17	0.15	<10	<10	64	<10	466
87-4-253	416.00	419.50	3.50	0.8	510	<1	0.14	31	1740	<2	0.1	<2	9	34	0.14	<10	<10	79	<10	74
87-4-254	419.50	421.10	1.60	3	1055	<1	0.01	35	1480	<2	0.01	<2	13	46	0.22	<10	<10	103	<10	152
87-4-255	421.10	426.00	4.90	1.65	845	<1	0.01	64	1270	6	0.41	<2	9	40	0.21	<10	<10	124	<10	236
87-4-256	426.00	431.00	5.00	1.51	1555	1	0.02	57	1110	2	0.79	<2	11	63	0.09	<10	<10	95	<10	278
87-4-257	431.00	433.50	2.50	1.19	1450	<1	0.02	47	860	<2	1.37	<2	8	74	0.07	<10	<10	78	<10	244
87-4-258	433.50	435.15	1.65	0.48	455	<1	0.07	17	400	2	0.23	<2	3	46	0.01	<10	<10	31	<10	44
87-4-259	435.15	438.80	3.65	1.15	1455	<1	0.02	90	970	<2	0.56	<2	8	80	0.07	<10	<10	109	<10	152
87-4-260	438.80	442.60	3.80	1.09	1650	<1	0.01	88	870	<2	0.42	<2	6	46	0.03	<10	<10	68	<10	158
87-4-261	442.60	447.30	4.70	0.36	965	2	0.01	40	610	2	0.96	<2	4	61	<0.01	<10	<10	32	<10	190
87-4-262	447.30	449.95	2.65	0.04	140	3	<0.01	12	120	<2	0.29	<2	1	18	<0.01	<10	<10	13	<10	18
87-4-263	449.95	453.20	3.25	0.21	655	12	0.03	33	530	<2	1.84	<2	5	68	0.01	<10	<10	54	<10	52
87-4-264	453.20	455.55	2.35	0.3	555	8	0.02	35	320	<2	1.53	<2	1	74	0.01	<10	<10	25	<10	68
87-4-265	455.55	458.50	2.95	0.41	1415	2	<0.01	27	310	<2	1.44	<2	1	51	0.04	<10	<10	35	<10	448
87-4-266	458.50	462.25	3.75	0.14	1080	<1	0.01	84	940	2	0.5	<2	8	60	<0.01	<10	<10	46	<10	82
87-4-267	462.25	466.00	3.75	0.29	615	<1	<0.01	97	1050	<2	0.62	<2	4	31	<0.01	<10	<10	59	<10	84
87-4-268	466.00	470.15	4.15	0.41	930	<1	<0.01	88	1120	<2	0.86	<2	3	64	<0.01	<10	<10	51	<10	70
87-4-269	470.15	473.50	3.35	0.63	615	2	<0.01	65	1020	<2	0.83	<2	2	73	<0.01	<10	<10	69	<10	76
87-4-270	473.50	475.40	1.90	0.08	115	2	<0.01	15	180	<2	0.31	<2	<1	11	<0.01	<10	<10	11	<10	12
87-4-271	475.40	477.40	2.00	0.48	590	6	<0.01	35	380	2	1.02	<2	4	86	<0.01	<10	<10	56	<10	48
87-4-272	477.40	482.30	4.90	0.92	1175	<1	<0.01	45	1210	2	0.76	<2	4	87	<0.01	<10	<10	67	<10	142
87-4-273	482.30	486.00	3.70	0.51	820	4	0.01	38	960	<2	0.99	<2	5	58	0.01	<10	<10	70	<10	120
87-4-274	486.00	491.00	5.00	0.52	1280	<1	0.01	44	1210	2	0.71	<2	7	103	<0.01	<10	<10	50	<10	118
87-4-275	491.00	496.00	5.00	0.9	955	10	<0.01	75	360	2	1.2	<2	3	49	<0.01	<10	<10	28	<10	164
87-4-276	496.00	499.70	3.70	0.93	2620	1	<0.01	51	490	<2	1.03	<2	5	51	0.03	<10	<10	67	<10	348
87-4-277	499.70	505.15	5.45	0.75	2540	<1	<0.01	49	490	2	1.53	<2	3	81	0.01	<10	<10	51	<10	446
87-4-278	505.15	508.60	3.45	0.44	695	4	0.03	28	530	<2	0.79	<2	5	55	0.01	<10	<10	32	<10	834
87-4-279	508.60	512.75	4.15	0.54	1025	5	<0.01	36	870	6	0.67	<2	5	64	<0.01	<10	<10	39	<10	504
87-4-280	512.75	516.50	3.75	1.6	1920	1	<0.01	87	880	2	0.45	<2	9	63	0.02	<10	<10	126	<10	372
87-4-281	516.50	520.75	4.25	1.12	1035	<1	0.01	94	1040	2	0.35	<2	6	32	0.07	<10	<10	95	<10	158
87-4-282	520.75	526.00	5.25	1.64	790	<1	0.01	109	970	2	0.28	<2	5	19	0.15	<10	<10	147	<10	156
87-4-283	526.00	528.50	2.50	1.8	720	<1	0.02	117	990	2	0.37	<2	5	18	0.17	<10	<10	128	<10	114
87-4-284	528.50	533.50	5.00	1.16	610	1	0.09	88	1090	2	0.15	<2	7	27	0.2	<10	<10	102	<10	88
87-4-285	533.50	538.50	5.00	1.67	735	<1	0.05	93	1030	<2	0.22	<2	9	50	0.28	<10	<10	129	<10	100
87-4-286	538.50	543.50	5.00	2.13	900	1	0.02	105	1050	<2	0.45	<2	7	36	0.23	<10	<10	167	<10	114
87-4-287	543.50	546.00	2.50	2.88	975	<1	0.02	87	1040	<2	0.19	<2	12	38	0.23	<10	<10	171	<10	114

APPENDIX 8
Gold and ICP Data - DDH 4410-87-5
Empress Project

SAMPLE	FROM (ft)	TO (ft)	INTERVAL (ft)	494.000 Au g/tonne	2118 Ag ppm	2119 Al %	2120 As ppm	557 B ppm	2121 Ba ppm	2122 Be ppm	2123 Bi ppm	2124 Ca %	2125 Cd ppm	2126 Co ppm	2127 Cr ppm	2128 Cu ppm	2150 Fe %	2130 Ga ppm	2131 Hg ppm	2132 K %	2151 La ppm
87-5-288	46.00	48.00	2.00	<0.005	<0.2	1.26	<2	<10	140	<0.5	<2	1.25	<0.5	11	130	76	2.3	<10	<1	0.34	40
87-5-289	48.00	49.50	1.50	<0.005	<0.2	1.82	<2	<10	20	<0.5	<2	2.2	<0.5	22	115	58	4.1	<10	<1	0.16	<10
87-5-290	49.50	55.00	5.50	<0.005	<0.2	2.04	<2	<10	10	<0.5	<2	2.49	<0.5	25	122	74	4.37	<10	<1	0.15	<10
87-5-291	55.00	60.00	5.00	<0.005	0.2	2.08	<2	<10	10	<0.5	<2	2.19	<0.5	23	121	28	4.28	10	<1	0.14	10
87-5-292	60.00	65.00	5.00	<0.005	<0.2	2.68	<2	<10	10	<0.5	<2	1.78	<0.5	35	150	59	6.03	10	<1	0.1	10
87-5-293	65.00	70.00	5.00	<0.005	<0.2	3.35	<2	<10	10	<0.5	<2	2.51	<0.5	36	136	47	5.97	10	<1	0.08	10
87-5-294	70.00	75.00	5.00	<0.005	<0.2	3.11	<2	<10	10	<0.5	<2	2.3	<0.5	38	134	66	6.1	10	<1	0.1	10
87-5-295	75.00	80.00	5.00	<0.005	<0.2	2.39	<2	<10	10	<0.5	<2	1.86	<0.5	30	101	52	5.07	10	<1	0.1	10
87-5-296	80.00	85.00	5.00	<0.005	<0.2	3.01	<2	<10	<10	<0.5	<2	1.74	<0.5	44	102	69	6.46	10	<1	0.09	10
87-5-297	85.00	90.00	5.00	<0.005	<0.2	2.55	<2	<10	10	<0.5	<2	2.72	<0.5	39	100	91	5.39	10	<1	0.12	10
87-5-298	90.00	95.00	5.00	<0.005	<0.2	2.96	<2	<10	30	<0.5	<2	3.3	<0.5	34	80	97	5.96	10	<1	0.24	10
87-5-299	95.00	100.00	5.00	<0.005	<0.2	3.2	<2	<10	20	<0.5	<2	2.84	<0.5	33	84	60	6.67	10	<1	0.29	10
87-5-300	100.00	103.00	3.00	<0.005	<0.2	3.45	2	<10	20	0.5	<2	3.83	<0.5	34	73	77	6.23	10	<1	0.35	10
87-5-301	103.00	106.00	3.00	<0.005	<0.2	2.37	<2	<10	<10	<0.5	<2	3.94	<0.5	26	230	52	4.33	10	<1	0.04	20
87-5-302	106.00	110.00	4.00	<0.005	<0.2	2.89	<2	<10	10	<0.5	<2	2.44	<0.5	36	136	79	4.65	10	<1	0.1	<10
87-5-303	110.00	115.00	5.00	<0.005	<0.2	3.49	<2	<10	30	<0.5	<2	2.29	<0.5	33	133	80	5.42	10	<1	0.19	<10
87-5-304	115.00	120.00	5.00	<0.005	<0.2	3.28	<2	<10	20	<0.5	<2	2.49	<0.5	38	125	81	5.42	10	<1	0.13	<10
87-5-305	120.00	125.00	5.00	<0.005	<0.2	3.14	<2	<10	20	<0.5	<2	1.32	<0.5	35	152	90	5.86	10	<1	0.11	<10
87-5-306	125.00	130.00	5.00	<0.005	<0.2	3.11	<2	<10	10	<0.5	<2	1.81	<0.5	33	121	96	6.84	10	<1	0.11	<10
87-5-307	130.00	135.00	5.00	<0.005	<0.2	2.84	<2	<10	10	<0.5	<2	1.91	<0.5	31	66	73	6.74	10	<1	0.1	10
87-5-308	135.00	140.00	5.00	<0.005	<0.2	2.76	<2	<10	10	<0.5	<2	2.18	<0.5	31	76	57	6.56	10	<1	0.07	10
87-5-309	140.00	145.00	5.00	<0.005	<0.2	2.94	<2	<10	10	<0.5	<2	2.59	<0.5	37	88	65	6.91	10	<1	0.08	<10
87-5-310	145.00	150.00	5.00	<0.005	<0.2	2.28	<2	<10	10	<0.5	<2	1.54	<0.5	29	104	56	5.56	10	<1	0.12	<10
87-5-311	150.00	155.00	5.00	<0.005	<0.2	2.18	<2	<10	20	<0.5	<2	1.33	<0.5	40	100	93	6.17	10	<1	0.1	<10
87-5-312	155.00	161.00	6.00	<0.005	<0.2	2.49	<2	<10	10	<0.5	<2	1.74	<0.5	38	113	67	6.09	10	<1	0.12	<10
87-5-313	161.00	165.50	4.50	<0.005	<0.2	2.75	<2	<10	10	<0.5	<2	2.11	<0.5	24	139	69	5.29	10	<1	0.1	<10
87-5-314	252.00	256.50	4.50	<0.005	<0.2	1.9	<2	<10	<10	<0.5	<2	1.7	<0.5	21	88	52	3.93	10	<1	0.05	<10
87-5-315	256.50	259.50	3.00	<0.005	<0.2	2.75	<2	<10	<10	<0.5	<2	7.22	<0.5	29	91	96	5.52	10	<1	0.06	<10
87-5-316	259.50	265.00	5.50	<0.005	<0.2	2.86	<2	<10	10	<0.5	<2	1.52	<0.5	28	76	32	4.14	10	<1	0.1	<10
87-5-317	265.00	270.00	5.00	<0.005	<0.2	2.41	<2	<10	30	<0.5	<2	2.06	<0.5	26	78	33	3.93	10	<1	0.12	<10
87-5-318	270.00	276.00	6.00	<0.005	<0.2	2.09	<2	<10	50	<0.5	<2	2.83	<0.5	34	100	287	4.95	10	<1	0.12	10
87-5-319	276.00	281.00	5.00	<0.005	<0.2	1.78	<2	<10	10	<0.5	<2	2.67	<0.5	27	90	82	4.25	<10	<1	0.08	<10
87-5-320	281.00	286.00	5.00	<0.005	<0.2	1.37	<2	<10	10	<0.5	<2	2.44	<0.5	25	76	86	3.21	<10	<1	0.07	<10
87-5-321	286.00	291.50	5.50	<0.005	<0.2	1.86	<2	<10	<10	<0.5	<2	2.81	<0.5	30	103	98	3.93	<10	<1	0.07	<10
87-5-322	291.50	293.70	2.20	<0.005	<0.2	1.13	<2	<10	10	<0.5	<2	1.53	0.5	15	84	144	2.39	<10	<1	0.12	10
87-5-323	293.70	297.90	4.20	<0.005	<0.2	2.06	<2	<10	10	<0.5	<2	4.38	<0.5	20	146	236	4.17	10	<1	0.11	10
87-5-324	297.90	301.00	3.10	<0.005	<0.2	3.15	<2	<10	10	0.5	<2	4.78	<0.5	23	92	60	5.78	10	<1	0.18	<10
87-5-325	301.00	304.00	3.00	<0.005	<0.2	2.7	<2	<10	10	<0.5	<2	2.04	<0.5	26	129	52	5.2	10	<1	0.05	<10
87-5-326	304.00	309.00	5.00	<0.005	<0.2	3.02	<2	<10	50	0.5	<2	3.94	<0.5	42	149	157	6.62	10	<1	0.12	10
87-5-327	309.00	315.00	6.00	<0.005	<0.2	3.19	<2	<10	20	<0.5	<2	2.6	<0.5	24	123	56	6.19	10	<1	0.17	<10
87-5-328	621.00	626.00	5.00	<0.005	<0.2	2.96	<2	<10	30	<0.5	<2	2.81	<0.5	29	73	97	5.83	10	<1	0.32	<10
87-5-329	626.00	628.00	2.00	<0.005	<0.2	2.87	<2	<10	30	<0.5	<2	3.28	<0.5	28	83	193	4.68	10	<1	0.3	<10
87-5-330	726.00	731.70	5.70	<0.005	<0.2	2.44	6	<10	80	0.5	<2	4.87	<0.5	23	221	28	4.5	10	<1	0.36	20
87-5-331	731.70	733.85	2.15	<0.005	<0.2	2.09	<2	<10	60	<0.5	<2	4.62	<0.5	24	80	39	4.25	10	<1	0.36	<10
87-5-332	733.85	739.00	5.15	<0.005	<0.2	2.55	<2	<10	90	<0.5	<2	2.05	<0.5	28	94	71	5.33	10	<1	0.69	<10
87-5-333	739.00	742.50	3.50	<0.005	<0.2	2.37	<2	<10	80	<0.5	<2	2.34	<0.5	20	96	71	4.9	10	<1	0.54	<10
87-5-334	742.50	747.35	4.85	<0.005	<0.2	2.51	<2	<10	40	<0.5	<2	3.16	<0.5	22	68	21	5.22	10	<1	0.26	<10
87-5-335	747.35	751.45	4.10	<0.005	<0.2	1.98	<2	<10	230	<0.5	<2	5	<0.5	30	98	50	5.61	10	<1	0.67	10
87-5-336	751.45	756.50	5.05	<0.005	<0.2	2.25	<2	<10	30	<0.5	<2	3.46	<0.5	26	92	76	4.46	<10	<1	0.13	<10
87-5-337	756.50	761.50	5.00	<0.005	<0.2	2.28	<2	<10	40	<0.5	<2	3.09	<0.5	27	97	64	4.69	10	<1	0.33	<10
87-5-338	761.50	767.00	5.50	<0.005	<0.2	1.65	<2	<10	30	<0.5	<2	1.68	<0.5	17	64	51	3.13	<10	<1	0.13	10

APPENDIX 8
Gold and ICP Data - DDH 4410-87-5
Empress Project

SAMPLE	FROM (ft)	TO (ft)	INTERVAL (ft)	494.000 Au g/tonne	2118 Ag ppm	2119 Al %	2120 As ppm	557 B ppm	2121 Ba ppm	2122 Be ppm	2123 Bi ppm	2124 Ca %	2125 Cd ppm	2126 Co ppm	2127 Cr ppm	2128 Cu ppm	2150 Fe %	2130 Ga ppm	2131 Hg ppm	2132 K %	2151 La ppm
87-5-339	796.00	800.95	4.95	<0.005	<0.2	1.76	<2	<10	10	<0.5	<2	2.06	<0.5	16	58	38	3.41	<10	<1	0.07	<10
87-5-340	800.95	804.50	3.55	<0.005	<0.2	2.06	<2	<10	60	<0.5	<2	8.71	<0.5	29	32	65	4.69	<10	<1	0.36	10
87-5-341	804.50	808.15	3.65	<0.005	<0.2	4.1	<2	<10	50	0.5	<2	3.09	<0.5	36	42	83	8.77	10	<1	0.36	10
87-5-342	808.15	813.20	5.05	0.025	<0.2	3.06	<2	<10	70	<0.5	<2	3.82	<0.5	37	72	116	6.87	10	<1	0.49	<10
87-5-343	813.20	816.50	3.30	<0.005	<0.2	3.55	<2	<10	50	0.5	<2	5.01	<0.5	36	64	74	7.88	10	<1	0.29	<10
87-5-344	816.50	818.10	1.60	0.010	<0.2	1.53	28	<10	70	1.5	<2	9.97	<0.5	35	93	100	4.51	<10	<1	0.2	20
87-5-345	818.10	824.80	6.70	<0.005	<0.2	2.89	<2	<10	80	<0.5	<2	5.16	<0.5	41	86	112	6.18	10	<1	0.29	<10
87-5-346	847.20	851.00	3.80	0.005	<0.2	3.4	<2	<10	80	<0.5	<2	3.15	<0.5	53	107	305	6.49	10	<1	0.39	<10
87-5-347	851.00	855.55	4.55	0.005	<0.2	2.99	<2	<10	50	<0.5	<2	3.17	<0.5	45	112	82	5.89	10	<1	0.28	<10
87-5-348	855.55	861.55	6.00	<0.005	<0.2	3.12	<2	<10	110	<0.5	<2	2.04	<0.5	47	114	76	5.5	10	<1	0.63	<10
87-5-349	921.75	926.00	4.25	<0.005	<0.2	3.06	<2	<10	150	<0.5	<2	2.47	<0.5	39	104	73	5.44	10	<1	0.71	<10
87-5-350	926.00	931.00	5.00	0.015	<0.2	3.28	<2	<10	160	<0.5	<2	2.76	<0.5	44	111	65	5.86	10	<1	1	<10
87-5-351	931.00	936.00	5.00	0.135	<0.2	3.25	<2	<10	110	<0.5	<2	2.74	<0.5	45	115	77	5.82	10	1	0.85	<10

