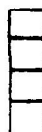


MAP No.

105 0 7

ASSESSMENT REPORT
N. M. E. A. P.
CONFIDENTIAL
OPEN FILE



TYPE OF
WORK:

MAYO M.D.
DIAMOND DRILLING
GEOLOGICAL
GEOCHEMICAL

REPORT FILED UNDER	AGIP CANADA LTD.	DOCUMENT NO. 091770
DATE PERFORMED	JUNE-AUGUST 1985	DATE FILED: DECEMBER 30, 1985
LOCATION - LAT.	63°20'N	AREA: MACMILLAN PASS
LONG.	130°57'W	
CLAIM NO.	BRICK 1-12; YA62945-YA62956	
	13-40; YA76421-YA76448	
	NEVE 1-35; YA76449-YA76483	
VALUE \$	24,000.00	
WORK DONE BY	M.J. AUPPERLE	
WORK DONE FOR	AGIP CANADA LTD.	
REMARKS	<p>24-NEVE</p> <p>091770</p> <p style="text-align: right;">40x 85 p. 178</p>	

Diamond drilling in 1985 followed up earlier trenching and geochemical surveys done in 1983. Two large zones of low grade gold-silver mineralization occur within steeply dipping faults in altered shales. Clay alteration, silicification, sericitization, bleaching and graphite remobilization are common alteration types within the fault zones. The main fault zone contains 0.311 g/t Au with 2.59 g/t Ag over 30.5 m. The Boundary fault zone contains 6 intersections between 0.7 and 9.7 m wide containing up to 0.944 g/t Au with 9.34 g/t Ag. A disseminated-type gold deposit model is currently being applied to this prospect.



091770 ASSESSMENT REPORT

Brick 1-40/Neve 1-35 Claims,
(YA62945 - YA62956/YA76421 - YA764830)
Mayo Mining District
Drilling, Geological Mapping and
Geochemical Sampling

June 15 to August 17, 1985

NTS 105-0-7

Latitude; 63° 20'

Longitude: 130° 57'

M. J. Aupperle
November, 1985

Milton J. Aupperle
AGIP CANADA LTD.

091770



TABLE OF CONTENTS

	<u>Page</u>
1. <u>SUMMARY, CONCLUSIONS AND RECOMMENDATIONS</u>	1
1.1) Summary.....	1
1.2) Comparison of Brick Project to the Carlin Gold Deposit.....	3
1.3) Conclusions.....	4
1.4) General Economic Considerations.....	5
1.5) Recommendations.....	6
2. <u>INTRODUCTION</u>	7
2.1) General.....	7
2.2) Location and Access.....	7
2.3) Previous Exploration.....	7
2.4) Exploration Model.....	8
3. <u>GEOLOGY</u>	9
3.1) Regional Geology.....	9
3.2) Claim Geology.....	9
4. <u>SURFACE EXPLORATION</u>	10
4.1) Mapping and Prospecting.....	10
4.1.1 General.....	10
4.1.2 Mapping and Prospecting Results.....	10
4.2) Rock Geochemistry.....	12
4.2.1 Assay Data.....	12
4.2.2 Whole Rock Analysis.....	12
4.3) Soil Geochemistry.....	13
4.4) Water Geochemistry.....	14
5. <u>DRILLING</u>	14
5.1) Introduction.....	14
5.2) Lithology.....	15
5.3) Structure.....	15
5.4) Alteration.....	16
5.5) Mineralization.....	17
5.6) Geochemistry.....	18
5.6.1 General.....	18
5.6.2 Check Assay Results.....	19
5.6.3 Assay Results.....	20
5.6.4 Whole Rock Analysis.....	22
5.6.5 Clay XRD Studies.....	24
5.7) Petrographic Studies.....	24



LIST OF TABLES

Table

1	Comparison of Carlin Unoxidized Ore Zone to Brick Project
2	Operating Bulk Tonnage Mines
3	Formation Descriptions
4	Rock Sample Assay Data
5	Drill Hole Statistics
6	Check Assay Results
7	Anomalous Au-Ag Results
8	Significant Au-Ag Results

LIST OF APPENDICES

Appendix A	Summary of Assessment Calculations, Forms "C" and "E"
Appendix 1	Rock Geochemistry and Assay Data
Appendix 2	Soil Geochemistry Data
Appendix 3	Water Geochemistry Data
Appendix 4	Drill Hole Logs
Appendix 5	Drill Hole Assay Data
Appendix 6	Drill Hole Geochemistry Data
Appendix 7	XRD Data
Appendix 8	Petrographic Reports
Appendix 9	Laboratory Methodology
Appendix 10	List of Personnel



LIST OF FIGURES

<u>Figure Number</u>		<u>Scale</u>	
1	Location Map	1:250000	Text
1a	Claim Distribution	1:31680	Text
2	Exploration Model		Text
3	Claim Geology	1:10000	Pocket
4	Compilation	1:4000	Pocket
5	J.O.-Saddle Zone Compilation	1:2000	Pocket
6	Arsenic Soil Geochemistry	1:2000	Pocket
7	Antimony Soil Geochemistry	1:2000	Pocket
8	Mercury Soil Geochemistry	1:2000	Pocket
9a	Cross Section Legend	-	Text
9	Geological Cross Section L4+00E	1:1000	Text
10	Geological Cross Section L5+00E	1:1000	Text
11	Geological Cross Section L5+50E	1:1000	Text
12	Geological Cross Section L6+50 - 7+00E	1:1000	Text
13	Geological Cross Section L8+00E	1:1000	Text
14	Projected Geochemical Cross Section: Au-Ag	1:1000	Text
15	Projected Geochemical Cross Section: Ba	1:1000	Text
16	Projected Geochemical Cross Section: Sb	1:1000	Text
17	Projected Geochemical Cross Section: As	1:1000	Text
18	Projected Geochemical Cross Section: S	1:1000	Text



1. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

1.1) Summary

Drilling on the J.O.-Saddle Zone has identified two large zones of low grade gold-silver mineralization and one zone of anomalous silver values within steeply dipping, faulted and variably altered shales of the Upper and Lower Earn groups.

Clay alteration, silicification, sericitization, pyritization, bleaching (graphite removal), and graphite remobilization has affected the shales and porphyritic monzonite dykes along the fault zones. Quartz-pyrite-calcite (+ siderite, sphalerite, galena, chalcopyrite, alunite, melanterite, stibnite, alunogen and jarosite) veins are present in the fault zones. Trace amounts of realgar, stibnite, alunogen, epsomite, melanterite, alunite, jarosite, sphalerite and chalcopyrite occur disseminated in altered shales and locally in altered monzonite dykes.

The main fault zone has been traced on surface for 800 m. Maximum width of this zone is 90 m. Four drill holes over a 320 m strike length tested this zone between the 1310 and 1530 m ASL levels. Anomalous concentrations of coincident Au, Ag, As, Sb, S, Cu, Pb and Zn were intersected in all four drill holes. The zone averages 0.311 gmT Au and 2.59 gmT Ag over an average true width of 30.5 m. Higher grade gold-silver mineralization (maximum 1.54 gmT Au-9.35 gmT Ag) is present from 1450 m ASL to at least 1310 m ASL.

Soil-talus and rock sampling indicates that the multi-element halo overlying this zone extends to at least line 0+75E and ends on line 11+00E.

The Boundary-Western extension fault zone, intersected in one drill hole has a true width of greater than 16 m. Six zones of anomalous gold-silver values were intersected over true widths ranging from 0.7 to 9.7 m with a maximum value of 0.944 gmT Au and 9.34 gmT Ag.



Anomalous As, Sb, Cu, Pb, S, Zn, K_2O and in part CaO concentrations occur throughout the faulted carbonaceous shales and silicified monzonite dykes.

The multi-element soil anomaly associated with this zone extends to at least line 2+00E and ends on line 11+00E. Gold values in core are higher than the gold values in soil-talus over this zone.

The secondary fault zone was intersected in three drill holes over a 450 m strike length, between elevations 1290 and 1540 m ASL. The zone contains anomalous 1.0-6.72 gmT silver values over true widths of up to 66.5 m. The width and grade of the mineralization in this zone increases with elevation. Anomalous Sb values occur throughout the fault zone. Anomalous concentrations of As, S, Cu, Pb and Zn occur above the 1400 m level. Significant gold (maximum 0.21 gmT) values occur between 1450 and 1460 m ASL.

The multi-element soil anomaly associated with this zone merges with the main fault zone on line 7+00E and ends on line 3+00E. Anomalous mercury values extend to at least line 0+00.

Three intervals of anomalous Au, Ag, As, Sb, S, Cu, Pb and Zn values occur within faulted, veined and vein cemented breccias in altered carbonaceous shales from 29.0 to 54.5 m in drill hole B-1-85. This anomaly occurs 90 m grid south of the main fault zone, between 1405 and 1425 m ASL. Maximum grade intersected is 2.24 gmT Au and 5.0 gmT Ag over 0.5 meters. It is not known if these values represent a local feature or are part of another zone of gold-silver mineralization.

Petrographic examination of selected samples from the zones of gold-silver mineralization indicates that only trace amounts of stibnite, realgar, sphalerite, chalcopyrite and alunite-jarosite minerals are present. No gold-silver bearing minerals were detected. Both syngenetic and hydrothermal pyrite grains occur within the altered shales and monzonite dykes. Silicification occurs as micro-veins, irregular patches and is replaced by iron and calcium bearing carbonate minerals.



Scanning electron microscopy has failed to detect even trace amounts of Au, Ag, Hg and As in sphalerite, chalcopyrite, stibnite and both syngenetic and hydrothermal pyrite.

The Canol zone multi-element soil anomaly contains anomalous antimony and mercury values of equal strength and dimensions as the Main and Boundary fault zone anomalies. Arsenic, gold and silver values are lower in this zone than in the Main and Boundary anomalies. The anomaly extends from at least line 0+00 to line 12+00E and is open on both ends.

1.2) Comparison of Brick Project to the Carlin Gold Deposit

A comparison of the known geological and geochemical data between a Carlin unoxidized ore body and the J.O.-Saddle Zone on the Brick project is presented in Table 1. Other than the difference between host rocks the various factors are generally comparable.

On a regional basis the calcareous siltstones which host the Carlin deposits contain low concentrations of Pb-Zn-Ag-Ba whereas the shales at Brick/Neve are enriched in Ba-Ag-Pb-Zn. This would account for the higher Pb-Ag-Zn content in the shales at Brick. The low Ba values and increase in Ca content along the Brick/Neve fault zones, may be a reflection of Eh-pH conditions of the hydrothermal fluids.

Intense clay alteration, brecciation and bleaching in a shale outcrop along the main fault zone on line 1+40E at 4+55N may indicate an acid leach-oxidized zone. Anomalous gold-silver values occur within this outcrop. The trace element geochemistry show a strong depletion of As, Sb, Zn, Cu, Pb and S content in the bleached part of this outcrop. This is typical of the change from unoxidized to leached oxidized ores at the Carlin gold-deposits.

Scanning electron microscopy indicates that the As, Hg, Au and Ag elements do not occur within optically visible sulphide minerals. Considering the high As, Sb, Hg, Au and Ag geochemical values in most samples, it appears that these elements are



TABLE 1

COMPARISON OF CARLIN UNOXIDIZED ORE ZONE TO BRICK PROJECT

	<u>CARLIN</u>	<u>BRICK</u>
<u>Host Rocks:</u>	Devonian Calcareous Siltstones and Cretaceous dykes	Devonian Carbonaceous Shales and Cretaceous dykes
<u>Structure:</u>	ESE, ENE and N faults	ESE and N faults
<u>Alteration:</u>	Pyritization, silicification, carbon introduced, calcite removed, sericite-illite As, Sb, Cu, Pb, Zn, Au, Ag minerals	Pyritization, silicification carbon remobilized, calcite introduced, sericite-illite As, Sb, Cu, Pb, Zn, Au, Ag minerals
<u>Size:</u>	1700 m long, 200 m wide, 250 m thick	Anomalous Au-Ag values in main fault zone 800 m long, 50 m wide, 260 m thick

GEOCHEMISTRY

	<u>CARLIN</u>	<u>BRICK</u>
<u>As:</u>	Average 200-500 ppm	200 ppm in main fault zone
<u>Hg:</u>	Average 20-22 ppm	N.A. values up to 100 ppm in soils
<u>Sb:</u>	Average 52 ppm	50 ppm in main fault zone
<u>Cu:</u>	Average 25-36 ppm	Average 50 ppm
<u>Pb:</u>	Average 26 ppm	Average 25 ppm
<u>B:</u>	Average 54-84 ppm	N.A. Borax reported by XRD
<u>Zn:</u>	Average 72 ppm	Average 250 ppm, max. 1.82%
<u>Au:</u>	Individual ore bodies average 3.0-9.1 gmT, maximum 88 gmT	Average at 0.4 gmT cutoff is 0.80 gmT, maximum 2.24 gmT, soil-talus values maximum 5.73 gmT
<u>Ag:</u>	Maximum 2.0 gmT	Maximum 9.35 gmT
<u>Ba:</u>	Average 0.03-0.065%. Increases to 0.16% in oxidized zones.	0.2% in main, secondary and boundary fault zones. Increases to 0.2-0.6% outside faults and dykes.

NOTE: N.A. denotes Not Analyzed For in core samples.



occurring in less than 1 micron sized grains disseminated in the shale matrix. This mode of occurrence is typical of Carlin gold-silver deposits.

The gold values on surface at Brick are extremely variable ranging from 1 to 5 GMT gold. This is typical of the ore zones at Carlin.

1.3) Conclusions

- a) The 1985 exploration program has proven that a Carlin type low grade bulk tonnage gold deposit is present on the Brick/Neve project.
- b) Approximately 3.2 million tonnes of mineralized rock containing 76,000 ounces of gold equivalent has been outlined by wide spaced drilling in the main fault zone. Values of up to 5.62 GMT gold and 685 GMT silver occur on surface which indicates that higher grade mineralization is present within this zone.
- c) The one hole that partially penetrated the Boundary fault zone intersected significant concentrations of gold and silver. The potential of this zone should be similar to the Main fault zone.
- d) The S.E.M. and petrographic work shows that the gold-silver, arsenic, antimony and mercury minerals occur as extremely fine grains in the rock matrix. The extensive core loss in the mineralized zones could produce much lower values than actually occur within the Main and Boundary fault zones.
- e) The Canol zone has a similar size and strength multi-element soil anomaly as the Main and Boundary fault zone anomalies. This zone which is untested to date occurs in proximity to Calcareous sediments. This zone could have either equal or greater potential than the Main or Boundary fault zones.
- f) The upper limit for higher grade gold-silver mineralization is the 1500 meter ASL elevation. The lower limit of this zone has not been defined. The leached outcrop exposed at 1290 m ASL could represent the upper oxidized part of another ore zone.



1.4) General Economic Considerations

Based on the distribution of the anomalous gold-silver values from surface and drilling data, an estimate of possible reserves on the main fault zone has been completed. Grade tonnage estimates at three cut off levels are;

- 1) 0.7 MT at 1.237 gmT Au-6.13 gmT Ag (at 1.0 gmT Au over 1.5 m cutoff)
- 2) 3.2 MT at 0.74 gmT Au-4.06 gmT Ag (at 0.4 gmT Au over 1.5 m cutoff)
- 3) 16.4 MT at 0.267 gmT Au-2.20 gmT Ag (at 0.1 gmT Au over 1.5 m cutoff).

*MT = Million Tonnes

The absolute numbers are relatively meaningless (i.e. only four drill holes in the zone), however the estimates indicate that a significant tonnage of low grade Au-Ag mineralization has been outlined to date. As well the presence of 2.0 to 5.73 gmT Au values in soil-talus indicates higher grade zones are present from approximately 1400 to 1500 m ASL, elevations. This explains why drill hole B-4-85 contains the highest Au-Ag values to date.

Table 2 shows operating bulk tonnage gold-silver mines for which current production data is available. Most of these low grade deposits use heap leach processing and all use open pit mining methods. The average Au-Ag grade of the Main zone on the Brick project (i.e. 3.2 MT at 0.74 gmT Au-4.06 gmT Ag) is approaching the grade of economic Au-Ag deposits, assuming a heap leach process.

Capital investment for a 1.0 million tonne per year heap leach operation is estimated at 25 to 30 million dollars (\$Cdn.) and for a conventional mill is 90 to 120 million dollars. Operating costs are estimated to range from \$8.50 to \$12.50/tonne for heap leach and from \$20 to \$30/tonne for a conventional mill.



TABLE 2
OPERATING BULK TONNAGE MINES

Mine	Location	Grade (gmT)	Tonnage (MT)	Operating Cost US \$	Mining/Milling Method
Zortman/ Landusky	Montana, USA	0.72 Au, 0.72 Ag	39.0	5.80-6.60	Open pit-Heap leach
Zaca	California, USA	1.37 Au, 22.46 Ag	6.3	6.03	Open pit-Heap leach
Relief Canyon	Nevada, USA	1.09 Au	8.0	6.30	Open pit-Heap leach
Montana Tunnel	Montana, USA	1.65 Au	46.1	6.93	Open pit-Heap leach
Kidston	Queensland, Aust.	1.79 Au, 2.22 Ag	44.4	10.66	Open pit- Conventional Mill
Galactic	Colorado, USA	1.57 Au	14.7	6.90	Open pit-Heap leach
Gordex	New Brunswick, CAN.	3.4 Au	0.9	13.30	Open pit-Heap leach
Wonder	Nevada, USA	0.69 Au, 48.0 Ag	0.66	3.44	Open pit-Heap leach
Pinacho	California, U.S.A.	1.50 Au	8.86	5.00	Open pit-Heap leach

NOTE: - Sources of information are Northern Miner and North American Gold Mining Industry News.
- Operating Cost in \$ US per tonne.



Assuming a 60% gold and 50% silver recovery rate and using current gold-silver prices, a heap leach operation would be viable if 5.0 million tonnes of ore grading 4.0 gmT Au and 6.0 gmT Ag are proven. If the gold recovery rate can be increased to 75%, then 5.0 million tonnes of ore grading 3.0 gmT Au and 6.0 gmT Ag would be economic. Ten million tonnes of ore grading 4.0 gmT Au and 6.0 gmT Ag would be necessary to support a conventional mill operation assuming a 95% recovery rate for gold and silver.

1.5) Recommendations

- a) Prior to additional expenditures on the project, column leach and bottle roll tests will be completed to determine the recovery rates for gold and silver. Total cost of this work will be \$1,400.
- b) Contingent on the recovery tests, an expenditure of \$1.0 million dollars is warranted to further delineate the grade and tonnage of the mineralization within the main and boundary fault zones. The 1986 program would consist of approximately 5000 meters of drilling, surface sampling and metallurgical studies.
- c) Based on the results of the 1986 program, a feasibility study should be completed to determine the economic viability of the project.
- d) If the project proves economically viable, a farmout should be considered.



2. INTRODUCTION

2.1) General

The results and interpretation of the 1985 exploration activities, carried out by AGIP Canada Ltd. on the Brick/Neve property located in the MacMillan Pass area, eastern Yukon is presented. Exploration consisted of geological mapping, diamond drilling and water, soil, rock, drill sludge and core geochemistry. The objective was to test a large gold-silver-arsenic-antimony-mercury in soil anomaly (J.O.-Saddle Zone) in an area which exhibits lithologies, structural patterns and alterations similar to Carlin type disseminated gold mineralization.

2.2) Location and Access

The project is located 40 kilometers west of the MacMillan Pass airstrip, within the Mayo mining district (Figure 1). Claim distribution is shown in Figure 1A. Access to the property is by helicopter. A drill road leading from MacMillan Pass ends 20 kilometers southeast of the Brick claims.

The topography and vegetation on the property is typical of mountainous terrain. Maximum elevation is 1600 m and tree line is at approximately 1350 m A.S.L.

2.3) Previous Exploration

Exploration results from 1979 to 1983 are summarized in the 1982 and 1983 "Brick/Neve Exploration Activities" reports. Work over this five year period consisted of; 1) stream, water, soil and rock geochemistry, 2) gridding, 3) overburden drilling, 4) VLF-EM ground magnetometer, CEM-horizontal shootback geophysical surveys, 5) trenching, 6) regional and detailed geological mapping, 7) petrographic and fluid inclusion studies. The project was inactive in 1984.

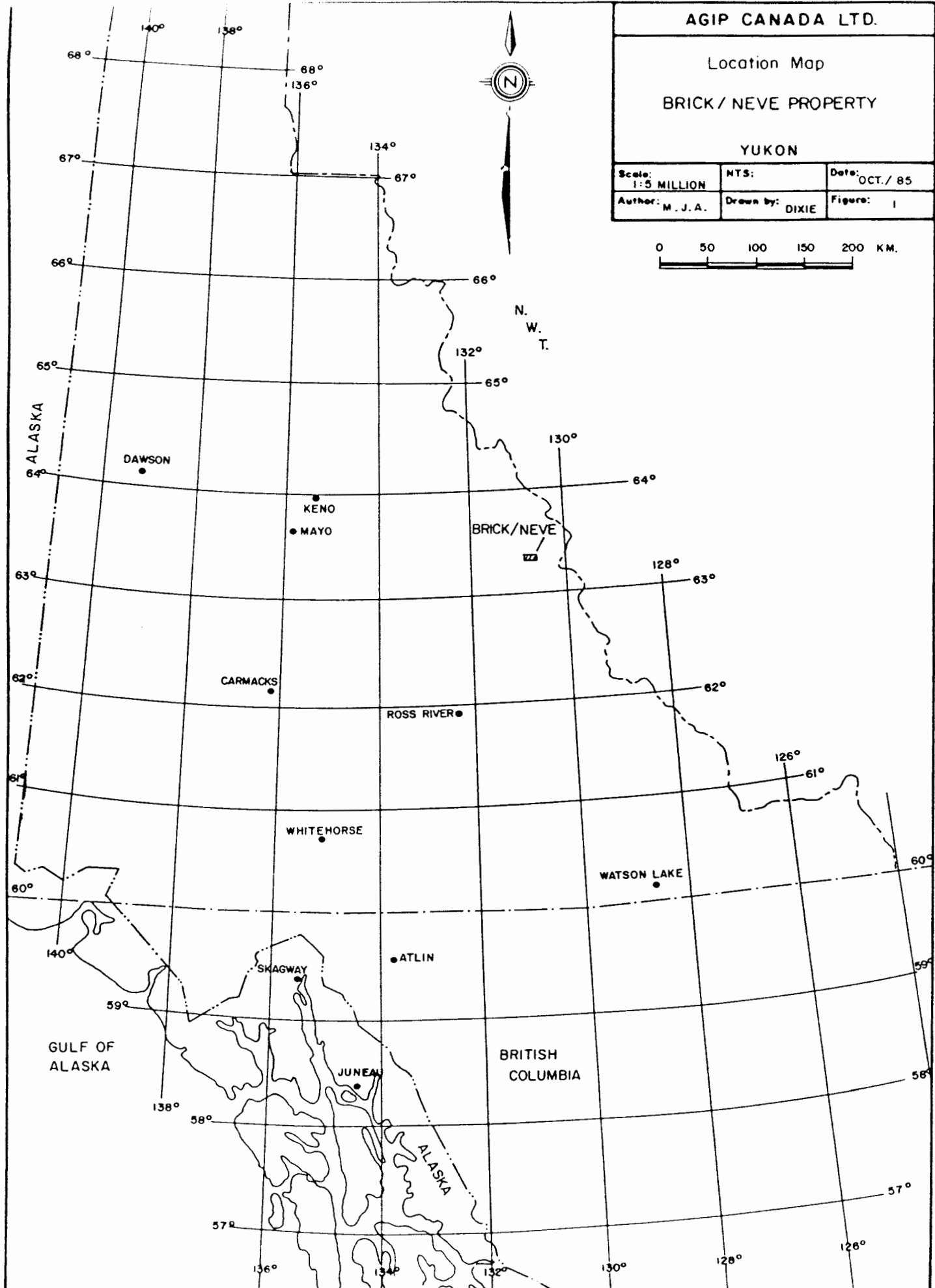
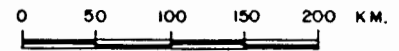
AGIP CANADA LTD.

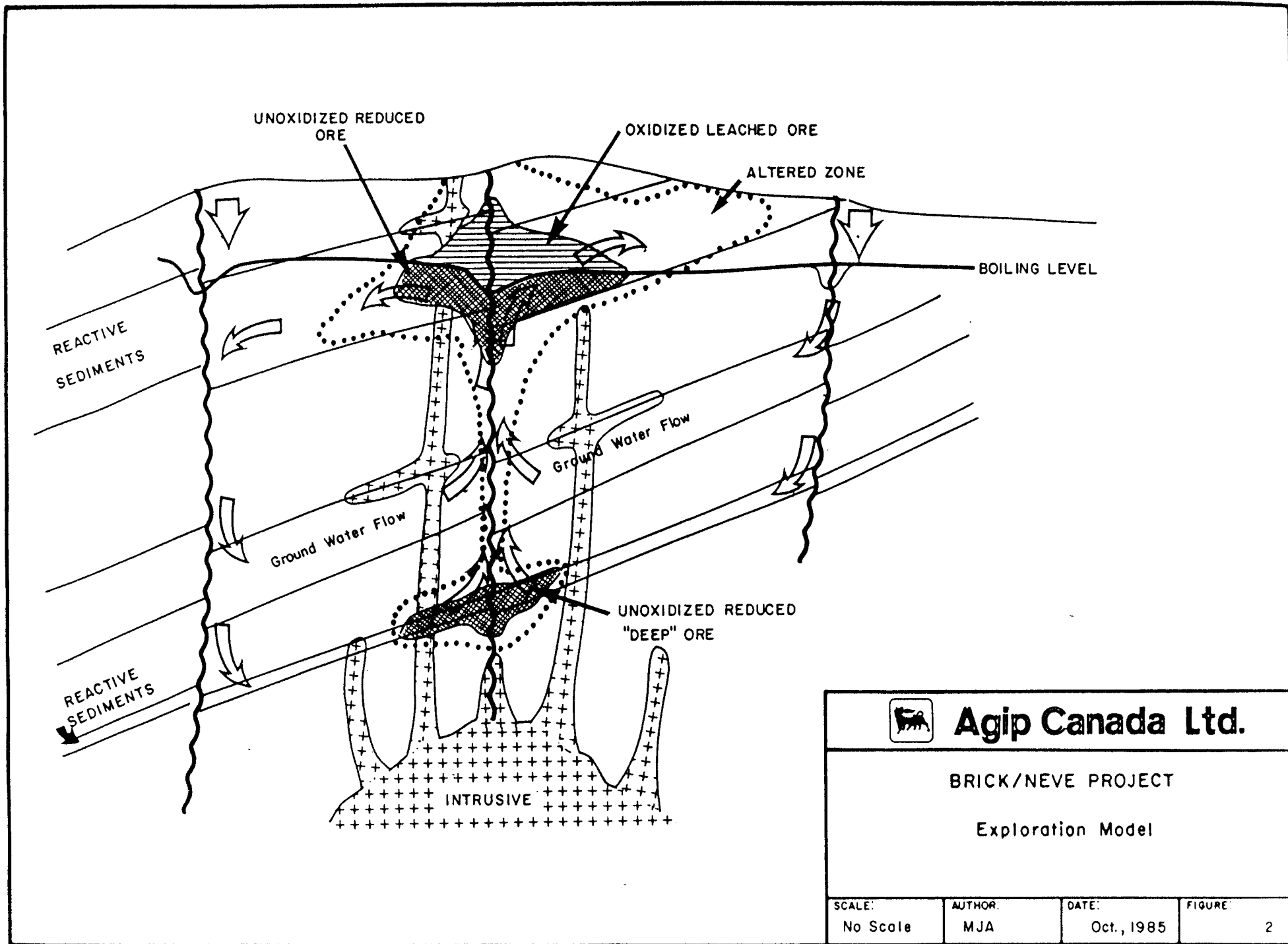
Location Map

BRICK / NEVE PROPERTY

YUKON

Scale: 1:5 MILLION	NTS:	Date: OCT. / 85
Author: M. J. A.	Drawn by: DIXIE	Figure: 1





Agip Canada Ltd.

BRICK/NEVE PROJECT

Exploration Model

SCALE: No Scale	AUTHOR: MJA	DATE: Oct., 1985	FIGURE: 2
--------------------	----------------	---------------------	--------------



2.4) Exploration Model

Carlin type disseminated Au-Ag deposits currently in production, vary in grade from 0.72 to 10.1 gmT Au and contain up to 50 million tonnes of ore. A schematic model of the salient features of this type of deposit is presented in Figure 2.

Ore host rocks are calcareous-carbonaceous sediments, usually calcareous siltstones and shales (reactive sediments). The deposits occur within complex fault zones that commonly trend east-west. Granitic to dioritic dykes are generally present within the area of mineralization.

Primary alteration which accompanies deposition of the gold-silver mineralization is variable amounts of silicification, pyritization, removal of calcite and either introduction or remobilization of carbon.

The primary alteration is overprinted by late stage acid leaching. The acid leach zone is characterized by intense bleaching, depletion of hydrocarbons and calcite, oxidation of sulphide minerals, Alunite-Jarosite and the development of jasperoid bodies.

Gold-silver mineralization can occur in both oxidized and unoxidized zones. Within unoxidized ore, strong enrichment of As, Hg, Sb, Zn, Mo, S, C, Ba, Cu, Pb, B, Te and Tl occurs. The acid leached (oxidized) ore show lower concentrations of the above elements. Barium occurs in much higher concentrations in this zone than the unoxidized zone.

Mineralization within the deposit is erratic, such that high grade (150 gmT Au) zones can be surrounded by low grade to barren rock. The shape of the ore zones are irregular and can be horizontally to vertically dipping tabular, ameboid, cone shaped or pipe-like bodies. At the Carlin mine, individual ore bodies vary from 60-730 m long, 1-40 m wide and up to 45 m thick. The ore bodies occur as stacked zones over greater than 250 m vertical distance.



3. GEOLOGY

3.1) Regional Geology

The MacMillan Pass area lies on the eastern margin of the Selwyn Basin, a site of marine sedimentation from Late Cambrian to Triassic time. The basin is underlain by continental crust and sedimentary rocks derived from the western edge of the craton. During Devonian time, uplift of the central part of the basin caused the formation of grabens and horsts. One such graben underlies the BRICK/NEVE Claims.

Regional folding and faulting during the Cretaceous period caused uplift and east-west shortening of the sedimentary pile. A suite of intrusions ranging from small dykes and sills to large plutons accompanied this period of deformation.

3.2) Brick/Neve Claim Geology

The geology of the claim group is shown in Figures 3, 4 and 5. A description of the units is summarized in Table 3.