APPENDIX 8
Gold and ICP Data - DDH 4410-87-5
Empress Project

SAMPLE	FROM (ft)	TO (ft)	INTERVAL (ft)	2134 Mg %	2135 Mn ppm	2136 Mo ppm	2137 Na %	2138 Ni ppm	2139 P ppm	2140 Pb ppm	551 S %	2141 Sb ppm	2142 Sc ppm	2143 Sr ppm	2144 Ti %	2145 Tl ppm	2146 U ppm	2147 V ppm	2148 W ppm	2149 Zn ppm
87-5-288	46.00	48.00	2.00	0.79	230	<1	0.06	30	410	6	0.03	<2	3	45	0.19	<10	<10	60	<10	40
87-5-289	48.00	49.50	1.50	1.15	455	<1	0.15	48	1140	2	0.09	<2	8	39	0.24	<10	<10	113	<10	62
87-5-290	49.50	55.00	5.50	0.79	495	1	0.11	53	1210	<2	0.04	<2	10	113	0.23	<10	<10	125	<10	74
87-5-291	55.00	60.00	5.00	0.84	445	<1	0.1	55	1360	4	<0.01	<2	9	58	0.21	<10	<10	120	<10	66
87-5-292	60.00	65.00	5.00	1.08	655	<1	0.07	71	1810	4	0.16	<2	14	45	0.23	<10	<10	173	<10	104
87-5-293	65.00	70.00	5.00	1.16	715	2	0.08	74	1730	<2	0.14	<2	13	70	0.3	<10	<10	173	<10	100
87-5-294	70.00	75.00	5.00	1.17	795	<1	0.06	70	1620	6	0.17	<2	15	72	0.29	<10	<10	183	<10	128
87-5-295	75.00	80.00	5.00	0.92	650	7	0.04	40	1490	6	0.17	<2	12	35	0.26	<10	<10	175	<10	90
87-5-296	80.00	85.00	5.00	1.13	890	1	0.04	53	1570	2	0.31	<2	14	51	0.24	<10	<10	186	<10	90
87-5-297	85.00	90.00	5.00	0.96	735	3	0.03	57	1260	<2	0.18	<2	13	59	0.09	<10	<10	144	<10	78
87-5-298	90.00	95.00	5.00	1.25	820	3	0.02	45	1280	6	0.15	<2	15	63	0.19	<10	<10	157	<10	110
87-5-299	95.00	100.00	5.00	1.59	820	1	0.02	43	1460	2	0.11	<2	15	58	0.21	<10	<10	172	<10	110
87-5-300	100.00	103.00	3.00	1.38	725	2	0.01	51	950	2	0.18	<2	15	71	<0.01	<10	<10	97	<10	106
87-5-301	103.00	106.00	3.00	2.29	600	<1	0.03	49	1770	2	0.21	<2	11	127	0.24	<10	<10	104	<10	62
87-5-302	106.00	110.00	4.00	1.41	585	<1	0.03	59	710	<2	0.15	<2	11	78	0.43	<10	<10	160	<10	58
87-5-303	110.00	115.00	5.00	1.25	910	1	0.17	64	890	<2	0.09	<2	17	55	0.23	<10	<10	177	<10	88
87-5-304	115.00	120.00	5.00	1.24	755	1	0.09	70	730	<2	0.09	<2	15	72	0.28	<10	<10	168	<10	92
87-5-305	120.00	125.00	5.00	1.54	765	1	0.07	71	800	<2	0.13	<2	16	32	0.17	<10	<10	185	<10	96
87-5-306	125.00	130.00	5.00	1.28	845	1	0.1	60	930	<2	0.18	<2	14	28	0.17	<10	<10	172	<10	106
87-5-307	130.00	135.00	5.00	1.28	860	<1	0.09	44	1570	<2	0.15	<2	15	27	0.26	<10	<10	183	<10	94
87-5-308	135.00	140.00	5.00	1.24	835	<1	0.09	44	1130	<2	0.13	<2	16	43	0.21	<10	<10	198	<10	82
87-5-309	140.00	145.00	5.00	1.3	825	1	0.08	53	1300	<2	0.16	<2	14	40	0.28	<10	<10	175	<10	102
87-5-310	145.00	150.00	5.00	0.97	730	<1	0.1	53	1310	<2	0.21	<2	10	22	0.19	<10	<10	153	<10	76
87-5-311	150.00	155.00	5.00	1.04	600	<1	0.1	71	1230	<2	0.9	<2	8	19	0.16	<10	<10	138	<10	116
87-5-312	155.00	161.00	6.00	1.08	615	<1	0.09	65	1300	2	0.56	<2	11	20	0.24	<10	<10	164	<10	96
87-5-313	161.00	165.50	4.50	1.25	435	1	0.04	39	1370	<2	0.17	<2	8	30	0.27	<10	<10	163	<10	78
87-5-314	252.00	256.50	4.50	1.63	320	1	0.09	50	1190	<2	0.08	<2	4	25	0.17	<10	<10	94	<10	50
87-5-315	256.50	259.50	3.00	2.1	765	<1	0.04	77	1220	<2	0.43	<2	8	81	0.17	<10	<10	86	<10	64
87-5-316	259.50	265.00	5.50	2.35	325	1	0.13	92	1070	<2	0.07	<2	5	26	0.18	<10	<10	80	<10	60
87-5-317	265.00	270.00	5.00	1.93	315	3	0.13	74	1120	<2	0.1	<2	6	27	0.2	<10	<10	90	<10	54
87-5-318	270.00	276.00	6.00	1.22	490	1	0.1	89	1330	8	0.67	<2	9	43	0.23	<10	<10	89	<10	152
87-5-319	276.00	281.00	5.00	1.16	490	1	0.15	79	1670	<2	0.3	<2	7	38	0.21	<10	<10	76	<10	68
87-5-320	281.00	286.00	5.00	0.77	405	<1	0.12	89	2020	<2	0.27	<2	6	35	0.19	<10	<10	63	<10	64
87-5-321	286.00	291.50	5.50	0.84	485	<1	0.12	107	1650	<2	0.31	<2	7	45	0.27	<10	<10	80	<10	92
87-5-322	291.50	293.70	2.20	0.54	285	4	0.04	27	350	6	0.67	<2	4	22	0.12	<10	<10	24	<10	658
87-5-323	293.70	297.90	4.20	1.58	455	3	0.03	47	1020	<2	0.51	<2	8	67	0.25	<10	<10	70	<10	54
87-5-324	297.90	301.00	3.10	2.31	425	2	0.03	42	1020	2	0.31	<2	11	40	0.29	<10	<10	101	<10	212
87-5-325	301.00	304.00	3.00	2.59	430	3	0.07	47	1330	<2	0.17	<2	8	25	0.23	<10	<10	129	<10	72
87-5-326	304.00	309.00	5.00	2.94	545	1	0.06	108	1350	<2	0.41	<2	12	111	0.48	<10	<10	169	<10	172
87-5-327	309.00	315.00	6.00	2.11	635	5	0.06	61	1200	<2	0.16	<2	11	54	0.26	<10	<10	151	<10	104
87-5-328	621.00	626.00	5.00	1.12	855	<1	0.1	34	1200	<2	0.23	<2	11	31	0.34	<10	<10	139	<10	128
87-5-329	626.00	628.00	2.00	0.9	810	1	0.18	36	760	2	0.18	<2	9	32	0.33	<10	<10	112	<10	94
87-5-330	726.00	731.70	5.70	1.93	755	1	0.11	62	1440	<2	0.07	<2	12	144	0.2	<10	<10	121	<10	106
87-5-331	731.70	733.85	2.15	0.71	835	<1	0.04	25	640	6	0.31	<2	8	54	0.14	<10	<10	84	<10	128
87-5-332	733.85	739.00	5.15	0.97	640	<1	0.12	37	1170	<2	0.26	<2	10	18	0.23	<10	<10	126	<10	142
87-5-333	739.00	742.50	3.50	0.89	680	<1	0.11	33	1100	<2	0.19	<2	10	26	0.25	<10	<10	123	<10	142
87-5-334	742.50	747.35	4.85	1.03	740	4	0.16	23	1140	<2	0.04	<2	13	24	0.24	<10	<10	134	<10	92
87-5-335	747.35	751.45	4.10	1.14	995	<1	0.07	46	1190	<2	0.47	<2	14	77	0.16	<10	<10	113	<10	342
87-5-336	751.45	756.50	5.05	0.99	770	1	0.18	53	1220	2	0.2	<2	13	44	0.26	<10	<10	115	<10	72
87-5-337	756.50	761.50	5.00	1.05	845	1	0.1	46	1190	<2	0.19	<2	13	28	0.25	<10	<10	119	<10	72
87-5-338	761.50	767.00	5.50	0.87	410	1	0.14	30	1350	2	0.1	<2	10	15	0.09	<10	<10	73	<10	60

APPENDIX 8
Gold and ICP Data - DDH 4410-87-5
Empress Project

SAMPLE	FROM (ft)	TO (ft)	INTERVAL (ft)	2134 Mg %	2135 Mn ppm	2136 Mo ppm	2137 Na %	2138 Ni ppm	2139 P ppm	2140 Pb ppm	551 S %	2141 Sb ppm	2142 Sc ppm	2143 Sr ppm	2144 Ti %	2145 Tl ppm	2146 U ppm	2147 V ppm	2148 W ppm	2149 Zn ppm
87-5-339	796.00	800.95	4.95	0.88	450	2	0.13	29	1480	<2	0.1	<2	9	24	0.1	<10	<10	71	<10	52
87-5-340	800.95	804.50	3.55	0.62	925	<1	0.03	41	1020	<2	0.39	<2	14	72	0.02	<10	<10	80	<10	228
87-5-341	804.50	808.15	3.65	1.7	1020	6	0.01	55	1120	<2	0.38	<2	12	29	0.06	<10	<10	122	<10	156
87-5-342	808.15	813.20	5.05	1.16	790	2	0.02	53	890	2	0.83	<2	9	19	0.08	<10	<10	119	<10	194
87-5-343	813.20	816.50	3.30	0.88	995	2	0.01	71	830	2	0.43	<2	13	44	<0.01	<10	<10	85	<10	204
87-5-344	816.50	818.10	1.60	0.55	1285	3	0.04	92	1150	4	0.42	<2	17	122	<0.01	<10	<10	112	<10	270
87-5-345	818.10	824.80	6.70	1.08	1045	1	0.08	90	1020	<2	0.26	<2	12	66	0.1	<10	<10	134	<10	82
87-5-346	847.20	851.00	3.80	2.15	765	<1	0.05	108	1120	<2	0.58	<2	8	23	0.35	<10	<10	179	<10	110
87-5-347	851.00	855.55	4.55	1.78	760	3	0.01	100	1000	22	0.43	<2	5	11	0.2	<10	<10	163	<10	192
87-5-348	855.55	861.55	6.00	1.87	660	2	0.04	105	1050	<2	0.29	<2	4	13	0.31	<10	<10	152	<10	112
87-5-349	921.75	926.00	4.25	1.79	650	1	0.07	92	1080	<2	0.21	<2	8	24	0.3	<10	<10	164	<10	108
87-5-350	926.00	931.00	5.00	1.88	745	<1	0.04	98	1050	<2	0.28	<2	7	26	0.35	<10	<10	189	<10	134
87-5-351	931.00	936.00	5.00	1.74	760	1	0.04	98	1140	<2	0.4	<2	8	26	0.29	<10	<10	182	<10	138

APPENDIX 8
Gold and ICP Data - DDH 4410-87-6
Empress Project

SAMPLE	FROM (ft)	TO (ft)	INTERVAL (ft)	494.000 Au g/tonne	2118 Ag ppm	2119 Al %	2120 As ppm	557 B ppm	2121 Ba ppm	2122 Be ppm	2123 Bi ppm	2124 Ca %	2125 Cd ppm	2126 Co ppm	2127 Cr ppm	2128 Cu ppm	2150 Fe %	2130 Ga ppm	2131 Hg ppm	2132 K %	2151 La ppm
87-6-415	65.00	70.40	5.40	<0.005	<0.2	1.93	<2	<10	50	<0.5	<2	1.14	<0.5	16	73	37	4.35	10	<1	0.19	20
87-6-416	70.40	73.50	3.10	<0.005	<0.2	1.71	<2	<10	30	<0.5	<2	0.47	1	14	65	49	3.47	<10	<1	0.16	20
87-6-417	73.50	75.00	1.50	0.005	<0.2	1.4	32	<10	<10	<0.5	<2	3.22	<0.5	68	62	97	4.76	10	<1	0.05	10
87-6-418	75.00	80.00	5.00	<0.005	<0.2	2.68	<2	<10	40	<0.5	<2	1.31	1	26	205	79	4.77	10	<1	0.25	10
87-6-419	80.00	85.00	5.00	<0.005	<0.2	2.62	<2	<10	10	<0.5	<2	2.51	0.5	34	127	83	5.87	10	<1	0.08	<10
87-6-420	85.00	90.00	5.00	<0.005	<0.2	2.41	<2	<10	30	<0.5	<2	1.95	<0.5	33	128	82	5.63	10	<1	0.21	10
87-6-421	90.00	95.00	5.00	<0.005	<0.2	2.54	4	<10	80	<0.5	<2	2.44	<0.5	27	111	58	5.21	<10	<1	0.72	10
87-6-422	95.00	100.00	5.00	<0.005	<0.2	1.44	12	<10	20	0.5	<2	1.93	<0.5	11	77	40	3.26	<10	<1	0.26	10
87-6-423	100.00	103.80	3.80	<0.005	<0.2	1.28	4	<10	30	0.5	<2	2.71	<0.5	8	106	28	2.65	<10	<1	0.23	20
87-6-424	103.80	107.25	3.45	<0.005	<0.2	2.26	8	<10	80	1.5	<2	13.3	<0.5	36	293	105	5	10	<1	0.09	60
87-6-425	107.25	111.80	4.55	<0.005	<0.2	1.7	184	<10	30	1	<2	3.11	<0.5	13	108	78	3.63	<10	<1	0.26	10
87-6-426	111.80	116.75	4.95	<0.005	<0.2	1	20	<10	30	<0.5	<2	1.4	<0.5	5	75	19	2.16	<10	<1	0.39	10
87-6-427	116.75	122.00	5.25	<0.005	<0.2	0.85	<2	<10	10	<0.5	<2	1.53	<0.5	7	91	13	2.29	<10	<1	0.27	10
87-6-428	122.00	125.00	3.00	<0.005	<0.2	1.53	<2	<10	20	<0.5	<2	1.13	<0.5	7	88	29	2.9	<10	<1	0.51	20
87-6-429	125.00	128.60	3.60	<0.005	<0.2	1.28	<2	<10	20	<0.5	<2	1.14	0.5	7	85	48	2.56	<10	<1	0.43	30
87-6-430	128.60	133.60	5.00	<0.005	<0.2	1.44	<2	<10	30	<0.5	<2	1.45	0.5	9	71	62	3.02	<10	<1	0.55	20
87-6-431	133.60	138.60	5.00	<0.005	<0.2	1.73	<2	<10	30	<0.5	<2	1.08	0.5	11	57	47	3.43	<10	<1	0.52	20
87-6-432	138.60	143.35	4.75	<0.005	<0.2	1.74	<2	<10	30	<0.5	<2	1.53	<0.5	10	62	46	3.34	<10	<1	0.67	20
87-6-433	143.35	149.80	6.45	<0.005	<0.2	2.65	<2	<10	90	<0.5	<2	2.09	0.5	22	82	98	5.24	<10	<1	1.08	10
87-6-434	149.80	155.80	6.00	<0.005	<0.2	2.26	<2	<10	60	<0.5	<2	3.64	0.5	18	65	63	4.95	10	<1	0.46	10
87-6-435	155.80	161.00	5.20	<0.005	<0.2	3.16	<2	<10	40	<0.5	<2	2	<0.5	22	80	67	5.93	10	<1	0.25	<10
87-6-436	161.00	166.00	5.00	<0.005	<0.2	2.44	<2	<10	40	<0.5	<2	1.26	<0.5	20	118	73	4.4	10	<1	0.23	<10
87-6-437	293.05	299.30	6.25	<0.005	<0.2	2.33	<2	<10	250	<0.5	<2	2.29	0.5	20	118	120	4.47	10	<1	1.29	10
87-6-438	299.30	304.25	4.95	<0.005	<0.2	0.92	<2	<10	100	<0.5	<2	0.79	3	27	98	334	3.85	<10	<1	0.36	10
87-6-439	304.25	310.00	5.75	<0.005	<0.2	2.14	<2	<10	50	<0.5	<2	2.17	<0.5	17	73	81	4.43	10	<1	0.23	10
87-6-440	326.50	332.10	5.60	<0.005	<0.2	2.44	<2	<10	30	<0.5	<2	2.65	<0.5	20	95	119	5.39	10	<1	0.11	10
87-6-441	332.10	336.60	4.50	0.005	0.6	1.56	60	<10	80	<0.5	<2	2.31	3	35	63	244	4.97	<10	<1	0.17	10
87-6-442	336.60	339.25	2.65	0.010	0.8	1.61	88	<10	40	<0.5	<2	3.07	2.5	38	51	177	5.42	<10	<1	0.18	10
87-6-443	339.25	344.50	5.25	<0.005	<0.2	2.16	6	<10	20	<0.5	<2	2.5	<0.5	30	74	170	4.98	10	<1	0.13	<10
87-6-444	344.50	350.20	5.70	<0.005	<0.2	2.26	2	<10	70	<0.5	<2	2.26	<0.5	23	86	86	4.16	<10	<1	0.33	<10
87-6-445	350.20	355.00	4.80	0.015	0.2	2.05	22	<10	80	<0.5	<2	1.65	2	27	76	203	4.57	10	<1	0.77	10
87-6-446	355.00	360.00	5.00	0.010	0.6	2.32	10	<10	60	<0.5	<2	1.36	2	27	75	183	4.54	<10	<1	0.8	20
87-6-447	360.00	365.00	5.00	0.030	0.8	1.47	18	<10	20	<0.5	<2	2.68	3.5	29	64	1260	3.3	<10	<1	0.23	30
87-6-448	365.00	370.00	5.00	0.075	0.6	1.82	12	<10	40	<0.5	<2	2.4	3.5	38	80	191	5.36	10	<1	0.34	10
87-6-449	370.00	374.90	4.90	0.035	0.4	2.59	6	<10	30	<0.5	<2	3.49	1.5	25	90	109	5.2	10	<1	0.27	10
87-6-450	374.90	380.00	5.10	<0.005	<0.2	2.75	8	<10	60	<0.5	<2	2.21	<0.5	23	90	41	4.55	<10	<1	0.33	<10
87-6-451	380.00	384.50	4.50	<0.005	<0.2	3.09	<2	<10	90	<0.5	<2	2.45	<0.5	25	88	25	5.11	10	<1	0.45	10
87-6-452	384.50	389.20	4.70	<0.005	<0.2	3.09	2	<10	50	<0.5	<2	3.1	<0.5	25	87	71	5.2	10	<1	0.23	<10
87-6-453	389.20	393.00	3.80	<0.005	<0.2	3.62	2	<10	60	<0.5	<2	3.37	<0.5	31	116	50	6.21	10	<1	0.29	<10
87-6-454	393.00	397.15	4.15	0.060	0.2	3.02	<2	<10	90	<0.5	<2	5.12	<0.5	29	102	128	6.5	10	<1	0.29	10
87-6-455	397.15	402.20	5.05	0.015	<0.2	1.68	8	<10	60	<0.5	<2	5.2	0.5	20	69	101	4.27	<10	<1	0.37	10
87-6-456	402.20	404.70	2.50	0.105	0.2	0.83	<2	<10	20	<0.5	<2	1.75	1.5	19	106	49	2.73	<10	<1	0.1	10
87-6-457	404.70	409.00	4.30	0.050	<0.2	1.26	<2	<10	50	<0.5	<2	2.01	<0.5	7	77	31	2.82	<10	<1	0.31	30
87-6-458	409.00	413.10	4.10	0.150	<0.2	1.08	10	<10	40	<0.5	<2	1.5	<0.5	25	118	81	2.68	<10	<1	0.23	10
87-6-459	413.10	418.90	5.80	0.030	<0.2	1.59	2	<10	40	<0.5	<2	2.98	<0.5	15	75	42	3.22	<10	<1	0.5	10
87-6-460	418.90	421.15	2.25	0.005	<0.2	0.79	2	<10	30	<0.5	<2	1.87	<0.5	10	163	46	1.64	<10	<1	0.19	<10
87-6-461	421.15	425.55	4.40	0.945	1	1.77	2	<10	40	<0.5	<2	2.05	0.5	21	127	102	3.56	<10	<1	0.34	10
87-6-462	425.55	430.50	4.95	0.195	0.6	2.79	6	<10	40	<0.5	<2	2.74	1.5	26	112	139	6.11	<10	<1	0.3	20
87-6-463	430.50	435.20	4.70	0.050	0.8	0.97	8	<10	40	<0.5	<2	4.01	3.5	28	95	335	3.72	<10	<1	0.25	10
87-6-464	435.20	440.00	4.80	0.020	<0.2	2.95	6	<10	70	<0.5	<2	3.71	<0.5	29	44	87	5.59	10	<1	0.45	20
87-6-465	440.00	445.50	5.50	<0.005	0.2	2.93	<2	<10	40	<0.5	<2	2.79	<0.5	27	54	60	6.05	10	<1	0.23	10

APPENDIX 8
Gold and ICP Data - DDH 4410-87-6
Empress Project

SAMPLE	FROM (ft)	TO (ft)	INTERVAL (ft)	494.000 Au g/tonne	2118 Ag ppm	2119 Al %	2120 As ppm	557 B ppm	2121 Ba ppm	2122 Be ppm	2123 Bi ppm	2124 Ca %	2125 Cd ppm	2126 Co ppm	2127 Cr ppm	2128 Cu ppm	2150 Fe %	2130 Ga ppm	2131 Hg ppm	2132 K %	2151 La ppm
87-6-466	445.50	450.80	5.30	<0.005	0.2	1.52	2	<10	40	<0.5	<2	1.25	0.5	12	94	61	2.48	<10	<1	0.5	10
87-6-467	450.80	457.15	6.35	<0.005	<0.2	3.5	8	<10	130	<0.5	<2	1.78	0.5	38	56	105	6.89	10	<1	1.08	<10
87-6-468	457.15	462.00	4.85	<0.005	0.2	5.06	6	<10	120	<0.5	<2	1.87	0.5	32	41	125	8.33	10	<1	1.57	10
87-6-469	495.00	500.00	5.00	<0.005	0.2	4.02	<2	<10	140	<0.5	<2	2.17	<0.5	44	111	94	6.97	10	<1	1.05	<10