The claims are underlain by open to locally tightly folded Ordovician to Permian aged limestones, shales, siltstones, sandstones and conglomerates of the Earn and Road River Groups. The chert pebble conglomerate (unit 3) pinches out to the west at line 5+50E. Cretaceous intrusives of monzonite composition form east-west trending sills and dykes.

Two major east-west trending anticlines and synclines are present in the claim group (see cross section on Figure 4). To grid south, silty limestone (unit 1c) occupies the hinge of a fault bounded anticline. To grid north, carbonaceous-graphitic shale (unit 4) occupies the hinge of another fault bounded anticline. Upper Earn Group shales (unit 5) occupies the syncline between the anticlines. Unit 6 shales occupies the hinge of a syncline to grid north.

Three episodes of faulting have been defined.



TABLE 3

FORMATION DESCRIPTIONS

<u>Age</u>	<u>Group/Lithology</u>	<u>Unit</u>
Recent-Pleistocene	Overburden and Talus	O/B
Cretaceous	Biotite-Quartz-Feldspar Monzonite Dykes to Sills; greenish grey, grey to pale yellow, porphyritic, medium grained, massive	7
Mississippian-Permian	Shale, Siltstone, Arenite and Bioclas- tic Limestone; grades from shale- siltstone to arenite to limestone to arenite to shale-siltstone with depth.	6
Devonian-Mississippian	<u>Upper EARN Group</u>	
	* Shale; black, platy, weakly carbona- ceous, massive to locally laminated. 0-10% 1-200 cm grey, fine grained, massive to reverse graded sandstone to siltstone interbeds, in part with calcareous matrix	5
Devonian-Mississippian	<u>Lower EARN Group</u>	
	* Carbonaceous-Graphitic Shales, Carbon- aceous Siliceous Shales and Mudstones.	4
	* Siliceous Carbonaceous Shale; dark grey, massive to flaser bedded, stratiform pyrite beds common within 10 m of lower contact with unit 5.	4d
	* Graphitic-Carbonaceous Shale; black, massive to locally laminated, in part cherty or siliceous.	4c
	* Bleached Shale; grey-green, grey to white, in part clay altered and sili- cified, locally calcite/siderite replaced, equivalent to unit 4a	4b
	* Carbonaceous Shale and Mudstone; black platy, laminated with 10-45% 0.1-10 cm thick, grey mudstone inter- beds.	4a



Chert Pebble Conglomerate and Silty Shale; grey-black, chert clasts 5 cm, dense cherty-carbonaceous matrix, lower section is rusty brown, tan silty shale with 1-3% 10 cm thick brown siltstone lenses. 3

Carbonaceous shale; black, massive to laminated, platy, siliceous-cherty horizons occur in middle to lower portions of unit. 2

Ordovician-Devonian

Road River Group

Silty limestone to Marlstone; tan, black, massive to laminated, micrite lc

Mudstone; brown, wispy to flaser bedded lb

Shale; blue-black, locally cherty, some graptolite horizons. la

* Denotes drill intersected lithology.



The first phase are Syn to post Devonian east-west trending sub-vertically dipping normal faults which have a considerable but an unknown amount of displacement. Three faults of this type have been located. To grid south, two faults form a graben on the flanks of an anticline. To grid north is the boundary fault zone. These faults cause repetition of underlying lithologies.

The second episode are post Devonian to pre Cretaceous north northeast trending, sub-vertically dipping faults. These faults offset the boundary fault and lithologic contacts on the north portion of the grid. To grid south, the displacement decreases, with little or no offset. These may be pivot type faults.

The last phase of faulting, represented by the main, secondary and the western extension of the boundary fault zones, is Post Cretaceous in age. They are interpreted to be a continuation of the boundary fault zone. The faults strike from east southeast to southeast and dip sub-vertically. The displacements on these faults are unknown.

4. SURFACE WORK

4.1) Mapping and Prospecting

4.1.1 General

A total of 20 man days were spent mapping and prospecting on the Brick property, mainly within the J.O.-Saddle Zone. Several previously unknown outcrops were located, mapped and sampled (Figures 4 and 5). The data given below has not been described in previous reports.

4.1.2 Mapping and Prospecting Results

The lithologies that underlie the grid area has been described in Section 3.2. Sparse quartz veins, quartz veined



shale and monzonite talus occur between lines 5+75E and 3+50E, from 2+30N to 3+50N (Figure 4). These veins contain minor clay-limonite, rare quartz druse lined vugs and vary from 1 mm to 50 cm in width.

A zone of quartz vein float is present from line 5+75E at 3+00N to line 8+50E at 2+50N, on top of the hill and appears to be of local derivation.

White massive quartz veins occur in the chert pebble conglomerate (unit 3) on line 10+75E at 0+30N and in shales (unit 1a) on line 12+50E at 4+30S. Both veins are from 5 to 30 cm in width and were traced for approximately 10 meters along strike.

Talus of bleached silicified shale (unit 4b) with 2 cm wide quartz + stibnite-orpiment veins occurs intermittently for 35 m grid north of the pit 81-1 showing (quartz-realgar-stibnite-orpiment veined altered monzonite). Bleached silicified shales are exposed in outcrop along the ridge from line 5+40E at 2+20N to line 6+00E at 2+90N.

Abundant quartz-calcite-malachite-azurite vein float (5-20 cm) was discovered on line 13+00E at 3+50S in an area underlain by unit 1c. Only a few pieces of the vein material contained visible copper minerals. The source of the float was not located.

A previously unreported outcrop of brecciated, altered and gouged shale (unit 4?) occurs from line 1+25E at 4+80N to line 1+45E at 4+55N (Figure 5). The outcrop is obscured by talus but is estimated to be greater than 10 meters in true width and appears to strike from 100 to 130°. The breccia consists of angular to rounded black shale fragments with local monzonite, quartz vein and trace sandstone clasts in a sandy clay hematitic limonitic matrix. White quartz veins (2 cm wide) trending 100 to 130° cut the breccia.

The eastern end of the outcrop is completely clay altered and leached. The outcrop consists of 10-30% grey black clay altered shale clasts in a pale yellow to cream coloured, gouge-clay matrix. A dark purple hematite stain is present over half of the outcrop.



Numerous outcrops of strongly fractured, limonite stained shale (unit 5) with local gouge zones and slickensides occur in a gully between lines 5+60E and 4+00E from 4+80N to 5+30N. Gouge zones are less than 30 cm wide and of limited strike extent. The slickensided fractures have both strike slip and dip slip components of motion.

4.2) Rock Geochemistry

4.2.1 Assay Data

A total of 24 grab and chip samples were fire assayed for gold-silver content (Table 4 and Appendix 1). Figures 4 and 5 show sample locations.

Except for samples M-4, 5 and 6-85, all samples of quartz vein and quartz veined shales returned background values (less than 0.02 gmT Au - 0.44 gmT Ag).

Only strongly brecciated-gouged shales returned anomalous values. The highest assay of 1.26 gmT Au and 1.73 gmT Ag occurs in a sample taken from a limonite stained outcrop along the main fault zone. Sample M-11-85 taken from the same outcrop, but in fractured shales 1 meter away, returned only elevated Au and anomalous Ag values.

Samples taken from the brecciated, bleached and clay altered outcrop between lines 1+25E and 1+45E, from 4+80N to 4+55N, contain anomalous to elevated (greater than 0.02 gmT Au) gold and silver values with maximum values of 0.206 gmT Au and 2.65 gmT Ag.

A chip sample of a clay gouge zone from the secondary fault zone at 4+00E-5+25N returned 6.12 gmT Ag and 0.012 gmT Au over 0.2 m.

4.2.2 Whole Rock Analysis

Six samples (M-9, 10, 16, 20, 21, 22-85) were analyzed for major oxide and trace (As, Ba, Cu, Pb, S, Sb, Zn) element content. Results are given in Appendix 1.



TABLE 4
ROCK SAMPLE ASSAY DATA

<u>SAMPLE #</u>	<u>LOCATION</u>	<u>DESCRIPTION</u>	<u>Au gmT</u>	<u>Ag gmT</u>
BM-1-85	L5+65E 2+65N	Grab-subcrop of bleached, silicified shale	0.004	0.24
BM-2-85	L4+05E 2+58N	Grab-float of spongy limonite stained clay-shale gouge	0.252	1.46
M-1-85	L7+75E 2+50N	Grab-subcrop of quartz veined shale	0.009	0.02
M-2-85	L7+75E 2+50N	Grab-float of vuggy quartz vein	0.003	0.05
M-3-85	L10+75E 0+30N	Grab-outcrop of white massive quartz vein	0.005	0.14
M-4-85	L6+10E 2+60N	Grab-float of quartz-tr. orpiment veined shale	0.78	12.3
M-5-85	L4+70E 4+10N	Grab-float of quartz veined, iron stained shale	0.034	1.31
M-6-85	L1+60E 0+40N	Grab-float of quartz veined, iron stained shale	0.048	0.53
M-7-85	L5+50E 3+35N	Grab-outcrop of silicified iron stained shale	0.014	0.88
M-8-85	L5+10E 3+37N	10 cm chip - bleached, silicified shale outcrop	0.013	0.58
M-9-85	L4+50E 3+60N	Grab-float of spongy clay-shale-limonite gouge	0.184	1.43
M-10-85	L4+40E 3+70N	Grab-outcrop of iron stained shale breccia	1.26	1.73
M-11-85	L4+39E 3+69N	Grab-outcrop of iron stained fractured shale	0.07	1.12
M-12-85	L12+50E 4+25S	Grab-outcrop of quartz vein with shale clasts	0.007	0.1
M-13-85	L13+10E 3+40S	Grab-float of quartz-calcite vein	0.006	0.82
M-14-85	L13+40E 1+60S	Grab-float of white quartz vein	0.006	0.16
M-15-85	L9+50E 3+05N	Grab-outcrop of brecciated, clay altered dyke	0.006	0.01
M-16-85	L9+50E 3+04N	Grab-outcrop of iron stained-clay-shale gouge	0.005	2.15
M-17-85	L4+00E 5+50N	20 cm chip-outcrop of iron stained clay-shale gouge	0.012	6.12
M-18-85	L3+95E 5+25N	20 cm chip-outcrop of brown clay-shale gouge	0.011	0.87
M-19-85	L1+00E 4+90N	50 cm chip-outcrop of fractured-brecciated shale	0.017	0.92
M-20-85	L1+25E 4+80N	70 cm chip-outcrop of iron stained breccia	0.044	1.93
M-21-85	L1+45E 4+55N	Grab-outcrop of purple clay-shale gouge	0.206	2.65
M-22-85	L1+46E 4+55N	Grab-outcrop of bleached clay-shale gouge	0.205	0.96



All samples contain anomalous concentrations of antimony. Most samples contain anomalous Zn, As and Ba. Copper and lead values are low in all samples. Sample M-9-85 returned the highest concentration As, Ba, Sb and Zn values (1708 ppm, 1.4%, 1236 ppm and 0.49% respectively).

Samples M-21-85 and M-22-84 are taken from the same outcrop. Except for lack of iron stain, the samples are identical. Within this outcrop the concentration of As drops by a factor of 2, Ba by a factor of 8, S by a factor of 2.5, Sb by a factor of 2.7 and Fe_2O_3 by a factor of 3 between the iron stained and bleached parts of this outcrop. Copper, Pb and Zn also show a corresponding decrease.

All of the samples have lower SiO_2 and Al_2O_3 and higher Fe_2O_3 than is considered normal for unit 4 shales.

4.3) Soil Geochemistry

A total of 425 soil samples were analyzed by Barringer Magenta of Calgary, Alberta for As, Hg and Sb content (Appendix 2). The samples were previously analyzed for Au and Ag.

Figures 6, 7 and 8 show the contoured soil values and their relationship to interpreted fault zones. The 500 ppm As, 10 ppm Sb and 5 ppm Hg contours form stacked anomalies along four main trends.

Mercury and Arsenic values coincide with the trace of the main fault zone. Antimony deviates south of the fault at the grid west end of the anomaly. The strength and width of the anomaly decreases grid west of line 1+00E and is not present beyond line 12+00E.

The second trend occurs along the boundary-western extension fault zone. Strongly anomalous Hg, As and Sb values occur to approximately line 2+00E, where values begin to decrease. The anomaly merges with the main fault zone anomaly on line 7+00E and is not present beyond line 12+00E.

The third trend coincides with the secondary fault zone.



Anomalous mercury values merge with the main fault zone anomaly on line 7+00E and remain open grid west of line 0+00. Antimony and arsenic values show a similar pattern, but end abruptly at line 3+50E.

The fourth trend is coincident with the east-west trending Cannoll zone Au-Ag anomaly in the southern half of the grid. The bulk of the anomalous mercury and antimony values occur between lines 2+00E to 11+00E. Arsenic values are much lower than the Main and Boundary fault zone anomalies with only one value exceeding 500 ppm As.

The anomalous zone remains open along strike grid west of line 0+00 and grid east of line 12+00E.

4.4) Water Geochemistry

The high As, Hg and Sb levels in both soil and rock samples prompted an assessment of drinking water quality on the project area. Drinking water pumped from the river west of the claims was sampled in June and July, 1985.

Results from the samples indicates that the water is free of heavy metal contaminants (Appendix 3). All values are within government acceptable concentration levels.

5. DRILLING

5.1) Introduction

A total of 1257.3 m of drilling was completed in 9 inclined drill holes between June 20 and August 15, 1985. The drill contract was awarded to Amity Drilling Ltd. of Whitehorse, Yukon. The average "all up" cost on a per meter basis is \$256.00.

All core was logged in detail, photographed, split and fire assayed for gold and silver. In areas of lost core, sludge samples were collected and assayed where possible.



Drill hole statistics are given in Table 5. Drill logs are annexed in Appendix 4. Drill hole locations are shown in Figure 5 and geological cross sections are presented in Figures 9 through 13.

The severe structural disruption of the rocks resulted in poor core recovery and abandonment of drill holes B-5, 5A, 6 and 7.

5.2) Lithology

Overburden varied from 2.6 to 26.9 m in true thickness in the drill holes. Lower Earn group lithologies (units 4a, 4b, 4c and 4d) were intersected in drill holes B-1, 2, 4, 5, 7 and 8-85. Upper Earn group lithologies (units 5 and 5a) were intersected in drill holes B-2, 3, 4, 6 and 8-85. Contacts between units are gradational over less than 5 m intervals.

The shale units strike east southeast with generally vertical dips. Considerable variation in bedding orientation ($0-90^{\circ}$ C/A) occurs in the drill holes. To grid north, the Upper Earn group shale unit dips 60 to 80° to the south indicating that the sequence is overturned.

Porphyritic monzonite sills and dykes (unit 7a and 7b, porphyry in the drill logs) vary in thickness from 0.4 to 20 m (true width) in drill holes B-1, 4, 5, 6 and 8-85. Contacts between the intrusives and the shale are sharp and usually parallel to bedding. In a few cases, crosscutting relations were observed. Rare clasts of shale occur within the monzonite and are confined to within 2 m of the intrusive margins. Localized weak silicification occurs at the shale intrusive contact.

5.3) Structure

Strong fracturing (RQD=0, FR/M 10), quartz micro-veining (V/M 5) and faulting occurs in the shales, particularly unit 4c, unit 4a and unit 4b. Monzonite intrusives generally show weak to



TABLE 5
DRILL HOLE STATISTICS

<u>DDH</u>	<u>Location</u>	<u>Angle</u> <u>(Degrees)</u>	<u>Bearing</u>	<u>Over-</u> <u>Burden(m)</u>	<u>E.O.H. (m)</u>	<u>Remarks</u>
B-1-85	L3+93E 2+97N	-45	021	24.4	198.1	Major fracture zone, 116.8 - 174.0 m dipping 70-85 degrees S 124.3-128.5 m 50% vein
B-2-85	L3+98E 3+95E	-45	021	18.9	200.3	Major gouge fault zone 177.9-189.3 m dip 70 degrees S.
B-3-85	L5+07E 3+98N	-60	021	31.1	100.6	Major fracture zone, 31.1-53.3 m 39-41.5 m, 60% gouge.
B-4-85	L5+54E 2+45N	-45	021	3.6	229.2	Major fault zone 153.0-198.7 m 156.0-162.2, 85% vein.
B-5A-85	L6+50E 2+61N	-45	021	31.1	31.1	Abandoned
B-5-85	L6+50E 2+61N	-45	031	30.0	122.5	Abandoned, major fault zone. 101.1-122.5 m 118.6-119.2 m, 48% vein
B-6-85	L8+00E 2+34N	-45	021	12.8	63.4	Abandoned, fault zone 41.8-63.4 m
B-7-85	L8+00E 4+09N	-45	201	9.2	61.5	Abandoned, fault zone 30.0-61.6 m
B-8-85	L7+00E 3+00N	-45	021	15.1	250.6	Fault zone 33.2-210.0 m

CROSS SECTION LEGEND

LITHOLOGY

	Overburden
7a	Altered Monzonite Dyke/Sill
7b	Unaltered Monzonite Dyke/Sill
5	Black Weakly Carbonaceous Shale with Thin Siltstone/Sandstone Interbeds
5a	≥ 0.4 m. Thick Siltstone/Sandstone Bed
4d	Dark Grey Siliceous Weakly Carbonaceous Shale
4c	Black Graphitic ± Siliceous Shale
4b	Bleached Grey to Grey-Green Shales (Equivalent to Unit 4a)
4a	Black to Medium Dark Grey Interbedded Carbonaceous Shale and Mudstones

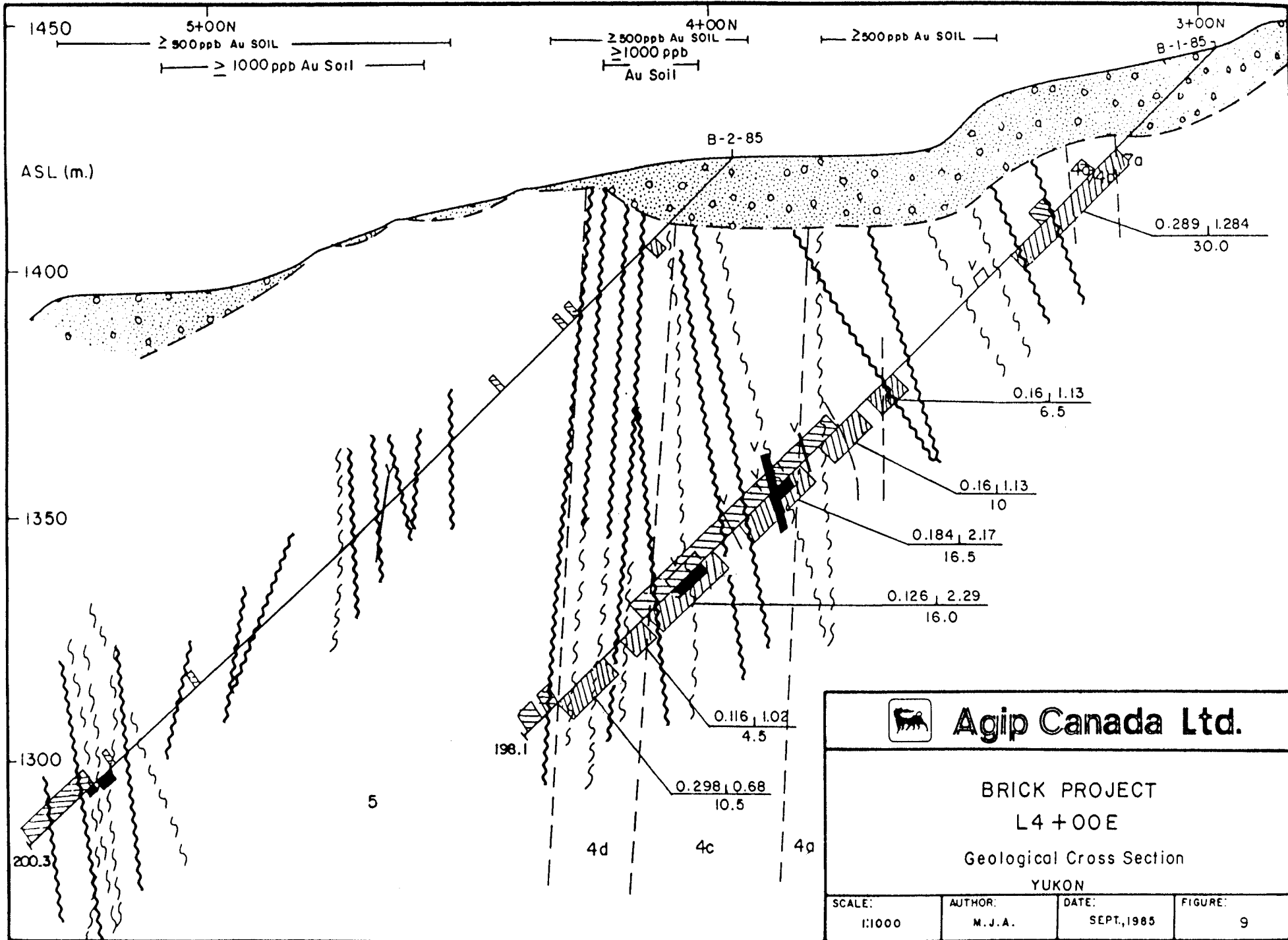
SYMBOLS

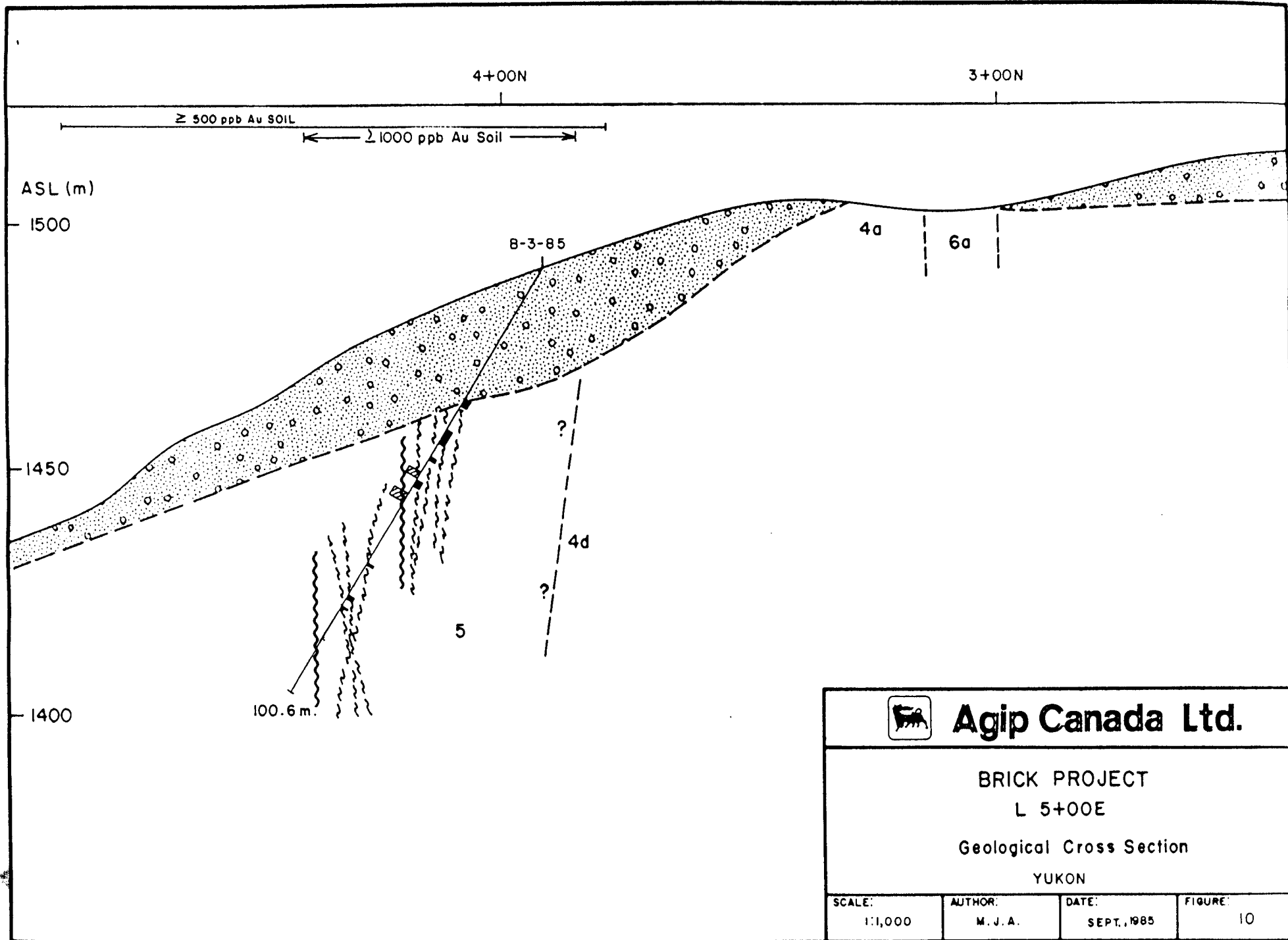
	Fracture Zone
	Fault Zone
	Contact
	≥ 80% Vein Over Interval
	≥ 30% Vein Over Interval
	≥ 10% Clay Gouge Over Interval
	Clay Altered Shale
	Orpiment along Fractures
	≥ 0.1 gmT Au over Interval
	≥ 1.0 gmT Ag over Interval
	Realgar, Zeolite along Fractures

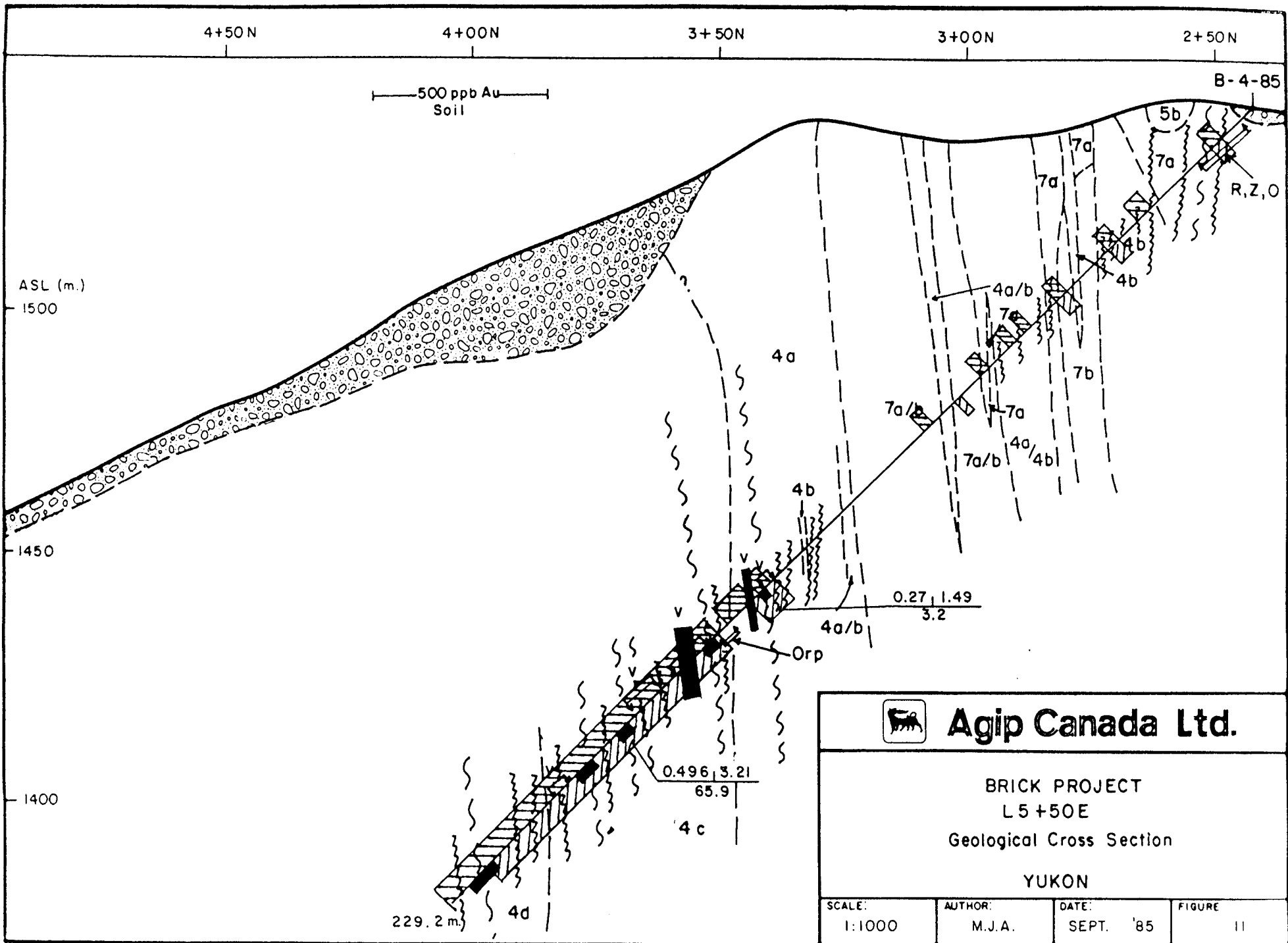
$$\frac{0.298 \mid 0.68}{10.5} \quad \frac{\text{gmT Au} \mid \text{gmt Ag}}{\text{Interval}}$$

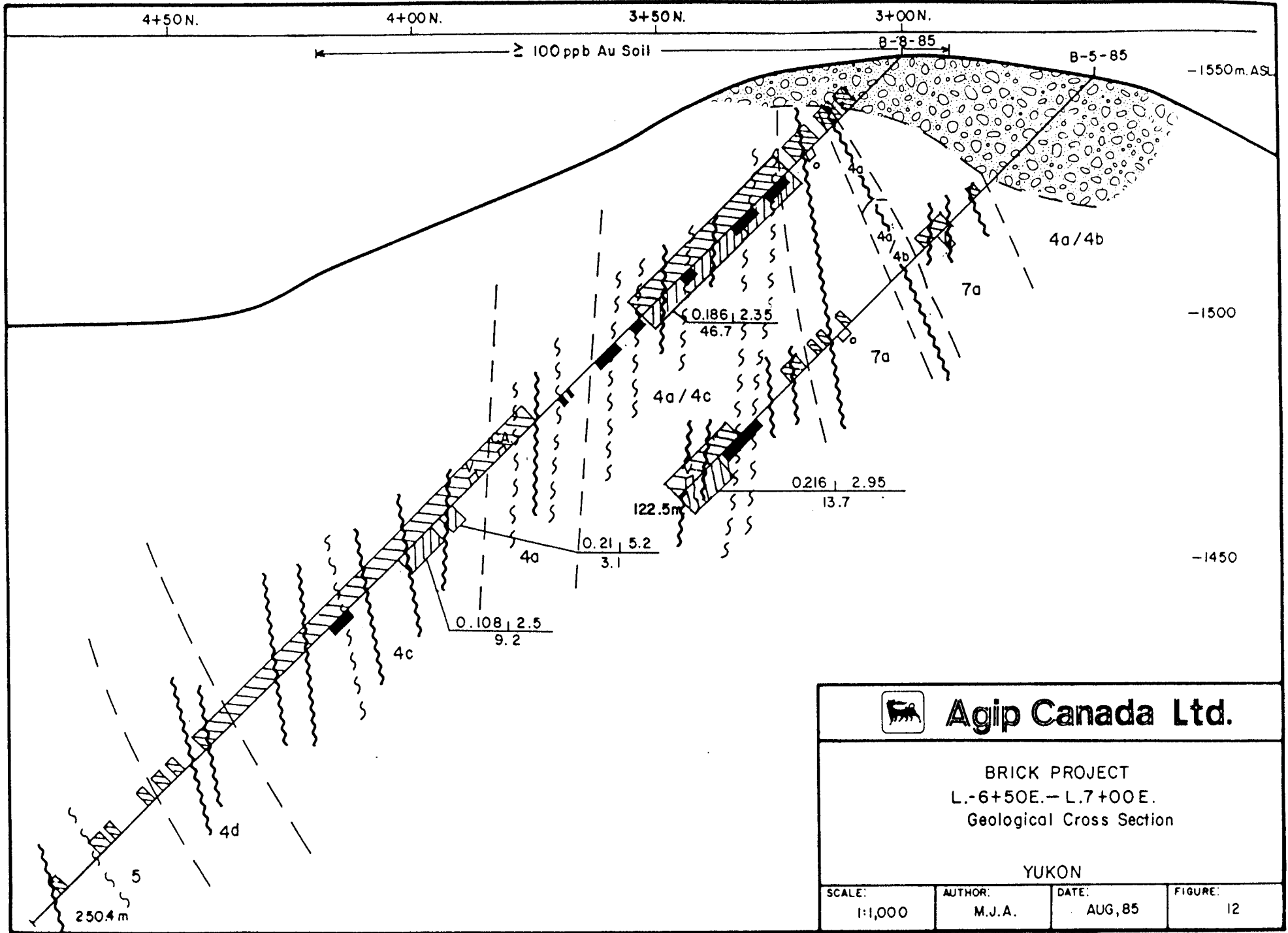
Weighted average ≥ 0.1g/T Au
over 3.0 m.