APPENDIX 8
Gold and ICP Data - DDH 4410-87-6
Empress Project

SAMPLE	FROM	TO	INTERVAL	2134	2135	2136	2137	2138	2139	2140	551	2141	2142	2143	2144	2145	2146	2147	2148	2149
	(ft)	(ft)	(ft)	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Sr	Ti	Tl	U	V	W	Zn
				%	ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
87-6-415	65.00	70.40	5.40	1	610	2	0.05	35	600	2	0.19	<2	7	18	0.12	<10	<10	62	<10	164
87-6-416	70.40	73.50	3.10	0.97	440	3	0.03	36	740	74	0.43	<2	4	11	0.04	<10	<10	32	<10	596
87-6-417	73.50	75.00	1.50	1.09	515	2	0.06	72	860	26	3.02	<2	6	28	<0.01	<10	<10	44	<10	184
87-6-418	75.00	80.00	5.00	1.78	560	3	0.07	79	1800	30	0.72	<2	8	35	0.19	<10	<10	85	<10	682
87-6-419	80.00	85.00	5.00	1.88	480	3	0.12	134	1780	<2	1.09	<2	8	51	0.29	<10	<10	89	<10	422
87-6-420	85.00	90.00	5.00	1.76	410	<1	0.12	130	1910	2	1.11	<2	9	36	0.27	<10	<10	95	<10	138
87-6-421	90.00	95.00	5.00	1.45	525	3	0.09	91	1340	2	0.36	<2	7	64	0.24	<10	<10	97	<10	148
87-6-422	95.00	100.00	5.00	0.94	280	3	0.01	35	470	6	1.08	<2	3	37	0.04	<10	<10	19	<10	134
87-6-423	100.00	103.80	3.80	0.89	300	2	<0.01	36	580	6	0.4	<2	3	61	0.01	<10	<10	27	<10	122
87-6-424	103.80	107.25	3.45	3.33	1555	<1	<0.01	231	3410	26	0.34	<2	12	479	0.06	<10	<10	166	<10	132
87-6-425	107.25	111.80	4.55	0.8	495	4	<0.01	45	640	12	0.82	<2	4	47	0.01	<10	<10	31	<10	324
87-6-426	111.80	116.75	4.95	0.38	240	3	0.01	7	140	6	0.99	<2	1	18	0.01	<10	<10	4	<10	30
87-6-427	116.75	122.00	5.25	0.22	200	4	<0.01	10	210	6	1.22	<2	<1	16	<0.01	<10	<10	3	<10	32
87-6-428	122.00	125.00	3.00	0.7	360	2	<0.01	10	240	<2	0.43	<2	1	14	0.06	<10	<10	8	<10	64
87-6-429	125.00	128.60	3.60	0.58	380	3	0.01	10	190	<2	0.67	<2	1	16	0.06	<10	<10	6	<10	518
87-6-430	128.60	133.60	5.00	0.65	385	3	0.01	13	430	4	0.64	<2	3	16	0.09	<10	<10	17	<10	294
87-6-431	133.60	138.60	5.00	1.01	315	3	0.01	17	690	2	0.53	<2	4	13	0.09	<10	<10	25	<10	458
87-6-432	138.60	143.35	4.75	0.96	295	3	0.01	14	580	<2	0.57	<2	3	13	0.1	<10	<10	18	<10	260
87-6-433	143.35	149.80	6.45	1.69	470	1	0.02	32	1100	4	1.09	<2	5	38	0.13	<10	<10	51	<10	660
87-6-434	149.80	155.80	6.00	1.46	595	2	0.03	27	1130	6	0.5	<2	7	42	0.03	<10	<10	72	<10	458
87-6-435	155.80	161.00	5.20	2.44	490	1	0.11	29	1470	6	0.19	<2	10	20	0.2	<10	<10	133	<10	90
87-6-436	161.00	166.00	5.00	2.02	305	1	0.12	29	1480	<2	0.13	<2	6	17	0.11	<10	<10	98	<10	74
87-6-437	293.05	299.30	6.25	1.78	615	1	0.04	43	690	4	0.96	<2	8	38	0.13	<10	<10	60	<10	530
87-6-438	299.30	304.25	4.95	0.58	240	3	0.04	36	350	6	1.51	<2	4	9	0.07	<10	<10	28	<10	1630
87-6-439	304.25	310.00	5.75	1.4	500	1	0.13	36	1740	<2	0.28	<2	9	21	0.13	<10	<10	69	<10	98
87-6-440	326.50	332.10	5.60	1.86	675	1	0.1	46	1650	4	0.36	<2	11	30	0.24	<10	<10	94	<10	152
87-6-441	332.10	336.60	4.50	0.86	495	6	0.06	53	740	30	2.03	<2	6	37	0.06	<10	10	42	<10	1250
87-6-442	336.60	339.25	2.65	0.67	560	13	0.06	50	530	28	2.5	<2	6	41	0.03	<10	10	37	<10	1505
87-6-443	339.25	344.50	5.25	1.29	555	3	0.15	50	1760	<2	0.62	<2	13	34	0.21	<10	10	93	<10	130
87-6-444	344.50	350.20	5.70	1.34	465	2	0.17	49	1860	<2	0.27	<2	9	29	0.22	<10	<10	86	<10	84
87-6-445	350.20	355.00	4.80	1	500	7	0.06	35	590	8	1.6	<2	4	22	0.11	<10	<10	34	<10	1395
87-6-446	355.00	360.00	5.00	1.33	495	5	0.04	34	550	12	1.29	<2	5	25	0.09	<10	<10	38	<10	1370
87-6-447	360.00	365.00	5.00	1.17	440	4	0.03	25	360	16	1.46	<2	1	29	<0.01	<10	<10	10	<10	1730
87-6-448	365.00	370.00	5.00	1.49	425	5	0.04	53	550	14	2.34	<2	5	30	0.04	<10	10	50	<10	2170
87-6-449	370.00	374.90	4.90	1.88	595	5	0.01	44	920	16	1.16	<2	9	45	0.08	<10	10	85	<10	668
87-6-450	374.90	380.00	5.10	1.72	490	2	0.13	48	1650	<2	0.14	<2	9	34	0.21	<10	10	86	<10	108
87-6-451	380.00	384.50	4.50	2.27	550	2	0.11	49	1540	<2	0.1	<2	8	43	0.26	<10	10	106	<10	110
87-6-452	384.50	389.20	4.70	2.1	620	2	0.1	47	1490	<2	0.29	<2	10	53	0.18	<10	10	108	<10	140
87-6-453	389.20	393.00	3.80	2.54	710	2	0.09	67	1650	<2	0.2	<2	12	50	0.18	<10	10	146	<10	162
87-6-454	393.00	397.15	4.15	1.75	1055	3	0.05	45	1470	<2	0.65	<2	14	81	0.13	<10	10	132	<10	176
87-6-455	397.15	402.20	5.05	0.89	990	5	0.03	28	730	2	0.94	<2	12	77	0.05	<10	10	53	<10	322
87-6-456	402.20	404.70	2.50	0.55	320	30	0.07	25	320	<2	1.25	<2	4	27	0.01	<10	<10	26	<10	426
87-6-457	404.70	409.00	4.30	0.72	490	11	0.03	9	140	<2	0.76	<2	1	28	0.03	<10	<10	14	<10	120
87-6-458	409.00	413.10	4.10	0.47	330	17	0.03	23	190	2	1.2	<2	2	23	0.01	<10	<10	15	<10	42
87-6-459	413.10	418.90	5.80	0.8	630	5	0.01	18	550	<2	0.92	<2	3	40	0.05	<10	<10	25	<10	160
87-6-460	418.90	421.15	2.25	0.52	365	25	0.06	15	230	2	0.53	<2	3	25	0.01	<10	<10	9	<10	56
87-6-461	421.15	425.55	4.40	1.17	405	19	0.02	25	410	134	1.23	<2	4	30	0.02	<10	<10	24	<10	132
87-6-462	425.55	430.50	4.95	2.05	470	5	0.01	42	1010	22	1.72	<2	5	51	0.01	<10	10	36	<10	912
87-6-463	430.50	435.20	4.70	0.37	505	6	0.04	47	460	34	2.35	<2	2	35	<0.01	<10	10	14	<10	2150
87-6-464	435.20	440.00	4.80	1.32	860	4	0.14	46	1160	<2	0.27	<2	12	49	0.32	<10	10	142	<10	120
87-6-465	440.00	445.50	5.50	1.23	960	2	0.07	47	1250	2	0.21	<2	11	40	0.38	<10	10	159	<10	128

APPENDIX 8
Gold and ICP Data - DDH 4410-87-6
Empress Project

SAMPLE	FROM (ft)	TO (ft)	INTERVAL (ft)	2134 Mg %	2135 Mn ppm	2136 Mo ppm	2137 Na %	2138 Ni ppm	2139 P ppm	2140 Pb ppm	551 S %	2141 Sb ppm	2142 Sc ppm	2143 Sr ppm	2144 Ti %	2145 Tl ppm	2146 U ppm	2147 V ppm	2148 W ppm	2149 Zn ppm
87-6-466	445.50	450.80	5.30	0.69	255	4	0.03	22	240	24	0.55	<2	3	14	0.04	<10	<10	18	<10	290
87-6-467	450.80	457.15	6.35	1.58	885	3	0.02	72	1280	6	0.59	<2	9	30	0.42	<10	10	176	<10	280
87-6-468	457.15	462.00	4.85	3.59	960	3	0.01	55	1090	22	0.4	<2	12	29	0.32	<10	10	177	<10	346
87-6-469	495.00	500.00	5.00	2.37	675	3	0.03	91	1000	<2	0.39	<2	6	20	0.3	<10	10	174	<10	120

APPENDIX 8
Gold and ICP Data - DDH 4410-87-7a
Empress Project

SAMPLE	FROM (ft)	TO (ft)	INTERVAL (ft)	494.000 Au g/tonne	2118 Ag ppm	2119 Al %	2120 As ppm	557 B ppm	2121 Ba ppm	2122 Be ppm	2123 Bi ppm	2124 Ca %	2125 Cd ppm	2126 Co ppm	2127 Cr ppm	2128 Cu ppm	2150 Fe %	2130 Ga ppm	2131 Hg ppm	2132 K %	2151 La ppm
87-7-470	67.50	71.60	4.10	<0.005	<0.2	1.81	<2	<10	30	<0.5	<2	2.62	1.5	23	58	138	3.72	<10	<1	0.17	<10
87-7-471	71.60	74.00	2.40	<0.005	<0.2	2.12	<2	10	<10	<0.5	<2	2.91	<0.5	24	40	199	4.38	10	<1	0.11	10
87-7-472	74.00	79.00	5.00	<0.005	<0.2	2.61	<2	<10	20	<0.5	<2	2.79	<0.5	21	62	32	4.45	10	<1	0.17	10
87-7-473	194.00	198.80	4.80	<0.005	<0.2	1.25	<2	<10	130	<0.5	<2	1.77	0.5	13	68	92	2.62	<10	<1	0.58	10
87-7-474	198.80	203.80	5.00	<0.005	<0.2	1.21	2	<10	130	<0.5	<2	1.81	0.5	14	65	93	2.58	<10	<1	0.58	10
87-7-475	203.80	208.65	4.85	0.025	0.2	1.78	4	<10	110	<0.5	<2	2.84	1.5	21	131	142	3.91	<10	<1	0.56	10
87-7-476	208.65	213.65	5.00	0.015	0.4	1.04	6	<10	80	<0.5	<2	2.22	3.5	28	78	182	5.27	<10	<1	0.34	10
87-7-477	213.65	218.65	5.00	0.015	0.2	2.02	2	<10	140	<0.5	<2	3.02	2	26	84	175	5.69	10	<1	0.71	10
87-7-478	218.65	223.65	5.00	0.010	0.4	1.38	12	<10	90	<0.5	<2	2.43	2.5	27	62	182	4.43	<10	<1	0.78	10
87-7-479	223.65	227.45	3.80	<0.005	0.2	2.12	10	<10	130	<0.5	<2	1.94	0.5	27	84	134	5.5	10	<1	0.67	10
87-7-480	227.45	232.50	5.05	<0.005	0.2	3.69	<2	10	<10	<0.5	<2	5.34	<0.5	20	58	209	2.97	10	<1	0.04	10
87-7-481	256.00	261.90	5.90	<0.005	<0.2	2.36	2	<10	30	<0.5	<2	2.81	<0.5	15	81	40	3.58	<10	<1	0.21	<10
87-7-482	263.05	266.70	3.65	0.360	<0.2	1.1	<2	<10	100	<0.5	<2	3.61	<0.5	15	70	131	4.48	<10	<1	0.61	20
87-7-483	266.70	270.35	3.65	0.035	<0.2	0.99	<2	<10	50	<0.5	<2	6.03	<0.5	24	66	64	6.4	<10	<1	0.27	<10
87-7-484	270.35	276.00	5.65	0.025	<0.2	1.84	<2	<10	40	<0.5	<2	5.58	<0.5	28	87	72	6.66	<10	<1	0.43	<10
87-7-485	276.00	280.25	4.25	0.050	<0.2	3.66	<2	<10	80	<0.5	<2	5.33	<0.5	31	124	56	7.33	10	<1	0.63	<10
87-7-486	280.25	284.00	3.75	0.025	<0.2	1.28	<2	<10	140	<0.5	<2	4.07	0.5	26	118	144	5.05	<10	<1	0.58	10
87-7-487	284.00	288.95	4.95	0.260	2.4	1.01	44	<10	120	0.5	<2	2.79	5	46	86	207	4.89	<10	<1	0.31	<10
87-7-488	288.95	293.85	4.90	0.085	0.2	0.27	<2	<10	<10	<0.5	<2	1.55	<0.5	9	199	36	1.51	<10	<1	0.03	<10
87-7-489	293.85	297.70	3.85	0.450	0.2	0.38	18	<10	10	<0.5	<2	1.33	<0.5	52	162	78	5.44	<10	<1	0.07	<10
87-7-490	297.70	302.00	4.30	0.100	0.2	0.62	4	<10	10	<0.5	<2	2.28	2.5	9	180	87	2.1	<10	<1	0.1	<10
87-7-491	302.00	306.00	4.00	0.015	<0.2	0.77	<2	<10	40	<0.5	<2	2.74	2	11	115	68	2.14	<10	<1	0.22	<10
87-7-492	306.00	308.65	2.65	0.020	<0.2	2.6	<2	<10	30	<0.5	<2	3.97	0.5	21	83	63	5.11	10	<1	0.16	<10
87-7-493	308.65	313.40	4.75	0.030	<0.2	2.7	<2	<10	20	<0.5	<2	3.7	<0.5	31	60	68	4.83	<10	<1	0.13	<10
87-7-494	355.60	358.00	2.40	<0.005	<0.2	2.96	<2	<10	10	<0.5	<2	3.31	<0.5	33	49	75	5.38	<10	<1	0.16	<10
87-7-495	358.00	362.75	4.75	<0.005	<0.2	1.31	<2	<10	40	<0.5	<2	2.54	1.5	13	97	115	3.14	<10	<1	0.3	20
87-7-496	362.75	367.75	5.00	<0.005	<0.2	1.75	<2	<10	10	<0.5	<2	2.84	<0.5	32	52	145	4.09	<10	<1	0.13	10
87-7-497	371.50	376.00	4.50	<0.005	<0.2	2.39	<2	<10	30	<0.5	<2	2.52	<0.5	21	66	78	4.12	<10	<1	0.21	<10
87-7-498	376.00	378.10	2.10	0.035	<0.2	1.71	<2	<10	20	<0.5	<2	3.19	2	21	61	200	6.97	<10	<1	0.27	<10
87-7-499	378.10	383.00	4.90	<0.005	<0.2	3.04	<2	<10	50	<0.5	<2	3.91	<0.5	34	70	97	5.49	<10	<1	0.38	<10
87-7-500	469.40	474.00	4.60	<0.005	<0.2	4.18	<2	<10	30	<0.5	<2	1.22	<0.5	34	117	114	6.68	<10	<1	0.23	<10
87-7-501	474.00	479.00	5.00	<0.005	<0.2	3.65	<2	<10	150	<0.5	<2	1.58	<0.5	35	109	87	5.36	10	1	0.89	<10

APPENDIX 8
Gold and ICP Data - DDH 4410-87-7a
Empress Project

SAMPLE	FROM (ft)	TO (ft)	INTERVAL (ft)	2134 Mg %	2135 Mn ppm	2136 Mo ppm	2137 Na %	2138 Ni ppm	2139 P ppm	2140 Pb ppm	551 S %	2141 Sb ppm	2142 Sc ppm	2143 Sr ppm	2144 Ti %	2145 Tl ppm	2146 U ppm	2147 V ppm	2148 W ppm	2149 Zn ppm
87-7-470	67.50	71.60	4.10	0.67	595	3	0.17	24	1090	12	0.27	<2	11	19	0.27	<10	<10	120	<10	242
87-7-471	71.60	74.00	2.40	0.87	620	1	0.16	20	1440	<2	0.41	<2	11	21	0.25	<10	10	131	<10	102
87-7-472	74.00	79.00	5.00	1.53	545	1	0.09	26	1450	<2	0.08	<2	8	20	0.19	<10	10	115	<10	86
87-7-473	194.00	198.80	4.80	0.65	395	4	0.05	19	410	<2	0.54	<2	3	24	0.07	<10	<10	26	<10	368
87-7-474	198.80	203.80	5.00	0.61	390	5	0.04	19	380	<2	0.55	<2	3	24	0.07	<10	<10	24	<10	402
87-7-475	203.80	208.65	4.85	1.29	575	7	0.03	47	520	2	0.74	<2	5	34	0.05	<10	<10	42	<10	780
87-7-476	208.65	213.65	5.00	0.88	640	7	0.05	41	700	18	1.99	<2	5	24	<0.01	<10	<10	28	<10	2070
87-7-477	213.65	218.65	5.00	1.16	770	5	0.04	36	830	2	1.65	<2	10	27	0.08	<10	10	58	<10	890
87-7-478	218.65	223.65	5.00	0.69	550	4	0.03	36	830	4	1.8	<2	4	23	0.07	<10	10	30	<10	1380
87-7-479	223.65	227.45	3.80	1.26	650	4	0.07	38	940	<2	1.67	<2	10	16	0.15	<10	10	73	<10	432
87-7-480	227.45	232.50	5.05	0.58	380	<1	0.05	22	1150	<2	0.31	<2	8	19	0.32	<10	10	145	<10	68
87-7-481	256.00	261.90	5.90	1.15	450	2	0.16	46	1280	<2	0.09	<2	8	41	0.23	<10	<10	82	<10	72
87-7-482	263.05	266.70	3.65	1.18	785	4	0.04	23	620	10	0.71	<2	6	84	0.04	<10	<10	45	<10	204
87-7-483	266.70	270.35	3.65	1.88	1235	2	0.03	47	1150	<2	0.52	<2	10	90	<0.01	<10	<10	73	<10	144
87-7-484	270.35	276.00	5.65	1.83	1135	<1	0.02	54	1270	<2	0.55	<2	12	58	0.05	<10	<10	102	<10	198
87-7-485	276.00	280.25	4.25	2.52	1045	1	0.01	63	1500	2	0.35	<2	23	82	0.09	<10	<10	179	<10	152
87-7-486	280.25	284.00	3.75	1.47	965	3	0.03	44	750	<2	0.84	<2	11	68	0.05	<10	<10	69	<10	258
87-7-487	284.00	288.95	4.95	0.71	640	4	0.01	41	580	670	1.8	<2	3	54	<0.01	<10	<10	19	<10	1575
87-7-488	288.95	293.85	4.90	0.06	190	65	0.01	16	130	48	0.85	<2	1	12	<0.01	<10	<10	8	<10	40
87-7-489	293.85	297.70	3.85	0.18	190	45	0.01	92	120	10	4.81	<2	1	18	<0.01	<10	<10	8	<10	36
87-7-490	297.70	302.00	4.30	0.19	265	12	<0.01	19	280	10	0.96	<2	3	30	<0.01	<10	<10	15	<10	272
87-7-491	302.00	306.00	4.00	0.47	375	4	0.01	17	240	12	0.67	<2	1	43	<0.01	<10	<10	8	<10	284
87-7-492	306.00	308.65	2.65	1.32	640	2	0.01	35	630	6	0.51	<2	8	49	<0.01	<10	<10	77	<10	202
87-7-493	308.65	313.40	4.75	1.26	570	<1	0.06	47	1240	<2	0.28	<2	11	45	0.27	<10	<10	133	<10	112
87-7-494	355.60	358.00	2.40	1.16	770	<1	0.15	55	1100	<2	0.29	<2	12	26	0.34	<10	<10	133	<10	114
87-7-495	358.00	362.75	4.75	0.51	465	3	0.02	20	280	8	0.81	<2	3	20	0.04	<10	<10	20	<10	774
87-7-496	362.75	367.75	5.00	0.84	515	1	0.12	36	1380	<2	0.62	<2	8	26	0.26	<10	<10	93	<10	116
87-7-497	371.50	376.00	4.50	1.16	595	<1	0.1	45	1130	2	0.24	<2	6	26	0.23	<10	<10	73	<10	242
87-7-498	376.00	378.10	2.10	0.63	1175	1	0.03	44	390	<2	1.26	<2	3	25	0.06	<10	<10	30	<10	962
87-7-499	378.10	383.00	4.90	1.04	930	<1	0.18	89	1090	<2	0.36	<2	8	23	0.26	<10	<10	120	<10	130
87-7-500	469.40	474.00	4.60	2.92	595	5	0.01	86	860	<2	0.35	2	14	13	0.27	<10	<10	215	<10	230
87-7-501	474.00	479.00	5.00	2.36	555	<1	0.1	75	1110	<2	0.18	<2	8	13	0.33	<10	<10	173	<10	92

APPENDIX 8
Gold and ICP Data - DDH 4410-87-8
Empress Project

SAMPLE	FROM (ft)	TO (ft)	INTERVAL (ft)	494.000 Au g/tonne	2118 Ag ppm	2119 Al %	2120 As ppm	557 B ppm	2121 Ba ppm	2122 Be ppm	2123 Bi ppm	2124 Ca %	2125 Cd ppm	2126 Co ppm	2127 Cr ppm	2128 Cu ppm	2150 Fe %	2130 Ga ppm	2131 Hg ppm	2132 K %	2151 La ppm
87-8-502	26.10	29.90	3.80	<0.005	<0.2	1.2	<2	<10	60	<0.5	<2	3.64	1.5	21	63	109	2.9	<10	<1	0.38	10
87-8-503	29.90	35.00	5.10	<0.005	<0.2	1.72	<2	<10	80	<0.5	<2	1.96	<0.5	19	117	52	3.23	<10	<1	0.27	10
87-8-504	268.00	273.50	5.50	<0.005	<0.2	1.66	<2	<10	10	<0.5	<2	2.97	<0.5	19	52	64	3.23	<10	<1	0.09	<10
87-8-505	273.50	276.65	3.15	0.005	<0.2	1.4	<2	<10	70	<0.5	<2	2.41	2	24	56	171	3.81	<10	<1	0.27	<10
87-8-506	276.65	282.00	5.35	<0.005	<0.2	2.55	<2	<10	60	<0.5	<2	2.56	<0.5	31	84	94	5.91	10	<1	0.32	<10
87-8-507	372.50	377.50	5.00	<0.005	<0.2	2.93	<2	<10	10	<0.5	<2	3.28	<0.5	32	59	227	7.23	10	<1	0.1	10
87-8-508	377.50	378.55	1.05	0.005	<0.2	3.55	<2	<10	20	0.5	<2	4.84	<0.5	47	70	184	8.35	10	<1	0.28	10
87-8-509	378.55	383.20	4.65	0.180	0.2	2.86	10	<10	40	0.5	<2	4.91	1.5	24	73	278	5.91	<10	<1	0.23	<10
87-8-510	383.20	385.45	2.25	1.075	2.2	0.49	6	<10	10	<0.5	<2	1.07	0.5	16	182	460	1.96	<10	<1	0.06	<10
87-8-511	385.45	389.45	4.00	0.250	<0.2	2.41	<2	<10	40	<0.5	<2	5.51	<0.5	27	112	27	5.58	10	<1	0.29	<10
87-8-512	389.45	392.65	3.20	0.020	<0.2	2.84	<2	<10	80	<0.5	<2	5.7	<0.5	31	131	35	7.31	10	<1	0.66	<10
87-8-513	392.65	394.15	1.50	<0.005	<0.2	0.32	<2	<10	250	<0.5	<2	2.12	<0.5	5	200	9	1.03	<10	<1	0.09	<10
87-8-514	394.15	397.45	3.30	0.025	<0.2	3.08	<2	<10	60	0.5	<2	6.29	<0.5	28	133	34	6.94	10	<1	0.51	<10
87-8-515	397.45	403.00	5.55	0.015	<0.2	1.57	<2	<10	40	0.5	<2	4.9	<0.5	22	129	83	5.96	<10	<1	0.26	10
87-8-516	403.00	407.00	4.00	0.020	<0.2	1.61	<2	<10	30	0.5	<2	2.87	<0.5	20	114	28	3.7	<10	<1	0.19	10
87-8-517	407.00	411.15	4.15	0.105	0.6	2.11	<2	<10	30	0.5	<2	3.36	4.5	24	91	201	5.32	<10	<1	0.2	10
87-8-518	411.15	414.95	3.80	0.045	<0.2	2.29	22	<10	30	0.5	<2	4.12	2	37	72	97	6.27	<10	<1	0.18	<10
87-8-519	414.95	418.80	3.85	0.010	0.2	3.29	<2	<10	20	0.5	<2	2.5	1.5	40	92	102	8.07	10	<1	0.21	<10
87-8-520	418.80	421.20	2.40	<0.005	<0.2	2.58	<2	<10	30	0.5	<2	5.86	<0.5	36	45	67	6.05	<10	<1	0.4	<10
87-8-521	421.20	427.00	5.80	<0.005	<0.2	4.29	<2	<10	110	<0.5	<2	2.17	<0.5	35	52	74	7.11	10	<1	0.83	<10
87-8-522	427.00	432.00	5.00	<0.005	<0.2	3.06	<2	<10	140	<0.5	<2	2.16	<0.5	27	48	81	4.56	10	<1	0.61	<10
87-8-523	432.00	434.50	2.50	<0.005	<0.2	2.75	<2	<10	120	<0.5	<2	2.47	<0.5	31	45	55	4.93	<10	<1	0.56	<10
87-8-524	434.50	436.50	2.00	0.005	<0.2	4.04	<2	<10	120	<0.5	<2	0.68	<0.5	36	69	142	7.79	10	<1	0.69	10
87-8-525	436.50	442.00	5.50	<0.005	<0.2	2.17	<2	<10	440	1.5	<2	4.82	<0.5	51	201	129	6.42	10	<1	0.97	40
87-8-526	442.00	447.00	5.00	<0.005	<0.2	4.81	<2	<10	60	<0.5	<2	1.59	<0.5	36	50	59	7.24	10	<1	0.28	<10
87-8-527	457.00	461.15	4.15	<0.005	<0.2	2.78	<2	<10	40	<0.5	<2	2.48	<0.5	35	76	79	5.47	<10	<1	0.27	10
87-8-528	461.15	466.00	4.85	0.015	0.2	2.72	<2	<10	40	0.5	<2	2.85	0.5	37	66	66	5.87	10	<1	0.26	<10
87-8-529	466.00	472.00	6.00	<0.005	0.2	1.46	<2	<10	20	<0.5	<2	2.04	3	26	91	251	4.67	<10	<1	0.22	10
87-8-530	472.00	477.00	5.00	<0.005	<0.2	1.99	<2	<10	30	<0.5	<2	2.9	<0.5	28	63	135	4.51	<10	<1	0.15	<10
87-8-531	490.00	495.00	5.00	<0.005	<0.2	2.21	<2	<10	10	<0.5	<2	3.01	<0.5	18	61	29	3.54	<10	<1	0.09	<10
87-8-532	495.00	497.00	2.00	<0.005	<0.2	2.89	<2	<10	140	<0.5	<2	1.6	2.5	29	74	151	5.78	10	<1	0.7	10

APPENDIX 8
Gold and ICP Data - DDH 4410-87-8
Empress Project

SAMPLE	FROM (ft)	TO (ft)	INTERVAL (ft)	2134 Mg %	2135 Mn ppm	2136 Mo ppm	2137 Na %	2138 Ni ppm	2139 P ppm	2140 Pb ppm	551 S %	2141 Sb ppm	2142 Sc ppm	2143 Sr ppm	2144 Ti %	2145 Tl ppm	2146 U ppm	2147 V ppm	2148 W ppm	2149 Zn ppm
87-8-502	26.10	29.90	3.80	0.54	445	1	0.02	27	590	2	0.68	<2	3	25	0.03	<10	<10	24	<10	820
87-8-503	29.90	35.00	5.10	1.1	440	<1	0.11	32	960	<2	0.15	<2	7	39	0.2	<10	<10	78	<10	54
87-8-504	268.00	273.50	5.50	0.91	550	<1	0.11	22	1250	<2	0.21	<2	6	28	0.22	<10	<10	76	<10	64
87-8-505	273.50	276.65	3.15	0.76	480	1	0.04	29	490	10	1.21	<2	3	14	0.11	<10	<10	42	<10	1105
87-8-506	276.65	282.00	5.35	1.38	725	1	0.09	43	1450	<2	0.64	<2	14	18	0.21	<10	<10	109	<10	138
87-8-507	372.50	377.50	5.00	2.28	850	1	0.22	53	580	<2	0.03	<2	19	58	0.18	<10	<10	233	<10	92
87-8-508	377.50	378.55	1.05	2.83	965	<1	0.03	58	690	<2	0.11	<2	17	97	0.03	<10	<10	171	<10	112
87-8-509	378.55	383.20	4.65	1.67	800	<1	0.01	34	1070	2	1.01	<2	10	82	0.01	<10	<10	65	<10	342
87-8-510	383.20	385.45	2.25	0.27	145	12	0.02	18	140	36	1.18	<2	2	16	<0.01	<10	<10	20	<10	96
87-8-511	385.45	389.45	4.00	1.64	950	7	0.02	52	1170	4	0.74	<2	13	99	0.03	<10	<10	95	<10	164
87-8-512	389.45	392.65	3.20	2.29	1080	1	0.02	70	1450	2	0.29	<2	22	118	0.08	<10	<10	160	<10	182
87-8-513	392.65	394.15	1.50	0.24	275	1	<0.01	10	220	<2	0.17	<2	3	48	<0.01	<10	<10	16	<10	26
87-8-514	394.15	397.45	3.30	2.32	1175	1	0.01	61	1320	<2	0.28	<2	17	98	0.07	<10	<10	153	<10	162
87-8-515	397.45	403.00	5.55	1.25	880	3	0.03	36	1100	<2	0.54	<2	16	74	0.05	<10	<10	116	<10	98
87-8-516	403.00	407.00	4.00	0.95	495	7	0.03	26	560	<2	1.05	<2	7	36	0.01	<10	<10	56	<10	76
87-8-517	407.00	411.15	4.15	0.97	580	5	0.01	40	590	16	1.99	<2	4	52	<0.01	<10	<10	26	<10	1235
87-8-518	411.15	414.95	3.80	0.95	760	4	0.01	59	1020	8	1.15	<2	10	47	<0.01	<10	<10	72	<10	476
87-8-519	414.95	418.80	3.85	1.67	705	1	0.01	85	710	2	1.15	<2	16	31	<0.01	<10	<10	94	<10	684
87-8-520	418.80	421.20	2.40	1.03	1285	1	0.02	60	1290	10	0.69	<2	19	119	0.01	<10	<10	97	<10	244
87-8-521	421.20	427.00	5.80	2.63	595	1	0.05	60	1270	2	0.41	<2	9	35	0.36	<10	<10	138	<10	180
87-8-522	427.00	432.00	5.00	1.38	410	<1	0.16	53	1330	<2	0.23	<2	8	36	0.23	<10	<10	101	<10	124
87-8-523	432.00	434.50	2.50	1.37	590	<1	0.09	64	1330	<2	0.26	<2	8	18	0.25	<10	<10	99	<10	128
87-8-524	434.50	436.50	2.00	2.64	640	2	0.03	62	1060	<2	0.75	<2	8	20	0.24	<10	<10	127	<10	228
87-8-525	436.50	442.00	5.50	4.32	615	1	0.09	211	2260	<2	0.46	<2	10	515	0.29	<10	<10	145	<10	144
87-8-526	442.00	447.00	5.00	3.67	580	1	0.05	71	1350	<2	0.26	<2	10	18	0.43	<10	<10	175	<10	136
87-8-527	457.00	461.15	4.15	1.61	745	<1	0.11	67	1370	<2	0.64	<2	9	30	0.35	<10	<10	116	<10	112
87-8-528	461.15	466.00	4.85	1.6	740	<1	0.04	63	1070	4	1.16	<2	9	27	0.35	<10	<10	136	<10	326
87-8-529	466.00	472.00	6.00	0.72	430	3	0.01	37	360	4	1.78	<2	4	14	0.08	<10	<10	27	<10	1140
87-8-530	472.00	477.00	5.00	0.85	665	<1	0.17	36	1220	<2	0.53	<2	11	27	0.36	<10	<10	108	<10	104
87-8-531	490.00	495.00	5.00	0.85	550	<1	0.21	23	1090	2	0.07	<2	9	42	0.25	<10	<10	94	<10	100
87-8-532	495.00	497.00	2.00	1.59	720	4	0.04	56	560	6	0.47	<2	5	13	0.18	<10	<10	70	<10	1165

APPENDIX 8
Gold and ICP Data - DDH 4410-87-9
Empress Project

SAMPLE	FROM (ft)	TO (ft)	INTERVAL (ft)	494.000 Au g/tonne	2118 Ag ppm	2119 Al %	2120 As ppm	557 B ppm	2121 Ba ppm	2122 Be ppm	2123 Bi ppm	2124 Ca %	2125 Cd ppm	2126 Co ppm	2127 Cr ppm	2128 Cu ppm	2150 Fe %	2130 Ga ppm	2131 Hg ppm	2132 K %	2151 La ppm
87-9-352	213.00	218.00	5.00	<0.005	<0.2	2.26	<2	<10	30	<0.5	<2	2.05	<0.5	22	56	30	4.1	10	<1	0.15	<10
87-9-353	218.00	222.00	4.00	<0.005	<0.2	1.84	<2	<10	130	<0.5	<2	3.55	0.5	19	50	78	4.13	10	<1	0.65	<10
87-9-354	222.00	226.80	4.80	<0.005	0.2	1.39	<2	<10	140	<0.5	<2	2.56	2	36	94	195	4.4	<10	<1	0.55	10
87-9-355	226.80	232.00	5.20	<0.005	<0.2	3.36	<2	<10	170	<0.5	<2	2.61	<0.5	23	104	56	6.13	10	<1	0.72	10
87-9-356	240.00	245.00	5.00	<0.005	<0.2	3.07	<2	<10	30	<0.5	<2	4.09	<0.5	28	128	63	5.62	10	<1	0.14	<10
87-9-357	245.00	248.00	3.00	<0.005	<0.2	2.63	<2	<10	100	<0.5	<2	5.82	<0.5	33	79	79	6.84	10	<1	0.41	<10
87-9-358	248.00	251.20	3.20	0.090	<0.2	1.66	<2	<10	170	<0.5	<2	6.51	<0.5	25	156	125	5.6	10	<1	0.77	<10
87-9-359	251.20	255.50	4.30	<0.005	<0.2	0.68	<2	<10	150	<0.5	<2	1.5	<0.5	7	80	15	1.35	<10	<1	0.17	<10
87-9-360	255.50	260.55	5.05	<0.005	<0.2	0.71	<2	<10	120	<0.5	<2	1.42	<0.5	6	79	18	1.3	<10	<1	0.15	10
87-9-361	260.55	263.50	2.95	0.035	<0.2	2.78	<2	<10	150	<0.5	<2	5.68	<0.5	33	107	48	7.77	10	<1	0.79	<10
87-9-362	285.00	289.25	4.25	0.020	<0.2	3.82	<2	<10	20	<0.5	<2	6.99	<0.5	35	111	34	7.76	10	<1	0.18	<10
87-9-363	289.25	290.90	1.65	0.045	<0.2	0.92	<2	<10	150	<0.5	<2	4.57	1	16	65	133	4.15	<10	<1	0.28	10
87-9-364	290.90	292.60	1.70	8.070	93.8	0.76	256	<10	50	0.5	258	0.81	<0.5	9	192	154	2.48	<10	<1	0.13	<10
87-9-365	292.60	295.85	3.25	0.145	1	0.84	30	<10	110	0.5	<2	2.78	6.5	28	151	387	2.53	<10	<1	0.24	<10
87-9-366	295.85	299.50	3.65	0.035	0.2	0.6	<2	<10	250	0.5	<2	12.5	<0.5	9	95	32	2.27	<10	<1	0.1	<10
87-9-367	299.50	304.60	5.10	0.005	<0.2	2.93	<2	<10	100	<0.5	<2	6.01	<0.5	33	90	54	7.2	10	<1	0.31	<10
87-9-368	304.60	307.50	2.90	<0.005	<0.2	3.42	<2	<10	10	<0.5	<2	6.17	<0.5	33	114	49	7.03	10	<1	0.16	<10
87-9-369	307.50	312.00	4.50	0.050	0.6	0.88	<2	<10	100	<0.5	<2	3.26	5	22	78	219	3.16	<10	<1	0.3	10
87-9-370	312.00	318.00	6.00	<0.005	<0.2	2.66	<2	<10	80	<0.5	<2	5.18	<0.5	22	211	39	3.19	10	<1	0.45	10
87-9-371	318.00	323.10	5.10	0.010	<0.2	2.68	6	<10	50	0.5	<2	4.03	<0.5	24	128	65	3.83	10	<1	0.31	10
87-9-372	323.10	325.75	2.65	0.010	<0.2	1.57	<2	<10	30	<0.5	<2	2.9	1	22	81	116	4.14	<10	<1	0.22	<10
87-9-373	325.75	330.10	4.35	<0.005	<0.2	4.03	<2	<10	120	<0.5	<2	2.5	<0.5	33	64	97	7.01	10	<1	0.86	<10
87-9-374	330.10	335.75	5.65	<0.005	<0.2	3.33	<2	<10	110	<0.5	<2	2.08	<0.5	28	73	55	5.82	10	<1	0.69	<10
87-9-375	335.75	340.00	4.25	<0.005	<0.2	2.82	<2	<10	80	<0.5	<2	2.45	<0.5	24	55	114	5.02	10	<1	0.57	10
87-9-376	372.00	376.40	4.40	<0.005	<0.2	2.72	<2	<10	110	<0.5	<2	3.03	<0.5	26	55	67	5.86	10	<1	0.64	10
87-9-377	376.40	380.15	3.75	<0.005	<0.2	1.53	<2	<10	30	<0.5	<2	2	0.5	19	98	120	4.09	<10	<1	0.27	10
87-9-378	380.15	385.00	4.85	<0.005	<0.2	0.83	<2	<10	20	<0.5	<2	0.75	<0.5	8	110	61	1.8	<10	<1	0.17	10
87-9-379	385.00	388.40	3.40	0.010	0.2	1.21	<2	<10	30	<0.5	<2	1.85	4	47	97	250	7.02	<10	<1	0.24	<10
87-9-380	388.40	395.00	6.60	<0.005	<0.2	1.68	<2	<10	20	<0.5	<2	2.53	<0.5	19	63	75	3.49	<10	<1	0.14	<10
87-9-381	395.00	401.00	6.00	<0.005	<0.2	2.3	<2	<10	30	<0.5	<2	3.05	<0.5	17	72	15	3.29	<10	<1	0.11	<10
87-9-382	401.00	402.50	1.50	<0.005	<0.2	2.17	<2	<10	10	<0.5	<2	3.68	<0.5	52	88	264	5.18	<10	<1	0.1	<10
87-9-383	402.50	406.10	3.60	<0.005	<0.2	2.23	<2	<10	30	<0.5	<2	2.3	<0.5	13	73	18	3.55	<10	<1	0.2	10
87-9-384	406.10	407.30	1.20	0.025	<0.2	1.18	<2	<10	10	<0.5	<2	4.2	2.5	16	53	276	11.7	<10	<1	0.1	<10
87-9-385	407.30	412.00	4.70	<0.005	<0.2	2.11	<2	<10	50	<0.5	<2	1.89	<0.5	20	59	68	3.97	<10	<1	0.16	<10

APPENDIX 8
Gold and ICP Data - DDH 4410-87-9
Empress Project

SAMPLE	FROM	TO	INTERVAL	2134	2135	2136	2137	2138	2139	2140	551	2141	2142	2143	2144	2145	2146	2147	2148	2149
	(ft)	(ft)	(ft)	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
87-9-352	213.00	218.00	5.00	1.44	500	1	0.14	24	1220	<2	0.07	<2	8	27	0.22	<10	<10	99	<10	76
87-9-353	218.00	222.00	4.00	1.1	625	1	0.04	20	660	4	0.6	<2	6	26	0.16	<10	<10	81	<10	412
87-9-354	222.00	226.80	4.80	0.72	510	3	0.04	39	720	14	1.66	<2	6	31	0.11	<10	<10	47	<10	1170
87-9-355	226.80	232.00	5.20	2.33	700	3	0.06	37	1440	<2	0.23	<2	11	36	0.24	<10	<10	94	<10	150
87-9-356	240.00	245.00	5.00	2.38	850	2	0.06	58	1350	4	0.14	<2	12	72	0.17	<10	<10	105	<10	92
87-9-357	245.00	248.00	3.00	2.18	1095	1	0.02	58	1390	4	0.22	<2	20	78	0.02	<10	<10	114	<10	90
87-9-358	248.00	251.20	3.20	2.09	1200	4	0.04	39	1030	2	1	<2	16	115	0.08	<10	<10	107	<10	122
87-9-359	251.20	255.50	4.30	0.52	215	1	0.08	12	320	2	0.1	<2	2	55	0.01	<10	<10	19	<10	38
87-9-360	255.50	260.55	5.05	0.49	190	<1	0.07	12	340	2	0.08	<2	2	74	0.01	<10	<10	18	<10	34
87-9-361	260.55	263.50	2.95	2.43	1340	1	0.03	58	1410	<2	0.54	<2	20	95	0.1	<10	<10	138	<10	126
87-9-362	285.00	289.25	4.25	2.4	1145	3	0.01	66	1380	6	0.22	<2	19	114	0.03	<10	<10	137	<10	162
87-9-363	289.25	290.90	1.65	0.98	905	6	0.03	24	620	14	0.91	<2	8	126	<0.01	<10	<10	39	<10	414
87-9-364	290.90	292.60	1.70	0.24	140	12	<0.01	22	110	4280	1.21	<2	1	19	<0.01	<10	<10	13	<10	42
87-9-365	292.60	295.85	3.25	0.26	340	18	0.01	44	290	82	1.81	<2	2	42	<0.01	<10	<10	14	<10	1560
87-9-366	295.85	299.50	3.65	0.71	600	<1	0.01	18	400	16	0.25	<2	6	379	<0.01	<10	30	37	<10	68
87-9-367	299.50	304.60	5.10	2.38	1120	2	0.01	60	1410	6	0.29	<2	14	68	0.02	<10	<10	103	<10	114
87-9-368	304.60	307.50	2.90	2.4	1145	<1	<0.01	60	1390	<2	0.27	<2	11	68	0.03	<10	<10	137	<10	142
87-9-369	307.50	312.00	4.50	0.62	575	5	0.02	28	470	14	1.25	<2	3	53	0.01	<10	<10	20	<10	652
87-9-370	312.00	318.00	6.00	2.11	670	<1	0.01	79	620	6	0.15	<2	9	87	0.03	<10	<10	47	<10	90
87-9-371	318.00	323.10	5.10	1.84	625	3	0.01	63	510	2	0.58	<2	7	77	<0.01	<10	<10	28	<10	310
87-9-372	323.10	325.75	2.65	0.84	615	3	0.01	41	610	2	1.01	<2	6	35	<0.01	<10	<10	44	<10	538
87-9-373	325.75	330.10	4.35	2.55	875	2	0.01	55	1500	<2	0.52	<2	6	15	0.21	<10	<10	187	<10	228
87-9-374	330.10	335.75	5.65	2.03	665	3	0.03	54	1220	<2	0.31	<2	4	13	0.24	<10	<10	140	<10	214
87-9-375	335.75	340.00	4.25	1.22	580	1	0.1	47	1340	2	0.3	<2	9	17	0.24	<10	<10	124	<10	134
87-9-376	372.00	376.40	4.40	1.26	965	<1	0.09	56	1330	<2	0.41	<2	11	26	0.32	<10	<10	158	<10	190
87-9-377	376.40	380.15	3.75	0.65	445	9	0.02	31	450	4	1.55	<2	4	20	0.05	<10	<10	49	<10	350
87-9-378	380.15	385.00	4.85	0.36	215	3	0.03	13	230	2	0.39	<2	2	11	0.03	<10	<10	17	<10	200
87-9-379	385.00	388.40	3.40	0.58	430	3	0.02	61	320	2	3.39	<2	4	12	0.05	<10	<10	34	<10	1265
87-9-380	388.40	395.00	6.60	0.83	510	1	0.14	33	1360	<2	0.31	<2	8	25	0.2	<10	<10	87	<10	92
87-9-381	395.00	401.00	6.00	1.09	480	1	0.19	49	1200	<2	0.06	<2	8	44	0.18	<10	<10	83	<10	68
87-9-382	401.00	402.50	1.50	0.98	510	<1	0.13	65	1200	2	1.23	<2	8	38	0.24	<10	<10	96	<10	94
87-9-383	402.50	406.10	3.60	0.97	590	2	0.14	26	1050	<2	0.04	<2	7	27	0.19	<10	<10	78	<10	320
87-9-384	406.10	407.30	1.20	0.52	1900	1	0.04	26	270	<2	1.24	<2	2	15	0.04	<10	<10	27	<10	872
87-9-385	407.30	412.00	4.70	1.01	605	1	0.15	60	1050	<2	0.18	<2	6	19	0.17	<10	<10	91	<10	90