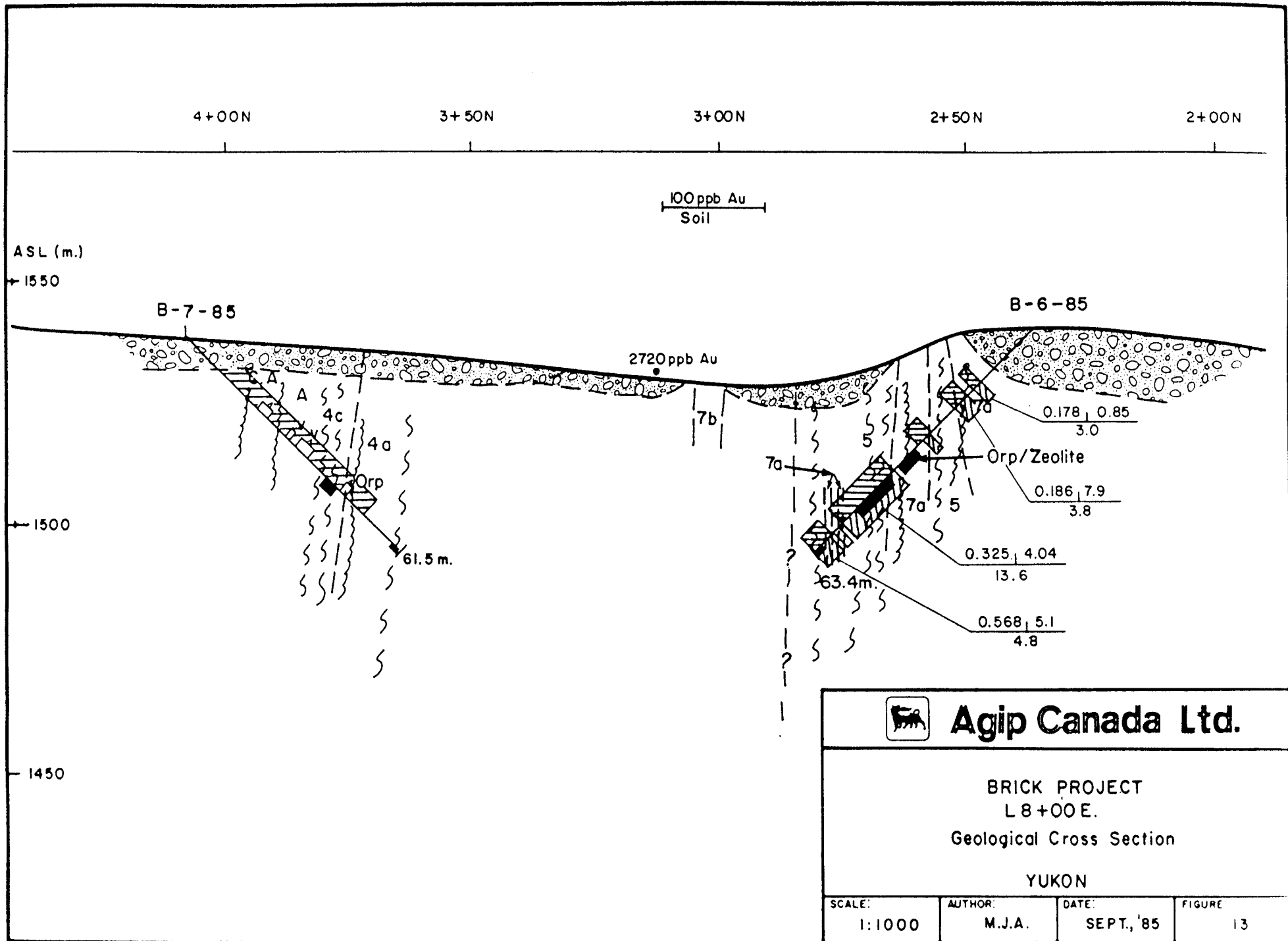
Figure: 9a











Agip Canada Ltd.

BRICK PROJECT
L8+00E.
Geological Cross Section

YUKON

SCALE: 1:1000	AUTHOR: M.J.A.	DATE: SEPT., '85	FIGURE 13
------------------	-------------------	---------------------	--------------



no fracturing (FR/M 10). Three major fault zones were intersected by the drilling.

The main fault zone was intersected in four drill holes over a 320 m strike length. This fault trends east southeast and has a vertical dip. True width of the fault ranges from 60 to 90 m. The zone consists of shattered broken core, graphitic shears, clay-carbon gouge, carbon-quartz sand, extensive core loss and quartz-pyrite-calcite-siderite+trace sphalerite-chalcopyrite veins. A white vuggy quartz vein ranging from 0.3 to 4.3 m in true width was intersected in drill holes B-1, 4 and 5-85. This vein occurs as a cluster of veins in drill hole B-8-85.

Clay-carbon gouge zones ranging from 0.1 to 10 m thick are common within the fault. Core recovery in these zones ranges from 5 to 30%.

In drill holes B-5 and 8-85, units 4c and 4a are repeated. Elsewhere there is no change in lithology across this fault.

The secondary fault zone was intersected by drill holes B-2, 7 and 8-85 over a 450 m strike length and true widths ranging from 12 to 60 m. The fault strikes southeast, dips steeply to the south and appears to coalesce with the main and boundary fault zones. Strong to intense fracturing, local graphitic shears, core loss, clay-carbon gouge and local thin quartz veins characterize the fault zone. Core recovery in this zone ranges from 40 to 80%.

The boundary-western extension fault zone was intersected in drill hole B-6-85. The fault contact between the Lower and Upper Earn group (units 4a and 5) appears to have been intersected at 56.8 m. Strong fracturing, 50% core recovery and clay gouge zones characterize this fault.

The clay gouge intersected in drill hole B-6-85 has the unusual property of swelling. This was not encountered in any of the other gouge zones.

5.4) Alteration

The most prominent alterations are bleaching (removal of carbonaceous-graphitic material) and silicification of the shales. Clay alteration is more restricted in extent.



Bleaching occurs either as narrow bands adjacent to fractures and bedding planes or pervasively over intervals up to 3 meters. Pervasive weak silicification occurs throughout. Local zones of intense silicification also occurs. In fault-gouge zones, clay alteration commonly reduces the shale to soft, massive clay.

Almost all the monzonite intrusives exhibit weak to moderate sericitization, clay alteration, limonitization, bleaching and rarely silicification. The largest and most intense zone of bleached and silicified shale (unit 4b) occurs from L4+00E to L7+00E and is spatially related to a swarm of weakly to strongly clay altered monzonite intrusives. Within this zone, unaltered shales have been observed in contact with the monzonite. These shales become bleached and silicified away from the intrusives. An increase in fracturing and faulting, both in shales and monzonites, appears to be the major control on alteration within this zone.

Intense clay development in gouge zones, local silicification and rare bleaching occur in the Main, Boundary and Secondary fault zones. Clay zones from 0.1 to 8.4 m in true thickness were intersected in all drill holes. These zones are thickest in the main and boundary fault zones (Figures 9 to 13).

Bleaching and weak clay alteration of shales occurs in the secondary fault zone from 22.2 to 25.0 m in drill hole B-7-85 and from 123.1 to 124.2 m in drill hole B-8-85. Both zones are soft, friable and bleached to a pale brown colour. Erratic, clay alteration is also present from 160.3 to 168.2 m in drill hole B-8-85 and from 34.1 to 45.0 m in drill hole B-7-85.

5.5) Mineralization

Pyrite, limonite, calcite, siderite and clay are the most common minerals on fractures, in veins and as disseminations.

Pyrite occurs in all lithologies as 1-40% disseminated anhedral grains. Thin beds, lenses and ameboid masses up to 30 cm thick of massive pyrite occur sporadically in trace (1%) amounts throughout the shales. These stratiform sulphide layers are most



common within 5 to 10 m of the Upper Earn group (unit 5) - Lower Earn group (4d) contact, in drill holes B-1, 2 and 8-85.

Pyrite occurs as disseminated grains and in thin veins within the monzonite intrusives.

Pale to golden yellow amorphous crusts of ?orpiment (identified later as alunogen) occur sporadically on fractures in zones less than 10 meters thick, in drill holes B-2, 3, 4, 5, 6, 7 and 8-85. Generally, a white to pale emerald green soft translucent mineral, identified by XRD as melanterite, is present with the yellow crusts.

Scarlet red, glassy translucent ?realgar occurs as anhedral grains along fractures in shale from 57.4 to 61.7 m in drill hole B-6-85. Realgar, with coarse, bladed to fibrous white zeolite (identified later as epsomite) crystals occurs within intensely clay altered monzonite from 6.7 to 20.5 m in drill hole B-4-85. The epsomite crystals occur as fracture fillings in the monzonite. The same mineral with black carbonaceous material, coat fractures in monzonite from 36.1 to 41.8 m in drill hole B-6-85.

A silver grey to grey white, soft wispy, acicular to crustiform mineral (identified later as melanterite) is present in drill hole B-7-85 from 46.6 to 48.7 m and drill hole B-2-85 from 55.4 to 61.7 m.

Veins are dominantly white quartz with vugs and variable amounts of calcite, siderite, limonite, graphite and euhedral to anhedral pyrite. Locally trace amounts of specular hematite, galena, sphalerite and chalcopryrite occur as fine, disseminated grains. A pale green, soft, amorphous crustiform and vug filling mineral (probably melanterite) occurs sporadically within veins in drill hole B-5-85.

5.6) Geochemistry

5.6.1 General

A total of 637 core samples and 95 sludge samples were fire assayed by Barringer Magneta Ltd. of Calgary, Alberta for gold and



silver content (Appendix 5). A thirty gram assay tonne was used for all samples. Nineteen samples (total of 68 assays) were re-assayed by four laboratories to check the accuracy of the initial results (Table 6, Appendix 5). One hundred and twenty six samples taken at 10 meter intervals from the core, were analyzed by Maurette Resources Ltd. of Calgary, Alberta for major oxide and trace element content (Appendix 6). Seventeen samples were analyzed by Saskatchewan Research Council of Saskatoon, Saskatchewan for clay mineralogy and mineral identification (Appendix 7). Laboratory methodology is given in Appendix 9.

Five 90 gm tonne assays were done to determine if more gold-silver is present than is indicated by the 30 gm tonne assays. This procedure is followed at several disseminated gold-silver deposits (i.e. Golden Sunlight) to provide accurate measurement of the gold-silver content.

All the core was split and sampled at approximately 1.5 m intervals. Sludge samples were collected at 3.0 m intervals from all drill holes, except B-1-85 which had no return. In areas of lost core, the sludge samples were fire assayed.

The core sample identification number (i.e. B-1-34) gives the drill hole number (i.e. B-1-85) and depth at the top of the sample interval (i.e. 34.0 m). To determine sample interval length, the next listed sample (or E.O.H) is subtracted from the sample of interest (i.e. (B-1-34.5) - (B-1-34.0) = 0.5 m). Sludge sample (i.e. B-1-S45) intervals can be derived in a similar manner.

5.6.2 Check Assays

Check assay results are summarized in Table 6. With a few exceptions, all gold and silver assays are within 20% of the calculated average values for the 30 gm assay samples. The major exceptions are samples B-3-86.0, B-1-180.5 and B-1-48.5.



TABLE 6
CHECK ASSAY RESULTS

SAMPLE NUMBER	Au gm T	Ag gm T	Au gm T	Ag gm T	Au gm T	Ag gm T	Au gm T	Ag gm T	Au gm T	Ag gm T	Au gm T	Ag gm T	Au gm T	Ag gm T
B-1-34	2.24	5.0	1.31*	6.04*	2.81	7.5	2.469	4.8	2.64	8.8	2.540	7.54	0.24	1.79
B-1-48.5	0.533	1.9	0.68	2.45	1.03	2.7	0.309	1.70	0.96	2.8	0.702	2.31	0.30	0.48
B-1-180.5	0.592	0.76	0.473	0.85	0.72	1.7	0.1	1.0	0.62	1.0	0.631	1.08	0.06	0.43
B-2-18.9	0.016	0.96	0.022	0.93	0.07	1.0	0.1	1.0	0.07	2.3	0.019	1.30	0	0.67
B-2-192.5	0.013	4.26	0.014	4.8	0.07	4.8	0.1	1.0	0.07	5.3	0.013	4.79	0	0.43
B-3-86.0	0.538	0.08	0.011	0.23	0.07	0.7	0.103	1.0	0.07	0.5	0.217	0.38	0.28	0.28
B-3-99.5	0.008	0.23	0.012	0.46	0.07	1.0	0.1	1.0	0.07	1.0	0.03	0.67	0.035	0.39
B-4-9.8	1.07	1.66	0.747	1.70	1.23	1.7	0.96	3.43	0.96	1.9	0.993	2.08	0.177	0.76
B-4-195.3	0.91	4.45	0.773*	4.36*	1.23	4.5	0.171	4.46	0.82	4.7	0.78	4.53	0.44	0.12
B-4-198.7	1.44	5.63	0.995*	4.86*	1.89	5.8	1.543	5.14	1.54	5.5	1.60	5.52	0.197	0.28
B-4-201.7	1.54	9.35	1.150*	5.29*	1.44	7.9	0.891	8.23	1.37	7.5	1.310	8.25	0.29	0.80
B-4-204.8	1.09	5.21	0.810*	4.75*	1.17	5.1	1.20	5.83	1.16	6.0	1.155	5.54	0.05	0.47
B-5-46	0.35	1.83	0.395	1.11	0.62	1.4	0.72	7.54	0.62	1.7	0.541	2.72	0.16	2.71
B-5-117.7	0.236	5.61	0.325	5.50	0.38	5.5	0.686	10.97	0.41	6.0	0.407	6.72	0.17	2.38
B-6-25	0.009	0.15	0.021	0.28	0.07	0.7	0.103	3.77	0.07	0.8	0.051	1.14	0.04	1.50
B-6-29.3	0.015	2.21	0.03	2.31	0.07	1.0	tr	7.89	0.07	2.8	0.038	4.26	0.03	3.35
B-6-58.6	0.944	1.52	0.598	1.15	0.86	1.4	0.789	3.43	0.82	1.3	0.802	1.76	0.13	0.94
B-6-61.1	0.626	6.28	0.477	5.77	0.72	6.2	0.617	8.57	0.68	7.0	0.624	6.76	0.09	1.10
B-7-26.5	0.002	2.92	0.008	3.15	0.07	3.4	tr	3.43	0.07	3.0	0.005	3.18	0	0.23
	Original Value		Barringer Check Assay		Bondar-Clegg Check Assay		Loring Check Assay		Chemex Check Assay		Average of all four		Standard Deviation	

NOTE: * Denotes 90 gm assay sample used, rather than standard 30 gm assay sample. 90 gm assays values are not used in average calculations. Samples below detection limit for the labs are not used in average



The 90 gm assay samples are from 20 to 100% lower in Au and have similar Ag contents as the average assay values. The reason for this discrepancy is unknown.

5.6.3 Assay Results

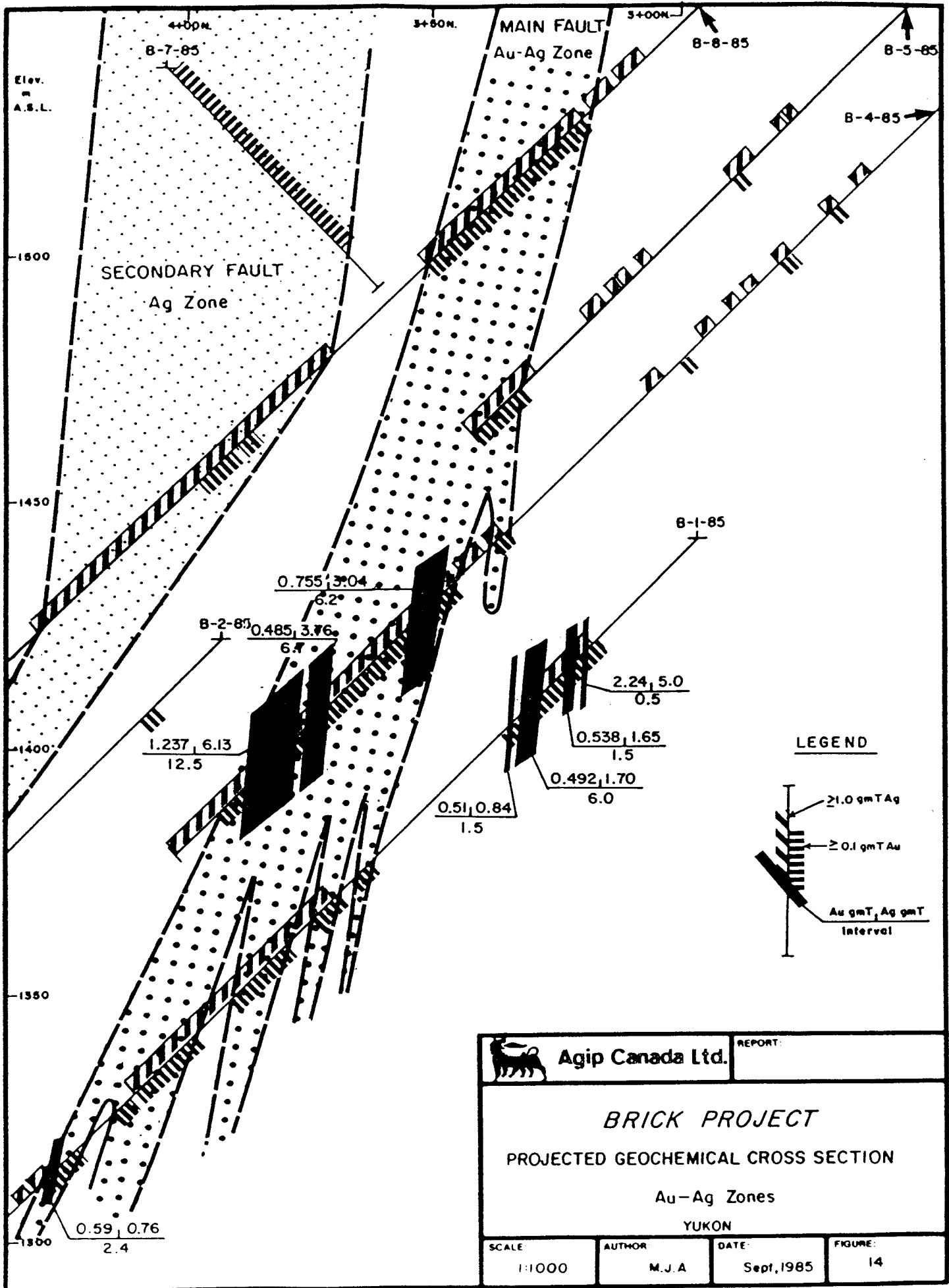
Background values are less than or equal to 0.02 gmT Au and 0.44 gmT Ag for samples containing less than 0.10 gmT Au and 1.0 gmT Ag. Anomalous values (greater than 0.1 gmT Au and 1.0 gmT Ag) are listed in Table 7 and weighted averages using a 0.4 gmT Au cutoff over 1.5 m are given in Table 8. All weighted averages were calculated using Barringer Magenta original Au-Ag values.

Main fault zone: Anomalous gold and silver values occur over true widths varying from 5.0 to 46.5 m within an area 350 m long and 220 m deep. The weighted average for all anomalous gold and silver values is 0.31 gmT Au and 2.59 gmT Ag over an average true width of 30.4 m.

The anomalous Au-Ag values correspond to intense fracturing, clay altered fault gouge and veining within black carbonaceous shales and siliceous graphitic-carbonaceous shales (units 4a, c and d). The higher gold-silver values generally correlate with increased structural disruption, lost core and/or increased veining.

The best intersection (1.237 gmT Au - 6.13 gmT Ag) occurs from 195.3 to 207.8 m (69% recovery) in drill hole B-4-85, with trace-10%, quartz and calcite rimmed, fine to coarse grained pyrite cubes. Euhedral fine to coarse grained pyrite is unusual and only occurs over this interval in drill hole B-4-85. Coarse pyrite cubes occur in vugs within quartz veins in drill holes B-1, 4 and 5-85, but does not contain high gold-silver values. The relationship between pyrite and gold will be discussed in more detail in Section 5.7.

Figure 14 shows the relationship of the Au-Ag values to




 Agip Canada Ltd.		REPORT:
BRICK PROJECT PROJECTED GEOCHEMICAL CROSS SECTION Au-Ag Zones YUKON		
SCALE 1:1000	AUTHOR M. J. A	DATE Sept, 1985
		FIGURE: 14



TABLE 7

ANOMALOUS VALUES (0.1 gm/t Au or 1.0 gm/t Ag)

<u>DDH</u>	<u>From - To</u>	<u>Au gm/t</u>	<u>Ag gm/t</u>	<u>Core Recovery</u>
B-1-85	29.0 - 30.5	0.113	0.53	100%
	32.0 - 41.0	0.104 - 2.24	0.98 - 5.0	100%
	42.5 - 54.5	0.166 - 0.533	0.28 - 2.46	99%
	93.5 - 99.5	0.133 - 0.374	0.42 - 0.64	100%
	104.0 - 114.0	0.131 - 0.21	0.7 - 1.16	86%
	114.0 - 119.4	-	1.57 - 3.68	74%
	119.4 - 127.0	0.127 - 0.31	1.27 - 3.04	83%
	127.0 - 128.5	-	3.45	100%
	128.5 - 134.5	0.111 - 0.291	1.52 - 1.69	42%
	134.5 - 144.5	-	1.91 - 3.7	67%
	144.5 - 160.5	0.109 - 0.231	1.2 - 3.89	46%
	166.0 - 170.5	0.103 - 0.142	0.48 - 2.1	76%
	176.0 - 186.5	0.166 - 0.592	0.42 - 1.1	62%
	189.5 - 192.5	-	1.07 - 1.6	100%
	B-2-85	22.0 - 23.5	0.183	0.69
43.0 - 44.5		-	1.35	100%
46.0 - 47.5		-	1.02	100%
62.5 - 64.0		-	1.31	100%
149.0 - 150.5		-	1.15	100%
173.0 - 174.5		-	1.05	100%
177.5 - 197.0		-	1.05 - 4.26	92%
B-3-85		48.0 - 49.5	-	1.46
	52.5 - 54.0	-	1.05	100%
B-4-85	9.8 - 11.5	1.07	1.66	100%
	30.0 - 33.0	-	1.98 - 2.48	100%
	39.0 - 40.5	0.102	1.1	100%
	54.5 - 56.4	0.122	2.04	100%
	63.5 - 65.0	-	2.82	100%
	68.0 - 69.5	-	1.29	100%
	76.5 - 78.0	-	1.81	100%
	84.0 - 84.8	0.105	0.36	100%
	92.0 - 93.5	-	1.19	100%
	137.5 - 140.7	0.22 - 0.319	1.73 - 1.91	100%
	143.4 - 150.0	-	1.56 - 3.76	87%
153.0 - 218.9	0.118 - 1.54	1.48 - 9.35	46%	
218.9 - 229.2	-	1.38 - 1.72	22%	
B-5-85	30.0 - 31.4	-	1.38	43%
	34.0 - 35.5	-	1.04	100%
	43.0 - 50.5	-	1.13 - 1.83	100%
	46.0 - 47.5	0.35	1.83	100%
	53.6 - 60.0	-	1.46 - 1.8	67%



<u>DDH</u>	<u>From - To</u>	<u>Au gm/t</u>	<u>Ag gm/t</u>	<u>Core Recovery</u>
B-5-85	72.0 - 73.5	-	1.09 - 2.13	100%
	76.8 - 78.0	-	1.67	75%
	79.8 - 81.5	-	1.48	65%
	84.5 - 89.0	-	1.81 - 2.05	67%
	104.2 - 108.8	-	1.16 - 5.64	46%
	108.8 - 122.5	0.167 - 0.301	2.7 - 5.64	51%
B-6-85	14.0 - 17.0	0.137 - 0.219	0.68 - 1.02	100%
	18.2 - 22.0	0.152 - 0.24	6.17 - 9.34	100%
	29.3 - 30.5	-	2.21	100%
	30.5 - 32.0	0.164	4.84	100%
	40.5 - 41.8	-	1.87	100%
	41.8 - 55.4	0.168 - 0.717	2.24 - 8.09	39%
	55.4 - 56.8	-	1.06	100%
	56.8 - 57.6	0.107	0.56	100%
	58.6 - 63.4	0.227 - 0.944	1.52 - 6.28	75%
B-7-85	11.0 - 49.5	-	1.89 - 6.72	91%
B-8-85	15.1 - 16.6	-	1.48	100%
	18.2 - 22.3	-	2.39	70%
	25.0 - 31.0	-	1.05 - 1.89	100%
	33.2 - 74.5	0.11 - 0.334	0.66 - 3.94	89%
	114.7 - 116.4	-	1.16 - 2.2	100%
	117.0 - 128.6	-	2.41 - 4.55	100%
	128.6 - 131.7	0.21	5.2	58%
	131.7 - 134.7	-	2.23	50%
	134.7 - 143.9	0.1 - 0.116	2.01 - 2.78	62%
	143.9 - 187.5	-	0.98 - 4.73	67%
	196.0 - 198.7	-	1.11 - 1.75	81%
	205.7 - 207.0	-	1.63	100%
	208.5 - 211.5	-	1.41 - 1.87	100%
	214.5 - 216.0	-	1.17	100%
	224.0 - 225.1	-	1.35	100%
	226.2 - 230.5	-	1.03 - 1.66	100%
	239.5 - 241.0	-	1.28	100%



TABLE 8

SIGNIFICANT GOLD AND SILVER VALUES

<u>DDH</u>	<u>From -</u>	<u>To</u>	<u>Int. Recovery</u>	<u>Au gm/t</u>	<u>Ag gm/t</u>	<u>Core Recovery</u>
B-1-85	34.0 -	34.5	0.5	2.24	5.0	100%
	38.0 -	39.5	1.5	0.538	1.65	100%
*	45.5 -	51.3	6.0	0.492	1.7	95%
	53.0 -	54.5	1.5	0.51	0.84	95%
	180.5 -	182.9	2.4	0.592	0.76	34%
B-4-85	9.8 -	11.5	1.7	1.07	1.66	100%
*	156.0 -	162.2	6.2	0.755	3.04	30%
*	185.9 -	192.6	6.7	0.485	3.76	47%
*	195.3 -	207.8	12.5	1.237	6.13	64%
B-6-85	52.0 -	55.4	3.4	0.717	2.24	53%
	58.6 -	59.6	1.0	0.944	1.52	100%
	61.1 -	63.4	2.3	0.626	6.28	30%

NOTE: * denotes weighted average



elevation along the main fault zone. The anomalous values increase in strength towards drill hole B-4-85. Below this, the zone bifurcates into six narrower intersections in drill hole B-1-85. A higher grade (greater than 0.4 gmT Au) zone is present below 1460 m ASL and extends to at least the 1310 m level in drill hole B-1-85.

Gold silver ratios increase from 1:19 to 1:10 (locally 1:2) with decreasing elevation.

Secondary Fault Zone: Drill holes B-2, 7 and 8-85 intersected anomalous (1.0-6.72 gmT) silver values over true widths of 14.5 to 66.5 m (Figures 9, 12, 13 and 14) in an area 450 m long by 260 m deep. The silver values occur in black carbonaceous shale (unit 5) and siliceous carbonaceous-graphitic shales (unit 4c).

The large "bend" below drill hole B-8-85 in Figure 14 is due to the oblique strike of this zone to the plane of the section. Both the silver values and thickness of the zone increases vertically.

There is no correlation between increased silver values with increased structural disruption or veining. The clay altered-bleached shales generally have higher silver values.

Elevated to anomalous (maximum 0.21 gmT Au) gold values occur from 124.2 to 150.0 m (1460 m ASL) in drill hole B-8-85. There is no visible difference between shales containing either anomalous or background values of gold.

Boundary-Western Extension Fault Zone: Drill hole B-6-85 (not shown on Figure 14) intersected six zones of anomalous gold-silver values over intervals ranging from 0.7 to 9.7 m true widths (Figure 13) in silicified moderately altered monzonite, clay altered-fault gouge and shattered weakly carbonaceous shales (unit 5).

Below 40.5 m, the boundary-western extension fault zone hosts the highest grade Au-Ag mineralization (maximum 0.944 gmT



Au, 8.09 gmT Ag) in drill hole B-6-85. Higher gold values coincide with increased structural disruption. Gold-silver ratios vary from 1:20 to 1:10.

Silver values (up to 9.34 gmT Ag) only occur in gold bearing monzonite porphyries which are silicified and have carbonaceous material introduced along fractures. These high values are unusual in that no other gold bearing monzonite contains silver values greater than 3.0 gmT. This relationship was only observed in this drill hole.

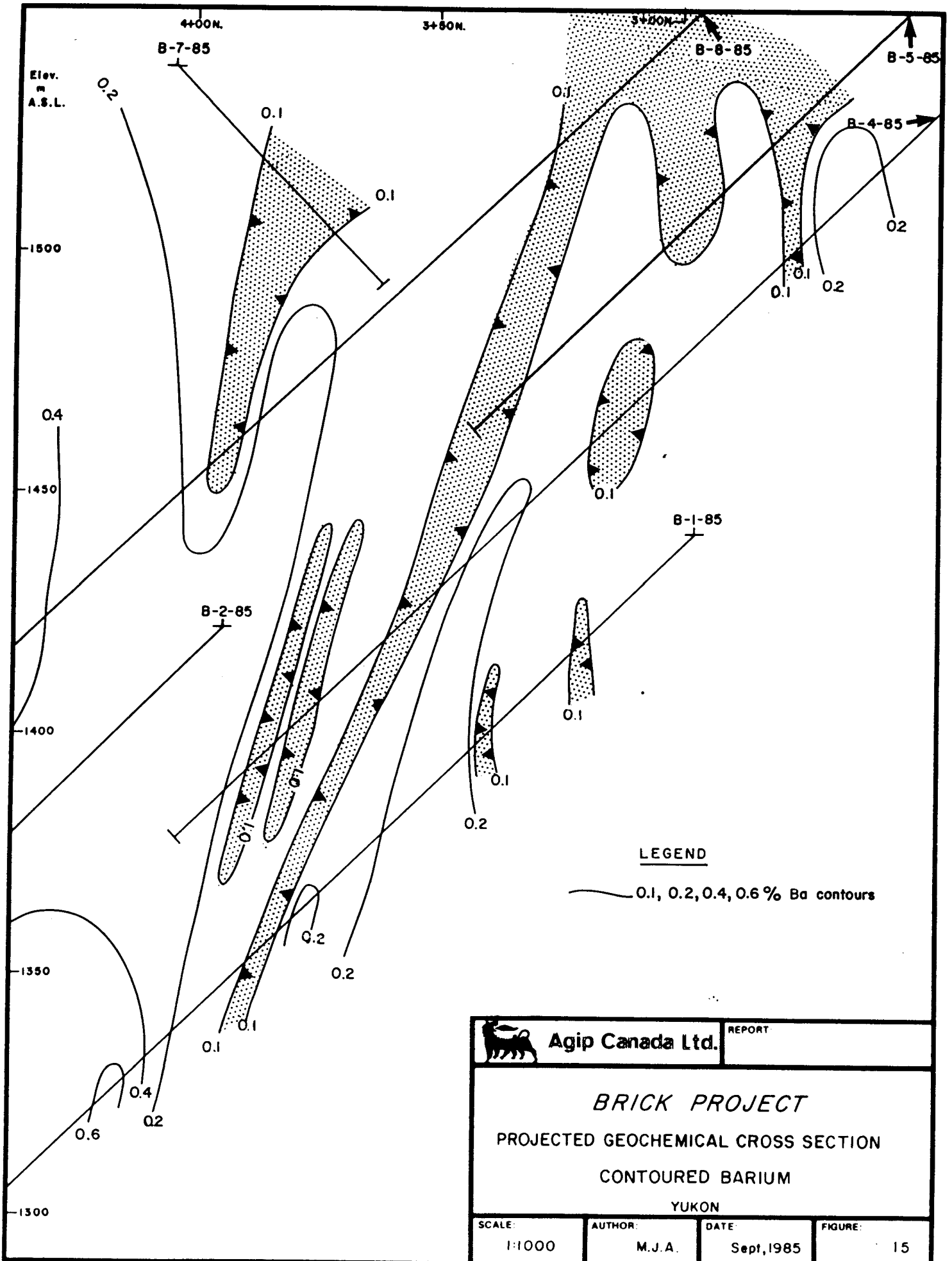
Other Zones: Four zones of anomalous gold-silver values were intersected in drill hole B-1-85 (Figure 9 and 14) from 32.0 to 54.5 m (1400-1420 m ASL) in bleached, silicified, weakly clay altered and in part pyritized shales (unit 4b). Moderate to locally intense fracturing, quartz-calcite-siderite-pyrite + galena cemented breccias and veins occur in this interval. The higher gold values (maximum 2.24 gmT Au, 5.0 gmT Ag) occur within the breccias and veins. The extent of this zone is not known at this time.

Thin, (up to 1.5 m wide) zones of anomalous gold-silver values occur sporadically within bleached, silicified and faulted shales in proximity to the main monzonite dyke swarm. These dykes, which also have sporadically anomalous gold silver values show moderate to strong alteration, increased structural disruption and locally quartz veining. All of these zones appear to have limited extent.

5.6.4 Core Geochemistry


All data is annexed in Appendix 7 and contoured values of select elements are presented in Figures 15 to 18.

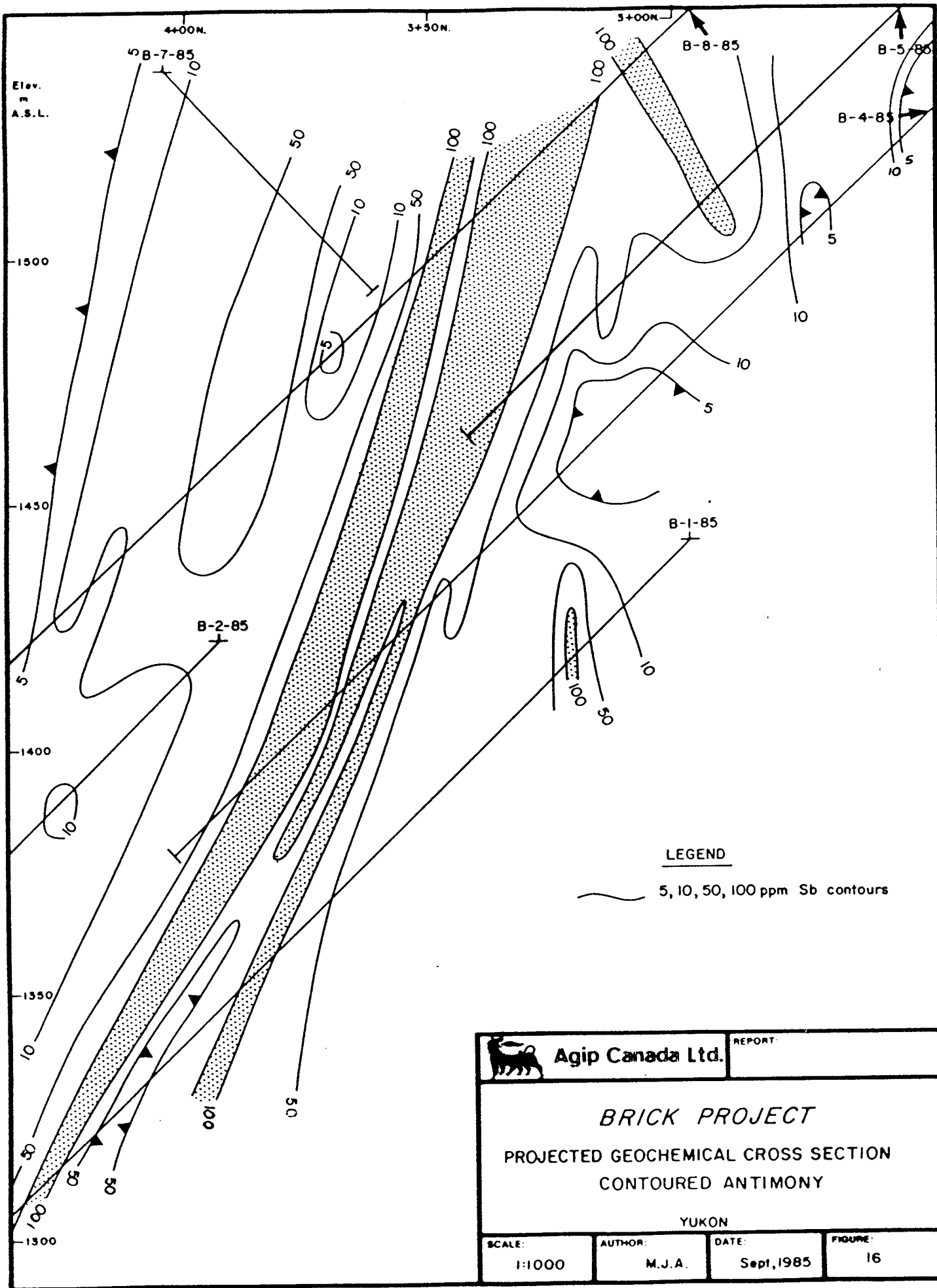
The Upper Earn Group shales (unit 5) contain 60-70% SiO₂, 19-22% Al₂O₃ and 2.5-3.0% K₂O. The Lower Earn Group shales (unit 4) contain 70-90% SiO₂, 4-12% Al₂O₃ and 0.5-1.5% K₂O. The CaO, Fe₂O₃, MgO and in part K₂O and Al₂O₃ contents vary depending on the amount of clay alteration and/or veining in the sample.



LEGEND


— 0.1, 0.2, 0.4, 0.6 % Ba contours

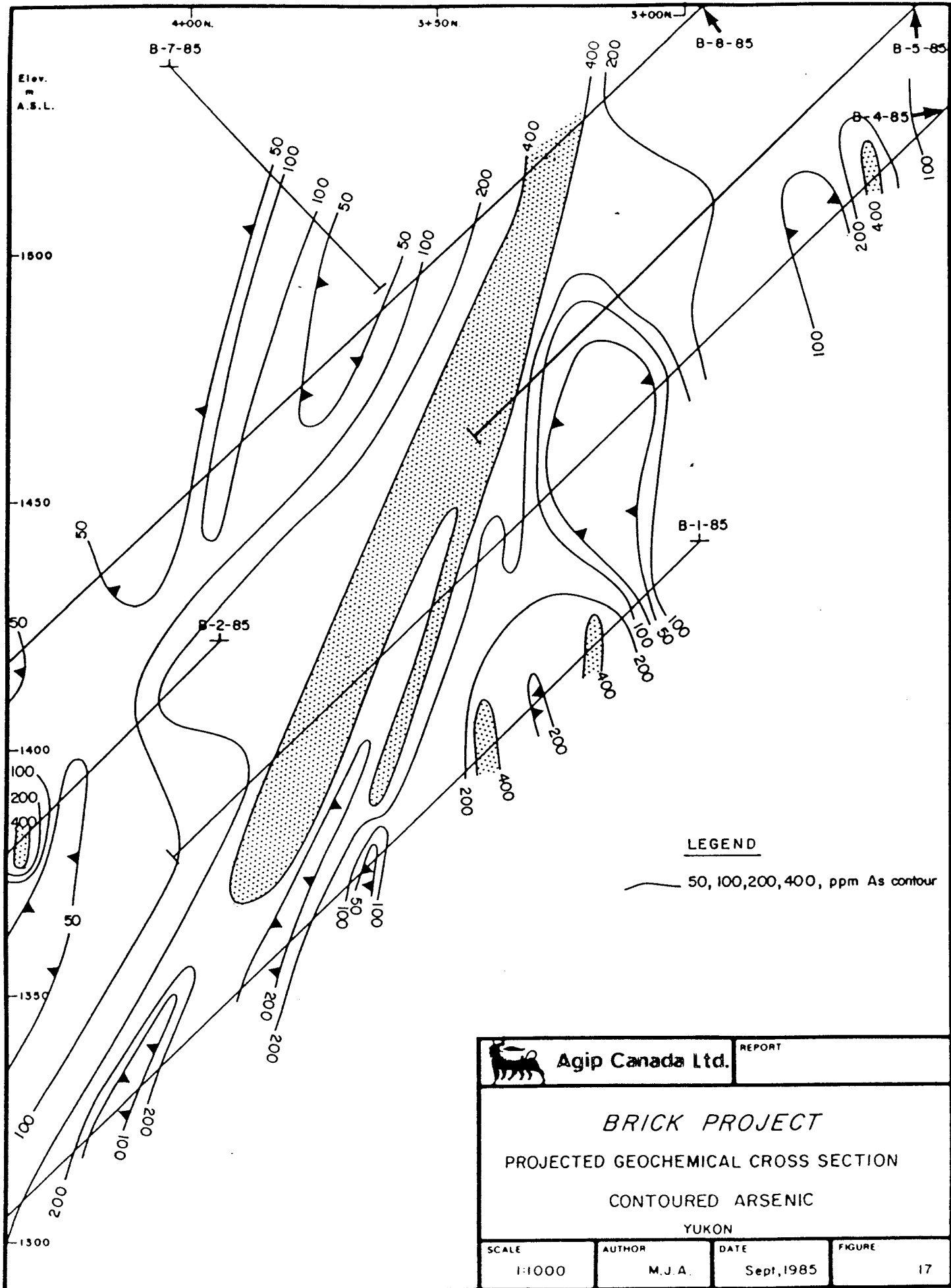
 Agip Canada Ltd.		REPORT:
BRICK PROJECT PROJECTED GEOCHEMICAL CROSS SECTION CONTOURED BARIUM YUKON		
SCALE:	AUTHOR:	DATE:
1:1000	M.J.A.	Sept, 1985
		FIGURE:
		15




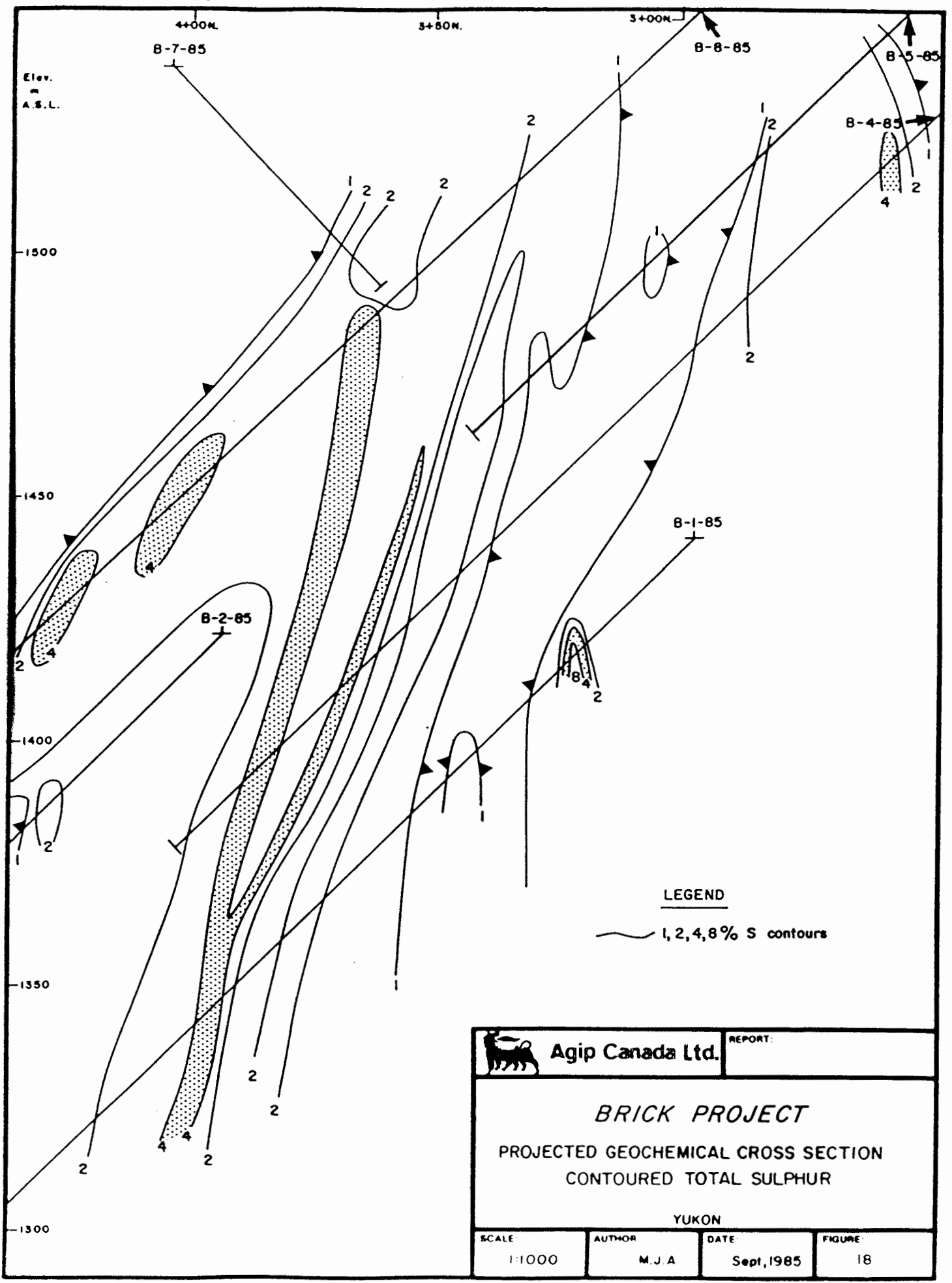
LEGEND

— 5, 10, 50, 100 ppm Sb contours

 Agip Canada Ltd.		REPORT:
BRICK PROJECT PROJECTED GEOCHEMICAL CROSS SECTION CONTOURED ANTIMONY YUKON		
SCALE:	AUTHOR:	DATE:
1:1000	M.J.A.	Sept, 1985
		FIGURE:
		16




 Agip Canada Ltd.		REPORT	
<p><i>BRICK PROJECT</i></p> <p>PROJECTED GEOCHEMICAL CROSS SECTION</p> <p>CONTOURED ARSENIC</p> <p>YUKON</p>			
SCALE	AUTHOR	DATE	FIGURE
1:1000	M.J.A.	Sept, 1985	17



LEGEND

— 1, 2, 4, 8% S contours

 Agip Canada Ltd.		REPORT:
BRICK PROJECT PROJECTED GEOCHEMICAL CROSS SECTION CONTOURED TOTAL SULPHUR		
YUKON		
SCALE: 1:1000	AUTHOR: M. J. A	DATE: Sept, 1985
		FIGURE: 18



Altered monzonites commonly show a complete loss of CaO and Na₂O and increased S content.

Background trace element content is considered to be less than 200 ppm Zn, 25 ppm Pb, 100 ppm Cu, 50 ppm As, 2 ppm Sb and 1.0% S. Maximum values are 0.13% As, 0.8% Ba, 1.85% Zn, 0.1% Cu, 344 ppm Sb and 124 ppm Pb.

Main Fault Zone: A strong correlation exists between anomalous Au, Ag, As, Sb, S and Zn values. Copper values are generally anomalous. Anomalous concentrations of Pb occur sporadically throughout. Barium exhibits a distinct low in the main fault zone.

The 50 ppm Sb, 200 ppm As, 2% S and 0.2% Ba contours outline the anomalous Au-Ag values (Figures 15 to 18). The width of the multi-element anomaly decreases below drill hole B-4-85.

Secondary Fault Zone: Each drill hole that intersected this zone exhibits a different suite of anomalous elements.

Coincident, anomalous (5 ppm) Sb and Ag values occur in drill holes B-2, 7 and 8-85.

Drill hole B-8-85 exhibits lower concentrations of the same elements that characterize the main fault zone. The 50 ppm Sb, 100 ppm As and 4% S contours correlate with the anomalous gold values in this fault.

Drill hole B-7-85 has anomalous Sb, low (0.2%) Ba and locally anomalous As, S and Zn values.

Drill hole B-2-85 has anomalous Sb, S and very high (0.62-0.82%) Ba values.

Drill holes B-7 and 8-85 have a similar suite of anomalous elements and intersected the secondary fault zone from 1540 to 1450 m ASL.

Boundary-Western Extension Fault Zone: The boundary fault zone (drill hole B-6-85) exhibits anomalous concentrations of Au, Ag, As, Sb, S and Zn. The K₂O, MgO and in part CaO concentrations are higher than is considered normal for shales. Sulphur is also



high in both the shales and monzonites. Very high (110-124 ppm) Pb values are present in the monzonites. The high Pb, Sb, S and As values in silicified monzonites are generally coincident with anomalous Au-Ag values.

Other Zones: The anomalous gold-silver values that occur from 29.0 to 54.5 m in drill hole B-1-85 correlate with the same suite of anomalous elements of similar concentrations as the main fault zone.

5.6.5 Clay XRD Studies

Results are listed in Appendix 7. All samples submitted contain 90% combined illite and chlorite with 5% kaolinite. Abundant Al, Fe, K and Ca-sulphate minerals (alunogen, melanterite, epsomite) were identified coating fractures in altered shales and monzonite and locally in quartz veins. Trace amounts of siderite and dolomite were identified in some samples.

No sulphide, arsenide or mercury minerals were detected.

5.7) Petrographic Studies

A total of 24 samples were submitted to Vancouver Petrographics Ltd. of Fort Langely, B.C. for petrographic examination (Appendix 8). Two samples (B-1-34.3 and B-4-202) were examined for trace element content by Scanning Electron Microscopy.

The porphyry varies in composition from quartz monzonite to quartz diorite. Two samples show strong sericitization of feldspars and biotite and local alunite-muscovite alteration.

All shale samples have been weakly to strongly sericitized. The shales show variable amounts of patchy cherty silicification, pyritization and quartz veining. Graphite is commonly remobilized with the quartz veins and totally removed from the bleached shales.

Calcium, iron and magnesium carbonates replace quartz grains within the shales. Total replacement of the shale was noted in



sample B-1-34.3. Associated with the carbonate replacement is 0 to trace amounts of alunite-jarosite, graphite, sericite, stibnite, chalcostibnite, pyrite, sphalerite, chalcopyrite and realgar.

Pyrite is present in two types; 1) syngenetic as spherical aggregates; 2) hydrothermal as ragged, skeletal and inclusion rich euhedral grains. Sphalerite with chalcopyrite inclusions is commonly associated with the hydrothermal pyrite.

The sulphide minerals in samples B-1-34.3 and B-4-202 scanned for trace elements returned no detectable (less than 0.5 weight percent of the mineral grain) concentrations of As, Hg, Au and Ag. Both the sphalerite and stibnite grains contain copper. The syngenetic and hydrothermal pyrite contain only Fe and S. The As, Au and Ag content of these samples determined geochemically ranges from 885-1247 ppm, 1.54-2.24 gmT and 5.0-9.35 gmT respectively. As well only trace amounts of stibnite grains were visibly detected. Antimony content in these samples ranges from 116 to 283 ppm.

Neither Barite nor other Ba minerals have been optically identified in samples containing up to 0.82% Ba.

The petrographically determined graphite content in the shale samples ranges from 5 to 50%. However, the combined total of oxide and trace elements contents for the shales ranges from 90 to 99%.

STATEMENT OF QUALIFICATIONS

I, Milton John Aupperle, of the City of Calgary, in the Province of Alberta, hereby certify:

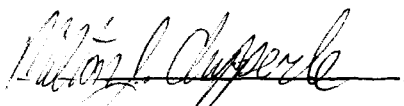
That I am a Project Geologist employed by AGIP Canada Ltd. and that I caused to be performed, and supervised, the work described in this report.

That I obtained a Bachelor of Science degree in Geology from the University of Saskatchewan in 1982.

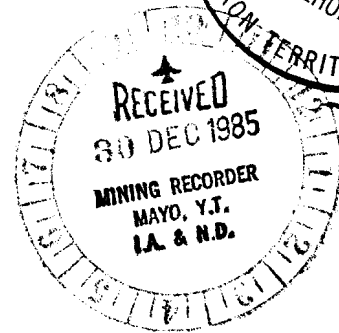
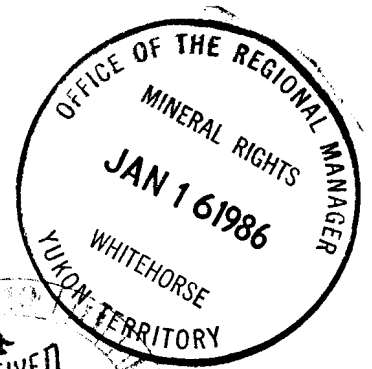
That I have been engaged in mineral exploration on a full and part time basis for seven years of which two have been on mineral exploration programs in the Yukon Territory.

That I am a member of the Calgary Mineral Exploration Group.

Signed at Calgary, Alberta this 19th day of December, 1985.


Milton J. Aupperle

091770



APPENDIX 1

Rock Geochemistry & Assay Data

091770

091770



4200B - 10 STREET N.E.
CALGARY, ALBERTA
T2E 6K3
PHONE: (403) 250-1901

DATE: 10/1/85
PAGE: 1 OF 1
COPY: 1 OF 3

AUTHOR: M. AUPPERLE

AGIP CANADA LTD.
3000, 350-7 AVENUE S.W.
CALGARY, ALBERTA T2E 3M9

PROJECT: DOWNS-201
P. O. 13131

WORK ORDER: 51530-85

ATTN: E.B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: ROCK

SAMPLE NUMBER	FIRE ASSAY	
	AU GRAMS/M	AG GRAMS/M
BM: 1 -85	0.004	0.34
BM: 2 -85	0.252	1.46
M: 1 -85	0.009	0.02
M: 2 -85	0.003	0.05
M: 3 -85	0.005	0.14
M: 4 -85	0.73	12.3
M: 5 -85	0.034	1.31
M: 6 -85	0.048	0.53
M: 7 -85	0.014	0.38
M: 8 -85	0.013	0.58
M: 9 -85	0.124	1.43
M: 10 -85	1.26	1.73
M: 11 -85	0.07	1.12
M: 12 -85	0.007	0.1
M: 13 -85	0.006	0.82
M: 14 -85	0.006	0.16

SIGNED: _____

C. Douglas Read
C. Douglas Read,
LABORATORY MANAGER

CC's TO:
AGIP CANADA LTD.
WHITEHORSE, YUKON
M. AUPPERLE

FOOTNOTES:

P=QUESTIONABLE PRECISION: * = INTERFERENCE: TR=TRACE: ND=NOT DETECTED:
IS=INSUFFICIENT SAMPLE: NA=NOT ANALYZED: MS=MISSING SAMPLE



4200B - 10 STREET N.E.
 CALGARY, ALBERTA
 T2E 6K3
 PHONE: (403) 250-1901

AUTHORITY: M. RUPPERLE

19-AUG-85
 PAGE: 1 OF 4
 COPY: 1 OF 1

AGIF CANADA LTD.
 3000, 350-7 AVENUE S.W.
 CALGARY, ALBERTA T2P 3M9

PROJECT: 800039-813
 P. O. : 11167

WORK ORDER: 81500-85

ATTN: E.B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: ROCK

S A M P L E N U M B E R	FIRE ASSAY	
	AU GRAMS/M	AG GRAMS/M
M-: 15 -85	0.006	<0.01
M-: 16 -85	0.005	2.15
M-: 17 -85	0.012	6.12
M-: 18 -85	0.011	0.87
M-: 19 -85	0.017	0.92
M-: 20 -85	0.044	1.93
M-: 21 -85	0.206	2.65
M-: 22 -85	0.205	0.96

Var.\ID:	M-9-85	M-10-85	M-16-85	M-20-85	M-21-85	M-22-85
CI02	59.30	81.28	61.37	61.20	67.22	87.31
L203	10.06	5.96	7.49	7.45	6.17	5.05
FE203	21.99	9.43	24.07	23.56	16.78	5.27
WGO	0.15	0.17	0.13	0.24	0.11	0.08
AO	0.06	0.07	0.10	0.09	0.06	0.06
NA20	0.14	0.00	0.06	0.03	0.02	0.00
W20	1.93	1.10	1.55	1.50	0.94	0.78
Total	93.63	98.01	94.78	94.07	91.30	98.56
J	1708	382	59	1253	975	406
BA	14010	842	1158	3162	6786	818
CU	155	55	24	52	69	50
J	28	62	52	27	24	9
S	5365	5992	1511	7630	13868	4873
CB	1236	65	44	73	123	39
J	4963	27	2005	203	9	0

APPENDIX 2

Soil Geochemistry Data



4200B - 10 STREET N.E.
CALGARY, ALBERTA
T2E 6K3
PHONE: (403) 250-1901

10-MAY-85
PAGE: 1 OF 6
COPY: 1 OF 2

AUTHORITY: E. B. STEWART

PROJECT: 500037

AGIP CANADA LTD.
3000, 350-A AVENUE S.W.
CALGARY, ALBERTA T2P 3M9

WORK ORDER: 80730-85

ATTN: E. B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: SOIL

SAMPLE NUMBER	AS PPM	SB PPM	HG PPM
233036	120.0	<1.0	1.68
233037	200.0	<1.0	1.54
233038	234.0	<1.0	1.12
233039	400.0	<1.0	0.77
233040	315.0	<1.0	0.56
233041	370.0	<1.0	0.49
233042	85.0	<1.0	0.77
233043	115.0	<1.0	0.21
233044	150.0	<1.0	0.28
233045	365.0	<1.0	0.21
233046	135.0	<1.0	0.21
233047	370.0	<1.0	0.84
233048	200.0	<1.0	0.98
233049	370.0	<1.0	2.38
233050	65.0	30.0	0.56
233051	190.0	16.0	0.84
233052	330.0	152.0	1.96
233053	10.0	2.0	1.96
233054	<3.0	<1.0	0.84
233055	70.0	2.0	1.61
233056	300.0	4.0	0.63
233067	255.0	<1.0	3.15
233068	320.0	<1.0	10.5
233069	790.0	<1.0	16.8
233070	400.0	<1.0	9.8
233071	200.0	40.0	23.8
233072	160.0	<1.0	1.82
233073	340.0	18.0	50.4
233074	290.0	<1.0	0.91
233075	165.0	<1.0	0.49



4200B - 10 STREET N.E.
CALGARY, ALBERTA
T2E 6K3
PHONE: (403) 250-1901

10-MAY-85
PAGE: 3 OF 6
COPY: 1 OF 3

AUTHORITY: E. B. STEWART

AGIP CANADA LTD.
3000, 350-7 AVENUE S.W.
CALGARY, ALBERTA T2P 3N9

PROJECT: 500037

WORK ORDER: 80720-85

ATTN: E. B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: SOIL

SAMPLE NUMBER	AS PPM	SB PPM	HG PPM
233076	330.0	<1.0	1.13
233077	380.0	<1.0	0.7
233078	275.0	<1.0	2.66
233079	155.0	<1.0	0.56
233080	320.0	<1.0	0.7
233081	370.0	<1.0	0.56
233082	205.0	2.0	0.95
233083	260.0	<1.0	1.59
233084	270.0	2.0	2.86
233085	175.0	<1.0	4.98
233086	260.0	<1.0	2.23
233087	100.0	<1.0	0.42
233088	75.0	<1.0	0.64
233126	150.0	<1.0	0.32
233127	155.0	<1.0	2.65
233128	350.0	<1.0	4.77
233129	1930.0	90.0	20.14
233130	880.0	8.0	54.06
233131	1920.0	6.0	4.24
233132	800.0	<1.0	7.42
233133	810.0	12.0	14.84
233134	660.0	<1.0	3.18
233135	1060.0	<1.0	4.24
233136	1140.0	8.0	4.77
233435	470.0	10.0	58.3
233436	225.0	4.0	29.68
233437	240.0	<1.0	10.6
233438	400.0	2.0	76.32
233439	945.0	8.0	28.62
233440	1335.0	6.0	25.44