APPENDIX 8
Gold and ICP Data - DDH 4410-87-10
Empress Project

SAMPLE	FROM	TO	INTERVAL	494.000	2118	2119	2120	557	2121	2122	2123	2124	2125	2126	2127	2128	2150	2130	2131	2132	2151
	(ft)	(ft)	(ft)	Au	Ag	Al	As	B	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	Hg	K	La
				g/tonne	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm
87-10-386	31.15	47.00	15.85	<0.005	<0.2	1.81	<2	<10	70	<0.5	<2	2.36	<0.5	16	85	66	3.27	<10	<1	0.64	10
87-10-387	241.00	246.20	5.20	<0.005	<0.2	2.47	<2	<10	30	<0.5	<2	3.77	<0.5	20	65	20	4.48	10	<1	0.26	10
87-10-388	246.20	248.70	2.50	<0.005	<0.2	1.41	<2	<10	160	<0.5	<2	1.43	<0.5	12	78	70	2.3	<10	<1	0.67	10
87-10-389	248.70	253.45	4.75	0.010	0.2	1.47	<2	<10	110	<0.5	<2	1.98	4.5	40	71	417	5.72	<10	<1	0.66	10
87-10-390	253.45	258.50	5.05	0.005	<0.2	2.83	<2	<10	80	<0.5	<2	4.02	<0.5	33	124	70	5.51	10	<1	0.84	<10
87-10-391	268.50	273.00	4.50	<0.005	<0.2	2.42	<2	<10	90	<0.5	<2	2.5	<0.5	30	98	82	4.97	10	<1	0.24	<10
87-10-392	273.00	275.50	2.50	<0.005	<0.2	2.58	<2	<10	90	<0.5	<2	4.99	<0.5	32	118	180	7.06	10	<1	0.33	<10
87-10-393	275.50	280.50	5.00	<0.005	<0.2	2.52	<2	<10	30	<0.5	<2	2.81	<0.5	24	76	95	5.25	10	<1	0.2	10
87-10-394	321.00	326.00	5.00	<0.005	<0.2	2.91	<2	<10	40	<0.5	<2	3.79	<0.5	29	88	34	5.45	<10	<1	0.11	<10
87-10-395	326.00	329.75	3.75	0.020	<0.2	2.03	<2	<10	200	<0.5	<2	6.5	<0.5	26	65	78	5.89	<10	<1	0.22	<10
87-10-396	329.75	335.00	5.25	<0.005	<0.2	0.88	<2	<10	230	<0.5	<2	2.03	<0.5	8	65	18	1.68	<10	<1	0.23	<10
87-10-397	335.00	340.50	5.50	<0.005	<0.2	3.08	<2	<10	240	<0.5	<2	6.63	<0.5	30	77	26	6.98	<10	<1	0.27	<10
87-10-398	340.50	346.00	5.50	<0.005	<0.2	3.73	<2	<10	80	<0.5	<2	4.23	<0.5	33	110	37	6.21	10	<1	0.32	<10
87-10-399	346.00	350.10	4.10	<0.005	<0.2	2.91	<2	<10	150	<0.5	<2	6.03	<0.5	25	72	50	6.29	<10	<1	0.36	10
87-10-400	350.10	354.00	3.90	0.075	<0.2	0.98	2	<10	90	<0.5	<2	3.97	3	19	83	108	1.96	<10	<1	0.42	20
87-10-401	354.00	356.00	2.00	2.230	29.4	0.35	<2	<10	70	<0.5	54	1.11	3.5	4	215	2840	2.1	<10	<1	0.1	<10
87-10-402	356.00	361.95	5.95	0.080	0.2	0.98	6	<10	80	0.5	<2	3.48	6	27	139	64	2.6	<10	<1	0.37	10
87-10-403	361.95	366.20	4.25	0.020	0.2	1.73	2	<10	110	0.5	<2	3.48	<0.5	26	154	57	3.69	<10	<1	0.25	10
87-10-404	366.20	371.50	5.30	0.010	0.4	1.23	4	<10	80	<0.5	<2	2.88	0.5	21	94	182	2.86	<10	<1	0.29	10
87-10-405	371.50	374.30	2.80	0.030	0.4	0.45	4	<10	20	<0.5	<2	1.74	<0.5	8	198	511	1.39	<10	<1	0.05	<10
87-10-406	374.30	378.65	4.35	0.020	1.2	1.26	12	<10	60	<0.5	<2	1.72	2.5	37	185	558	3.61	<10	<1	0.19	<10
87-10-407	378.65	383.20	4.55	0.010	0.6	1.72	4	<10	40	<0.5	<2	2	2	35	84	160	3.67	<10	<1	0.27	10
87-10-408	383.20	388.00	4.80	0.005	<0.2	2.1	<2	<10	80	0.5	<2	5.84	<0.5	20	130	62	3.93	<10	<1	0.54	10
87-10-409	388.00	393.00	5.00	<0.005	<0.2	3.09	<2	<10	100	<0.5	<2	3.75	<0.5	27	38	53	5.68	10	<1	0.29	10
87-10-410	423.00	428.45	5.45	<0.005	<0.2	3.31	<2	<10	170	<0.5	<2	3.16	<0.5	32	42	54	5.9	10	<1	0.65	10
87-10-411	428.45	434.15	5.70	0.010	0.2	1.78	6	<10	50	<0.5	<2	1.48	4.5	23	91	131	3.66	<10	<1	0.49	10
87-10-412	434.15	438.50	4.35	<0.005	<0.2	3.38	<2	<10	70	<0.5	<2	3.67	<0.5	35	82	153	6.47	10	<1	0.27	<10
87-10-413	450.00	453.00	3.00	0.075	<0.2	2.59	<2	<10	20	<0.5	<2	4.89	1	20	79	152	7.22	<10	<1	0.11	<10
87-10-414	453.00	458.00	5.00	<0.005	<0.2	3.61	<2	<10	60	<0.5	<2	3.62	<0.5	33	93	55	6.87	10	<1	0.34	<10

APPENDIX 8
Gold and ICP Data - DDH 4410-87-10
Empress Project

SAMPLE	FROM (ft)	TO (ft)	INTERVAL (ft)	2134 Mg %	2135 Mn ppm	2136 Mo ppm	2137 Na %	2138 Ni ppm	2139 P ppm	2140 Pb ppm	551 S %	2141 Sb ppm	2142 Sc ppm	2143 Sr ppm	2144 Ti %	2145 Tl ppm	2146 U ppm	2147 V ppm	2148 W ppm	2149 Zn ppm
87-10-386	31.15	47.00	15.85	1.21	355	3	0.06	20	590	2	0.36	<2	4	27	0.15	<10	<10	40	<10	122
87-10-387	241.00	246.20	5.20	1.19	740	<1	0.16	25	1200	2	0.07	<2	12	25	0.22	<10	<10	131	<10	90
87-10-388	246.20	248.70	2.50	0.64	325	1	0.08	16	350	<2	0.28	<2	3	12	0.09	<10	<10	22	<10	202
87-10-389	248.70	253.45	4.75	0.57	440	3	0.05	62	610	6	2.27	<2	4	14	0.12	<10	<10	44	<10	2570
87-10-390	253.45	258.50	5.05	1.17	945	<1	0.09	58	1230	<2	0.43	<2	10	14	0.3	<10	<10	132	<10	126
87-10-391	268.50	273.00	4.50	1.43	640	<1	0.16	54	1380	<2	0.34	<2	14	20	0.28	<10	<10	123	<10	106
87-10-392	273.00	275.50	2.50	1.72	1300	1	0.04	64	1230	2	0.46	<2	21	45	0.04	<10	<10	105	<10	178
87-10-393	275.50	280.50	5.00	1.3	730	1	0.23	37	1610	<2	0.3	<2	16	19	0.2	<10	<10	103	<10	78
87-10-394	321.00	326.00	5.00	1.64	730	<1	0.08	55	1650	<2	0.15	<2	11	65	0.19	<10	<10	94	<10	106
87-10-395	326.00	329.75	3.75	1.6	1125	<1	0.04	55	1320	<2	0.17	<2	19	73	<0.01	<10	<10	90	<10	94
87-10-396	329.75	335.00	5.25	0.61	305	1	0.11	14	360	<2	0.08	<2	3	47	0.02	<10	<10	23	<10	42
87-10-397	335.00	340.50	5.50	1.72	1185	<1	0.03	68	1390	<2	0.1	<2	21	79	<0.01	<10	<10	102	<10	118
87-10-398	340.50	346.00	5.50	2.67	755	<1	0.06	71	1610	<2	0.12	<2	12	61	0.21	<10	<10	130	<10	114
87-10-399	346.00	350.10	4.10	1.17	970	1	0.03	47	1170	2	0.44	<2	15	62	0.01	<10	<10	75	<10	216
87-10-400	350.10	354.00	3.90	0.62	565	1	0.01	33	480	8	0.75	<2	3	88	<0.01	<10	<10	17	<10	920
87-10-401	*354.00*	*356.00*	*2.00*	*0.07*	*120*	*6*	*0.01*	*14*	*80*	*4060*	*1.61*	*<2*	*1*	*26*	*<0.01*	*<10*	*<10*	*10*	*<10*	*254*
87-10-402	356.00	361.95	5.95	0.7	430	6	0.03	60	540	26	1.27	<2	3	177	0.03	<10	<10	32	<10	858
87-10-403	361.95	366.20	4.25	0.95	490	13	0.03	64	730	44	1.31	<2	5	81	<0.01	<10	<10	37	<10	110
87-10-404	366.20	371.50	5.30	0.46	420	5	0.05	28	240	10	1.33	<2	2	44	<0.01	<10	<10	8	<10	306
87-10-405	371.50	374.30	2.80	0.21	235	1	0.05	8	80	10	0.72	<2	1	22	<0.01	<10	<10	3	<10	62
87-10-406	374.30	378.65	4.35	0.57	270	5	<0.01	43	200	20	2.25	<2	2	23	<0.01	<10	<10	11	<10	1020
87-10-407	378.65	383.20	4.55	0.78	315	4	0.01	32	250	22	1.68	<2	1	34	<0.01	<10	<10	7	<10	1030
87-10-408	383.20	388.00	4.80	0.95	805	1	0.02	46	1290	20	0.72	<2	8	107	0.02	<10	<10	41	<10	236
87-10-409	388.00	393.00	5.00	1.37	795	<1	0.21	39	1500	<2	0.22	<2	15	47	0.32	<10	<10	152	<10	134
87-10-410	423.00	428.45	5.45	1.34	810	<1	0.18	61	1310	<2	0.35	<2	12	35	0.36	<10	<10	138	<10	222
87-10-411	428.45	434.15	5.70	0.59	325	7	0.03	32	290	4	1.37	<2	3	19	0.06	<10	<10	20	<10	1660
87-10-412	434.15	438.50	4.35	1.45	990	1	0.13	49	1430	<2	0.63	<2	16	43	0.36	<10	<10	167	<10	178
87-10-413	450.00	453.00	3.00	1.17	1450	<1	0.04	28	360	<2	1.03	<2	3	21	0.14	<10	<10	40	<10	420
87-10-414	453.00	458.00	5.00	1.53	1125	1	0.13	87	1080	2	0.23	<2	11	21	0.28	<10	<10	171	<10	218

APPENDIX 8
Gold and ICP Data - DDH 441-84-7
Empress Project

SAMPLE	FROM (ft)	To (ft)	INTERVAL (ft)	494.000 Au g/tonne	2118 Ag ppm	2119 Al %	2120 As ppm	557 B ppm	2121 Ba ppm	2122 Be ppm	2123 Bi ppm	2124 Ca %	2125 Cd ppm	2126 Co ppm	2127 Cr ppm	2128 Cu ppm	2150 Fe %	2130 Ga ppm	2131 Hg ppm	2132 K %	2151 La ppm
84-7-129	36.00	41.00	5.00	0.040	<0.2	2.49	<2	<10	120	<0.5	<2	2.48	<0.5	21	85	37	4.57	<10	<1	0.76	10
84-7-130	41.00	43.00	2.00	0.020	<0.2	2.91	<2	<10	220	<0.5	<2	2.4	<0.5	34	94	121	6.21	<10	<1	1.61	10
84-7-131	43.00	48.00	5.00	<0.005	<0.2	2.63	<2	<10	170	<0.5	<2	2.68	<0.5	26	72	52	5.27	<10	<1	1.08	<10
84-7-132	48.00	53.00	5.00	0.130	<0.2	2.39	<2	<10	90	<0.5	<2	4.34	<0.5	32	86	95	7.11	10	<1	1.02	<10
84-7-133	53.00	58.00	5.00	0.010	<0.2	2.87	<2	<10	70	<0.5	<2	1.68	<0.5	41	46	168	6.48	<10	<1	0.37	<10
84-7-134	58.00	61.40	3.40	0.005	<0.2	2.89	<2	<10	40	<0.5	<2	1.74	1	41	71	407	6.48	<10	<1	0.19	<10
84-7-135	61.40	65.00	3.60	0.030	<0.2	2.65	<2	<10	30	<0.5	<2	3.35	3.5	44	65	192	7.69	<10	<1	0.2	<10
84-7-136	65.00	70.00	5.00	0.035	<0.2	2.6	<2	<10	60	<0.5	<2	5.89	0.5	44	55	111	7.26	<10	<1	0.26	<10
84-7-137	70.00	75.00	5.00	<0.005	<0.2	2.83	<2	<10	140	<0.5	<2	3.21	<0.5	31	66	55	5.53	<10	<1	0.52	<10
84-7-138	75.00	80.00	5.00	<0.005	<0.2	2.74	<2	<10	80	<0.5	<2	2.07	<0.5	31	51	52	4.96	10	<1	0.16	<10
84-7-139	80.00	85.00	5.00	<0.005	<0.2	2.81	<2	<10	40	<0.5	<2	3.63	<0.5	31	52	60	5.5	10	<1	0.14	<10
84-7-140	85.00	87.50	2.50	0.035	<0.2	2.46	<2	<10	60	<0.5	<2	8.1	<0.5	30	39	137	5.53	<10	<1	0.23	<10
84-7-141	87.50	90.00	2.50	0.345	0.2	1.08	<2	<10	40	<0.5	<2	4.38	3.5	28	89	84	4.75	<10	<1	0.14	<10
84-7-142	90.00	92.00	2.00	<0.005	<0.2	2.54	2	<10	40	0.5	<2	8.79	<0.5	21	507	14	3.53	10	<1	0.09	<10
84-7-143	92.00	97.00	5.00	0.090	0.2	0.74	<2	<10	30	<0.5	<2	2.8	2	21	54	118	3.51	<10	<1	0.14	10
84-7-144	97.00	102.00	5.00	0.080	0.4	0.37	<2	<10	10	<0.5	<2	3.99	3.5	29	37	255	3.81	<10	<1	0.14	10
84-7-145	102.00	107.00	5.00	0.045	0.2	0.63	<2	<10	30	<0.5	<2	2.52	4.5	26	52	202	3.99	<10	<1	0.14	10
84-7-146	107.00	112.00	5.00	0.030	0.2	1.08	<2	<10	20	<0.5	<2	3.1	2.5	22	57	223	4.07	<10	<1	0.15	<10
84-7-147	112.00	117.00	5.00	0.015	0.2	0.81	<2	<10	30	<0.5	<2	4.02	0.5	16	62	74	2.34	<10	<1	0.2	10
84-7-148	117.00	122.00	5.00	0.250	2.4	0.52	<2	<10	30	<0.5	<2	3.3	4	28	85	1330	2.45	<10	<1	0.21	10
84-7-149	122.00	126.70	4.70	0.110	0.4	0.64	<2	<10	40	<0.5	<2	4.12	3.5	19	60	134	2.59	<10	<1	0.28	10
84-7-150	126.70	127.50	0.80	0.185	6.6	0.22	<2	<10	40	<0.5	12	1.45	10.5	7	199	629	1.11	<10	<1	0.08	<10
84-7-151	127.50	129.00	1.50	0.305	2.6	0.54	24	<10	70	<0.5	<2	3.83	32	42	89	1330	4.05	<10	<1	0.28	<10
84-7-152	129.00	130.40	1.40	0.215	4.4	0.19	2	<10	30	<0.5	2	2.35	2	30	141	2070	2.83	<10	<1	0.06	<10
84-7-153	130.40	135.00	4.60	7.090	19.8	0.72	32	<10	50	<0.5	20	1.67	13	23	114	4120	4.3	<10	<1	0.12	<10
84-7-154	135.00	142.00	7.00	4.010	2.6	0.96	16	<10	50	<0.5	<2	1.66	4.5	38	137	260	5.32	<10	<1	0.2	<10
84-7-155	142.00	144.00	2.00	0.085	<0.2	0.13	<2	<10	60	<0.5	<2	1.2	<0.5	4	221	26	0.93	<10	<1	0.03	<10
84-7-156	144.00	145.50	1.50	0.170	1	0.86	12	<10	40	<0.5	<2	0.7	4.5	48	125	199	5.85	<10	<1	0.16	10
84-7-157	145.50	149.00	3.50	0.030	0.8	0.48	10	<10	60	<0.5	<2	1.8	4	15	141	55	1.56	<10	<1	0.17	<10
84-7-158	149.00	155.30	6.30	0.005	<0.2	3.5	<2	<10	110	0.5	<2	2.16	<0.5	33	43	98	7.39	10	<1	0.58	<10
84-7-159	155.30	161.00	5.70	0.015	<0.2	1.68	<2	<10	30	<0.5	<2	3.07	1.5	21	70	94	3.92	<10	<1	0.18	<10
84-7-160	161.00	164.40	3.40	0.090	0.8	1.26	<2	<10	30	<0.5	<2	2.32	2.5	24	72	256	4.07	<10	<1	0.2	<10
84-7-161	164.40	170.00	5.60	<0.005	<0.2	1.8	<2	<10	50	<0.5	<2	2.37	<0.5	23	45	44	3.89	<10	<1	0.39	<10
84-7-162	170.00	176.00	6.00	<0.005	<0.2	2.32	<2	<10	130	<0.5	<2	2.08	0.5	29	49	44	5	<10	<1	0.71	<10
84-7-163	176.00	179.40	3.40	0.005	0.2	1.23	<2	<10	60	<0.5	<2	1.95	3.5	21	57	198	3.31	<10	<1	0.31	10
84-7-164	179.40	184.10	4.70	0.015	0.6	0.94	16	<10	50	<0.5	<2	1.75	3.5	20	72	138	2.98	<10	<1	0.19	<10
84-7-165	184.10	189.00	4.90	<0.005	<0.2	1.8	<2	<10	100	<0.5	<2	2.81	<0.5	23	73	59	3.71	<10	<1	0.26	<10
84-7-166	189.00	192.00	3.00	<0.005	<0.2	2.17	<2	<10	160	<0.5	<2	4.53	<0.5	27	85	94	4.41	<10	<1	0.35	<10
84-7-167	192.00	193.40	1.40	<0.005	0.2	1.17	<2	<10	50	<0.5	<2	2.72	1.5	16	98	78	3.21	<10	<1	0.21	<10
84-7-168	193.40	198.00	4.60	<0.005	<0.2	3.04	<2	<10	140	<0.5	<2	2.17	<0.5	34	49	65	5.93	10	<1	0.64	<10
84-7-169	198.00	203.00	5.00	<0.005	<0.2	2.9	<2	<10	90	<0.5	<2	2.43	<0.5	30	40	63	5.54	10	<1	0.34	<10
84-7-170	203.00	207.00	4.00	<0.005	<0.2	2.46	<2	<10	50	<0.5	<2	2.67	<0.5	23	36	53	4.27	10	<1	0.22	<10
84-7-171	207.00	210.90	3.90	<0.005	<0.2	1.91	<2	<10	20	<0.5	<2	2.4	<0.5	21	29	54	3.28	<10	<1	0.11	<10
84-7-172	220.00	225.20	5.20	<0.005	<0.2	2.73	<2	<10	70	<0.5	<2	2.36	0.5	30	37	70	5.45	10	<1	0.26	<10
84-7-173	225.20	230.00	4.80	0.020	0.4	1.56	<2	<10	100	<0.5	<2	0.99	4.5	26	82	204	4.32	<10	<1	0.41	10