4200B - 10 STREET N.E.
 CALGARY, ALBERTA
 T2E 6K3
 PHONE: (403) 250-1901

16-MAY-85
 PAGE: 3 OF 6
 COPY: 1 OF 2

AUTHORITY: E. B. STEWART

AGIP CANADA LTD.
 3000, 350-7 AVENUE S.W.
 CALGARY, ALBERTA T2P 3N9

PROJECT: 500039

WORK ORDER: 80720-85

ATTN: E. B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: SOIL

SAMPLE NUMBER	AS PPM	SB PPM	HG PPM
233441	MS	MS	MS
233442	100.0	<1.0	6.36
233443	220.0	<1.0	10.6
233400	1248.0	72.0	3.18
233401	1215.0	4.0	2.76
233402	710.0	<1.0	1.27
233403	590.0	<1.0	21.73
233404	540.0	8.0	79.5
233405	820.0	28.0	100.7
233406	310.0	30.0	84.8
233407	490.0	22.0	47.7
233100	MS	MS	MS
233101	580.0	14.0	42.4
233102	770.0	74.0	IS
233108	1275.0	54.0	100.7
233104	325.0	32.0	25.44
233105	420.0	64.0	60.42
233115	880.0	22.0	6.36
233116	860.0	14.0	20.67
233117	830.0	38.0	20.14
233118	1115.0	46.0	13.78
233119	680.0	6.0	1.12
233120	325.0	18.0	32.9
233121	255.0	4.0	7.0
233122	150.0	<1.0	5.6
233123	50.0	<1.0	0.21
233124	35.0	<1.0	0.49
233125	80.0	<1.0	58.8
233349	365.0	62.0	8.4
233350	30.0	<1.0	1.82



4200B - 10 STREET N.E.
CALGARY, ALBERTA
T2E 6K3
PHONE: (403) 250-1901

16-MAY-85
PAGE: 4 OF 6
COPY: 1 OF 2

AUTHORITY: E. B. STEWART

AGIP CANADA LTD.
3000, 350-7 AVENUE S.W.
CALGARY, ALBERTA T2P 3N9

PROJECT: 500037

WORK ORDER: 8072D-85

ATTN: E. B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: SOIL

SAMPLE NUMBER	AS PPM	SB PPM	HG PPM
233351	90.0	<1.0	0.14
233352	85.0	<1.0	2.1
233353	65.0	<1.0	7.7
233354	1360.0	26.0	6.3
233355	395.0	2.0	1.68
233356	375.0	6.0	2.38
233300	710.0	10.0	5.6
233301	1680.0	32.0	19.6
233302	710.0	30.0	21.0
233303	960.0	74.0	47.0
233304	440.0	30.0	27.0
233305	130.0	<1.0	0.8
233306	105.0	<1.0	0.3
233307	85.0	<1.0	0.5
233137	425.0	<1.0	1.8
233138	500.0	4.0	3.5
233139	790.0	2.0	1.3
233140	990.0	8.0	3.5
233310	65.0	<1.0	0.3
233311	230.0	<1.0	14.0
233312	630.0	<1.0	5.0
233313	830.0	10.0	11.0
233314	310.0	<1.0	1.2
233315	70.0	<1.0	2.4
233316	50.0	<1.0	0.65
233317	120.0	<1.0	0.15
233318	100.0	2.0	1.1
233319	410.0	44.0	13.5
233320	285.0	57.0	65.0
233171	520.0	4.0	5.5



4200B - 10 STREET N.E.
CALGARY, ALBERTA
T2E 6K3
PHONE: (403) 250-1901

16-MAY-85
PAGE: 5 OF 6
COPY: 1 OF 3

AUTHORITY: E. B. STEWART

AGIP CANADA LTD.
3000, 350-7 AVENUE S.W.
CALGARY, ALBERTA T2P 3N9

PROJECT: 500037

WORK ORDER: 80720-85

ATTN: E. B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: SOIL

SAMPLE NUMBER	AS PPM	SB PPM	HG PPM
233172	310.0	<1.0	1.0
233173	215.0	<1.0	8.5
233174	270.0	<1.0	1.5
233175	245.0	<1.0	0.6
233176	420.0	<1.0	0.45
233177	400.0	<1.0	0.25
233178	620.0	8.0	1.3
233528	360.0	28.0	38.0
233529	830.0	116.0	34.0
233530	610.0	82.0	43.0
233531	600.0	90.0	7.5
233532	1720.0	234.0	19.0
233533	1110.0	198.0	14.0
233534	710.0	380.0	20.0
233535	160.0	<1.0	2.5
233462	425.0	60.0	2.0
233463	395.0	122.0	1.8
233464	75.0	2.0	0.25
233465	95.0	<1.0	0.4
233466	480.0	72.0	3.5
233467	680.0	56.0	8.0
233468	640.0	102.0	7.0
233469	820.0	170.0	26.0
233221	25.0	<1.0	10.0
233222	15.0	6.0	0.1
233252	30.0	8.0	0.3
233253	250.0	34.0	11.5
233254	225.0	30.0	5.0
233255	190.0	24.0	13.5
233256	270.0	28.0	23.5



4200B - 10 STREET N.E.
CALGARY, ALBERTA
T2E 6K3
PHONE: (403) 250-1901

16-MAY-85
PAGE: 6 OF 6
COPY: 1 OF 2

AUTHORITY: E. B. STEWART

AGIP CANADA LTD.
3000, 350-7 AVENUE S.W.
CALGARY, ALBERTA T2P 3N9

PROJECT: 500037

WORK ORDER: 80720-85

ATTN: E. B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: SOIL

SAMPLE NUMBER	AS PPM	SB PPM	HG PPM
233486	115.0	2.0	0.8
233487	230.0	32.0	9.0
233488	150.0	14.0	31.0
233270	100.0	36.0	9.0
233271	120.0	20.0	13.5
233272	60.0	<1.0	0.22
233273	100.0	<1.0	0.3
233274	65.0	<1.0	0.08
233275	40.0	4.0	0.45
233276	105.0	<1.0	0.15
233277	75.0	<1.0	0.23
233278	95.0	<1.0	0.15

SIGNED: C. Douglas Read
C. Douglas Read,
LABORATORY MANAGER

FOOTNOTES:

P=QUESTIONABLE PRECISION; * = INTERFERENCE; TR=TRACE; ND=NOT DETECTED;
IS=INSUFFICIENT SAMPLE; NA=NOT ANALYZED; MS=MISSING SAMPLE



4200B - 10 STREET N.E.
CALGARY, ALBERTA
T2E 6K3

PHONE: (403) 250-1901

PAGE: 1 OF 10
COPY: 1 OF 2

ASIF CANADA LTD.
1000, 30th Avenue S.W.
CALGARY, ALBERTA T2P 3A9

PROJECT: 500039501
P.O. # 1218, 1220

WORK ORDER: 52740-15

ATTN: R.B. STEWARD

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: SOIL

SAMPLE NUMBER	AS PPM	SE PPM	HG PPB
233337	27.0	2.0	110.0
233338	24.0	2.0	85.0
233339	32.0	<2.0	425.0
233340	82.0	<2.0	50.0
233341	27.0	<2.0	50.0
233342	24.0	8.0	360.0
233343	22.0	6.0	300.0
233344	40.0	18.0	6390.0
233345	41.0	18.0	6820.0
233346	440.0	82.0	16200.0
233347	92.0	26.0	3960.0
233348	460.0	14.0	630.0
233349	12.0	<2.0	275.0
233345	42.0	<2.0	355.0
233346	16.0	<2.0	105.0
233347	11.0	<2.0	155.0
233348	11.0	4.0	150.0
233349	24.0	<2.0	475.0
233350	15.0	<2.0	1065.0
233351	34.0	16.0	895.0
233352	94.0	44.0	2470.0
233353	92.0	40.0	5540.0
233354	470.0	76.0	20200.0
233355	770.0	410.0	302000.0
233356	330.0	122.0	9800.0
233357	46.0	14.0	765.0
233358	330.0	26.0	2260.0
233359	17.0	4.0	6820.0
233359	12.0	<2.0	3580.0
233360	24.0	<2.0	5540.0



4200B - 10 STREET N.E.
 CALGARY, ALBERTA
 T2E 6K3
 PHONE: (403) 250-1901

AGRIUM CANADA LTD.
 1000, 20th AVENUE S.W.
 CALGARY, ALBERTA T2E 3A9

AGRIUM CANADA LTD.
 1000, 20th AVENUE S.W.

PHONE: (403) 250-1901

ATTN: S.S. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: SOIL

SAMPLE NUMBER	AS PPM	SE PPM	HG PPM
233411	51.0	12.0	12800.0
233412	36.0	8.0	4260.0
233413	24.0	22.0	1920.0
233414	25.0	2.0	1020.0
233415	27.0	<2.0	595.0
233416	7.0	<2.0	510.0
233417	14.0	2.0	555.0
233418	31.0	6.0	1240.0
233419	20.0	10.0	960.0
233420	27.0	2.0	725.0
233514	21.0	18.0	1875.0
233515	26.0	<2.0	470.0
233516	1.0	4.0	930.0
233517	29.0	4.0	385.0
233518	17.0	20.0	4685.0
233519	15.0	24.0	1620.0
233520	2.0	14.0	6600.0
233521	50.0	24.0	3020.0
233522	37.0	14.0	895.0
233523	28.0	18.0	2215.0
233524	27.0	10.0	1575.0
233525	52.0	42.0	12100.0
233526	4.0	10.0	1365.0
233527	2.0	8.0	1110.0
233260	1.0	2.0	34100.0
233261	8.0	<2.0	1365.0
233262	2.0	24.0	765.0
233263	43.0	8.0	3815.0
233264	8.0	24.0	119000.0
233265	<1.0	26.0	59600.0



4200B - 10 STREET N.E.
 CALGARY, ALBERTA
 T2E 6K3
 PHONE: (403) 250-1901

PAGE: 4 OF 10
 JOB: 105 2

AGRI CANADA LTD.
 3000, 450-7 AVENUE S.W.
 CALGARY, ALBERTA T2P 3A9

PROJECT: SOGGWREN
 S. W. 10199, 11000

MODE: FEDERAL 80190-85

ATTN: S. W. STEWARD

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: SOIL

SAMPLE NUMBER	AS PPM	SB PPM	MG PPF
233266	7.0	73.0	161000.0
233267	80.0	18.0	2450.0
233268	18.0	10.0	6390.0
233269	38.0	14.0	8945.0
233244	20.0	64.0	1875.0
233245	9.0	80.0	1085.0
233246	5.0	28.0	595.0
233247	7.0	30.0	520.0
233248	15.0	14.0	615.0
233470	4.0	4.0	2725.0
233471	4.0	2.0	2195.0
233472	3.0	6.0	2260.0
233473	3.0	2.0	2320.0
233474	5.0	2.0	2555.0
233475	27.0	16.0	22100.0
233476	52.0	34.0	40900.0
233477	46.0	40.0	8010.0
233478	66.0	26.0	2195.0
233479	31.0	18.0	4515.0
233480	195.0	32.0	5110.0
233481	11.0	<2.0	250.0
233482	430.0	4.0	1340.0
233483	9.0	8.0	1745.0
233484	495.0	388.0	63000.0
233485	34.0	16.0	9370.0
233257	5.0	<2.0	260.0
233258	8.0	2.0	390.0
233259	8.0	36.0	595.0
234063	5.0	<2.0	205.0
234064	7.0	<2.0	145.0



4200B - 10 STREET N.E.
CALGARY, ALBERTA
T2E 6K3
PHONE: (403) 250-1901

AGRI-CANADA LTD.

AGRI-CANADA LTD.
3000, 350-7 AVENUE S.W.
CALGARY, ALBERTA T2E 6N9

Page 1 of 10
Date: 11-1-88

Page 1 of 10
Date: 11-1-88

Phone: (403) 250-1901

ATTN: S.A. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: SOIL

SAMPLE NUMBER	AS PPM	SR PPM	HG PPM
233065	11.0	<2.0	330.0
233130	8.0	12.0	1790.0
233461	18.0	16.0	7150.0
233207	86.0	6.0	325.0
233208	15.0	6.0	1170.0
233209	15.0	<2.0	660.0
233210	12.0	14.0	3875.0
233211	7.0	<2.0	170.0
233212	4.0	<2.0	35.0
233213	9.0	<2.0	160.0
233214	16.0	<2.0	170.0
233215	68.0	4.0	915.0
233216	44.0	6.0	4045.0
233217	22.0	8.0	115.0
233218	30.0	8.0	415.0
233219	8.0	<2.0	275.0
233220	7.0	<2.0	290.0
233902	7.0	76.0	5965.0
233903	<1.0	40.0	2555.0
233904	8.0	20.0	4260.0
233905	39.0	64.0	10900.0
233906	24.0	54.0	43900.0
233907	<1.0	<2.0	1045.0
233908	14.0	<2.0	325.0
233909	108.0	6.0	410.0
233499	1.0	<2.0	5195.0
234058	19.0	10.0	11100.0
234059	13.0	14.0	4430.0
234060	15.0	10.0	9630.0
234061	14.0	10.0	1280.0



4200B - 10 STREET N.E.
 CALGARY, ALBERTA
 T2E 6K3
 PHONE: (403) 250-1901

AGRICULTURE, FORESTRY

PAGE: 6 OF 10
 COPY: 2 OF 2

AGRI CANADA LTD.
 3000, 3500 AVENUE S.W.
 CALGARY, ALBERTA T2P 1A9

PROJECT: 900039501
 DATE: 1999.11.01

ORDER NUMBER: 90-90-95

ATTN: S.S. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: SOIL

SAMPLE NUMBER	AS PPM	SB PPM	H6 PPM
233486	10.0	20.0	810.0
233489	144.0	16.0	335.0
233490	88.0	<2.0	175.0
233491	14.0	<2.0	620.0
233492	84.0	8.0	2750.0
233493	39.0	<2.0	7455.0
233494	9.0	<2.0	2385.0
233495	12.0	10.0	14100.0
233496	65.0	76.0	5110.0
233497	46.0	20.0	1745.0
233498	33.0	8.0	22200.0
233562	10.0	<2.0	1725.0
233563	30.0	<2.0	130.0
233564	35.0	<2.0	290.0
233565	42.0	10.0	1280.0
233566	9.0	4.0	4005.0
233567	5.0	6.0	4900.0
233568	12.0	4.0	6815.0
233569	10.0	<2.0	1790.0
233570	14.0	<2.0	2385.0
233571	<1.0	<2.0	1320.0
233572	15.0	<2.0	330.0
233573	21.0	<2.0	370.0
233574	16.0	<2.0	420.0
233575	20.0	10.0	1575.0
233576	29.0	<2.0	895.0
233577	23.0	<2.0	85.0
233181	17.0	<2.0	2215.0
233182	27.0	<2.0	445.0
233183	45.0	6.0	250.0



4200B - 10 STREET N.E.
 CALGARY, ALBERTA
 T2E 6K3
 PHONE: (403) 250-1901

ASIP CANADA LTD.
 2000, 500-5 AVENUE S.W.
 CALGARY, ALBERTA T2P 3N5

TEL: (403) 250-1901
 FAX: (403) 250-1902

ATTN: E.B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: SOIL

SAMPLE NUMBER	AS PPM	SE PPM	HS PPM
233184	4.0	<2.0	65.0
233185	3.0	<2.0	170.0
233186	72.0	62.0	14000.0
233187	54.0	30.0	2700.0
233188	66.0	60.0	4265.0
233189	36.0	4.0	6265.0
233190	38.0	<2.0	2535.0
233578	8.0	<2.0	95.0
233579	1.0	<2.0	200.0
233580	10.0	<2.0	1200.0
233581	10.0	<2.0	950.0
233582	13.0	2.0	2535.0
233583	13.0	4.0	2265.0
233584	6.0	<2.0	2830.0
233585	<1.0	<2.0	485.0
233586	13.0	<2.0	815.0
233587	9.0	<2.0	1065.0
233588	<1.0	<2.0	140.0
233589	8.0	4.0	750.0
233590	3.0	<2.0	125.0
233591	10.0	<2.0	420.0
233592	MS	MS	MS
233593	MS	MS	MS
233594	MS	MS	MS
233595	MS	MS	MS
233596	MS	MS	MS
233597	MS	MS	MS
233191	152.0	16.0	3465.0
233192	37.0	<2.0	2400.0
233193	23.0	<2.0	500.0



4200B - 10 STREET N.E.
 CALGARY, ALBERTA
 T2E 6K3
 PHONE: (403) 250-1901

PAGE: 8 OF 10
 COPY: 3 OF 3

ASIF CANADA LTD.
 2000, 200-7 AVENUE S.W.
 CALGARY, ALBERTA T2E 6N9

PROJECT: 80000000
 DATE: 11/19/88, 1988

ORDER NUMBER: 21190-88

ATTN: E.R. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: SOIL

SAMPLE NUMBER	AS PPM	SB PPM	Pb PPM
233194	3.0	<2.0	215.0
233195	3.0	2.0	765.0
233196	25.0	4.0	1750.0
233197	23.0	<2.0	2300.0
233198	31.0	6.0	2335.0
233199	<1.0	<2.0	345.0
233701	12.0	<2.0	650.0
233702	2.0	<2.0	1465.0
233603	1.0	<2.0	800.0
233604	<1.0	<2.0	450.0
233605	13.0	<2.0	765.0
233606	20.0	<2.0	550.0
233607	17.0	<2.0	265.0
233608	20.0	<2.0	195.0
233609	1.0	<2.0	205.0
234254	14.0	<2.0	1265.0
234255	9.0	<2.0	135.0
234256	3.0	<2.0	235.0
234257	48.0	<2.0	5200.0
234258	122.0	18.0	42700.0
234259	MS	MS	MS
234235	9.0	<2.0	1930.0
234236	1.0	<2.0	2230.0
234237	38.0	8.0	5735.0
234238	13.0	<2.0	345.0
234239	22.0	<2.0	280.0
234247	4.0	<2.0	210.0
234248	6.0	<2.0	850.0
234249	8.0	<2.0	380.0
234250	26.0	<2.0	7470.0



4200B - 10 STREET N.E.
 CALGARY, ALBERTA
 T2E 6K3
 PHONE: (403) 250-1901

01-000000
 PAGE: 5 OF 10
 DATE: 1991

RAIL CANADA LTD.
 2000, 250-7 AVENUE S.W.
 CALGARY, ALBERTA T2E 6K3

PROJECT NUMBER
 P. O. 11159, 13200

WORK ORDER: 82990-55

ATTN: S.A. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: SOIL

SAMPLE NUMBER	AS f/m	SE f/m	HS f/m
234000	9.0	<2.0	985.0
234001	6.0	<2.0	160.0
234002	16.0	<2.0	250.0
234003	24.0	<2.0	145.0
234004	12.0	<2.0	60.0
234005	14.0	<2.0	60.0
234012	12.0	<2.0	295.0
234013	16.0	<2.0	260.0
234014	15.0	<2.0	100.0
234015	10.0	<2.0	885.0
234016	2.0	<2.0	150.0
234017	16.0	<2.0	110.0
234024	2.0	<2.0	460.0
234025	1.0	<2.0	3400.0
234026	1.0	<2.0	680.0
234027	6.0	<2.0	2515.0
234028	27.0	<2.0	815.0
234029	5.0	<2.0	850.0
234030	36.0	<2.0	1970.0
234031	30.0	<2.0	1630.0
234032	670.0	10.0	9655.0
234033	44.0	<2.0	815.0
234034	<1.0	<2.0	1260.0
234035	5.0	<2.0	3400.0
234036	<1.0	<2.0	185.0
234044	33.0	<2.0	610.0
234045	6.0	<2.0	410.0
234046	15.0	<2.0	95.0
234047	8.0	<2.0	175.0



4200B - 10 STREET N.E.
CALGARY, ALBERTA
T2E 6K3

PHONE: (403) 250-1901

DATE: 10/15/85
PAGE 1 OF 1

ADIR CANAMP LTD.
2000, 220-7 AVENUE S.W.
CALGARY, ALBERTA T2E 2E9

PROJECT: 8505HE01
P. NO. 115000, 12200

WORK ORDER: 85-10-85

ATTN: E.P. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: SOIL

SAMPLE NUMBER	AS PPM	SE PPM	EG PPB
234048	12.0	<2.0	715.0
234049	13.0	<2.0	7535.0
234050	4.0	<2.0	200.0

SIGNED:

C. Douglas Read
C. Douglas Read,
LABORATORY MANAGER

FOOTNOTES:

P=QUESTIONABLE PRECISION; S=INTERFERENCE; TR=TRACE; ND=NOT DETECTED;
IS=INSUFFICIENT SAMPLE; NA=NOT ANALYZED; MS=MISSING SAMPLE

APPENDIX 3

Water Geochemistry Data



4200B - 10 STREET N.E.
 CALGARY, ALBERTA
 T2E 6K3
 PHONE: (403) 250-1901

July 22, 1985

Attention: M. Aupperle

Work Report 8130-85

AGIP Canada Ltd.
 3000, 350 - 7 Ave. S.W.
 Calgary, Alberta
 T2P 3N9

Project No. 500039 -
 E05

Analytical Data for Water Sample WS #1

As ppb	Hg ppb	pH	Bicarb. Alk. ppm		Carb. Alk. ppm		Cl ppm	
<1	.13	9.7	30		113		<2	
SO ₄ ppm	NO ₃ ppm	NO ₂ ppm	F ppm	TDS mg/L	Conductivity mho/cm		Hardness mg/L	
25	<.07	<.03	.23	136	144		120	
Na mg/L	K mg/L	Ca mg/L	Mg mg/L	Fe ppb	Al mg/L	Ag ppb	Cd ppb	Co ppb
18	<10	40	5.15	590	<10	<10	<10	<10
Cr ppb	Cu ppb	Mn ppb	Mo ppb	Ni ppb	P ppb	Pb ppb	V ppm	Zn ppb
<10	<10	15	<50	<10	500	<50	<1	480



4200B - 10 STREET N.E.
CALGARY, ALBERTA
T2E 6K3
PHONE: (403) 250-1901

Attention: M. Aupperle

July 22/85

AGIP Canada Ltd.
3000, 350 - 7 Ave. S.W.
Calgary, Alberta T2P 3N9

Project 500039-E05
W.O. 8136-85

Analytical Results for Water Sample WS #2

Hg	As
ppb	ppb
.04	<1

APPENDIX 4

Drill Hole Logs

DRILL LOG ABBREVIATIONS/DEFINITIONS

str. -	Strike	sub. -	Subhedral
fr. -	Fracture	displ. -	Displacement
V. -	Vein	dk. -	Dark
cnt.U/L -	Contact Upper/Lower	rnded -	Rounded
cl. -	Cleavage	euhed. -	Euhedral
# -	Number	transp. -	Transparent
F.A. -	Fold Axis	alt. -	Altered
strat. -	Stratiform	phenos. -	Phenocrysts
Sh. -	Shearing	C -	Carbon/Carbonaceous
flt. -	Fault	Sid. -	Siderite
irreg. -	Irregular	py -	Pyrite
diss. -	Disseminated	qz/qtz -	Quartz
ang. -	Angular	lim. -	Limonite
G -	Gouge	Biot. -	Biotite
f.g. -	Fine Grained	felds. -	Feldspar
shp. -	Sharp	ser. -	Sericite
lam. -	Laminated	orp. -	Orpiment
st.st. -	Siltstone	hem. -	Hematite
congl. -	Conglomerate	Gr. -	Graphite
S.S. -	Sandstone	bl. -	Bleached
lithos. -	Lithology	sil. -	Silicified
acic. -	Acicular		
x-lls -	Crystals		

Rec. - meters of core recovered over interval

RQD - (Rock Quality Designator) cumulative length in meters of core pieces greater than 0.10 m in length over interval

V/M - Number of veins over the interval divided by total meters of interval.

VT/M - Cumulative thickness in centimeters of vein divided by total meters of interval (essentially % vein over interval)

Fr/M - Number of fractures over the interval divided by total meters of interval.

SUMMARY LOG

DDH B-1-85

Lithology

0.0 - 24.4 m	Overburden
24.4 - 29.0 m	Porphyry Dyke
29.0 - 96.15 m	Black Carbonaceous Shale with 10-30% Dark Grey Mudstone Interbeds.
96.15 - 105.7 m	Porphyry Dyke
105.7 - 119.6 m	Black Carbonaceous Shale with 40% decreasing to 5% with depth, dark grey mudstone interbeds.
119.6 - 160.8 m	Black strongly carbonaceous-graphitic shale with less than 5% dark grey mudstone interbeds.
160.8 - 191.3 m	Dark grey to grey-black weakly carbonaceous siliceous shale.
191.3 - 198.3 m	Grey-black to black weakly to non-carbonaceous shale.

Structure

All shales breaks parallel bedding (average 45 degrees C/A), cleavage (average 65 degrees C/A) and along fractures (10-80 degrees) at 10-15 cm intervals. Porphyry dykes are fractured at 10-70 cm intervals (30-0 degrees C/A). Limonite, pyrite, calcite and locally medium brown to brownish green siderite (?some might be smithsonite) coat fractures. Quartz veins with 1-15% pyrite \pm , 0-50% calcite, 0-30% limonite, 0-20% fibrous ragged siderite (?smithsonite), 0-3% specular hematite and trace galena? occur at 10-50 cm intervals. Veins average less than 2 mm thick with a maximum thickness of 1.5 m.

Major Fault/Fracture Zones and Vein

45.5 - 47.3 m	Fault, 0.2 m lost core.
57.5 - 58.5 m	Fault.
62.0 - 64.7 m	Fault, 0.3 m gouge, 1.1 m lost core.
67.2 - 67.9 m	30% quartz-pyrite veins.
70.3 - 72.7 m	Fault, 0.20 m gouge.
71.34 - 71.47 m	Quartz-pyrite-calcite vein.
71.55 - 71.65 m	Quartz-pyrite-calcite vein.
90.14 - 90.2 m	Quartz-calcite-pyrite vein.
105.7 - 112.5 m	Fault, 0.3 m gouge, 0.6 m lost core.
116.8 - 174.0 m	Fracture-fault zone, loss of 21.9 m core, 60-40 degrees C/A.
117.41 - 117.45 m	Quartz-calcite vein
117.55 - 117.85 m	Quartz-calcite vein.
124.3 - 127.0 m	Fault, 0.1 m gouge, 25% vein.
127.0 - 128.5 m	Quartz-siderite-pyrite-calcite vein.
128.5 - 133.4 m	Fault, 10% gouge, 3.5 m lost core.
138.2 - 138.32 m	Quartz-siderite-pyrite vein.
141.8 - 160.5 m	Fault, 20% vein, 10% gouge, 11.5 m lost core.
148.4 - 157.3 m	Loss of 7.3 m core.
167.9 - 170.5 m	Fault, 1.1 m lost core.
176.7 - 179.5 m	Fault, 1.1 m lost core.
181.3 - 184.5 m	Fault, 0.1 m gouge, 1.6 m lost core.
184.85 - 185.25 m	50% quartz vein.
185.3 - 189.5 m	Fracture-fault zone, 0.8 m lost core.

Alteration

24.4 - 26.5 m	Weak sericitization and green clay alteration of dyke.
29.0 - 51.36 m	22% of shale bleached grey-green and strongly silicified over less than 2 m intervals.
31.0 - 40.4 m	60% of black carbonaceous shale silicified.
96.15 - 105.7 m	Moderate to weak sericitization and green clay alteration of dyke.

Mineralization

24.4 - 198.1 m

2% of interval contains scattered, 1-160 mm stratiform beds of 40-100% anhedral, fine grained pyrite. Mudstone beds contain 5-30% disseminated pyrite. Black carbonaceous and siliceous shales contain 1-10% disseminated pyrite. All stratiform and disseminated pyrite mineralization is believed to be of syngenetic origin.