APPENDIX 8
Gold and ICP Data - DDH 441-84-7
Empress Project

SAMPLE	FROM (ft)	To (ft)	INTERVAL (ft)	2134 Mg %	2135 Mn ppm	2136 Mo ppm	2137 Na %	2138 Ni ppm	2139 P ppm	2140 Pb ppm	551 S %	2141 Sb ppm	2142 Sc ppm	2143 Sr ppm	2144 Ti %	2145 Tl ppm	2146 U ppm	2147 V ppm	2148 W ppm	2149 Zn ppm
84-7-129	36.00	41.00	5.00	1.04	710	1	0.11	35	1570	<2	0.15	<2	9	24	0.21	<10	<10	77	<10	104
84-7-130	41.00	43.00	2.00	1.38	860	<1	0.03	64	1570	<2	0.63	<2	6	14	0.3	<10	<10	80	<10	154
84-7-131	43.00	48.00	5.00	1.33	740	<1	0.01	41	1540	<2	0.18	<2	4	12	0.2	<10	<10	73	<10	122
84-7-132	48.00	53.00	5.00	1.26	1025	1	0.02	66	790	2	2.44	<2	11	35	0.18	<10	<10	133	<10	286
84-7-133	53.00	58.00	5.00	1.27	690	1	<0.01	71	1270	<2	0.5	<2	4	12	0.1	<10	<10	90	<10	170
84-7-134	58.00	61.40	3.40	1.47	690	2	<0.01	63	1160	<2	1.13	<2	4	12	0.1	<10	<10	78	<10	686
84-7-135	61.40	65.00	3.60	0.82	775	5	<0.01	60	770	8	1.8	<2	7	28	0.02	<10	<10	61	<10	1005
84-7-136	65.00	70.00	5.00	0.82	1110	1	0.01	60	1010	10	1.18	<2	8	65	0.03	<10	<10	77	<10	436
84-7-137	70.00	75.00	5.00	1.34	680	1	0.06	56	1280	<2	0.14	<2	8	39	0.25	<10	<10	118	<10	150
84-7-138	75.00	80.00	5.00	1.87	425	<1	0.08	55	1280	<2	0.12	<2	6	26	0.18	<10	<10	102	<10	90
84-7-139	80.00	85.00	5.00	1.31	710	<1	0.03	57	1210	<2	0.18	<2	8	41	0.15	<10	<10	102	<10	112
84-7-140	85.00	87.50	2.50	0.87	1160	<1	0.01	56	1180	8	0.38	<2	9	92	0.03	<10	<10	85	<10	172
84-7-141	87.50	90.00	2.50	0.38	565	6	0.01	40	680	12	2.66	<2	5	55	0.01	<10	<10	21	<10	558
84-7-142	90.00	92.00	2.00	2.01	785	<1	<0.01	168	1020	2	0.08	<2	12	91	<0.01	<10	<10	49	<10	160
84-7-143	92.00	97.00	5.00	0.16	340	4	<0.01	23	300	24	1.84	<2	<1	31	<0.01	<10	<10	4	<10	874
84-7-144	97.00	102.00	5.00	0.36	745	3	<0.01	38	390	12	2.35	<2	<1	55	<0.01	<10	<10	3	<10	1775
84-7-145	102.00	107.00	5.00	0.54	615	1	<0.01	35	500	8	2.01	<2	<1	23	<0.01	<10	<10	5	<10	2260
84-7-146	107.00	112.00	5.00	0.31	475	2	0.01	32	780	6	1.48	<2	1	25	<0.01	<10	<10	11	<10	1690
84-7-147	112.00	117.00	5.00	0.26	555	1	0.01	19	640	6	0.72	<2	1	47	<0.01	<10	<10	7	<10	516
84-7-148	117.00	122.00	5.00	0.15	440	7	<0.01	20	300	10	1.57	<2	<1	58	<0.01	<10	<10	5	<10	1320
84-7-149	122.00	126.70	4.70	0.29	585	1	<0.01	19	640	6	1.31	<2	1	93	<0.01	<10	<10	12	<10	1045
84-7-150	126.70	127.50	0.80	0.05	170	4	<0.01	11	170	412	0.64	<2	<1	49	<0.01	<10	<10	6	<10	842
84-7-151	127.50	129.00	1.50	0.16	540	4	<0.01	43	500	6	3.76	<2	1	117	<0.01	<10	<10	8	<10	4660
84-7-152	129.00	130.40	1.40	0.11	275	18	0.02	34	190	62	2.45	<2	2	90	<0.01	<10	<10	4	<10	196
84-7-153	130.40	135.00	4.60	0.21	225	7	<0.01	27	290	2020	2.82	<2	1	46	<0.01	<10	30	11	<10	1540
84-7-154	135.00	142.00	7.00	0.31	220	4	<0.01	43	390	14	3.73	<2	1	35	0.01	<10	<10	15	<10	808
84-7-155	142.00	144.00	2.00	0.04	95	6	<0.01	6	70	12	0.5	<2	<1	70	<0.01	<10	<10	2	<10	40
84-7-156	144.00	145.50	1.50	0.25	115	11	0.01	52	340	18	4.49	<2	2	20	<0.01	<10	<10	22	<10	794
84-7-157	145.50	149.00	3.50	0.12	220	3	<0.01	15	130	12	0.91	<2	<1	13	<0.01	<10	<10	3	<10	746
84-7-158	149.00	155.30	6.30	2.02	760	<1	<0.01	54	1310	2	0.3	<2	14	30	0.26	<10	<10	171	<10	124
84-7-159	155.30	161.00	5.70	0.76	550	4	<0.01	26	540	10	0.54	<2	3	25	0.01	<10	<10	39	<10	476
84-7-160	161.00	164.40	3.40	0.42	380	5	<0.01	34	430	6	1.63	<2	2	26	<0.01	<10	<10	19	<10	878
84-7-161	164.40	170.00	5.60	0.82	505	<1	0.07	36	1090	<2	0.15	<2	7	23	0.17	<10	<10	77	<10	94
84-7-162	170.00	176.00	6.00	1.25	680	1	0.03	50	1230	2	0.25	<2	9	29	0.25	<10	<10	105	<10	382
84-7-163	176.00	179.40	3.40	0.42	360	1	0.01	24	280	12	1.1	<2	3	24	0.03	<10	<10	17	<10	1025
84-7-164	179.40	184.10	4.70	0.28	245	11	<0.01	24	200	14	1.31	<2	1	21	<0.01	<10	<10	8	<10	1240
84-7-165	184.10	189.00	4.90	0.71	605	<1	0.11	28	1210	<2	0.15	<2	10	25	0.18	<10	<10	84	<10	110
84-7-166	189.00	192.00	3.00	0.9	885	<1	0.05	34	1150	<2	0.42	<2	10	33	0.23	<10	<10	78	<10	148
84-7-167	192.00	193.40	1.40	0.42	340	9	0.01	19	310	6	1.21	<2	2	11	0.06	<10	<10	18	<10	422
84-7-168	193.40	198.00	4.60	1.4	810	1	0.06	62	1290	4	0.5	<2	8	15	0.34	<10	<10	126	<10	202
84-7-169	198.00	203.00	5.00	1.71	685	1	0.06	60	1280	<2	0.16	<2	9	22	0.33	<10	<10	122	<10	130
84-7-170	203.00	207.00	4.00	1.06	570	1	0.15	36	1400	<2	0.13	<2	9	19	0.25	<10	<10	102	<10	88
84-7-171	207.00	210.90	3.90	0.72	395	<1	0.2	40	1180	<2	0.14	<2	8	25	0.2	<10	<10	79	<10	70
84-7-172	220.00	225.20	5.20	1.85	805	4	0.09	51	1210	6	0.37	<2	10	30	0.22	<10	<10	126	<10	292
84-7-173	225.20	230.00	4.80	0.63	300	3	0.03	36	460	8	1.3	<2	5	9	0.1	<10	<10	46	<10	1470

Ontario Ministry of Northern Development and Mines

Declaration of Assessment Work Performed on Mining Land

Mining Act, Subsection 65(2) and 66(3), R.S.O. 1990

Transaction Number (office use) W0040.00016

Assessment Files Research Imaging

...bsections 65(2) and 66(3) of the Mining Act. Under section 8 of the ...w the assessment work and correspond with the mining land holder. ...order, Ministry of Northern Development and Mines, 6th Floor,

42D15SW2010 2.20045 SYINE 900

...cording a claim, use form 0240.

...lease type or print in ink.

1. Recorded holder(s) (Attach a list if necessary) * Please see attached sheet

Name: George Daniels	Client Number: 124014
Address: P.O. Box 526, Terrace Bay, Ont., P0T 2W0	Telephone Number: 807-825-9097
	Fax Number: 807-825-9097
Name: Jon Ferguson	Client Number: 131447
Address: P.O. Box 1058, Terrace Bay, Ont. P0T 2W0	Telephone Number: 807-825-9214
	Fax Number:

2. Type of work performed: Check (✓) and report on only ONE of the following groups for this declaration.

- [x] Geotechnical: prospecting, surveys, assays and work under section 18 (regs)
- [x] Physical: drilling, stripping, trenching and associated assays
- [ ] Rehabilitation

	Office Use
Work Type: Mapping, prospecting, stripping & trenching, sampling, core relogging & sampling	Commodity
	Total $ Value of Work Claimed: $126,763
Dates Work Performed: From 15 06 97 (Day Month Year) To 30 10 97 (Day Month Year)	NTS Reference
Global Positioning System Data (if available) / Township/Area: Syine Twp & Santoy L. area / M or G-Plan Number: G-634, G-612	Mining Division: Thunder Bay
	Resident Geologist District: Thunder Bay

Please remember to:
- obtain a work permit from the Ministry of Natural Resources as required;
- provide proper notice to surface rights holders before starting work;
- complete and attach a Statement of Costs, form 0212;
- provide a map showing contiguous mining lands that are linked for assigning work;
- include two copies of your technical report.

3. Person or companies who prepared the technical report (Attach a list if necessary)

Name: Jacques Samson	Telephone Number: (705) 523-4555
Address: 6-1349 Kelly Lake Road, Sudbury, Ont. P3E 5P5	Fax Number: (705) 523-4571
Name:	Telephone Number:
Address:	Fax Number:
Name:	Telephone Number:
Address:	Fax Number:

RECEIVED JAN 27 2000 GEOSCIENCE ASSESSMENT OFFICE

4. Certification by Recorded Holder or Agent

I, Jacques Samson (Print Name), do hereby certify that I have personal knowledge of the facts set forth in this Declaration of Assessment Work having caused the work to be performed or witnessed the same during or after its completion and, to the best of my knowledge, the annexed report is true.

(795)

Signature of Recorded Holder or Agent: [signature] Date: 25/Jan/2000

Agent's Address: 6-1349 Kelly Lake Road, Sudbury, Ont. P3E 5P5 | Telephone Number: (705) 523-4555 | Fax Number: (705) 523-4571

Deemed April 26, 2000

0241 (02/96)

JAN 27 '00 15:24 7055234571 PAGE.02

Fax Number

4. Certification by Recorded Holder or Agent

I, Jacques Samson (Print Name), do hereby certify that I have personal knowledge of the facts set forth in this Declaration of Assessment Work having caused the work to be performed or witnessed the same during or after its completion and, to the best of my knowledge, the annexed report is true.

(795)

Signature of Recorded Holder or Agent: [signature] Date: 25/Jan/2000

Agent's Address: 6-1349 Kelly Lake Road, Sudbury, Ont. P3E 5P5 | Telephone Number: (705) 523-4555 | Fax Number: (705) 523-4571

0241 (02/96)

Ontario — Ministry of Northern Development and Mines

Declaration of Assessment Work Performed on Mining Land

Mining Act, Subsection 65(2) and 66(3), R.S.O. 1990

Transaction Number (office use): W0040.00016

Assessment Files Research Imaging

Personal information collected on this form is obtained under the authority of subsections 65(2) and 66(3) of the Mining Act. Under section 8 of the Mining Act, the information is a public record. This information will be used to review the assessment work and correspond with the mining land holder. Questions about this collection should be directed to the Chief Mining Recorder, Ministry of Northern Development and Mines, 6th Floor, 933 Ramsey Lake Road, Sudbury, Ontario, P3E 6B5.

Instructions: - For work performed on Crown Lands before **recording** a claim, use form 0240.
- Please type or print in ink.

1. Recorded holder(s) (Attach a list if necessary) (cont'd list

Name: Audrey Ferguson	Client Number: 131386
Address: P.O. Box 1058, Terrace Bay, Ont. P0T 2W0	Telephone Number: 807-825-9214
	Fax Number:
Name:	Client Number:
Address:	Telephone Number:
	Fax Number:

2. Type of work performed: Check (✓) and report on only ONE of the following groups for this declaration.

☐ Geotechnical: prospecting, surveys, assays and work under section 18 (regs)
☐ Physical: drilling, stripping, trenching and associated assays
☐ Rehabilitation

	Office Use	
Work Type:	Commodity	
	Total $ Value of Work Claimed	121,743
Dates Work Performed From: Day / Month / Year To: Day / Month / Year	NTS Reference	
Global Positioning System Data (if available) / Township/Area	Mining Division	Thunder Bay
M or G-Plan Number	Resident Geologist District	Thunder Bay

RECEIVED JUN 27 2000 GEOSCIENCE ASSESSMENT OFFICE

Please remember to: - obtain a work permit from the Ministry of Natural Resources as required;
- provide proper notice to surface rights holders before starting work;
- complete and attach a Statement of Costs, form 0212;
- provide a map showing contiguous mining lands that are linked for assigning work;
- include two copies of your technical report.

3. Person or companies who prepared the technical report (Attach a list if necessary)

Name:	Telephone Number:
Address:	Fax Number:
Name:	Telephone Number:
Address:	Fax Number:
Name:	Telephone Number:
Address:	Fax Number:

4. Certification by Recorded Holder or Agent

I, ______________________ (Print Name), do hereby certify that I have personal knowledge of the facts set forth in this Declaration of Assessment Work having caused the work to be performed or witnessed the same during or after its completion and, to the best of my knowledge, the annexed report is true.

Signature of Recorded Holder or Agent		Date
Agent's Address	Telephone Number	Fax Number

Ontario Ministry of Northern Development and Mines

Schedule for Declaration of Assessment Work on Mining Land

Transaction Number (office use) W0040.00016

	Mining Claim Number. Or if work was done on other eligible mining land, show in this column the location number indicated on the claim map.	Number of Claim Units. For other mining land, list hectares.	Value of work performed on this claim or other mining land	Value of work applied to this claim	Value of work assigned to other mining claims	Bank. Value of work to be distributed at a future date
1	845646	1	0	800	0	0
2	1195779	6	15291	4800	7200	3,291
3	1196616	1	2549	400	0	2,149
4	1207878	8	0	6400	0	0
5	1207880	12	0	9600	0	0
6	1208187	4	14605	3200	9600	1,805
7	1208188	1	7143	400	2400	4343
8	1208189	3	0	2400	0	0
9	1208190	8	54046	5990	0	48,056
10	1208719	4	10194	3,200	800	6,194
11	1210334	1	0	800	0	0
12	1224854	6	15291	4,800	3,200	7,291
13	1224888	3	7644	2,400	3,200	2,044
14	1207879	4	0	3,200	0	0
15	~~1207882~~	~~4~~				
16	1207897	4	0	3,200	0	0
		Column Totals	126763	51,50 0	26,400	75,173

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JAN 27 2003
GEOSCIENCE ASSESSMENT OFFICE

0290 (02/96)

Ontario | Ministry of Northern Development and Mines

Statement of Costs for Assessment Credit

Transaction Number (office use): W0040.00016

Personal information collected on this form is obtained under the authority of subsection 6(1) of the Assessment Work Regulation 6/96. Under section 8 of the Mining Act, the information is a public record. This information will be used to review the assessment work and correspond with the mining land holder. Questions about this collection should be directed to the Chief Mining Recorder, Ministry of Northern Development and Mines, 6th Floor, 933 Ramsey Lake Road, Sudbury, Ontario, P3E 6B5.

Work Type	Units of Work Depending on the type of work, list the number of hours/days worked, metres of drilling, kilometres of grid line, number of samples, etc.	Cost Per Unit of work	Total Cost
Stripping & Trenching			35,288
Mapping & Prospecting			29,247
Core logging & sampling			6,525
Analyses			17,770
Report			12,145
Associated Costs (e.g. supplies, mobilization and demobilization).			
Field supplies (equipment)			4,952
Telecommunications			522
Equipment rental (radios)			837
Transportation Costs			13,626
Food and Lodging Costs			5,851
		Total Value of Assessment Work	126,763

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JAN 27 2000
GEOSCIENCE ASSESSMENT OFFICE

Calculations of Filing Discounts:

1. Work filed within two years of performance is claimed at 100% of the above Total Value of Assessment Work.
2. If work is filed after two years and up to five years after performance, it can only be claimed at 50% of the Total Value of Assessment Work. If this situation applies to your claims, use the calculation below:

TOTAL VALUE OF ASSESSMENT WORK ______ × 0.50 = ______ Total $ value of worked claimed.

Note:
- Work older than 5 years is not eligible for credit.
- A recorded holder may be required to verify expenditures claimed in this statement of costs within 45 days of a request for verification and/or correction/clarification. If verification and/or correction/clarification is not made, the Minister may reject all or part of the assessment work submitted.

Certification verifying costs:

I, Jacques Samson (please print full name), do hereby certify, that the amounts shown are as accurate as may reasonably be determined and the costs were incurred while conducting assessment work on the lands indicated on the accompanying Declaration of Work form as Geologist III (recorded holder, agent, or state company position with signing authority) I am authorized to make this certification.

Signature	Date
[signature]	25/Jan/2000

0212 (02/96)

Ministry of
Northern Development
and Mines

Ministère du
Développement du Nord
et des Mines

Ontario

Geoscience Assessment Office
933 Ramsey Lake Road
6th Floor
Sudbury, Ontario
P3E 6B5

Telephone: (888) 415-9845
Fax: (877) 670-1555

Visit our website at:
www.gov.on.ca/MNDM/MINES/LANDS/mlsmnpge.htm

April 20, 2000

GEORGE RAY DANIELS
45 EAST GROVE CRESCENT
BOX 526
TERRACE BAY, Ontario
P0T-2W0

Dear Sir or Madam:

Submission Number: 2.20045

		Status
Subject: Transaction Number(s):	W0040.00016	Approval

We have reviewed your Assessment Work submission with the above noted Transaction Number(s). The attached summary page(s) indicate the results of the review. WE RECOMMEND YOU READ THIS SUMMARY FOR THE DETAILS PERTAINING TO YOUR ASSESSMENT WORK.

If the status for a transaction is a 45 Day Notice, the summary will outline the reasons for the notice, and any steps you can take to remedy deficiencies. The 90-day deemed approval provision, subsection 6(7) of the Assessment Work Regulation, will no longer be in effect for assessment work which has received a 45 Day Notice. Allowable changes to your credit distribution can be made by contacting the Geoscience Assessment Office within this 45 Day period, otherwise assessment credit will be cut back and distributed as outlined in Section #6 of the Declaration of Assessment work form.

Please note any revisions must be submitted in DUPLICATE to the Geoscience Assessment Office, by the response date on the summary.

If you have any questions regarding this correspondence, please contact BRUCE GATES by e-mail at bruce.gates@ndm.gov.on.ca or by telephone at (705) 670-5856.

Yours sincerely,

ORIGINAL SIGNED BY
Blair Kite
Supervisor, Geoscience Assessment Office
Mining Lands Section

Correspondence ID: 14783
Copy for: Assessment Library

Work Report Assessment Results

Submission Number: 2.20045

Date Correspondence Sent: April 20, 2000

Assessor: BRUCE GATES

General Comment:

An excellent report accompanies this submission.

Transaction Number	First Claim Number	Township(s) / Area(s)	Status	Approval Date
W0040.00016	1195779	SYINE, SANTOY LAKE	Approval	April 19, 2000

Section:

10 Physical PSTRIP
12 Geological GEOL
18 Other MICRO
18 Other DATA

Correspondence to:

Resident Geologist
Thunder Bay, ON

Assessment Files Library
Sudbury, ON

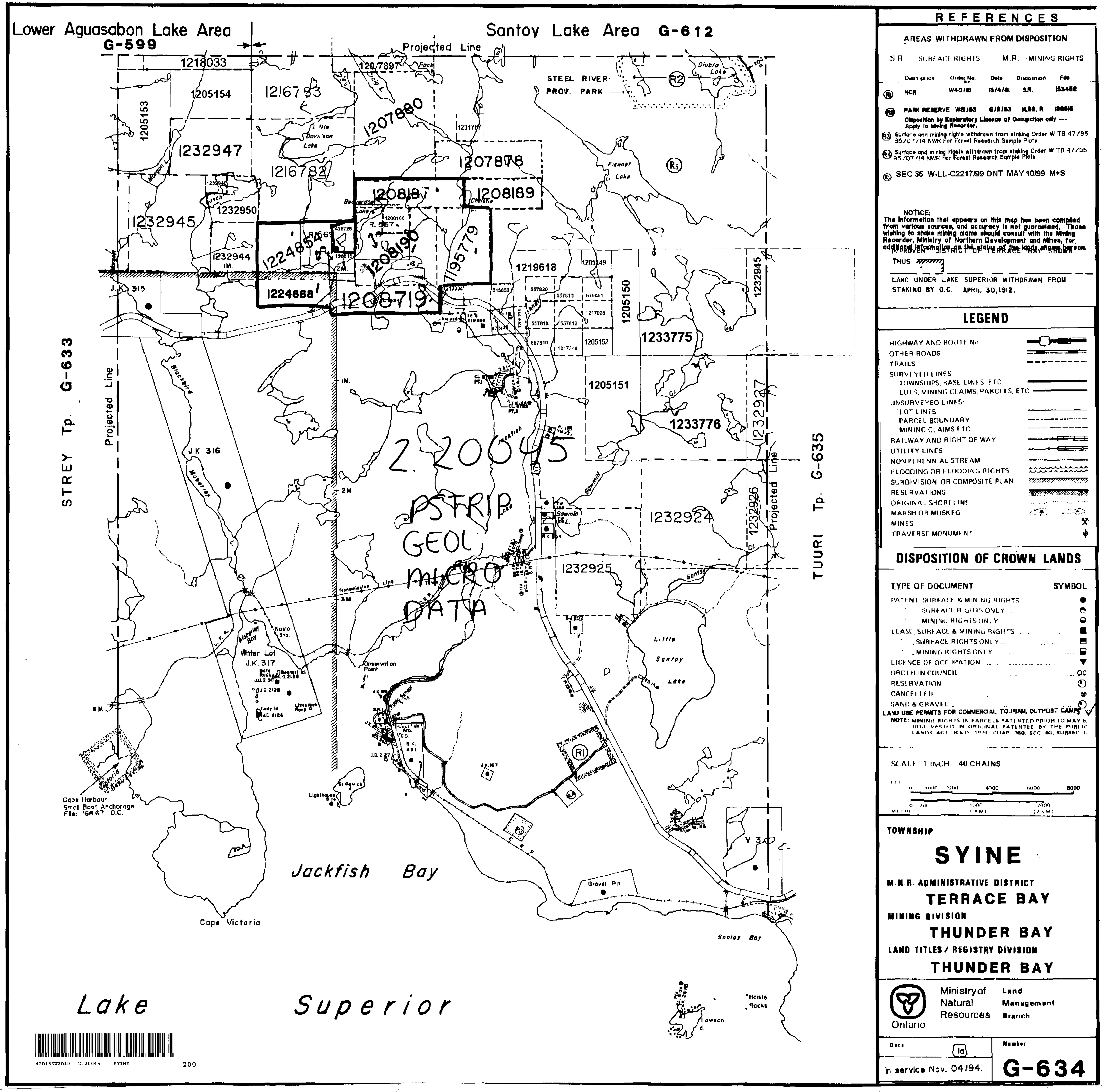
Recorded Holder(s) and/or Agent(s):