LOGGING FORM

Project: Brick DDH # B-1-85 Location: L3+93E 2+97N
 Angle -45° Bearing 021° Total Depth 198.1 M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
0	18.3	18.3	<u>Overburden</u>	0	0				
18.3	24.4	6.1	<u>7a/7b</u> ; ? boulders of altered rusty orange porphyry, dirt and clay	3.0	0				
24.4	29.0	4.6	<u>7a/7b</u> ; grey to greenish grey, moderately clay-sericite altered porphyry. 85-90% Feldspar, 5-10% Biotite, 5% Quartz, trace py. medium grained, lim. on fr.	4.5	1.8	0.2	1.5	8	Fr. 20-45°
24.4	29.0	4.6	Milky Quartz Veins			0.4	2		V. 20-60°
25.8	26.4	0.6	Broken Core	0.6	0	0	0	0	Fr. 0-35°
26.1	26.13	0.03	Clay Gouge	0.03	0	0	0	0	Cnt 50°
29.0			CNT with Shale						45°
29.0	96.15	67.15	<u>4a/4b</u> ; Black Carbonaceous Shale with 1-10%, 1-30mm thick medium grey mudstone beds, 1-10% disseminated less than or equal to 1mm py. blebs, locally as thin 1cm stratiform bed. C content increases with depth	62.0	11.8	0.2	2	20	
29.0	31.0	2.0	Greyish green bleached, silicified shale with 15% black unbleached patches, quartz veined	1.8	0.1	0.2	2	30	Fr. & Bd. 30-35°
29.2	30.0	0.8	Broken core	0.6	0	1.5	3	50	Fr. 30-35°
31.0	34.0	3.0	50% silicified, 30% weakly silicified cal-bright yellow, lim + py. on fr. and as V..	3.0	0.5	0.2	10	25	Fr. & Bd. 50-35°
34.0	34.5	0.5	Clay altered, pyritized calcite veined bleached mudstone.	0.5	0.1	3.0	4.0	10	Fr. & Bd. 40°
34.5	40.4	5.9	60% silicified, 40% weakly silicified black shale. Py.-Cal. coat fr. and infill V.	5.4	0.7	1.0	20	35	V. & Fr. 10-45°

LOGGING FORM

Project: Brick DDH # B-1-85 Location: L3+93E 2+97N
 Angle -45° Bearing 021° Total Depth 198.1

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
36.9	37.2	0.3	Spotted Sil. grey-shale, sharp bl. cnt. with black shale						Cnt 10°
38.2	38.3	0.1	Solid brecciated black shale in part healed by qz and cal. veins	0.1	0.1	3.0	30	-	Upper cnt 45° Lower 35°
38.2	38.45	0.25	Greyish green bl.-sil. shale. Numerous py. veins - coated Fr. sharp contacts subparallel bedding	0.25	0.2	0.5	30	10	Cnts 35° Bedding 40°
38.6	38.8	0.2	Greyish green bl.-sil. zone x-cuts bedding, sharp cnts with black shale	0.2	0	1.5	30	40	Fr. & V. 30-35° Cnts 30°
38.8	38.82	0.02	Breccia, 40% qz, 30% pale yellow calcite 30% fragments (shale)	0.02	-				Cnts 30°
40.4	41.3	0.9	Broken shale, py. + calcite veins	0.9	0	0.1	10	80	Fr. & V. 0-35°
41.3	45.5	4.2	Black carb. shale, 3% mudstones	4.2	0.6	0.1	10	15	Bd. 40° V. & Fr. 10-40°
41.7	41.73	0.03	75% py., 20% qz strat.	0.03	-	-	-	-	Cnts 35°, bd.
42.0	42.3	0.3	Grey-grey green sil. shale, 5-10% dissem. py., py.-cal. veins both parallel and x-cut bedding.	0.3	0.1	0.2	10		Bd. 40° V. & Fr. 50-10°
42.9	43.25	0.35	Grey bl. sil. shale, remnant bands of black shale, cal. veins.	0.35	0	0.1	6	20	Fr. 0-40° V. 40-30°
44.2	44.26	0.06	60% blebs - blobs of py., 40% qz. in part stratiform.	0.06	0.06				Cnts 25°
44.26	44.8	0.54	Grey-white bl. strongly silicified shale. Normal fault healed with 1 cm displ. fr x-cut bd.	0.54	0.1	0	0	25	Fr. 50-10° Bd. 45°

LOGGING FORM

Project: Brick DDH # B-1-85 Location: L3+93E 2+97N
 Angle -45° Bearing 021° Total Depth 198.1

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
45.5	47.3	1.8	Broken black carb. shale	1.6	0	0.05	8	80	Fr. 0-50°
45.5	45.75	0.25	5% brown fibrous sid. coating fractures/fragments	0.2	0	-	-	90	Fr. 0-25°
47.3	53.0	5.7	Black carb. shale with 10% mudstone beds. fr. + veins commonly x-cut bedding @ 90° to strike. Veins cal-qz+py infilled. Locally 1-2 cm displacement along 0-20° healed faults, both thrust and normal types.	5.5	0.9	1.5	15	15	Fr. 60-10° Bd. 45-50°
47.4	47.45	0.05	40% py + 50% quartz, stratiform mineralization						Bd. & Cnt 55°
47.9	48.5	0.6	Fr. with py.-lim.	0.6	0	1.0	10	20	Fr. 0-10°
48.5	48.55	0.05	Breccia, 20% qz + 5% cal. matrix, black shale clasts, ang., x-cuts bedding str.	0.05	-	10.0	50	0	Cnts 50°
49.5	49.6	0.1	Breccia 25% cal. + 15%, qz + 1% galena (anhedra) matrix, x-cuts bedding str., black shale clasts, ang.	0.1	-	40.0			Cnts 45°
49.6	52.7	3.1	Increase of qz-cal. V.	3.1	0.5	2.5	10	12	V. 30-50°
50.8	51.0	0.2	Bl. grey-green sil. mudstone with 20% dissem + massive py. blebs, qz-cal. veined.	0.2	0.1	2.5	15	5	Up Cnt 40° Lwr Cnt 75°
51.0	51.05	0.05	Rusty brown friable clay-quartz gouge, with black blotches and greenish clay.	0.05	0	0	0	0	Cnts 80°
51.2	51.4	0.2	Grey-green sil. bl. shale with both V. and diss. py (15%), cnts x-cut bedding	0.2	0.1	0.01	10	2	Up Cnt 65° Lwr Cnt 80° Bd. 30°
51.3	51.36	0.06	Grey-green bl.- clay altered shale, soft py. diss.						Up Cnt 75° Lwr Cnt 30°
52.0	52.03	0.03	40% py. + 20% qz strat.						Bd. & Cnt 40°

LOGGING FORM

Project: Brick DDH # B-1-85 Location: L3+93E 2+97N
 Angle -45° Bearing 021° Total Depth 198.1

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
52.13	52.14	0.01	30% py. + 20% qz strat.						Bd. & Cnt 35°
53.0	55.4	1.4	Black carb. shale with 10% mudstone bands, py lim. on fr.	1.3	0.2	0.1	3	20	Fr. 30 - 0° BP 0 - 30°
53.0	53.6	0.6	Broken core, lim on fr.	0.6	0	0.05	2	80	Fr. 49 - 0°
54.1									BD 30°
55.0			Fold Nose, shearing displaces mudstone beds ? foliation - cleavage is parallel shearing.						BD 0 - 5° SH + CL 70°
55.4	58.5	3.1	Black carb. shale fracturing parallel cleavage, locally gr. coatings.	3.0	0	2.0	10	40-80	Fr + Cl. 70-50°
55.8	55.95	0.15	3 - 1 cm qz. + 4% py V.	0.15	0	20.0	20	20	70 - 80° CNT
57.3	57.31	0.01	QzV. 2% py.			100.0	1	-	75° CNT
57.5	58.5	1.0	Black shale, broken with numerous qz-cal. veins. Fr. parallel cleavage	1.0	0	3.0	35	75	Fr. + Cl. 70-60° V. 50-10°
57.6									BD 70°
58.3									BD 45°
58.5	68.2	9.7	Black carbonaceous shale with 2% mudstone beds approx. 5% C, py veins common calcite - qz. rare cleavage apparent. Lim. calt. py. on fr.	8.1	0.5	0.1	2	20	Fr. 30-50° V. 20-50°
60.3	60.32	0.02	70% py. 20% qz. stratiform						CNT/BD 30°
60.7	60.71	0.01	Folded, ptygmatically, 90% py, 10 qz. stratiform.						CNT/BD 55°
62.0	64.7	2.7	Broken black carb. sh	1.6	0	0.5	5	60	Fr. 50-20°
62.8	63.1	0.3	Fault Gouge. Black shattered sh frag. in a ground shale matrix py. + cal-qz. veined.	0.3	0	10.0	50	150	CNTS 30° V. 0-30°

LOGGING FORM

Project: Brick DDH # B-1-85 Location: L3+93E 2+97N
 Angle -45° Bearing 021° Total Depth 198.1

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
63.1	64.2	1.1		0	0	0	0	0	0
64.2									CL. 45°
66.4	66.5	0.1	Qz + 10% py vein	0.1	0	20.0	20	20	V. 50°
67.0									BD 40°
67.2	67.9	0.7	Qz. veins with 0-5% py dissem, 0-30% shale frags 0-tr. calcite, irregular, x-cut bedding.	0.7	0.2	15.0	40	35	V. 20-30°
67.2			Isoclinal fold, axis parallel veining, plunge is 40° C/A. axis 0° C/A.						BD. 0-10°
67.6			Thin shears parallel to cleavage displace mudstone beds						BD. 20° CL. 75°
67.8									BD 35°
68.2	96.15	27.95	Interbedded black carbonaceous shale and grey to dark grey mudstone beds. Finely layered at 1-100 mm intervals, 80-65% shale, 20-35% mudstone, Sharp cnts. Locally undulating, ? load casts. Flat lying 85-70° C/A faults displace beds 1 mm increasing to 2 cm parallel cleavage, locally infilled by qz-py + cal (+ spec. hematite (? possibly tr. galena)) locally brown sid. 1-4% py in black shale 1-90% py in mudstone beds, locally massive pyrite bands 1-30 mm wide.	27.3	8.3	0.4	6	8	V+Fr. 10-70°
70.3	70.32	0.02	95% py. 5% qz. blebs stratiform						BD + CNT 55°
70.32	72.7	2.38	Broken black qz - calcite - pyrite veined shale. Rotated bedding	2.38	0.15	11.0	5-20	20-80	FR+V 55-70° BD 30-60°
70.6	70.7	0.1	Tension gash veins. Between two less than or equal to 2 mm shears parallel cleavage.	0.1	0	50.0	90	10	V. 15-25° SH.BD 65-85°
70.98	71.0	0.02	Qz + 5% py V.	0.02		100.0	1	0	CNT 65°

LOGGING FORM

Project: Brick DDH # B-1-85 Location: L3+93E 2+97N
 Angle -45° Bearing 021° Total Depth 198.1

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
86.9	87.4	0.5	Black shale	0.5	0	0	0	25	FR. 0-60°
88.2									BD 60°
88.3									CL 75°
89.4									BD 70°
89.4									CL 80°
89.8	90.35	0.55	Black shale	0.55		12.0	2	90	Fr. + Cl 70-55°
90.14	90.2	0.06	Qz.V. +59% cal. +3% py in part open vugs, massive vein.	0.06		100.0	1	0	CNTS 50°
90.5	93.4	2.9	55% dk. grey mudstone 45% black shale as 5-150 mm interbeds.	2.9	0.22			25	Fr.+Cl. 55-95°
91.1	91.11	0.01	Qz +50% py ?vein py as 5-10mm blebs			100	1	0	CNTS 45°
91.47	91.48	0.01	Pyr +60% qz. vein, py as 5-15 mm blebs			100	1	0	CNTS 55°
92.0									BD 53°
92.6	92.61	0.01	80% py, 20% Qz ?V-or strat.						CNT + BD 75°
93.0									BD +Cl. 55°
93.9	94.6	0.7	Broken shale	0.7	0	0.1	10	100	Fr. + Cl. 80-70°
94.9	96.0	1.1	Black shale Cal-Qz. V.	1.1	0	0.4	15	20	Fr. + Cl. 70-85° V. 0-30°
95.6	96.0	0.4	Sheared broken shale	0.3	0	0.4	15	100	Sh. + Fr. 70-80°
96.1									BD 45°
96.15			CNT with Porphyry. Sharp, irregular with less than or equal to 1 cm shale clasts to 96.25 m, No cnt. metamorphism.						CNT 50°

LOGGING FORM

Project: Brick DDH # B-1-85 Location: L3+93E 2+97N
 Angle -45° Bearing 021° Total Depth 198.1

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
96.15	105.7	9.55	7a; Porphyry tr.-5% py, tr.-5% Sericitized biotite, 5-10% qz, 83-95% clay alt. greenish in part sericitized felds. Greenish to pale lime colour, med. gr., massive fr. parallel core with rusty lim. (alt. py) +py +tr. calcite locally qz-py veins +/- calcite.	9.55	2.5	0.1	1-3	1-6	Fr. 0-20° V. 20-40°
105.3	105.31	0.01	Milky qz. vein in part euhedral x-lls	0.01		100.0	1		CNTS 30°
105.7			CNT with shale-sharp no CNT metamorphism						CNT 70-80°
105.7	119.6	13.9	4a; Black carb. shale with 40% decreasing to 5% dk. grey mudstone beds 1-110 mm thick at depth. shp. cnts. tr.-10% py, locally mass, py beds (strat) qz-cal.V.	12.3	1.2	1.0	8	15	
105.7	110.6	4.9	Blocky broken shale. Fr. parallel cleavage and oblique to it. py on fr.	4.3	0	0.3	4	50	C1 70-80° Fr. 40-10°
106.0									BD 60°
106.5	106.6	0.1	Sheared gouge/breccia	0.1	0			200	CNTS ?40°
106.6	107.2	0.6		0	0	0	0	0	
108.0	108.5	0.5	Broken core					100	Fr. 40-60°
108.8			Micro fault x-cuts bed strike @90°, vertical oriented, strike slip motion, greater than 10 cm displacement, flt. less than or equal to 1 mm wide.						Flt. 30°
108.9	109.9	1.0	Broken core	0.7	0	1.5	1	100	Fr. 60-20°
109.65	109.66	0.01	Qz. vein +10% py +2% vugs	0.01	0	100	1	0	CNT + BD 60°

LOGGING FORM

Project: Brick DDH # B-1-85 Location: L3+93E 2+97N

Angle -45° Bearing 021° Total Depth 198.1

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
110.6	111.0	0.4	Calc. st. st. to silty shale, coarsens downward grey to dk. grey colour, finely lam. at less than or equal to 4 mm int. grad. upper/sharp lower cnt, siliceous calcareous hard rock, effervesces with vigour, coarse irreg. calcite veins throughout.	0.4	0.3	10.0	20	1	CNT + BD 45°
111.8	112.5	0.7	Broken, sheared core with 30% carb-clay gouge.	0.7	0	0	0	200	70-60°
112.28	112.35	0.07	Gouge, 70% clay + carb. 30% frag. shale	0.08	0				
112.9	113.8	0.9	In part broken shale	0.8	0	0.4	5	100	Fr.+V 60-10°
114.3	115.0	0.7	In part broken	0.7	0	1.2	4	100	Fr. 70-50°
115.6	116.1	0.5	In part broken, brownish green ? Sid. on fr. and veins.	0.5	0.0	0.2	5	90	Fr. 70-50° V. 30-0°
116.4									BD 48°
116.8	119.6	2.8	Blocky in part broken	2.0	0.25	15.0	5	60	Fr. 70-45°
117.41	117.45	0.04	White-grey massive X-lline calcite + 20% carbonaceous trash-clasts-ground shale	0.05	0	100.0	1	0	CNT 43°
117.52	117.55	0.03	Breccia-shale clasts rimmed by white calcite in a 50% clay-calcite-carb. matrix.	0.03	0	10.0	50	0	CNT 60°
117.55	117.85	0.3	Massive coarsely X-lline white quartz + calcite +5% py vein with 35% shale fragments, 65% calcite, 33% quartz, lower contact irreg.	0.3	0.2	100.0	1	3	CNT 60°
118.6	119.4	0.8		0					

LOGGING FORM

Project: Brick DDH # B-1-85 Location: L3+93E 2+97N
 Angle -45° Bearing 021° Total Depth 198.1

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
119.6	160.8	41.2	4C; Black graphitic shale with 0-5% thin less than or equal to 3 cm mudstone beds, massive, to locally laminated. Graphite "mirror" + carbon coatings along fractures and cleavage planes, py 0-10% disseminated and coating fractures 1% locally less than or equal to 1.5 cm 40-100% stratiform py beds. 10- ? 30% carbon-graphite disseminated. Qz.-calcite-py veins common, locally with brownish-green weakly effervescent mineral ?sid. ?sid commonly coats fractures, sooty carb. rocks, soils the fingers.	24.6	0.6	5.0	20	20	
119.6	122.5	2.9	Blocky in part broken 1% less than or equal to 1 cm thick carb. gouge	2.9	0	1.0	5	60	Fr.+Cl. 70-80° V 0-15°
121.2	121.3	0.1	Vuggy leached shale, sid in vugs replacing (?) pyrite.						
122.5	127.2	4.7	Broken shattered, in part sheared shale, qz + 0-20% py, 0-15% sid, 1-10% calcite, locally euhedral qz druse. 1-5% carb. gouge or less than or equal to 2 cm thick.	3.4		8.0	30	90	Fr. 80-10° V. 40-0°
123.0	124.3	1.3		0					
124.3	125.6	1.3	Rubble + crushed V. qz.-py-sid v. 10% carb. gouge.	1.3	0	15.0	50	200	Fr. 0-90°
125.6	127.0	1.4	Broken core, chunks less than or equal to 5 cm of vein 15% carb. gouge, 90% qz +5% py +5% sid.	1.4		40.0	70	150	Fr. + V 40-20°
127.0	128.5	1.5	85% white qz. vein with 15% less than or equal to 4 cm black shale clasts, ang. brecciated 10% vugs with sid and py, up to 1 cm striated cubes, qz. locally euhedral tr. calcite, vugs up to 3 cm dia.	1.5	0.4	100.0	1	10	Fr. 45-20°

LOGGING FORM

Project: Brick DDH # B-1-85 Location: L3+93E 2+97N
 Angle -45° Bearing 021° Total Depth 198.1

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
128.5	133.4	4.9	Broken, blocky, 10% black carb. sand/ dust. Fr. parallel cl., qz veins	2.4	0	1.0	15	50	V+Fr. 20-40° Cl. 60-78°
129.2	132.7	3.5		0					
133.55	133.36	0.01	Massive py stratiform	0.01					BD + CNT 80°
133.4	147.9	14.5	Blocky, in part broken sid. on fr., locally shattered, qz.-sid.-py veins locally calcite.	10.0	0	1.0	10	30	Fr. + Cl. 80-55° Fr. + V 40-0°
134.7			Isoclinally folded massive py stratiform						FA + Cl. 55°
135.1	135.11	0.01	Carb. gouge/breccia	0.01				200	CNT + BD 45°
135.88	135.89	0.01	Mass. strat. py bed	0.01					CNT BD 55°
137.0	137.8	0.8		0					
138.2	138.32	0.12	Massive white vuggy qz. vein with 30% black carb. shale frags., 15% sid, 5% py.	0.12	0	100.0	1	5	Fr. 80°
139.2	140.0	0.8		0					
140.0	140.45	0.45	Crushed core	0.45	0	1.0	2	200	Fr.+BD 45°
141.8	144.5	2.7	Blocky, broken core	1.2	0	2.0	10	50	Fr.+Cl 65, Fr. 0-30°
143.0	144.5	1.5		0	0				
144.9	145.2	0.3	Broken core, rubble	0.3	0	5.0	3	100	Fr 0-60°
145.5	147.4	1.9	Broken core	0.4	0	2.0	5	50	Fr. 0-60°
146.0	147.4	1.4		0	0				
147.4	147.95	0.55	Healed breccia, qz. vein/matrix cements ang-rnded shale clasts, tr. py + calcite in veins.	0.55	0.2	25.0	200	20	V. 0-80°

LOGGING FORM

Project: Brick DDH # B-1-85 Location: L3+93E 2+97N
 Angle -45° Bearing 021° Total Depth 198.1

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
147.50	147.51	0.01	Druse vein/vug. Qz with 10% py, cellular boxwork of sid. and finely dissem. py.	0.01		100.0	1	0	V. 40°
147.95	156.0	8.05	Crushed broken shale, gouge and vein, abundant carb. gouge. py Qz + 1-20% py + 0-5% sid. in vein.	2.05		20.0	740	150	
148.4	150.0	1.6	Gouge + vein + shale	0.5	0			200	
150.0	153.0	3.0	3 chunks of qz-py vein	0.2	0	100.0		?	
153.0	156.0	3.0	Crushed vein + shale	0.1	0	50.0		?	
156.0	160.8	4.8	Blocky in part broken	2.1	0.1	3.0	5	15	Fr + BD
156.0	157.3	1.3		0					
157.4	157.43	0.03	Qz vein -8% py, 30% calcite + 5% sid. + 15% cellular rusty red-orange material.	0.3	0	100.0	1	0	CNT 35°
157.8	161.0	3.2	Broken core	1.8	0	1.0	3	40	Fr 60-28°
158.9	158.92	0.02	Qz vein - 8% py + 20% rusty orange cellular iron boxwork, slickensides of lower contact.			100.0	1	0	CNT 25°
159.1	160.5	1.4		0					
160.8	198.1	37.3	<u>4d</u> ; Dark grey to grey black, locally gunsteel blue, grey, siliceous shale locally carbonaceous over less than or equal to 1 m bands (1-10% C). Irregular lensoidal to almost pseudo-flaser layering of black-grey to dark grey bands 1-15 mm width hard resistant rock, C content increases slightly with depth. 3-10% dissem and fracture controlled py. Massive 60-100% py stratiform, lenses + layers approx. 1-5% of core 1-130 mm beds locally Gr. to carb. partings along fr., bd and cl. planes qz +py (0-10%) + lim. veins.	31.6	2.5	0.3	3	15	

LOGGING FORM

Project: Brick DDH # B-1-85 Location: L3+93E 2+97N
 Angle -45° Bearing 021° Total Depth 198.1

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
161.0	174.0	13.0	Fractured-blocky in part broken. Lim stain on fr. (rusty brown-bright yellow colours)	10.6	0.25	0.3	3	20	Fr 45-0°
163.1	164.4	1.3		0					
164.4	164.9	0.5	Broken core	0.5	0			90	Fr. 50-20°
165.0									BD 55°
166.5									BD 45°
167.9	170.5	2.6	Broken-blocky core in part rubble	1.5	0			80	Fr. 0-60°
169.2	170.3	1.1		0					
170.6									BD 48°
170.9	171.3	0.4	Broken core lim on Fr.	0.4	0			60	Fr 0-50°
171.5	173.5	2.0	Broken blocky core	2.0	0			40	Fr. 30-50°
175.4	175.9	0.5	Blocky-broken core		0			25	Fr. 20-60°
175.3									BD 35°
176.7	179.5	2.8	Blocky broken core in part rubble	1.2	0				Fr. 0-40°
177.3	178.9	1.6		0					
179.2	170.25	0.05	Three grey-green qtz. flooded pieces of shale.						
179.6									BD 40°
180.7	184.8	4.1	Broken impart blocky core	4.1	0	1.5	10	90	Fr 0-45°
181.3	184.5	3.2	Shattered broken core, Gr. + C on Fr., 4% carbonaceous gouge. Qz + 0-5% py veins locally druse V. 35-10°	1.6	0	2.0	15	150	Fr 45-20°

LOGGING FORM

Project: Brick DDH # B-1-85 Location: L3+93E 2+97N
 Angle -45° Bearing 021° Total Depth 198.1

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
181.3	182.9	1.6		0					
183.4	183.55	0.15	Crushed rock, 40% carb. gouge	0.15	0	2.0	20	200	Fr. 0-35°
184.3	184.32	0.02	Carb. gouge breccia	0.02	0				CNT 35°
184.85	185.25	0.4	Healed fault zone. Healed fr. x-cut off set both BD + QzV.	0.4	0.1	50	25	150	Fr. 10°
185.25	189.5	4.25	Broken-rubble, minor blocky core C + Gr. on <u>some</u> fr. Qz + 0-10% py veins, lim (rusty yellow-brown) on fract.	3.45	0	1.0	15	90	Fr 50-30° V 60-10°
185.7	186.5	0.8		0					
187.6	187.61	0.01	Qz vein + 5% py.	0.01		100	1	0	CNT 70°
189.8	191.5	1.7	Blocky in part broken	1.7	0	0.9	7	30	
189.8	189.82	0.02	75% py dissem. strat (? 10% greyish barite matrix)						CNT/BD 35°
190.6	190.62	0.02	90% py strat						CNT/BD 45°
191.3	198.1	6.8	Gradational to interbedded unit more homogeneous, dk grey-black to black colour approx. 5-10% C content 5% py + Qz + tr-10% calcite in veins, locally qz. druse approx. 2% stratiform py beds aver interval. C + py on fr. (? Unit 5)	6.8	0.6	1.0	8		
191.9	191.91	0.01	85% py strat.						CNT/BD 55°
192.0	192.05	0.05	95% py strat. irreg cnts						CNT 40°
192.7									BD 40°
193.6	193.62	0.02	Irregular ameoid strat. py bed 100%						CNT+BD 45°
195.13	195.16	0.03	95% stratiform py bed						CNT+BD 30°

SUMMARY LOG

DDH B-2-85

Lithology

0.0 - 18.9 m	Overburden.
18.9 - 45.5 m	Black weakly carbonaceous siliceous shale.
45.5 - 200.3 m	Black shale with thin carbonaceous shale, silty shale, siltstone and sandstone interbeds.

Structure

Shale fractures parallel bedding (average 40 degrees C/A) at 5 to 30 cm intervals. Siltstone and sandstone beds commonly quartz (+ 0 to 60% calcite + 0-15% pyrite) veined at 1-10 cm intervals. Shale is rarely veined.

Major Fault/Fracture Zones and Veins

18.9 - 29.3 m	Fracture zone, 0.9 m lost core.
40.0 - 41.9 m	Fracture zone.
80.4 - 81.6 m	Fracture zone.
83.9 - 92.4 m	Fracture zone.
101.8 - 101.9 m	Quartz-pyrite-calcite vein.
111.9 - 124.0 m	Fracture zone.
124.4 - 124.55 m	Quartz-calcite vein.
132.9 - 136.6 m	Fracture zone.
159.7 - 164.9 m	Fracture zone.
166.5 - 169.7 m	Fracture zone.
171.1 - 173.7 m	Fracture zone.
177.75 - 189.4 m	Fracture/Fault zone.
179.6 - 181.75 m	Fault zone, 65% gouge, 0.6 m lost core.
183.1 - 184.24 m	Fault zone, 15% gouge.
196.2 - 200.3 m	Fracture zone.

Alteration

18.9 - 20.3 m	Limonite stained, clay altered, leached-vuggy shale.
22.6 - 22.7 m	Limonite stained, clay altered, leached-vuggy shale.
37.65 - 37.70 m	Vuggy breccia cemented by quartz and lemon-yellow glassy ?orpiment.
40.85 m	Lemon-yellow glassy ?orpiment on fracture.
57.4 - 61.7 m	Fractures locally coated with lemon-yellow glassy ?orpiment and scarlet red ?realgar.

Mineralization

0-10% disseminated pyrite occurs through all rock types. Locally less than 3 cm thick 40-100% stratiform beds and lenses of pyrite occur. All pyrite mineralization is of syngenetic origin.

LOGGING FORM

Project: Brick DDH # B-2-85 Location: L3+93E 3+95N
 Angle -45° Bearing 021° Total Depth 200.3M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
27.7	27.85	0.15	Rusty brown lim stained coarse fibrous calcite veins, friable v.	0.15	0	6.0	6	5	V
28.1	28.12	0.02	White, fibrous, friable Cal. vein	0.02	0	100	1		BD+V. 25°
28.4									BD 15°
28.5	29.3	0.8	Blocky, lim on fr.	0.8	0	0.2	2	30	20-30
29.3	34.4	5.1	In part blocky lim on fr.	5.1	1.0	1.0	2	10	BD + Fr. 30-40°
37.0									BD 50°
37.65	37.70	0.05	Breccia, 80% shale clasts cemented by vuggy Qz + bright translucent, resinous lemon-yellow min. in part glassy tr. py.	0.05		20.0	?		CNT 10°
40.0	41.9	1.9	Blocky core, lim + C on fract.	1.9	0.2	0.2	2	30	Fr. 70-30° BD 30-40°
40.85			Fr. with 30% lemon yellow, transparent resinous, glassy (blocky?) x-lls (?orpiment).						Fr. 75°
43.0	44.5	1.5	15% more or less than 5 cm. irreg. ameboid to poddy massive py (stratiform/stratabound)	1.5	0.3	0.6	15	8	BD 30°
44.5	200.3	155.8	5; Grey-black to black massive to flaser bedded weakly to non carb. shale with siliceous shale, siltstone and 10% fine grained grey calc. sandstone interbeds, 1% black carbonaceous (10%) shales less than or equal to 2.1 m. interbeds 0-10% py in all lithos. Wkly carb. shales 0-3% C, locally (less than or equal to 1%) less than or equal to 5cm 30-90% py beds stratiform, bright yellow lim(?), calcite and py coat fr. Qz and Qz-Ca veins always present in SS - St.St. beds. Shales have rare veins. Note: Py rich intervals associated with C rich shale, in part leached/vuggy.			0.3	3	10	Fr. 60-30°

LOGGING FORM

Project: Brick DDH # B-2-85 Location: L3+93E 3+95N
 Angle -45° Bearing 021° Total Depth 200.3M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
44.5	51.6	7.1	Greenish to dk jade green massive to locally fibrous mineral H-3 translucent alters quickly to white amorphous coating along rocks (i.e. soluble), greasy feel, infills fr. forms veins, <u>no</u> react to acid. greasy feel, infills forms veins <u>no</u> react to acid	7.1	0.7	1.0	10		V.60-0°
48.0	48.15	0.15	70% disse. py strat.						BD + CNT 25°
49.0	49.3	0.3	Slightly friable organic rich shale, in part leached/vuggy	0.3	0	0.3	2	10	Fr + BD 30°
49.05	49.08	0.03	60% disse. py strat.						BD + CNT 30°
50.98	50.99	0.01	65% disse. py strat.						BD + CNT 30° BD + CNT
51.65	51.67	0.02	Black clay - shale G	0.02	0	0	0	100	CNT 55°
55.0									BD + Fr. 35°
55.4	56.3	0.9	White translucent, x-lline coating on fr. alters to white amorphous min (soluble) that stains rock @ Fr. margins soft, <u>no</u> react to acid		0.3	0.8	4	8	Fr. 20-40°
57.4	61.7	4.3	Fr. coated with bright yellow, yellow-orange and locally Brilliant red (@ 59.68m) glassy, brittle grains (?Cinnabar or Realgar), definitely some Orpiment, (lemon yellow translucent glassy x-lls)	4.3	1.1	3.0	10	6	Fr. 20-40°
59.7	59.78	0.08	Brown, rusty lim-green clay + silica breccia 70% clasts, solid						CNT 20°
60.6	61.6	1.0	Dk. grey siltstone bed, qz-cal. veined	1.0	0.4	4.0	25	6	CNT + BD 25°
61.7	61.71	0.01	Yellow lim stained fibrous calcite vein	0.01		100.0	1		CNT + BD 20°

LOGGING FORM

Project: Brick DDH # B-2-85 Location: L3+93E 3+95N
 Angle -45° Bearing 021° Total Depth 200.3M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
82.6	83.9	1.3	Dk. grey-grey massive to poorly bedded siltstone-fg sandstone bed. Qz 1-20% Cal. + 0-15% py V., x-crossing	1.3	0.1	4.0	10	12	Fr. 40-20° V. 40-20°
83.4	83.9	0.5	Blocky core lim. on fr.	0.5	0	2.0	6	20	Fr. 60-30°
83.8									BD 35°
83.9	92.4	8.5	5% 1-10mm grey-white qz + 0-20% py ? veins parallel bedding, locally folded, maybe chert laminae or thin? quartz silt layers.	8.5	2.1	1.0	4	15	
84.3	84.7	0.4	Blocky broken core	0.4	0	0.7	3	20	Fr. 50-20°
85.3									BD 45°
88.0									BD 50°
88.9	92.4	3.5	Fr. broken-blocky lim on fr., Cal V.+ 0-30% qz.	3.5	0.1	0.7	4	45	Fr. + BD 60-20°
89.4	90.0	0.6	Grey-green wkly calcareous siltstone bed, calcite veined.	0.6	0	5.0	20	0	CNT U 40° CNT L 55°
90.2	90.9	0.7	Sheared broken core	0.7	0	0	0	130	Fr. + BD 50-65°
91.8	92.4	0.6	Broken + fr.	0.6	0	2.0	3	95	Fr. + BD 60-70°
92.38	92.40	0.02	Black gouge, clay + carbon	0.02	0	0	0	300	CNT + BD 50°
92.5	93.7	1.2	Blocky core	1.2	0.1	0	0	25	Fr. + BD 40-50°
93.45	93.5	0.05	Breccia gouge carbon + clay matrix 80% clasts shale.	0.05				250	CNT 30°
94.5	95.1	0.6	Blocky core	0.6	0	0	0	15	FR. 30-40°
95.05	95.1	0.05	Gouge breccia, soft clay + carbon	0.05	0	0	0	250	CNT 50-60°
96.3	97.0	0.7	Blocky core	0.7	0	0	0	40	Fr.+ BD 50-60°