GEORGE RAY DANIELS
TERRACE BAY, Ontario

JON DUDLEY FERGUSON
TERRACE BAY, Ontario

AUDREY FERGUSON
TERRACE BAY, Ontario

Correspondence ID: 14783



42D15SW2010 2.20045 SYINE 200


Legend
PROTEROZOIC
Mafic Intrusive Rocks
12a Diabase dyke
12e Mafic dyke
12f Feldspar-phyric
ARCHEAN
Late Archean Granitoid Rocks
11a Granite
11b Granodiorite
11d Quartz monzonite
11g Quartz diorite
11h Diorite
11k Monzodiorite to monzogabbro
11m Monzonite
11r Lamprophyre
Intermediate to Felsic Hypabyssal Intrusive Rocks
10c Feldspar porphyry
10e Felsite dyke or sill
10n Fine-to medium-grained dyke or sill
10s Schistose/quartz-sericite schist
Mafic to Intermediate Intrusive Rocks
8b Gabbro
8c Diorite
8d Blue-quartz diorite
8f Plagioclase-phyric
8n Fine-grained dyke
8r Gabbroic to dioritic dyke, schistose
8s Plagioclase-quartz-carbonate-biotite±chlorite±sericite schist
8u Mafic gneiss
Ultramafic Intrusive Rocks
7m Altered ultramafic dyke (Sericite-biotite -chlorite±talc±fuchsite schist)
Clastic Metasedimentary Rocks
6a Mudstone/argillite
6b Siltstone
6c Wacke
6p Mafic metasedimentary rock
6q Garnet-feldspar-amphibole schist
6s Quartz-biotite-sericite±feldspar±amphibole±chlorite schist
6u Graphitic/quartz-sericite-graphite schist
Intermediate to Felsic Metavolcanic Rocks
3j Sericite-carbonate schist
3k Tuff
3n Lapilli tuff
3p Lapillistone
3s Quartz-sericite±biotite±carb. schist, of uncertain origin
Mafic Metavolcanic Rocks
2a Massive flow, fine-to medium-grained
2b Pillowed flow/pillow breccia
2c Flow breccia/flow top breccia
2e Amygdaloidal/vesicular flow
2f Plagioclase-phyric
2k Tuff/mafic sediment
2n Lapilli tuff
2s Chlorite±amphibole±sericite±carbonate schist
2t Amphibole-plagioclase±biotite±chlorite±epidote-titanite schist
2u Mafic gneiss
Tree Types
At Trembling Aspen
Bw White Birch
Fb Balsam Fir
Sb Black Spruce
Wt Tag Alders, Moose Maples
Example of coding system
2a-b,2k = Massive to pillowed mafic flows, with lesser mafic sediment.
3s/6s = Intermediate to felsic quartz-sericite schist, possibly a clastic sediment.
C8a = Data compiled from assesment files.
G12a = Rock type interpreted from geophysical data.
Symbols
Contact, geological
Outcrop
Outcrop, small
Foliation (dip unknown,inclined,vertical)
1377 Sample location (all samples numbers preceded by EMP99X-)
Topographic slope (gental,moderate,steep/rock scarp)
Bush road (excellent,poor condition)
ATV trail, foot trail
Creek/stream and flow direction
Rapids/falls
B.D. Swamp, beaver dam
Calvert/bridge
Fault
Claim post (line,corner,inferred)
Outline of area mapped in 1999 by CGI
84-4 Diamond drill hole by Micham Exploration, 1984 and 1987, projected vertically.
Abbreviations
SH Sheared
FD Folded
BD Banded
Plam Pseudo-laminated
Qstk Quartz stockwork
Qstr Quartz stringers
Bl Bleached
Sil Silicified
Cb Carbonatized
Ser Sericitized
Ox Oxidized
Hem Hematized
Gph Graphite/graphitic
FeC Iron-carbonatized
Fg Fine-grained
Py Pyrite
Cpy Chalcopyrite
Sph Sphalerite
Gn Galena
Mo Molydenite
Fuch Fuchsite
Mag Magnetite/magnetic
Tr Trace
bldr Boulders
fg Fine-grained
Gt Garnet
Intensity Modifiers
.1 weak .2 moderate .3 strong
ie - Sil.2-3 = silicification moderate to strong
EMPRESS HILL
Beaverdam Lake
Christie Lake
Canoe Lake
Pony Lake
Hwy. 17
Creek Showing up to 245ppb Au
Zlatco Showing 6.7g/t Au 2.3g/t Au
Empress Gold Mining Company 1895 - 1899 (112oz @ 0.1oz/ton Au)
Stripped Area 1+00E (see Map 2)
Stripped Area 2+00E
Stripped Area 2+60E (see Map 3)
Stripped Area 6+00E (see Map 4)
Stripped Area 8+25E (see Map 5a)
Stripped Area 9+00E (see Map 5b)
Stripped Area 10+75E (see Map 6)
Stripped Area 15+00E (see Map 7)
Empress Structure (Deformation/Alteration Corridor)
Baseline East Grid (Az 054°)
Baseline West Grid (Az 056.5)
North
Scale 1:2500
RECEIVED
2.20045
Empress Project
DETAILED GEOLOGY MAP
Cameco GOLD
Compiled: Jacques Samson
Drafted: Clayton Durbin
Scale: 1:2,500
NTS Ref.: 42 D/15
Dwg. No.: EME99005
Date: 99/10/19
Geo. Ref.: NAD 27 - UTM Zone 16
Source:
Map 1

Symbols

Contact (observed,inferred,gradational)
Outline of rock exposure
Datum
Foliation (dip unknown,inclined,vertical)
Pillowed lava (inclined,arrow indicates top from pillow selvages and packing)
Fracture/joint
Quartz veining/stockwork
1230 | 15 ppb /0.30 m — Channel sample (prefixed by EMP99C–, ppb Au, sample length)
1301 △ 54680 ppb — Grab sample (prefixed by EMP99X–, ppb Au)
64953 ⊙ 114172 ppb — Grab sample (sample #, ppb Au, location approximate, compiled from Lavigne–1997)

Legend

PROTEROZOIC

Mafic Intrusive Rocks

- 12a Diabase dyke
- 12e Mafic dyke
- 12f Feldspar–phyric

ARCHEAN

Late Archean Granitoid Rocks

- 11a Granite
- 11b Granodiorite
- 11d Quartz monzonite
- 11g Quartz diorite
- 11h Diorite
- 11k Monzodiorite to monzogabbro
- 11m Monzonite
- 11r Lamprophyre

Intermediate to Felsic Hypabyssal Intrusive Rocks

- 10c Feldspar porphyry
- 10e Felsite dyke or sill
- 10n Fine–to medium–grained dyke or sill
- 10s Schistose/quartz–sericite schist

Mafic to Intermediate Intrusive Rocks

- 8b Gabbro
- 8c Diorite
- 8d Blue–quartz diorite
- 8f Plagioclase–phyric
- 8n Fine–grained dyke
- 8r Gabbroic to dioritic dyke, schistose
- 8s Plagioclase–quartz–carbonate–biotite±chlorite±sericite schist
- 8u Mafic gneiss

Ultramafic Intrusive Rocks

- 7m Altered ultramafic dyke (Sericite–biotite –chlorite±talc±fuchsite schist)

Clastic Metasedimentary Rocks

- 6a Mudstone/argillite
- 6b Siltstone
- 6c Wacke
- 6p Mafic metasedimentary rock
- 6q Garnet–feldspar–amphibole schist
- 6s Quartz–biotite–sericite±feldspar±amphibole±chlorite schist
- 6u Graphitic/quartz–sericite–graphite schist

Intermediate to Felsic Metavolcanic Rocks

- 3j Sericite–carbonate schist
- 3k Tuff
- 3n Lapilli tuff
- 3p Lapillistone
- 3s Quartz–sericite±biotite±carb. schist, of uncertain origin

Mafic Metavolcanic Rocks

- 2a Massive flow, fine–to medium–grained
- 2b Pillowed flow/pillow breccia
- 2c Flow breccia/flow top breccia
- 2e Amygdaloidal/vesicular flow
- 2f Plagioclase–phyric
- 2k Tuff/mafic sediment
- 2n Lapilli tuff
- 2s Chlorite±amphibole±sericite±carbonate schist
- 2t Amphibole–plagioclase±biotite±chlorite±epidote–titanite schist
- 2u Mafic gneiss

Example of coding system

2a–b,2k = Massive to pillowed mafic flows, with lesser mafic sediment.
3s/6s = Intermediate to felsic quartz–sericite schist, possibly a clastic sediment.

Abbreviations

SH	Sheared
FD	Folded
BD	Banded
Plam	Pseudo–laminated
Qstk	Quartz stockwork
Qstr	Quartz stringers
Bl	Bleached
Sil	Silicified
Cb	Carbonatized
Ser	Sericitized
Ox	Oxidized
Hem	Hematized
Gph	Graphite/graphitic
FeC	Iron–carbonatized
Fg	Fine–grained
Py	Pyrite
Cpy	Chalcopyrite
Sph	Sphalerite
Gn	Galena
Mo	Molydenite
Fuch	Fuchsite
Mag	Magnetite/magnetic
Tr	Trace

2.20045

Intensity Modifiers

.1 weak .2 moderate .3 strong
ie – Sil.2–3 = silicification moderate to strong

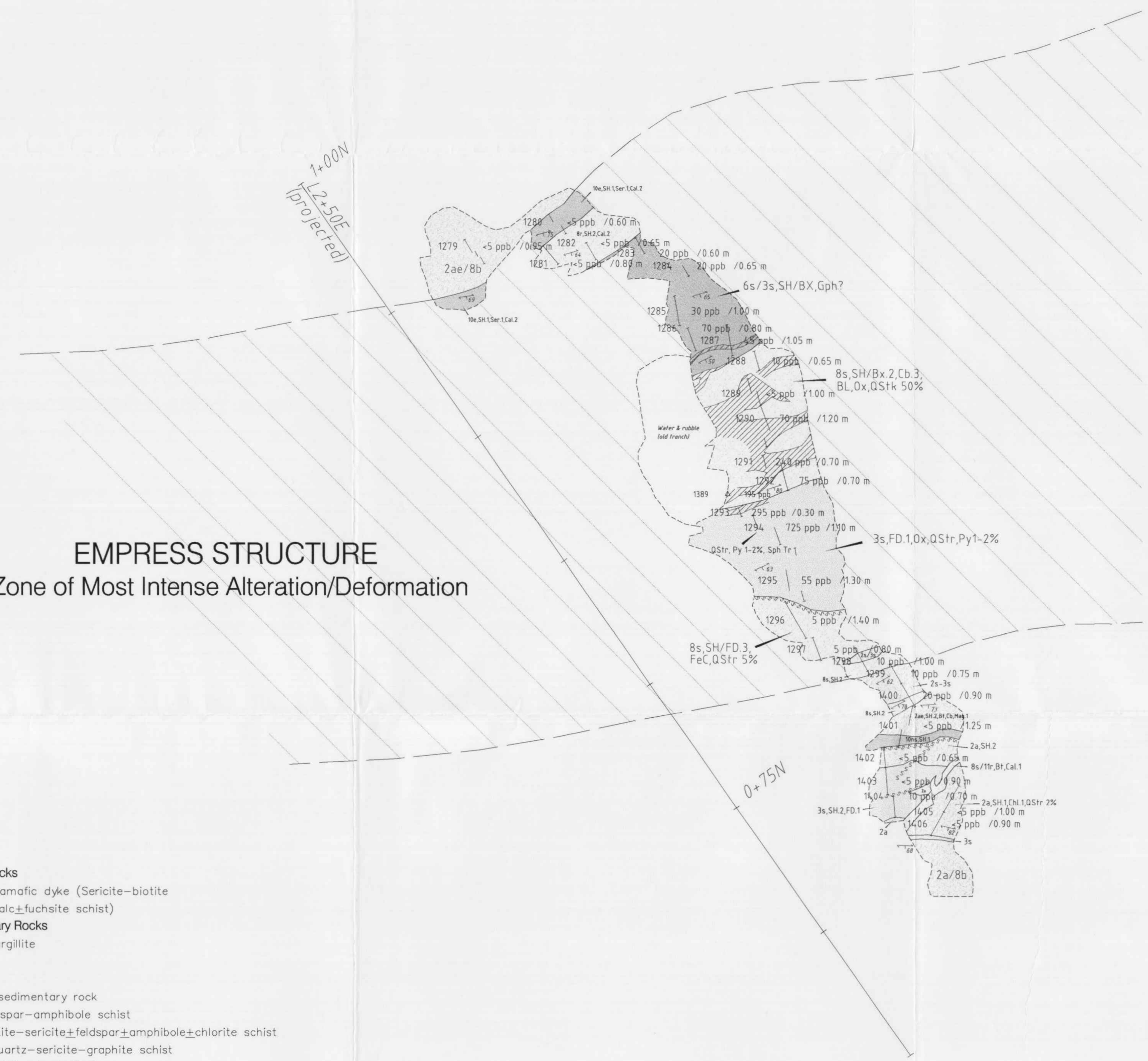
0 1 2 3 4 5 6 7 8 9 10m
Scale 1:100

Empress Project
STRIPPED AREA
1+00E

Cameco GOLD

Compiled:	Jacques Samson	**Dwg. No.:**	EME00001	**Map 2**
Drafted:	J.S., C.D.D.	**Date:**	00/01/19	
Scale:	1:100	**Geo. Ref.:**		
NTS Ref.:		**Source:**		

North



Symbols

Contact (observed,inferred,gradational)
Outline of rock exposure
Datum
Foliation (dip unknown,inclined,vertical)
Pillowed lava (inclined,arrow indicates top from pillow selvages and packing)
Fracture/joint
Quartz veining/stockwork
1230 15 ppb /0.30 m — Channel sample (prefixed by EMP99C-, ppb Au, sample length)
1303 54680 ppb — Grab sample (prefixed by EMP99X-, ppb Au)
64953 114112 ppb — Grab sample (sample #, ppb Au, location approximate, compiled from Lavigne-1997)

Abbreviations

SH	Sheared
FD	Folded
BD	Banded
Plam	Pseudo-laminated
Qstk	Quartz stockwork
Qstr	Quartz stringers
Bl	Bleached
Sil	Silicified
Cb	Carbonatized
Ser	Sericitized
Ox	Oxidized
Hem	Hematized
Gph	Graphite/graphitic
FeC	Iron-carbonatized
Fg	Fine-grained
Py	Pyrite
Cpy	Chalcopyrite
Sph	Sphalerite
Gn	Galena
Mo	Molydenite
Fuch	Fuchsite
Mag	Magnetite/magnetic
Tr	Trace

Intensity Modifiers
.1 weak .2 moderate .3 strong
ie - Sil.2-3 = silicification moderate to strong

Legend

PROTEROZOIC
Mafic Intrusive Rocks
12a Diabase dyke
12e Mafic dyke
12f Feldspar-phyric

ARCHEAN
Late Archean Granitoid Rocks
11a Granite
11b Granodiorite
11d Quartz monzonite
11g Quartz diorite
11h Diorite
11k Monzodiorite to monzogabbro
11m Monzonite
11r Lamprophyre

Intermediate to Felsic Hypabyssal Intrusive Rocks
10c Feldspar porphyry
10e Felsite dyke or sill
10n Fine-to medium-grained dyke or sill
10s Schistose/quartz-sericite schist

Mafic to Intermediate Intrusive Rocks
8b Gabbro
8c Diorite
8d Blue-quartz diorite
8f Plagioclase-phyric
8n Fine-grained dyke
8r Gabbroic to dioritic dyke, schistose
8s Plagioclase-quartz-carbonate-biotite±chlorite±sericite schist
8u Mafic gneiss

Ultramafic Intrusive Rocks
7m Altered ultramafic dyke (Sericite-biotite -chlorite±talc±fuchsite schist)

Clastic Metasedimentary Rocks
6a Mudstone/argillite
6b Siltstone
6c Wacke
6p Mafic metasedimentary rock
6q Garnet-feldspar-amphibole schist
6s Quartz-biotite-sericite±feldspar±amphibole±chlorite schist
6u Graphitic/quartz-sericite-graphite schist

Intermediate to Felsic Metavolcanic Rocks
3j Sericite-carbonate schist
3k Tuff
3n Lapilli tuff
3p Lapillistone
3s Quartz-sericite±biotite±carb. schist, of uncertain origin

Mafic Metavolcanic Rocks
2a Massive flow, fine-to medium-grained
2b Pillowed flow/pillow breccia
2c Flow breccia/flow top breccia
2e Amygdaloidal/vesicular flow
2f Plagioclase-phyric
2k Tuff/mafic sediment
2n Lapilli tuff
2s Chlorite±amphibole±sericite±carbonate schist
2t Amphibole-plagioclase±biotite±chlorite±epidote-titanite schist
2u Mafic gneiss

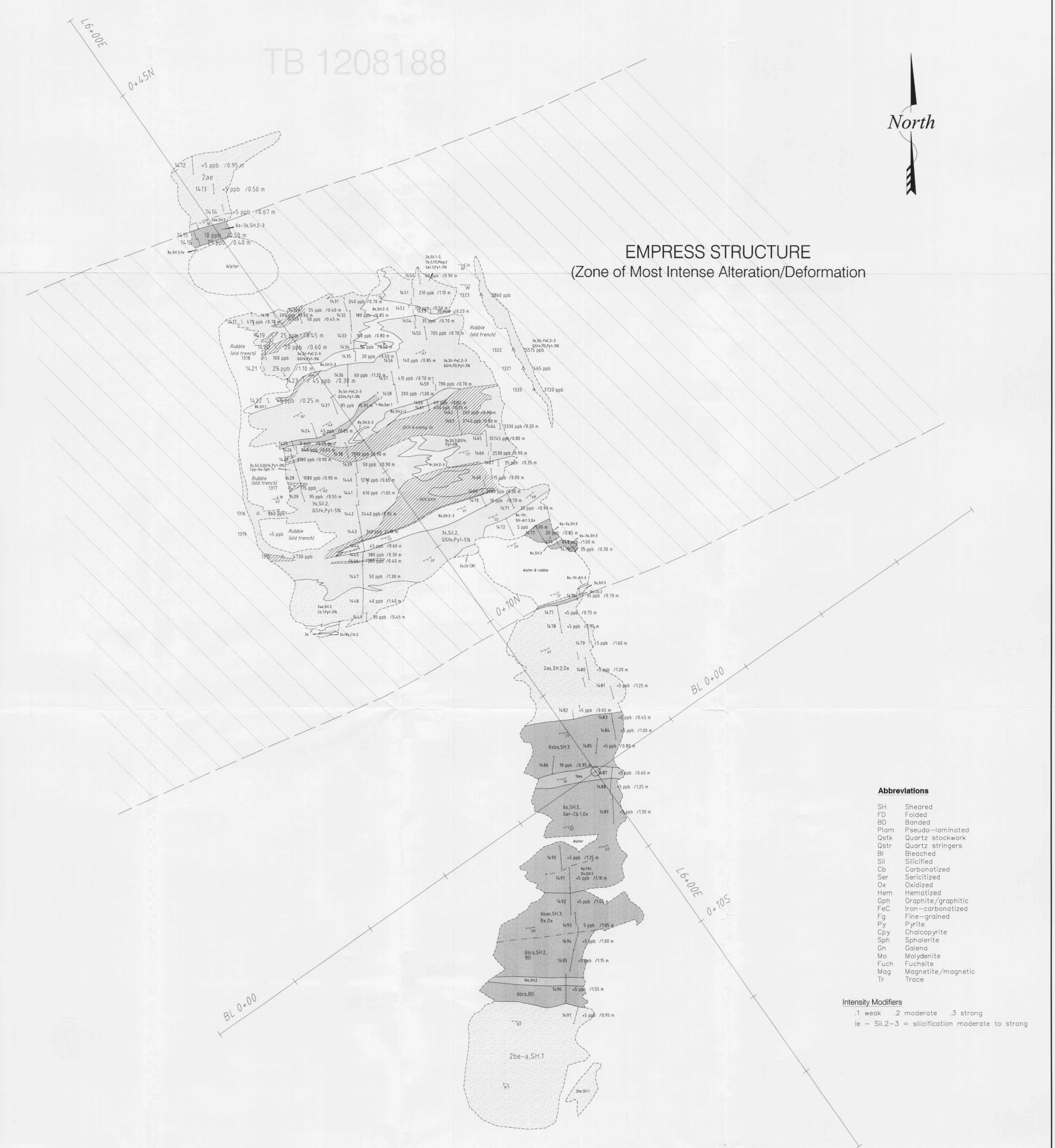
Example of coding system
2a-b,2k = Massive to pillowed mafic flows, with lesser mafic sediment.
3s/6s = Intermediate to felsic quartz-sericite schist, possibly a clastic sediment.

0 1 2 3 4 5 6 7 8 9 10m
Scale 1:100

Cameco GOLD

Empress Project
STRIPPED AREA
2+50E

Compiled: Jacques Samson		Dwg. No.: EME00002		Map 3
Drafted: J.S., C.D.D.		Date: 00/01/19		
Scale: 1:100		Geo. Ref.:		
NTS Ref.:		Source:		



Abbreviations

SH	Sheared
FD	Folded
BD	Banded
Plam	Pseudo-laminated
Qstk	Quartz stockwork
Qstr	Quartz stringers
Bl	Bleached
Sil	Silicified
Cb	Carbonatized
Ser	Sericitized
Ox	Oxidized
Hem	Hematized
Gph	Graphite/graphitic
FeC	Iron-carbonatized
Fg	Fine-grained
Py	Pyrite
Cpy	Chalcopyrite
Sph	Sphalerite
Gn	Galena
Mo	Molydenite
Fuch	Fuchsite
Mag	Magnetite/magnetic
Tr	Trace

Intensity Modifiers

.1 weak .2 moderate .3 strong
ie – Sil.2–3 = silicification moderate to strong

Legend

PROTEROZOIC

Mafic Intrusive Rocks

- 12a Diabase dyke
- 12e Mafic dyke
- 12f Feldspar-phyric

ARCHEAN

Late Archean Granitoid Rocks

- 11a Granite
- 11b Granodiorite
- 11d Quartz monzonite
- 11g Quartz diorite
- 11h Diorite
- 11k Monzodiorite to monzogabbro
- 11m Monzonite
- 11r Lamprophyre

Intermediate to Felsic Hypabyssal Intrusive Rocks

- 10c Feldspar porphyry
- 10e Felsite dyke or sill
- 10n Fine-to medium-grained dyke or sill
- 10s Schistose/quartz-sericite schist

Mafic to Intermediate Intrusive Rocks

- 8b Gabbro
- 8c Diorite
- 8d Blue-quartz diorite
- 8f Plagioclase-phyric
- 8n Fine-grained dyke
- 8r Gabbroic to dioritic dyke, schistose
- 8s Plagioclase-quartz-carbonate-biotite±chlorite±sericite schist
- 8u Mafic gneiss

Ultramafic Intrusive Rocks

- 7m Altered ultramafic dyke (Sericite-biotite –chlorite±talc±fuchsite schist)

Clastic Metasedimentary Rocks

- 6a Mudstone/argillite
- 6b Siltstone
- 6c Wacke
- 6p Mafic metasedimentary rock
- 6q Garnet-feldspar-amphibole schist
- 6s Quartz-biotite-sericite±feldspar±amphibole±chlorite schist
- 6u Graphitic/quartz-sericite-graphite schist

Intermediate to Felsic Metavolcanic Rocks

- 3j Sericite-carbonate schist
- 3k Tuff
- 3n Lapilli tuff
- 3p Lapillistone
- 3s Quartz-sericite±biotite±carb. schist, of uncertain origin

Mafic Metavolcanic Rocks

- 2a Massive flow, fine-to medium-grained
- 2b Pillowed flow/pillow breccia
- 2c Flow breccia/flow top breccia
- 2e Amygdaloidal/vesicular flow
- 2f Plagioclase-phyric
- 2k Tuff/mafic sediment
- 2n Lapilli tuff
- 2s Chlorite±amphibole±sericite±carbonate schist
- 2t Amphibole-plagioclase±biotite±chlorite±epidote-titanite schist
- 2u Mafic gneiss

Example of coding system

2a–b,2k = Massive to pillowed mafic flows, with lesser mafic sediment.
3s/6s = Intermediate to felsic quartz-sericite schist, possibly a clastic sediment.

Symbols

2.20045

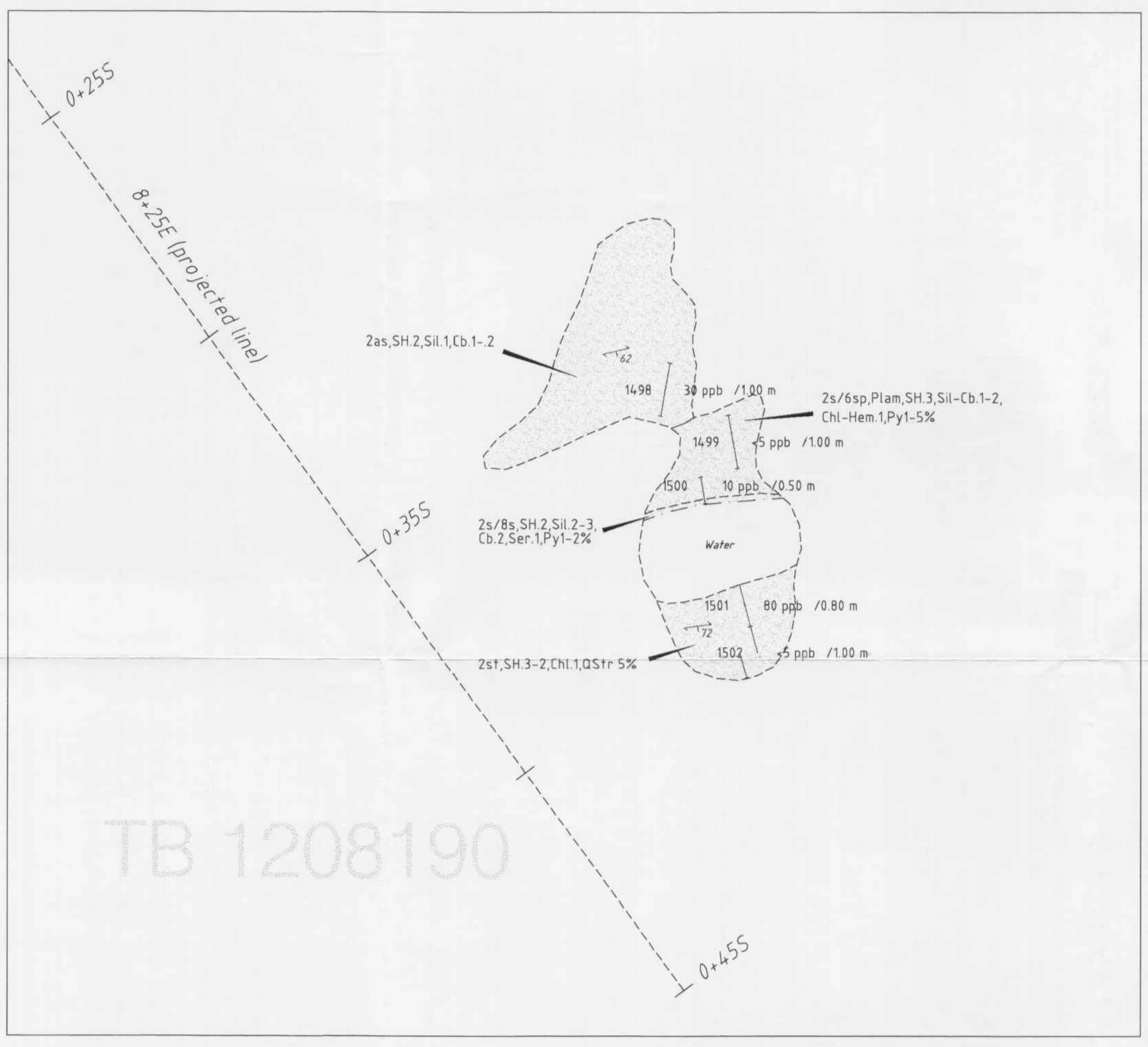
- Contact (observed,inferred,gradational)
- Outline of rock exposure
- Datum
- Foliation (dip unknown,inclined,vertical)
- Pillowed lava (inclined,arrow indicates top from pillow selvages and packing)
- Fracture/joint
- Quartz veining/stockwork
- 1230 15 ppb /0.30 m Channel sample (prefixed by EMP99C–, ppb Au, sample length)
- 1303 54680 ppb Grab sample (prefixed by EMP99X–, ppb Au)
- 64953 114172 ppb Grab sample (sample #, ppb Au, location approximate, compiled from Lavigne–1997)

0 1 2 3 4 5 6 7 8 9 10m
Scale 1:100

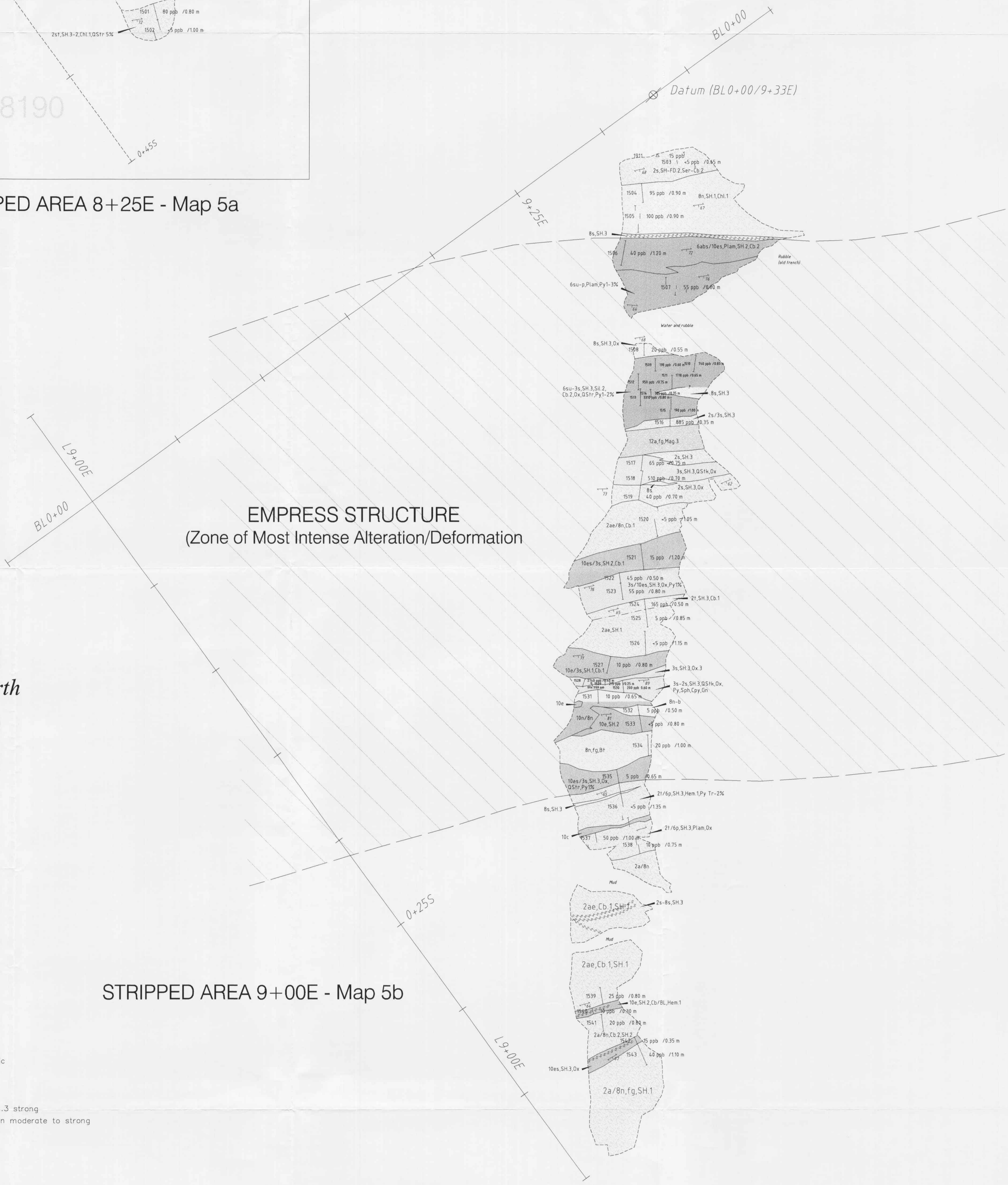
Cameco GOLD

Empress Project
STRIPPED AREA
6+00E

Compiled:	Jacques Samson	**Dwg. No.:**	EME00003	**Map 4**
Drafted:	J.S., C.D.D.	**Date:**	00/01/19	
Scale:	1:100	**Geo. Ref.:**		
NTS Ref.:		**Source:**		



STRIPPED AREA 8+25E - Map 5a



STRIPPED AREA 9+00E - Map 5b

Abbreviations

SH	Sheared
FD	Folded
BD	Banded
Plam	Pseudo-laminated
Qstk	Quartz stockwork
Qstr	Quartz stringers
Bl	Bleached
Sil	Silicified
Cb	Carbonatized
Ser	Sericitized
Ox	Oxidized
Hem	Hematized
Gph	Graphite/graphitic
FeC	Iron-carbonatized
Fg	Fine-grained
Py	Pyrite
Cpy	Chalcopyrite
Sph	Sphalerite
Gn	Galena
Mo	Molydenite
Fuch	Fuchsite
Mag	Magnetite/magnetic
Tr	Trace

Intensity Modifiers

.1 weak .2 moderate .3 strong
ie - Sil.2-3 = silicification moderate to strong

Legend

PROTEROZOIC

Mafic Intrusive Rocks
- 12a Diabase dyke
- 12e Mafic dyke
- 12f Feldspar-phyric

ARCHEAN

Late Archean Granitoid Rocks
- 11a Granite
- 11b Granodiorite
- 11d Quartz monzonite
- 11g Quartz diorite
- 11h Diorite
- 11k Monzodiorite to monzogabbro
- 11m Monzonite
- 11r Lamprophyre

Intermediate to Felsic Hypabyssal Intrusive Rocks
- 10c Feldspar porphyry
- 10e Felsite dyke or sill
- 10n Fine-to medium-grained dyke or sill
- 10s Schistose/quartz-sericite schist

Mafic to Intermediate Intrusive Rocks
- 8b Gabbro
- 8c Diorite
- 8d Blue-quartz diorite
- 8f Plagioclase-phyric
- 8n Fine-grained dyke
- 8r Gabbroic to dioritic dyke, schistose
- 8s Plagioclase-quartz-carbonate-biotite±chlorite±sericite schist
- 8u Mafic gneiss

Ultramafic Intrusive Rocks
- 7m Altered ultramafic dyke (Sericite-biotite -chlorite±talc±fuchsite schist)

Clastic Metasedimentary Rocks
- 6a Mudstone/argillite
- 6b Siltstone
- 6c Wacke
- 6p Mafic metasedimentary rock
- 6q Garnet-feldspar-amphibole schist
- 6s Quartz-biotite-sericite±feldspar±amphibole±chlorite schist
- 6u Graphitic/quartz-sericite-graphite schist

Intermediate to Felsic Metavolcanic Rocks
- 3j Sericite-carbonate schist
- 3k Tuff
- 3n Lapilli tuff
- 3p Lapillistone
- 3s Quartz-sericite±biotite±carb. schist, of uncertain origin

Mafic Metavolcanic Rocks
- 2a Massive flow, fine-to medium-grained
- 2b Pillowed flow/pillow breccia
- 2c Flow breccia/flow top breccia
- 2e Amygdaloidal/vesicular flow
- 2f Plagioclase-phyric
- 2k Tuff/mafic sediment
- 2n Lapilli tuff
- 2s Chlorite±amphibole±sericite±carbonate schist
- 2t Amphibole-plagioclase±biotite±chlorite±epidote-titanite schist
- 2u Mafic gneiss

Example of coding system

2a-b,2k = Massive to pillowed mafic flows, with lesser mafic sediment.
3s/6s = intermediate to felsic quartz-sericite schist, possibly a clastic sediment.

Symbols

Contact (observed,inferred,gradational)
Outline of rock exposure
Datum
Foliation (dip unknown,inclined,vertical)
Pillowed lava (inclined,arrow indicates top from pillow selvages and packing)
Fracture/joint
Quartz veining/stockwork
1230 15 ppb /0.30 m Channel sample (prefixed by EMP99C-, ppb Au, sample length)
1303 54680 ppb Grab sample (prefixed by EMP99X-, ppb Au)
64953 114172 ppb Grab sample (sample #, ppb Au, location approximate, compiled from Lavigne-1997)

2.20045

0 1 2 3 4 5 6 7 8 9 10m
Scale 1:100

Cameco GOLD

Empress Project
STRIPPED AREAS
8+25E & 9+00E

Compiled:	Jacques Samson	Dwg. No.:	EME00004	Map 5a, 5b
Drafted:	J.S., C.D.D.	Date:	00/01/19	
Scale:	1:100	Geo. Ref.:		
NTS Ref.:		Source:		

North

Symbols

Contact (observed,inferred,gradational)
Outline of rock exposure
Datum
Foliation (dip unknown,inclined,vertical)
Pillowed lava (inclined,arrow indicates top from pillow selvages and packing)
Fracture/joint
Quartz veining/stockwork
1230 15 ppb /0.30 m — Channel sample (prefixed by EMP99C–, ppb Au, sample length)
1303 54680 ppb — Grab sample (prefixed by EMP99X–, ppb Au)
64953 114172 ppb — Grab sample (sample #, ppb Au, location approximate, compiled from Lavigne–1997)

Abbreviations

SH	Sheared
FD	Folded
BD	Banded
Plam	Pseudo–laminated
Qstk	Quartz stockwork
Qstr	Quartz stringers
Bl	Bleached
Sil	Silicified
Cb	Carbonatized
Ser	Sericitized
Ox	Oxidized
Hem	Hematized
Gph	Graphite/graphitic
FeC	Iron–carbonatized
Fg	Fine–grained
Py	Pyrite
Cpy	Chalcopyrite
Sph	Sphalerite
Gn	Galena
Mo	Molydenite
Fuch	Fuchsite
Mag	Magnetite/magnetic
Tr	Trace

Intensity Modifiers
.1 weak .2 moderate .3 strong
ie – Sil.2–3 = silicification moderate to strong

Legend

PROTEROZOIC
Mafic Intrusive Rocks
12a Diabase dyke
12e Mafic dyke
12f Feldspar–phyric

ARCHEAN
Late Archean Granitoid Rocks
11a Granite
11b Granodiorite
11d Quartz monzonite
11g Quartz diorite
11h Diorite
11k Monzodiorite to monzogabbro
11m Monzonite
11r Lamprophyre
Intermediate to Felsic Hypabyssal Intrusive Rocks
10c Feldspar porphyry
10e Felsite dyke or sill
10n Fine–to medium–grained dyke or sill
10s Schistose/quartz–sericite schist
Mafic to Intermediate Intrusive Rocks
8b Gabbro
8c Diorite
8d Blue–quartz diorite
8f Plagioclase–phyric
8n Fine–grained dyke
8r Gabbroic to dioritic dyke, schistose
8s Plagioclase–quartz–carbonate–biotite±chlorite±sericite schist
8u Mafic gneiss

Ultramafic Intrusive Rocks
7m Altered ultramafic dyke (Sericite–biotite –chlorite±talc±fuchsite schist)
Clastic Metasedimentary Rocks
6a Mudstone/argillite
6b Siltstone
6c Wacke
6p Mafic metasedimentary rock
6q Garnet–feldspar–amphibole schist
6s Quartz–biotite–sericite±feldspar±amphibole±chlorite schist
6u Graphitic/quartz–sericite–graphite schist
Intermediate to Felsic Metavolcanic Rocks
3j Sericite–carbonate schist
3k Tuff
3n Lapilli tuff
3p Lapillistone
3s Quartz–sericite±biotite±carb. schist, of uncertain origin
Mafic Metavolcanic Rocks
2a Massive flow, fine–to medium–grained
2b Pillowed flow/pillow breccia
2c Flow breccia/flow top breccia
2e Amygdaloidal/vesicular flow
2f Plagioclase–phyric
2k Tuff/mafic sediment
2n Lapilli tuff
2s Chlorite±amphibole±sericite±carbonate schist
2t Amphibole–plagioclase±biotite±chlorite±epidote–titanite schist
2u Mafic gneiss

Example of coding system
2a–b,2k = Massive to pillowed mafic flows, with lesser mafic sediment.
3s/6s = Intermediate to felsic quartz–sericite schist, possibly a clastic sediment.

0 1 2 3 4 5 6 7 8 9 10m
Scale 1:100

Cameco GOLD

Empress Project
STRIPPED AREA
10+75E

Compiled:	Jacques Samson	**Dwg. No.:**	EME00005	**Map 6**
Drafted:	J.S., C.D.D.	**Date:**	00/01/20	
Scale:	1:100	**Geo. Ref.:**		
NTS Ref.:		**Source:**		

Symbols

- Contact (observed,inferred,gradational)
- Outline of rock exposure
- Datum
- Foliation (dip unknown,inclined,vertical)
- Pillowed lava (inclined,arrow indicates top from pillow selvages and packing)
- Fracture/joint
- Quartz veining/stockwork
- 1230 I 15 ppb /0.30 m — Channel sample (prefixed by EMP99C–, ppb Au, sample length)
- 1303 △ 54680 ppb — Grab sample (prefixed by EMP99X–, ppb Au)
- 64953 ⊙ 114172 ppb — Grab sample (sample #, ppb Au, location approximate, compiled from Lavigne–1997)

Legend

PROTEROZOIC

Mafic Intrusive Rocks

- 12a Diabase dyke
- 12e Mafic dyke
- 12f Feldspar–phyric

ARCHEAN

Late Archean Granitoid Rocks

- 11a Granite
- 11b Granodiorite
- 11d Quartz monzonite
- 11g Quartz diorite
- 11h Diorite
- 11k Monzodiorite to monzogabbro
- 11m Monzonite
- 11r Lamprophyre

Intermediate to Felsic Hypabyssal Intrusive Rocks

- 10c Feldspar porphyry
- 10e Felsite dyke or sill
- 10n Fine–to medium–grained dyke or sill
- 10s Schistose/quartz–sericite schist

Mafic to Intermediate Intrusive Rocks

- 8b Gabbro
- 8c Diorite
- 8d Blue–quartz diorite
- 8f Plagioclase–phyric
- 8n Fine–grained dyke
- 8r Gabbroic to dioritic dyke, schistose
- 8s Plagioclase–quartz–carbonate–biotite±chlorite±sericite schist
- 8u Mafic gneiss

Ultramafic Intrusive Rocks

- 7m Altered ultramafic dyke (Sericite–biotite –chlorite±talc±fuchsite schist)

Clastic Metasedimentary Rocks

- 6a Mudstone/argillite
- 6b Siltstone
- 6c Wacke
- 6p Mafic metasedimentary rock
- 6q Garnet–feldspar–amphibole schist
- 6s Quartz–biotite–sericite±feldspar±amphibole±chlorite schist
- 6u Graphitic/quartz–sericite–graphite schist

Intermediate to Felsic Metavolcanic Rocks

- 3j Sericite–carbonate schist
- 3k Tuff
- 3n Lapilli tuff
- 3p Lapillistone
- 3s Quartz–sericite±biotite±carb. schist, of uncertain origin

Mafic Metavolcanic Rocks

- 2a Massive flow, fine–to medium–grained
- 2b Pillowed flow/pillow breccia
- 2c Flow breccia/flow top breccia
- 2e Amygdaloidal/vesicular flow
- 2f Plagioclase–phyric
- 2k Tuff/mafic sediment
- 2n Lapilli tuff
- 2s Chlorite±amphibole±sericite±carbonate schist
- 2t Amphibole–plagioclase±biotite±chlorite±epidote–titanite schist
- 2u Mafic gneiss

Example of coding system

2a–b,2k = Massive to pillowed mafic flows, with lesser mafic sediment.
3s/6s = Intermediate to felsic quartz–sericite schist, possibly a clastic sediment.

Abbreviations

SH	Sheared
FD	Folded
BD	Banded
Plam	Pseudo–laminated
Qstk	Quartz stockwork
Qstr	Quartz stringers
Bl	Bleached
Sil	Silicified
Cb	Carbonatized
Ser	Sericitized
Ox	Oxidized
Hem	Hematized
Gph	Graphite/graphitic
FeC	Iron–carbonatized
Fg	Fine–grained
Py	Pyrite
Cpy	Chalcopyrite
Sph	Sphalerite
Gn	Galena
Mo	Molydenite
Fuch	Fuchsite
Mag	Magnetite/magnetic
Tr	Trace

Intensity Modifiers

.1 weak .2 moderate .3 strong

ie – Sil.2–3 = silicification moderate to strong

0 1 2 3 4 5 6 7 8 9 10m

Scale 1:100

Jacques Samson

Cameco GOLD

Empress Project

STRIPPED AREA

15+00E

Compiled: Jacques Samson	**Dwg. No.:** EME00006	**Map 7**
Drafted: J.S., C.D.D.	**Date:** 00/01/20	
Scale: 1:100	**Geo. Ref.:**	
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