LOGGING FORM

Project: Brick DDH # B-2-85 Location: L3+93E 3+95N
 Angle -45° Bearing 021° Total Depth 200.3M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
98.2	98.4	0.2	Dk grey-green silty shale/siltstone massive, calcite + 10-50% qz. veined	0.2	0.2	6.0	20	0	BD CNT 65°
99.0	135.0	36.0	1-5% fg. light grey quartz siltstone laminae 1-10mm thick.	36.0	13.6	0.8	4	8	
101.45	101.9	0.45	Dark, grey-green poorly bedded siltstone, qz + tr. -20% py, 1-30% calcite.	0.45	0.3	5.0	80	3	CNT + BD 60°
101.80	101.9	0.10	Qz + 20% py 2% calcite vein, 30% st.st. frags.	0.10	0.10	100	1	1	CNT 30°
101.9	103.4	1.5	Blocky core	1.5	0	0	0	20	Fr. 60-45°
102.7									BD 48°
105.15	105.17	0.02	Shear, in part G	0.02	0	0	0	200	CNT + BD 45°
105.75	107.3	1.55	In part blocky	1.55	0.2	0.2	3	14	Fr. + BD 50-60°
108.30	108.55	0.25	Dk-grey green st.st. to mudstone, ? scour channels irreg. bedding/ layering, cal-veins.	0.5	0.25	2.0	15	0	CNT + BDU 50° CNT + BDL 70°
109.9	109.98	0.08	Gouge breccia, clay matrix, 40% shale clasts.	0.08	0				CNT + BD 45°
111.9	122.0	10.1	Blocky in part broken fractured shales, qz-py + calcite veins, lim (rusty) on fr.	10.1	1.1	0.2	1.2	15	Fr. 60-30° V 40-20°
112.8	112.84	0.04	Breccia gouge clay.						CNT + BD 55°
112.84	113.9	1.06		1.86	0	0.5	3	60	Fr. 60-40°
113.45	113.7	0.25	Dark grey-green siltstone, qz + py veins in part druse.	0.25	0	10.0	15	10	Fr. + V. 30-45° CNT + BD 50°
114.1	114.8	0.7		0.7	0	0	0	35	Fr. + BD 50-40°
114.65	114.70	0.05	Broken, 30% gouge	0.05	0	0	0	90	Fr. 50°

LOGGING FORM

Project: Brick DDH # B-2-85 Location: L3+93E 3+95N
 Angle -45° Bearing 021° Total Depth 200.3M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
115.6	116.0	0.4	Dark grey to greenish grey mudstone - siltstone fines upwards (crudely)	0.4	0	4.0	60	20	CNT + BD 40°
116.0									BD 40°
117.75	117.9	0.15	Dark grey siltstone	0.15	0.1	0	0	2	CNT 55°
118.0	120.5	2.5	Blocky, in part broken	2.5	0.1	0.2	1	25	Fr. 0-80°
118.3	118.35	0.05	Gouge, soft clay	0.05	0	0	0	200	CNT 55°
118.7	120.0	1.3	Broken, fr. core	1.3	0	0.2	1	100	Fr. 60-40°
119.9	119.91	0.01	100% py, strat, load cast beneath						BD + CNT 55°
120.5	120.9	0.4	Blocky	0.4	0	0	0	25	Fr. 10-35°
121.2									BD 50°
121.4	121.8	0.4	Fractured core 3 less than or equal to 1cm gouges over interval.	0.4	0	0	0	80	Fr. + BD 60-40°
122.9	124.0	1.1	Blocky core	1.1	0.1	0.2	1	15	Fr. 0-50°
124.0	124.9	0.9	<u>5a</u> ; Dk. grey-green silty shale to siltstone, qz + 2-80% calcite veins + 0-5% py ? calcite + dolomite			30.0	150	2	CNT 60° V.7 0-35°
124.4	124.55	0.15	Grey to cream coloured vein, patchy qz-calcite +? dolomite, irregular cnts.	0.15	0.15	100.0			CNT U 80° CNT L 50°
124.9	133.0	8.1		8.1	4.5	0.2	1	8	Fr. + BD 55-70°
129.0									BD 45°
130.45	133.0	2.55	<u>5a</u> ; Dk. grey to grey-green sandstone, fine grained sucrosic text, qz + 0-10% py dissem, qz veins locally less than or 1% py veins, ss massive, shp. cnts.	2.55	2.2	1.5	5	5	CNT U 40° CNT L 65° V. 0-30°
130.46			Fault, 5cm vert. displ. of ss/shale contact.						0-10°

LOGGING FORM

Project: Brick DDH # B-2-85 Location: L3+93E 3+95N
 Angle -45° Bearing 021° Total Depth 200.3M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
132.0	132.1	0.1	Pale yell. brown limonite stain						
132.35	132.4	0.05	Black shale	0.05	0	0	0	10	CNT 55°
132.9	136.3	3.4	Fractured blocky core qz vein + 0-10% calcite, 0-15% py, 0-5% limonite, lim on fr.	3.4	0.8	3.0	4	15	Fr. 10-60°
133.55	135.0	1.45	5a; Dk. grey sucrosic massive SS 0-10% py dissem, qz + 0-10% calcite + 0-10% py, 0-10% lim.	1.45	0.7	10.0	4	8	CNT 65° V. 10-38°
133.63	133.68	0.05	White qz vein 10% py	0.05		100	1	1	CNT 20°
134.7	134.78	0.08	Black shale	0.08	0	40.0	1	0	CNT 50°
134.71	134.74	0.03	Qz + 10% py vein	0.03	0	100	1	0	CNT 60°
134.8	134.81	0.01	Qz + 10% py vein	0.01	0	100	1	0	CNT 80°
134.81	134.83	0.02	Qz + 10% py vein	0.02	0	100	1	0	CNT 80°
135.0	135.35	0.35	Fr., broken	0.35	0	0	0	20	Fr. 0-20°
135.8	136.3	0.5	Fr., broken lim on fr.	0.5	0	0	0	30	Fr. 0-15°
137.07	137.1	0.03	Vein, 40% white qz, 60% yellow ? dolomite, slickensides on both contacts, dip slip						CNT 38°
137.1			Red hem on fr.						Fr. 30°
137.9	138.75	0.85	Fr. blocky core, rusty red hem on fr.	0.85	0	1.0	10	20	Fr. 0-70°
138.6	138.75	0.15	Grey sucrosic ss, Qz. - V..	0.5	0	13.0	20	20	BD + CNT 60°
140.6	141.5	0.9	Blocky core in part broken, red brown lim on fr.	0.9	0	0	0	20	Fr. 40-30°
141.7	142.6	0.9	Blocky broken core, 50% brownish yellow ss chunks.	0.9	0	0	0	40	Fr. 60-0°

LOGGING FORM

Project: Brick DDH # B-2-85 Location: L3+93E 3+95N
 Angle -45° Bearing 021° Total Depth 200.3M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
141.8	142.2	0.4	Rubble ss + shale						
143									BD 60°
144.1	144.35	0.25	Dk. grey-green siltstone, qz-cal-py veins	0.25	0.2	16.0	80	0	CNT 55° V. 20-35°
145.35	145.45	0.1	Dk. grey-grey black silty shale/ siltstone bed, qz-py veined	0.1	0.1	10.0	10	0	CNT 60° V. 30-60°
148.4									BD 45°
148.9	149.9	1.0	Blocky core	1.0	0	0		15	Fr. + BD 50° Fr. 30°
150.57	150.7	0.13	Dk. grey-green siltstone	0.13	0	5.0	20	5	CNT 50° V. 35-25°
151.3	153.8	2.5		2.5	0	1.0	1	14	Fr. 50-20°
151.75	151.9	0.15	Black grey siltstone-silty shale, Qz-lim-py veins	0.15	0	18.0	100	10	V. 10-40° CNT 40°
152.9	153.0	0.1	Silty shale	0.1	0	0	0	15	
153.5									BD 60°
154.0	162.1	8.1	Blocky core	8.1	0.9	2.0	5	10-15	Fr. + BD 50-0°
154.4	154.6	0.2	Grey green siltstone qz-cal. veined	0.2	0.1	6.0	30	2	V. 30°
155									BD 60°
156.9	157.9	1.0	Blocky	1.0	0	0	0	15	Fr. 60-30°
157.5	157.58	0.08	Greenish black siltstone	0.08	0	3.0	20	10	CNT + BD 50° V. 30-20°
158.3	159.7	1.4	Blocky, in part broken	1.4	0	0	0	20	Fr. 0-60°
159.7	164.9	5.2	Blocky core, in part broken	5.2	0.9	0.2	1	15	Fr. 0-60°

LOGGING FORM

Project: Brick DDH # B-2-85 Location: L3+93E 3+95N

Angle -45° Bearing 021° Total Depth 200.3M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
159.9			Isoclinally folded thin (less than or equal to 2 cm) sandstone bed, fold axis parallel core, fold opens to top.						FA 0°, BD 0-90°
160.3	160.48	0.18	Grey sucrosic sandstone lim ?calcite veins.	0.18	0.1	1.0	5	10	CNT U 70° CNT L 80°
160.5	160.9	0.4		0.4	0	0.3	2	25	Fr. 0-30°
161.1	161.9	0.8		0.8	0	0.2	1	20	Fr. + BD 60-40°
162.57	162.8	0.23	Greenish black siltstone bed, both qz-cal-lim and massive white qz veins	0.23	0.2	16.0	60	4	CNT 55° V. 90-30°
162.7	162.72	0.02	White qz vein, tr. py vein infills fault, thrust motion that offsets calcite-qz veins by 3 cm.	0.02	0	100.0	1	0	CNT 30°
162.8	163.0	0.2	Cusate fractures parallel bedding, ? fold axis oriented 90° C/A						BD + Fr. 0-25°
164.0	164.9	0.9		0.9	0	0	0	30	Fr. 0-60°
164.1	166.5	2.4		1.6	0.2	0	0	5	Fr. 0-20°
166.5	169.7	3.2	Lim on fr., blocky	3.2	0.3	0.9	3	19	Fr. 60-45°
166.5	167.85	1.35	Broken core	1.35	0.1	2.0	6	80	Fr. 60-30°
167.5	167.8	0.3	Dk. greenish grey siltstone, qz calcite veined.	0.3	0.1	25.0	100	15	CNT 65°
167.73	167.77	0.04	Yellow qz-cal vein, irregular contacts	0.04	0	100	1	0	CNT 60-0°
168.15	168.45	0.3	Broken, 5mm of gouge	0.3	0	0	0	60	Fr. 0-60° G 20°
169.05	169.85	0.8	Blocky in part broken	0.8	0	0	0	80	Fr. 60-40°
169.55	169.6	0.05	Sheared core + gouge	0.05	0	0	0	300	CNT 65°
170.63	170.80	0.17	Dk. greenish siltstone qz + 0-10% calcite veined, yellow lim. stained 5-10% dissem py.	0.17	0.1	20.0	35	5	CNT 65° V. 10-35°

LOGGING FORM

Project: Brick DDH # B-2-85 Location: L3+93E 3+95N
 Angle -45° Bearing 021° Total Depth 200.3M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
170.7	170.72	0.02	White qz. + 5% calcite, 20% siltstone (ang.) frag.	0.02	0	100.0	1	5	CNT 10-15°
171.1	173.7	2.6	Blocky to broken core	2.6	0.1	0.5	2	30	Fr. 60-0°
171.3	172.1	0.8	Broken core	0.7	0.1	20.0	6	50	Fr. 60°
171.4	171.6	0.2	Grey sandstone, qz veined.	0.2	0.1	30.0	20	5	CNT 85° V. 20°
171.6	171.65	0.05	Gouge/shear	0.05	0	0	0	200	CNT 35°
172.5	172.9	0.4	Broken core	0.4	0	0	0	40	Fr. 30-60°
172.7	172.71	0.01	Gouge	0.01	0	0	0	200	CNT 40°
173.4	173.7	0.3	Broken	0.3	0	0	0	150	Fr. 60-40°
174.65	174.66	0.01	Mass. py strat.	0.01					CNT 75°
174.71	174.72	0.01	Mass. py strat.						CNT 75°
174.9	175.6	0.7	Fractured broken core	0.7	0	0	0	50	Fr. 10-70°
176.35	176.36	0.01	Massive py lense	0.01	0				CNT 60°
176.56	176.62	0.06	Grey ss bed	0.06	0	5.0	6	3	CNT 30°
176.64	176.65	0.01	Mass. py strat.	0.01					CNT 55°
176.73	176.75	0.02	Grey ss. bed	0.02					CNT 77°
176.78	176.94	0.16	Massive grey-black siliceous mudstone with 15% less than or equal to 2cm py blebs/nodules	0.16	0.16	0	0	1	CNT 85°
177.75	189.4	11.65	Blocky broken core with 25% clay gouge, gr. mirror planes on some fr.	10.25	0.6	0.8	2	40	Fr. 60-0°
177.75	177.80	0.05	Sheared in part G	0.05	0	0	0	300	CNT 70°
178.4	178.7	0.3	Shattered core in part G	0.3	0	0	0	20	Fr. 60-40°

LOGGING FORM

Project: Brick DDH # B-2-85 Location: L3+93E 3+95N
 Angle -45° Bearing 021° Total Depth 200.3M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
179.5	179.6	0.1	Radiating calcite V.'s	0.1	0	10.0	15	20	V. 0-90°
179.6	180.4	0.8	Black clay gouge, soft, mushy	0.2	0	0	0		CNT 90-70°
179.8	180.4	0.6		0					
180.4	180.6	0.2	Grey ss, criss-crossing qz vein, broken/blocky	0.2	0	15.0	30	60	V. 40-50
180.6	181.05	0.45	Black soft, mushy clay gouge	0.45	0	0	0		CNT L 30°
181.05	181.3	0.25	Grey qz-calc. veined sandstone	0.25	0.2	15.0	8	20	CNTL 40° V. 20-40°
181.3	181.8	0.5	Crushed broken core	0.5	0	0	0	150	Fr. 60-40°
181.33	181.37	0.04	Gouge, clay, soft	0.04	0	0	0	2	CNT 20°
181.65	181.73	0.08	Gouge, clay soft	0.08	0	0	0		CNT 48°
181.9	182.05	0.15	Grey qz-veined SS	0.15	0.15	15.0	10	1	CNT 45°
183.1	184.4	1.3	Broken shattered core gouge less than or equal to 1 cm on fr.	1.3	0	0	0	120	Fr.
184.1	184.24	0.14	Black soft clay gouge	0.14	0				CNT L 45°
185.5	187.3	1.8	Broken shattered core	0.9	0	0	0	150	Fr. 60-30°
185.5	186.4	0.9		0	0				
186.7	186.84	0.14	Gouge, clay soft black	0.14	0	0	0		?CNT 45°
187.8	189.1	1.3	Broken core	1.3	0	0	0	100	Fr. 0-40°
189.4	196.2	6.8		6.8	2.9	0	0	9	Fr. + BD 55-70°
193.0									BD 35°
194.5									BD 55°
195.0	195.4	0.4	Fractured broken core	0.4	0	0	0	50	FR. 0-40°

LOGGING FORM

Project: Brick DDH # B-2-85 Location: L3+93E 3+95N
 Angle -45° Bearing 021° Total Depth 200.3M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
196.2	200.3	4.1	Blocky core	4.1	0.1	0.7	3	15	Fr. 70-30°
196.4	196.9	0.5	Broken core	0.5	0	0	0	90	Fr. 30-50°
196.8	196.9	0.1	Shattered core	0.1	0	0	0	150	Fr. 40-50°
199.30	199.39	0.09	Grey QzV. ss	0.09	0	30	25	10	CNT 60° V. 40-30°
199.5	200.1	0.6	<u>5a</u> ; Grey qz V. ss 0-10% calcite in V.	0.6	0.6	75.0	10	4	CNT 50° V. 0-30°
200.3			E.O.H.						

SUMMARY LOG

DDH B-3-85

Lithology

0.0 - 31.1 m Overburden.
31.1 - 100.6 m Black shale with thin weakly carbonaceous shale, silty shale, siltstone and rare sandstone interbeds.

Structure

Core breaks at 5-20 cm intervals parallel bedding planes (20-45 degrees C/A) and along fractures (0-60 degrees C/A). Limonite, clay and locally siderite coat fractures. Quartz-calcite-siderite pyrite veins occur within the brittle siltstone-sandstone beds. Veining in shale is rare.

Major Fault/Fracture Zones and Veins

31.1 - 53.5 m Fault/Fracture zone 2.0 m lost core.
31.1 - 32.3 m Gouge 1.0 m lost core.
39.0 - 41.5 m 60% gouge 1.0 m lost core.
45.3 - 45.6 m 30% gouge.
58.5 - 60.8 m Fracture zone.
66.7 - 73.5 m Fracture zone.
79.0 - 81.8 m Fracture zone.
NOTE: No veins greater than 0.05 m thick.

Alteration

50.7 - 50.95 m Vuggy clay altered black shale, yellow to red glassy translucent ?realgar-orpiment coat vugs.

Mineralization

1-10% disseminated pyrite throughout all lithologies. Less than 1% of interval is 1-30 mm stratiform pyrite beds and lenses. All disseminated and bedded pyrite is of syngenetic origin.

LOGGING FORM

Project: Brick DDH # B-3-85 Location: L5+05E 3+95N

Angle -60⁰ Bearing 021⁰ Total Depth 100.6M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
0	31.1	31.1	Overburden	0					
31.1	100.6	69.5	<u>5a</u> , Grey black to black massive to laminated shale, 0-2% carb. mat. locally 2% black (5-10%) carb. shale (less than or equal to 0.1m), 10% dk. greenish grey-greenish black 5-40cm siltstone beds, 2% 1-100 mm sandstone beds grey. Rusty red-brown to brilliant yellow lim coats fractures, siltstone + SS beds Qz-Cal + py veined. Dissem. py in all rocks 1-10% locally less than or equal to 2cm py stratabound beds + lenses (less than 1%).	64.9	12.25	0.2	1	10	
31.1	53.3	22.1	Fault zone. Broken, blocky core with gouge zones.	20.1	0.2	0.3	2	25	Fr. 0-70 ⁰
31.1	32.3	1.2	Black clay gouge	0.2	0	0	0	0	
31.3	32.3	1.0		0					
32.3	34.1	1.8	Broken	1.8	0	0	0	40	Fr. 20-40 ⁰
33.6									BD 60 ⁰
33.90	34.0	0.1	Broken siltstone Mn + lim on fr.	0.1	0	0	0	50	Fr. 0-30 ⁰
34.2	35.7	1.5	Broken fr. qz-tr Cal. veined greenish siltstone lim on fr.	0.5	0	5.0	20	25	Fr. 0-40 ⁰ CNT 60 ⁰
35.1	35.13	0.03	Clay, black gouge	0.03	0	0	0		CNT 35 ⁰
35.7	39.0	3.3	Broken core lim on fr.	3.3	0	0	0	40	Fr. 0-50 ⁰
39.0	39.8	0.8	Gouge/breccia 20% shale frags.	0.8	0	0	0	200	Fr. + G 10-20 ⁰
39.8	41.5	1.7	Crushed core, 40% gouge	0.7	0	0	0	100	Fr. G 10-30 ⁰
40.5	41.5	1.0		0					

LOGGING FORM

Project: Brick DDH # B-3-85 Location: L5+05E 3+95N
 Angle -60° Bearing 021° Total Depth 100.6M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
41.5	46.3	4.8	Broken in part blocky core, lim on fr.	5.8	0	0	0	80	Fr. 0-40°
45.3	45.6	0.3	30% gouge, clay black, broken sheared core.	0.3	0	0	0	70	Fr. 0-30°
46.6	51.0	4.4	Broken core irredescent tarnish on fr. (? alt. py/sulphide) + lim, Gr. mirror on some fr.	4.3	0	0.2	1	60	Fr. 0-30°
48.2	48.5	0.3	Crushed core	0.3	0	0	0	250	Fr. 10°
50.2	50.5	0.3	Crushed core	0.3	0				
50.5	50.7	0.2	Broken Qz 0-5% Cal. V. shale, 5% open vugs, with irredescent tarnish (also on fr.)	0.2	0	3.0	50	30	V. 45% CNT 40°
50.7	50.95	0.25	Leached vuggy black clay alt. gouged Qz + 0-2% Cal. + brown rusty lim. (? py) veined shale. Yellow to rusty red glassy translucent coating (? Realgar + Orpiment) on vugs minor irredescent tarnish on fr.	0.25	0	10.0	50	15	Fr. + V. 0-60°
51.0	53.3	2.3	Blocky in part broken	2.3	0.2	0	0	15	Fr. 60-30°
51.7	52.1	0.4	Broken core lim. + Gr-C on fr.	0.4	0	0	0	40	Fr. 20-40°
52.4	53.3	0.9	Broken core lim. on fr.	0.9	0	0	0	45	Fr. 10-35°
53.3	55.8	2.5	Lim. on fr.	2.5	0.7	0	0	5	Fr. 0-10°
53.4									BD 60-65°
53.4	66.7	13.3	Fractured in part, blocky core lim. on fr., gr. mirror planes on <u>some</u> fr.	13.3	4.3	0.5	1	9	Fr. 30-60°
55.7	56.5	0.8	Broken blocky core lim. on fr.	0.8	0	0	0	30	Fr. 45-10°
56.5	57.3	0.8	Dk. grey-green siltstone. Qz-Cal- (lim. stained) veins	0.8	0	12.0	30	15	CNT 65° Fr. + V. 10-80°
56.94	56.97	0.03	Qz-Cal vein white-grey	0.03	0	100	1	0	CNT 70°

LOGGING FORM

Project: Brick DDH # B-3-85 Location: L5+05E 3+95N

Angle -60° Bearing 021° Total Depth 100.6M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
57.4	58.0	0.6	Broken core, gr. on fr.	0.6	0	0	0	50	Fr. 10-30°
58.3									BD 60°
58.5	60.8	2.3	Blocky in part broken core, lim. on fr.	2.3	0	0	0	20	Fr. 10-30°
61.0	61.5	0.5	Broken-blocky core	0.5	0	0	0	25	Fr. 20-45°
62.8	63.3	0.5	Broken-blocky core	0.5	0	0	0	40	Fr. 20-30°
63.6	64.4	0.8	Blocky core	0.8	0.1	0	0	15	Fr. 30-60°
66.7	73.5	6.8	Fractured, in part blocky broken	6.4	0.5	0.6	1	12	Fr. 60-20°
67.7	69.0	1.3	Qz + Calcite veins	1.3	0.1	1.0	20	15	V. 40-20°
69.0	69.4	0.4							
69.4	70.1	0.7	Broken sheared core 15% gouge	0.7	0	0	0	150	Fr. 20-30°
70.05	70.1	0.05	Clay gouge	0.05	0				CNT 30°
70.8	71.3	0.5		0					
71.3	71.4	0.1	Clay gouge	0.1	0				CNT 40°
72.2	74.0	1.8		1.8	1.0	0	0	6	BD 40°
74.0	76.7	2.7	In part blocky	2.7	0.5	0	0	10	Fr. 40°
76.1	76.2	0.1	Sheared core, 30% gouge	0.1	0	0	0	100	Fr. 40°
76.7	77.3	0.6	Blocky in part broken core	0.6	0	2.0	10	90	Fr. 40-50°
76.9	77.0	0.1	Broken, qz-py veined, dk. greenish grey siltstone.	0.1	0	15.0	20	50	V. 0-30°
77.8	78.3	0.5	Sheared core in part gouge, soft core	0.5	0	0	0	130	Fr. 40-50°
78.5	78.7	0.2	Greenish grey siltstone to silty shale. Qz-Cal + 0-15% brown ragged sid. as V.	0.2	0	10.0	15	20	V + Fr. 30-40° CNT 65°
79.0	81.8	2.8	Blocky core	2.8	0.3	0.1	1	20	Fr. 60-20°
79.47	79.5	0.03	Sheared core	0.03	0	0	0	100	Fr. 45°

LOGGING FORM

Project: Brick DDH # B-3-85 Location: L5+05E 3+95N

Angle -60° Bearing 021° Total Depth 100.6M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
80.46	80.48	0.02	Gouge	0.02	0	0	0		CNT 58°
80.8									BD 55°
82.2	82.55	0.35	Qz -?siderite veins with white greasy clay infilled fractures, black shale host, sid x-ll coating Fr.	0.35	0	15.0	28	20	V. 20-40°
83.2									BD 50°
85.0	87.0	2.0	Blocky core	2.0	0.1	0	0	11	Fr. 0-50°
85.0									BD 85°
85.6									BD 55°
86.1									BD 60°
86.9	87.0	0.1	Broken core, rubble	0.1	0	0	0	100	
87.3									BD 55°
87.9	90.3	2.4	Blocky core	2.4	0.1	1.0	3	15	Fr. 90-20°
89.3	89.8	0.5	Greenish, qz. veined siltstone	0.5	0.1	4.	20	10	CNT 90° Fr. V. 0-30°
92.0	97.2	5.2		5.2	2.0	0.4	3	4	Fr. 0-30°
92.0									BD 0°
92.6	92.61	0.01	Qz vein parallel core	0.01	0	100	1	0	CNT 50°
95.0									BD 15°
95.9	96.3	0.4	Blocky core	0.4	0	0	0	20	Fr. 0-25°
96.5									BD 25°
97.2	100.6	3.4	In part blocky	3.4	0.6	0	0	10	Fr. 45-20°
98.1	98.5	0.4	Broken core	0.4	0	0	0	40	Fr. 40°
98.7	98.78	0.08	Grey SS bed	0.08	0	0	0	10	CNT 0-10°
99.2									BD 35
100.6									

SUMMARY LOG

DDH B-4-85

Lithology

0 - 6.7 m	Overburden and cored porphyry boulders.
6.7 - 27.1 m	Porphyry dyke/sill.
27.1 - 44.2 m	Carbonaceous shale with trace mudstone beds.
44.2 - 47.4 m	Porphyry sill/dyke.
47.4 - 48.5 m	Carbonaceous shale with trace mudstone beds.
48.5 - 56.4 m	Porphyry sill/dyke.
56.4 - 73.2 m	Carbonaceous shale with trace mudstone beds.
73.2 - 74.0 m	Porphyry sill/dyke.
74.0 - 74.9 m	Carbonaceous shale.
74.9 - 84.8 m	Porphyry sill/dyke.
84.8 - 87.3 m	Carbonaceous shale with trace mudstone beds.
87.3 - 114.2 m	Porphyry dyke/sill.
114.2 - 147.0 m	Carbonaceous shale with mudstone beds.
147.0 - 201.0 m	Black strongly carbonaceous-graphitic shale.
201.0 - 229.2 m	Black-grey carbonaceous-siliceous shale.

Structure

Shales break along bedding and fractures (0-70° C/A) at 5-15 cm intervals. Limonite, calcite and graphite common along fractures, (locally siderite and rarely orpiment present). Quartz veins ≤ 5 mm thick occur at 1-5 veins/m. Veins are generally quartz ($\pm 0-15\%$ pyrite $\pm 0-10\%$ calcite, $\pm 0-5\%$ siderite) and limonite. Maximum vein width is 3.1 m.

Major Fault/Fracture Zones and Vein

6.7 - 20.5 m	Fault/fracture zone.
28.3 - 37.5 m	Fracture zone.

38.1 - 44.2 m	Fracture zone.
54.1 - 73.2 m	Fracture zone.
81.2 - 89.3 m	Fracture zone.
91.3 - 92.9 m	Fracture zone.
114.2 - 118.9 m	Fracture zone.
121.8 - 122.5 m	Fracture/fault zone, loss of 0.5 m core.
132.6 - 229-2 m	Fracture/fault zone, loss of 45.7 m core.
139.1 - 140.7 m	Fault zone, gouge.
142.7 - 143.4 m	Quartz-pyrite-calcite-siderite vein.
153.0 - 198.7 m	Main fault zone, loss of 19.7 m core.
153.0 - 156.0 m	50% gouge, loss of 1.6 m core.
156.0 - 162.2 m	85% quartz-pyrite vein, loss of 4.2 m core.
168.2 - 174.3 m	25% quartz vein, 5% gouge, loss of 1.8 m core.
177.3 - 180.4 m	50% gouge, loss of 1.3 m core.
189.5 - 192.6 m	20% gouge, loss of 1.3 m core.
195.3 - 198.7 m	25% quartz vein, loss of 1.0 m core.
218.9 - 223.1 m	80% gouge, loss of 2.8 m core.

Alteration

6.7 - 20.5 m	Intensely clay altered-sericitized limonite stained porphyry, decreasing in strength with depth.
20.5 - 27.1 m	Weakly clay altered porphyry.
27.1 - 38.1 m	70-90% grey-green, bleached in part clay altered shale, 10-30% black carbonaceous shale
38.1 - 44.2 m	50% grey-green bleached shale, 50% black carbonaceous shale.
47.4 - 48.5 m	60% grey-green bleached and 40% black carbonaceous shale.
54.1 - 56.4 m	Weakly to moderately clay-sericite altered porphyry.
56.4 - 60.65 m	70% black carbonaceous in part silicified shale with 30% grey-green bleached patches, to bands parallel bedding and fractures.

60.65 - 73.2 m	80% black shale with 20% grey-green bleached patches.
73.2 - 74.0 m	Weak clay-sericite altered porphyry.
74.0 - 74.9 m	95% black shale with 5% bleaching along fractures.
74.9 - 84.8 m	Weakly clay-sericite altered porphyry with local unaltered sections.
84.8 - 87.3 m	60% greenish-grey bleached, 40% black carbonaceous shale.
87.3 - 114.2 m	Weakly clay-sericite altered porphyry with local unaltered sections.
114.9 - 118.9 m	10% white to greenish-grey bleaching along fractures and Qz-cal V. locally weak silicification.
127.5 - 127.95 m	100% grey green bleaching.
132.0 - 132.3 m	Grey-green bleached-silicified shale adjacent 3 cm quartz-pyrite vein.
137.3 - 137.6 m	Bone white bleached-silicified shale.

Mineralization

1-10% disseminated pyrite throughout all rock types with 1%, 1-80 mm stratiform, 40-100% pyrite beds in shale.

6.7 - 20.5 m	Trace - 1% orpiment and locally realgar coating fractures in porphyry, white fibrous acicular ? zeolite mineral also present on some fractures.
147.9 - 154.5 m	Trace ? orpiment on fractures within shale.

LOGGING FORM

Project: Brick DDH # B-4-85 Location: L5+54E 2+45N
 Angle -45° Bearing 021° Total Depth 229.2M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
0	3.7	3.7	Overburden	0					
3.7	6.7	3.0	? Cored porphyry, boulder or rubbly outcrop, pale yellow clay altered, broken	1.3					
6.7	20.5	13.8	7a; altered porphyry, rusty brown, brilliant yellow (lemon) grey-greenish coloured, lemon yellow realgar + brown lim stain on fr. and in core, intense clay alt. essentially clay + qz from 9.8 - 14.5, alt. decreases in intensity from 14.5 - 20.5	13.8	1.2	0	0	40	Fr. 0-60°
6.7	9.8	3.1	Rusty-brown, lim stained porphyry broken core, fine accicular straw coloured to white transparent crystals coat fractures, locally? lemon yellow earthy orpiment on fr. (transparent x-lls might be zeolite, <u>grow</u> out of rock as alt.)	2.1	0				Fr. 0-60°
9.8	11.5	1.7	Crushed broken core, grey green porphyry with tr.-1% lemon yellow + pale yellow orp. ? stain + coat on fr. locally tr.-1% brilliant red realgar x-lls (less than or equal to 1mm) + less than or equal to 5mm euhed transp. qz x-lls on fr.	1.7	0	0	0	100	Fr. 0-60°
11.5	12.2	0.7	Orangy-yellow-greenish mod. alt. porphyry, broken tr. orp on fr. zeolite x-lls abundant.	0.7	0.1	0	0	35	Fr. 0-90°
12.2	14.6	2.4	Yellow-green intensely clay alt. porphyry, rusty yellow to rust brown lim ? orp. + zeolite on fr. broken core.	2.3	0	0	0	50	Fr. 10-50°
12.2	12.8	0.6	Fr.'s coated with golden yell. orp. <u>crusts</u> + mn ? (black-purp stain)	0.6					

LOGGING FORM

Project: Brick DDH # B-4-85 Location: L5+54E 2+45N
 Angle -45° Bearing 021° Total Depth 229.2M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
13.4	14.1	0.7	Intense clay alt. greenish-yell. clay, in part gouge	0.7	0			60	Fr. 0-60°
14.6	20.5	5.9	Mod. grading to weakly clay alt. porphyry lim coats fr. tr. orp on same tr., locally fibrous acic. x-lls (zeolite?) on fr. tr.-2% dissem. py, calcite in veins, biotite visible (weakly altered) below 18.0m.	5.9	1.1	0.1	1	20	Fr. 20-60°
17.0	17.5	0.5	1-7mm wide fr.'s infilled with radiating soft white transp. acic. x-lls, ? zeolite.	0.5	0	0	0	10	10-40°
20.5	27.1	6.6	Weakly altered to fresh grey-green to grey (unalt.) porphyry 1-2% py, 5-10% Biotite, 10-20% quartz, 70-85% Feldspar, med-fine grained massive, lim on fr., Qz-Cal. veins, lim on margins of fr.	6.6	2.2	0.5	2	5	Fr. 0-45° V. 40-70°
27.1			CNT with shale, sharp parallel bedding						CNT 60°
27.1	44.2	17.1	4b; Bleached grey-green mod-strongly silicified ? shale with 10-30% 1-70cm (avg. less than or equal to 3cm) black ? carb. unbleached bands, hard rock, unbleached black bands + spots have in part higher (3-10%) py content than bleached rocks (1-5%), bleaching is parallel to <u>locally</u> x-cutting bedding, ? lim on fr., bleached shale is weakly clay altered.	17.1	4.1	0	0	9	Fr. 0-50°
27.1	28.3	1.2	Broken core, 20% rusty lim, stain on rock + fr.	1.2	0	0	0	20	Fr. 20-50°
28.3	37.5	9.2	In part blocky, Qz-Cal-lim veining (tr-20% cal.)	9.2	2.9	0.6	3	9	Fr. 20-30°
28.6	29.7	1.1	Blocky	1.1	0.3	0.2	1	15	Fr. 30-60°

LOGGING FORM

Project: Brick DDH # B-4-85 Location: L5+54E 2+45N
 Angle -45⁰ Bearing 021⁰ Total Depth 229.2M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
28.7									BD 45 ⁰
30.95	31.2	0.25	Broken core	0.25					
31.64	31.72	0.08	Breccia, 20% qz-vein material cementing 80% black + bl. silicified shale	0.08	0	20	20	9	CNT 60 ⁰
31.72	34.7	2.98	Blocky core, rusty brown lim on fr.	2.98	0.6	0.3	2	13	Fr. 40-60 ⁰
33.0	33.5	0.5	Broken	0.5	0	0.3	2	25	Fr. 10-50 ⁰
33.6									BD 50 ⁰
35.1	36.4	1.3	Blocky	1.3	0.1	0.2	1	14	Fr. 40-60 ⁰
36.0	36.1	0.1	Sed. ? Congl or tectonic Breccia 5 @ 3-5cm round, soft clay alt. clasts in a silicified matrix.	0.1	0.1				BD+Cl.+V. 0-70 ⁰
38.1	44.2	6.1	In part Blocky, 50% black, 50% greenish-grey bl bands, all silicified, bright yellow lim on fr.	6.1	0.6	0.4	2	10	Fr. 0-60 ⁰
38.1	40.5	2.4	Blocky	2.4	0.1	0.4	2	17	Fr. 20-60 ⁰
39.15	40.1	0.95	Rubble, bright yellow lim + rust on fr.	0.95	0	0	0	100	Fr. 20-50 ⁰
40.1	40.15	0.05	Yellow green bleached clay altered, silicified shale.	0.05	0	0	0	20	Fr. 20-60 ⁰
40.1	40.5	0.4	Greenish to white translucent fluorite (?) as less than or equal to 3mm coatings on fr. (some fr.) soft, brittle granular/sugary coating, H-?2-3 (scratch with finger nail)	0.4	0.2	0.5	3	15	Fr. 40-55 ⁰
40.2	41.3	1.1	90% black shale silicified	1.1	0.4	0.5	3	15	Fr. 40-50 ⁰
42.1	44.2	2.1	Blocky in part broken core, yell. lim + tr.-5% cal. on fr.	2.1	0.1	0.8	4	25	Fr.+BD 40-55 ⁰

LOGGING FORM

Project: Brick DDH # B-4-85 Location: L5+54E 2+45N
 Angle -45° Bearing 021° Total Depth 229.2M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
44.2			CNT with porphyry, contact broken, parallel bedding						CNT ? 50°
44.2	47.4	3.2	7b; Porphyry <u>white</u> to grey weak sericitization/greenish clay alt. around fr. margins + for 15cm at contacts, essentially unalt. 10% blot, 15% Qz, 75% felds, tr-2% dissem. py, lim on fr., Qz veins.	3.2	1.8	0.9	3	7	V. 10-30° Fr. 10-70°
45.9	46.0	0.1	7b; Rusty brown mod. alt.	0.1	0	1.3	4	10	Fr.
46.3	46.33	0.03	Broken-shear-gouge	0.03	0	0	0	40	CNT 65°
47.4			CNT with shale parallel bedding						40°
47.4	48.5	1.1	4a, 4b; 60% bleached shale, 40% 1-20cm (avg. 5cm) black bands, in part clay alt. and mod. silicified, bleaching both along bd. + high angle fr. that x-cut it, also along qz + qz-cal-lim veins.	1.1	0.1	2.0	10	15	Fr. 20-60° V. 20-90°
48.5			CNT with porphyry, parallel bedding						CNT+BD 47°
48.5	54.1	5.6	7b; porphyry white-grey colour, unaltered, 10% biotite, 15% Qz, 75% felds., weakly sericitized/ clay adjacent fact. zones less than or equal to 15cm (tr. cal) + Qz and Qz-pyrite-lim + Cal. veins (milky qz), tr. Cal + lim, coat fract.	5.6	3.5	8.0	15	6	Fr. 10-30° V. 10-45°
49.05	49.15	0.10	Weak clay alt	0.10	0	5.0	7	15	Fr. 30-60°
51.25	51.35	0.10	Mod. clay alt. around Qz-Cal? carbon infilled fract.	0.1	0.1	6.0	10	7	V. 45°
51.4	52.4	1.0	Qz + 0-5% Cal. V.	1.0	0.9	15.0	15.0	5	V. 45°
52.8	53.0	0.2	Mod. clay alt.	0.2	0	9.0	15	20	Fr. 45°

LOGGING FORM

Project: Brick DDH # B-4-85 Location: L5+54E 2+45N
 Angle -45° Bearing 021° Total Depth 229.2M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
54.1	56.4	2.3	7a; Alt. porphyry, Biot. alt. below 54.4, mod to locally strong clay-sericite alt. to greyish-green porphyry, qz veins <u>grey</u> colour, locally white milky also 70-80% med. grained sub. py, (lim + Qz = 30-20%) as 4cm V.	2.3	0.4	5.0	15	10	Fr. 30-70° V. 70-40°
54.39	54.4	0.01	80% sub. py. x-lls - vein/fr. coating	0.01	0	100	1	0	CNT 35°
54.6	56.4	1.8	Blocky core, lim on fr.	1.8	0	6.0	15	18	Fr. 30-70°
55.58	55.59	0.01	90% sub. py x-lls + Qz-lim, vein/fr. coating	0.01	0	100	1	0	CNT 40°
56.4			CNT with shale broken ? parallel bedding						CNT ? 38°
56.4	73.2	16.8	4a/4b; 70% black weakly carbonaceous silic. shale with 30% 1-50cm greyish-green to grey weakly silicified shale bands, bleaching irreg, gen x-cutting bedding along fr. and as patches, also locally as margins on Qz and Qz-Cal veins, lim + tr. -5% calcite on fr.	16.8	4.3	0.5	2	12	Fr. 30-60°
56.4	73.2	16.8	Mainly blocky						
56.4	57.7	1.3	Broken, 50% bleached shale	1.3	0	0.7	3	40	Fr. 0-45°
58.0	58.4	0.4	90% bleached	0.4	0.1	0.7	2	12	Fr. 40-50°
59.0	59.5	0.5	95% bleached	0.5	0.3	0.2	1	7	Fr. + BD 45°
59.5	61.4	1.9	Blocky in part broken core	1.9	0.2	0.5	2	20	Fr. 30-60°
60.4	60.65	0.25	100% bleached	0.25	0	0.4	2	20	Fr. 30-40°
60.65	61.4	0.75	Broken core	0.75	0	0	0	40	Fr. 30-50°
60.65	73.2	12.55	80% black shale, 20% 1-10cm (avg. 2cm) bleached bands (greyish-green), (qz-cal to qz vein) bleached bands along high angle fr., parallel bedding and as irreg blotches: calc 23% on fr.	12.55	3.4	0.4	1	9	Fr. 20-70°

LOGGING FORM

Project: Brick DDH # B-4-85 Location: L5+54E 2+45N
 Angle -45° Bearing 021° Total Depth 229.2M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
62.1	63.4	1.3	Blocky, in part broken	1.3	0.2	0.5	2	20	Fr. 10-50°
64.3	65.0	0.7	Blocky, in part broken core, 30% bleached shale	0.7	0	0.4	4	40	Fr. 70-40° V. 70-0°
66.2	66.4	0.2	Broken	0.2	0	0.2	1	40	Fr. 0-60°
66.45	66.46	0.01	Qz vein with 10% py x-lls	0.01	0	100	1	0	CNT 25°
66.6	67.1	0.5	Broken core	0.5	0	0.3	2	30	Fr. 0-30°
66.9	67.1	0.2	90% Bl. shale	0.	0	0.3	2	20	
66.95			Fold closure, Axial plane 90° C/A						BD 0-10°
68.1	69.8	1.7	Blocky, broken core	1.7	0.1	0.7	2	25	Fr. 0-45°
68.5	68.75	0.25	90% bl. shale						
69.2	69.28	0.08	100% bl. shale						
70.1	72.6	2.5	Blocky, broken core	2.5	0.2	0.3	2	35	Fr. 0-90°
71.25	71.60	0.35	80% bl. shale						
73.0	73.2	0.2	Bl. shale	0.2	0	0	0	15	Fr. 40°
73.2			CNT with porphyry parallel bedding						CNT + BD 40°
73.2	74.0	0.8	7a; weakly alt. porphyry, biot. visible but alt., greenish clay/sericite alt. of felds., 5% 0.5-10cm ang., black and grey shale clasts in center, lim on fr. and stains unit	0.8	0.6	0	0	5	Fr. 0-40°
74.0			CNT with black shale						CNT 45°
74.0	74.9	0.9	4a; 95% black weakly carb. shale with 5% less than or equal to 3cm irreg bl. bands along fr. margins + Qz V. lim on fr.	0.9	0.1	0.2	1	20	Fr. 0-40°
74.9			CNT with porphyry sharp against black shale						CNT 60-45°

LOGGING FORM

Project: Brick DDH # B-4-85 Location: L5+54E 2+45N
 Angle -45° Bearing 021° Total Depth 229.2M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
74.9	84.8	9.9	<u>7a/7b</u> ; weakly to mod. altered porphyry, biot + visible but completely alt. to white? mica/sericite, felds to greenish clay/sericite, grey-green colour, tr.-3% py as dissemin and locally as less than or equal to 1mm V. Qz + tr. Cal. veins, lim on fr.	9.9	6.0	0.3	2	6	Fr. 10-30° V. 30-45°
77.8	77.82	0.02	Qz + 20% py vein	0.01	0	100	1	0	CNT 40°
80.9	84.8	3.9	<u>7a</u> ; mod to str. alt., Biot. not visible, core soft, (scratched with nail), 30% rusty yellow lim. stain	3.9	2.6	0.3	2	6	Fr. 10-60°
81.26	81.42	0.16	Broken alt. lim stained	0.16	0	0	0	70	Fr. 35-50°
84.8			CNT with shale						CNT 50°
84.8	87.3	2.5	<u>4b,4a</u> ; 60% bleached greenish-grey shale with 40% 5-40cm black shale bands, Bl. CNT. generally x-cuts bedding, lim. on fr., qz + tr. cal. V.	2.5	0.7	0.3	2	15	Fr. 30-90°
85.2	85.65	0.45	90% black shale						
86.6	86.85	0.25	80% black shale						
87.1			CNT with porphyry (black shale)						CNT 35°
87.3	114.2	26.9	<u>7a/7b</u> ; weakly altered porphyry, biot visible but alt., felds in part replaced by greenish-grey clay + sericite, tr.-2% py, grey-white to greenish-grey coloration, cal + lim (brown with minor bright orange) on fr., locally Qz-Py veins	26.9	18.7	0.8	3	7	
87.9	88.0	0.1	70% 1-7cm black shale clasts	0.1	0	0	0	7	
88.0	89.3	1.3	Blocky core, cal + lim on fr.	1.3	0.1	0.8	3	13	Fr. 45-30°
91.3	92.9	1.6	Blocky core, lim + cal on fr.	1.6	0.5	0.2	1	15	Fr. 20-50°

LOGGING FORM

Project: Brick DDH # B-4-85 Location: L5+54E 2+45N
 Angle -45° Bearing 021° Total Depth 229.2M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
92.91	92.92	0.01	Pyrite + Qz vein, 90% py	0.01	0	100	1	0	CNT 50°
105.7	106.9	1.2	5% lim stained porphyry on margins of fr.	1.2	1.0	0.8	2	7	Fr. 20-40°
114.2			CNT with shale, x-cuts beddings str. @ 90°						CNT 20-30°
114.2	147.0	32.8	4a; black weakly to strongly carbonaceous (3-10%C) shale with 20% grading to 2% dark grey mudstone beds 1-25 cm (gen less than or equal 3cm), Py diss. throughout 2-10% with 3-30% py in mudstone and locally (less than or equal to 1%) 1-70mm massive strat. 30-100% py + lim beds, finely layered to laminated alternating bands, qz-cal micro veins common also locally qz-py veins, lim + cal on fr., locally with bleached margins (bl. margins less than or equal to 3cm, x-cut bedding), # of fr. with graphite mirror planes increase with depth	31.4	6.0			10	Fr. 0-50°
114.2	118.9	4.7	Blocky core, in part broken, 10% bl. along 0-20° fr., lim + cal on fr. Qz-cal. V., weak-mod silicification	4.7	0.35	0.8	4	15	Fr. 0-30°
115.0									BD 45°
114.9	115.9	1.0	35% bl. silic. shale, grey-green along high angle fr.	1.2	0	0.2	2	18	Fr. 0-30°
115.6	115.62	0.02	Vuggy massive py. strat.	0.02	0	0	0	0	BD+CNT 55°
116.23	116.24	0.01	lim-py strat., in part ? replaced by qz + greyish-blue min (H3-4) ? barite	0.01	0	0	0	0	BD+CNT
118.9	121.8	2.9	Qz-cal. V's	2.9	1.3	2.0	15	9	V. 35-20°
121.8	122.9	1.1	Broken/blocky core	0.6	0	0.6	6	25	Fr.+BD 35°
122.0	122.5	0.5		0					

LOGGING FORM

Project: Brick DDH # B-4-85 Location: L5+54E 2+45N
 Angle -45° Bearing 021° Total Depth 229.2M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
137.2	137.7	0.5	Broken core	0.5	0	5.0	50	75	Fr. 20-35°
137.3	137.6	0.3	Bone white intensely silicified + Qz micro-veined shale	0.3	0	7.0	50	70	Fr. 20-45°
137.9	139.1	1.2	Qz-Cal-Py micro-veined	1.2	0.3	5.0	200	15	V. 0-60°
139.1	140.7	1.6	Fault, Gouge + sheared core	1.6	0	0.6	5	180	Fr. 40-60°
139.1	139.75	0.65	Black carbon clay gouge	0.65	0	0.6	5		No CNTS
139.75	140.2	0.45	Sheared core + rubble	0.55	0	0.6	5	200	Fr. 40-60°
140.2	140.4	0.2	Black carbon clay gouge	0.2	0	0.6	5		No CNTS
140.4	140.7	0.3	Sheared core	0.3	0	0.6	5	150	Fr. 30-60°
140.7	142.7	2.0	Broken, Qz-cal-sid veined core	2.0	0	4.0	50	40	V. 0-40° Fr. 30-60°
140.7									BD 65°
140.8									BD 50°
141.0									BD 65°
141.8									BD 38°
141.9	142.7	0.8	Shattered - broken	0.8		2.0	20	100	Fr. 40-50°
142.69	142.7	0.01	Gouge - clay + C	0.01	0	0	0	0	CNT 60-70°
142.7	143.4	0.7	Qz vein: 30% 1-4cm ang. Qz-cal micro-veined shale clasts in a 70% Qz vein (+1-5% py, 0-8% calcite, 1-10% sid) matrix - sid box-work within vugs (2% vugs)	0.7	0	100	1	15	CNT's 60-40°
143.4	147.0	3.6	Broken core, Graph on fr.	2.7	0	1.0	10	45	Fr. 70-30°
145.0	146.9	1.9		0					
146.8	146.9	0.1	Grey Qz + 10% py vein	0.1	0	100	1	10	?CNT's 60°

LOGGING FORM

Project: Brick DDH # B-4-85 Location: L5+54E 2+45N
 Angle -45° Bearing 021° Total Depth 229.2M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
147.0	201.0	54.0	<u>4c</u> ; black strongly (10-20% C) carbonaceous shale, upper and lower boundaries approximate, based on colour change + C content + absence of mudstone beds, fr. + lim + cal + Gr., Gr. common, Qz + Sid + Cal + Py veins + micro-veins common throughout, intensely faulted.	28.9	0.3	4.0	15	50	
147.0	147.9	0.9	Broken core	0.9	0	0.7	5	45	Fr. 60-80°
147.9	154.5	6.6	Broken, in part blocky core, 5% gouge - shattered core over less than or equal to 2cm int., brilliant yellow to rusty yellow lim (? orp) coatings/crusts on fr. (32% of core)	5.2	0.1	0.6	4	35	Fr. 60-30°
149.85	149.9	0.05	Crushed core/gouge	0.05	0			200	Fr. 65-55°
149.9	150.9	1.0	Blocky core	1.0	0.1	1.0	7	15	Fr. 50-90°
150.8	150.9	0.1	Qz micro-veined/brecciated shale	0.1	0	8.0	100	25	V. 0-90°
150.9	151.5	0.6	Shattered core	0.6	0	0.6	4	150	Fr. 0-90°
151.5	153.0	1.5	Broken, shattered core, yellow-orange transparent x-lls (in part alt to lim) on fr. orpiment?	0.9					
153.0	156.0	3.0	Crushed rock + gouge over lower 1/2 of interval.	1.4	0	0.5	3	200	
156.0	159.1	3.1	60% crushed, broken Qz (white) + 10% py (subhedral 1-10mm x-lls), vuggy veins, shale Qz-py + cal. micro-veined (1-5mm)	1.0	0	70.0	30	35	
159.1	162.2	3.1	<u>Qz vein</u> ; broken clasts less than or equal to 10cm, 70% black carb. shale clasts "shot" through with Qz and reshattered/brecciated	1.0	0	100	200	30	
162.2	164.6	2.4	Broken core	0.3	0	4.0	20	50	

LOGGING FORM

Project: Brick DDH # B-4-85 Location: L5+54E 2+45N
 Angle -45° Bearing 021° Total Depth 229.2M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
164.6	168.2	3.6	Broken core	1.2	0	2.0	10		Fr. 30-90°
168.2	171.2	3.0	30% broken less than or equal to 10cm chunks of white Qz-py+cal. vein and micro-vein to vein-shale breccia, 10% gouge + crushed rock over interval.	2.1	0	30.0	?100	50	Fr. 20-60° V. 5-45°
171.2	174.3	3.1	Upper half of core is 30% vein, micro-veining, vein-shale breccia, Qz-Py+ 0-5% sid. Remainder is crushed broken shale	2.1	0.1	20.0	?100	50	Fr. 0-30°
174.3	177.3	3.0	Broken core	1.0		2.0	20	60	Fr. 0-30°
177.3	180.4	3.1	Broken core in upper half, shattered core and gouge in lower half.	1.7	0	2.0	20	150	Fr. 0-40°
180.4	183.4	3.0	Rubble, broken	1.3	0	0.6	5	95	Fr. 0-60°
183.4	185.9	2.5	Broken, rubble	1.7					Fr. 0-30°
185.9	189.5	3.6	Broken core, Qz + tr. cal + Py in less than or equal to 1cm veins + Micro-veins	1.9	0	7.0	40	40	Fr. 0-40°
189.5	192.6	3.1	Crushed rock, with 20% gouge + sheared tr. euhedral less than or equal to 3mm py cubes in shale	1.7	0	6.0	5	200	Fr. 0-90°
192.6	195.3	2.7	Broken core sub to euhedral py x-lls less than or equal to 1.2cm cubes in shale with Qz-rims (+ cal) in upper 50cm of interval	2.2	0	0.9	8	70	Fr. 0-90°
195.3	198.7	3.4	Qz-shale breccia to pervasive micro-veining as less than or equal to 10cm chunks. Qz + 0-5% py + 0.5% sid veins, broken core, dissem py cubes throughout shale less than or equal to 2%.	2.4	0.1	25.0	100	100	V. 0-80°

LOGGING FORM

Project: Brick DDH # B-4-85 Location: L5+54E 2+45N
 Angle -45° Bearing 021° Total Depth 229.2M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
198.7	201.0	2.3	Broken core	1.7	0	2.0	15	50	Fr. 20-40° BD 35°
201.0	229.2	28.2	4d; grey black, gun steel blue weakly carbonaceous siliceous shale with carbonaceous interbeds. Upper contact approximate due to faulting. Gr. mirror planes on fr., locally present. Qz veins locally contain euhed transparent x-lls with 0-5% py, 0-2% calcite.	8.1	0	3.0	20	30	Fr. 30-60°
201.0	204.8	3.8	Broken core	2.4	0	1.0	20	40	Fr. 20-60°
204.8	207.8	3.0	Broken blocky core	1.5	0	5.0	40	20	Fr. + BD 60°
207.8	210.9	3.1	Broken	0.1	0	0	0	50	
210.9	212.5	1.6	Rubble	0.4	0	10.0	30	70	
212.5	217.0	4.5	Broken crushed core	0.9	0	1.0	10	100	Fr. 40-60°
217.0	218.9	1.9	Brown lim stained rubble, clay altered shale	0.3	0	0	0	150	Fr. 60-70°
218.9	223.1	4.2	80% gouge + crushed brown lim stained gouge over 1/3 of interval (middle section), Qz-micro-veined to Qz-shale breccia over lower 40cm of core	1.4	0	8.0	50	200	Fr. 40-60°
223.1	226.1	3.0	Broken rubble lim on fr. (bright yellow coating)	0.6	0	1.5	20	90	Fr. + BD 70-50°
226.1	229.2	3.1	Rubble lim on fr.	0.3	0	1.0	10	50	Fr. 60-40°
229.2			EOH						

SUMMARY LOG

DDH B-5A-85

0 - 31.1 m Overburden.

Drill hole lost in overburden due to extreme caving and ground water flow. Casing broke.

SUMMARY LOG

DDH B-5-85

Lithology

0 - 30.0 m	Overburden.
30.0 - 32.1 m	Black weakly carbonaceous shale.
32.1 - 53.6 m	Porphyry dyke/sill.
53.6 - 60.0 m	Black weakly carbonaceous shale.
60.0 - 86.0 m	Porphyry dyke/sill.
86.0 - 101.1 m	Black carbonaceous shale with minor dark grey mudstone interbeds.
101.1 - 122.5 m	Black strongly carbonaceous-graphitic shale.

Drill hole terminated in main fault zone due to extreme caving. Rods sandied in and unable to continue drilling.

Structure

Shales break parallel bedding and fractures (30-60° C/A) at 5-15 cm intervals. Porphyry dykes fractured (10-70° C/A) at 5-20 cm intervals. Limonite, locally with calcite-pyrite coat fractures. Veining averages 1-2 veins/m, commonly as quartz + pyrite + calcite and locally siderite. Maximum vein width is 0.20 m.

Major Fault/Fracture Zones and Vein

30.0 - 43.0 m	Fracture zone, 0.8 m lost core.
46.6 - 64.3 m	Fracture zone, 2.9 m lost core.
53.6 - 60.0 m	Fault zone, shattered core, 2.1 m lost core.
78.3 - 85.2 m	Fracture zone, 0.8 m lost core.
86.0 - 122.5 m	Fracture/fault zone, 15.7 m lost core.
101.1 - 122.5 m	Fault zone.

101.1 - 109.8 m	80% black gouge, 6.05 m lost core.
117.7 - 122.5 m	10% quartz-siderite-pyrite-? greenish fluorite veins.
118.6 - 119.2 m	48% quartz-siderite-pyrite-? greenish fluorite tr. -5% ? sphalerite and - 0-2% chalcopyrite-bornite veins, veins 0.2 m wide.

Alteration

30.0 - 32.1 m	50% grey green silicified bleached shale.
32.1 - 53.6 m	Moderately clay-sericite altered, limonite stained porphyry.
53.6 - 60.0 m	40% grey-green to grey white silicified bleached shale.
60.0 - 70.0 m	Strongly clay-sericite altered, limonite stained porphyry, in part leached-vuggy.
70.0 - 82.2 m	Moderately to weakly clay-sericite altered, in part limonite stained porphyry.
82.2 - 85.2 m	Strong clay-sericite altered porphyry.
85.2 - 86.0 m	Weakly clay-sericite altered porphyry.
119.4 - 122.5 m	? weak silicification of shale.

Mineralization

2-10% disseminated pyrite throughout all lithologies. Locally 3 cm stratiform pyrite beds within shale.

74.0 - 75.3 m	Bright to golden yellow ? orpiment on fractures within porphyry.
117.8 - 117.95 m	1-3 cm wide massive (bladed aggregates) pyrite vein cross cut by quartz veins, vein parallel core axis.

LOGGING FORM

Project: Brick DDH # B-5-85 Location: L6+50E 2+61N
 Angle -45° Bearing 030° Total Depth 122.54M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
0	29.5	29.5	Overburden	0					
29.5	30.0	0.5	Small chunks of porphyry + shale	0.5	0				
30.0	32.1	2.1	4a, 4b; Black to grey green silicified + bleached weakly carb. shale, tr-2% C, lim on fr. + Mn stain 50% grey green, 45% black, 5% yellow lim stained and ? clay altered (weakly) may or may not be overburden.	1.3	0.1	0	0	40	Fr. 20-80° BD 70-80°
30.5	32.1	1.6	Rubble	1.1	0	0	0	60	Fr. 60-80°
30.6	31.4	0.8		0					
32.1			Broken contact with porphyry						CNT?70°
32.1	53.6	21.5	7a; mod. to weakly clay-sericite alt. porphyry biotite not visible alt. white mica 90% pale yellow-rusty yellow lim stain, 10% greenish-grey to grey-white. Locally qz veins, milky white to translucent, rarely euhed. druse. Porphyry in part friable over less than or equal to 15 cm intervals trace leached vugs less than or equal to 1 cm.	21.1	6.0	0.2	1	12	Fr. 10-70°
32.1	43.0	10.9	Blocky core	7.9	1.5	0	0	12	Fr. 20-70°
32.1	35.1	3.0	Broken in part blocky lim + clay on fract.	3.0	0	0	0	20	Fr. 35-60°
36.0	37.2	1.2	Broken	1.2	0	0	0	25	Fr. 20-50°
41.1	41.6	0.5	Broken	0.5	0	0	0	25	Fr. 10-40°
41.9	43.0	1.1	Broken-rubble in part friable	1.1	0	0	0	40	Fr. 10-70°
43.8	44.2	0.4							Fr. 50-30°
44.19	44.2	0.01	Clay-rubble gouge	0.01	0	0	0	130	CNT 35°

LOGGING FORM

Project: Brick DDH # B-5-85 Location: L6+50E 2+61N
 Angle -45° Bearing 030° Total Depth 122.54M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
46.6	53.6	7.0	Blocky in part friable broken core, locally gouge, qz veins, locally vuggy leached (less than or equal to 1 cm vug)	6.6	0.9	0.4	2	15	Fr. 20-50°
46.6	48.6	2.0	Broken core	2.0	0	0.2	1	25	Fr. 30-60°
47.5	48.5	1.0	Light purple cast to porphyry ? hem.	1.0	0	0.2	1	15	V 45°
49.4	50.3	0.9	Broken-friable	0.5	0	0.5	2	25	Fr. 45°
50.1	50.3	0.2	Clay gouge + crushed core	0.2	0	0	0	100	?CNT 40-60°
52.4	53.6	1.2	Blocky core	1.2	0	0.2	1	25	Fr. 40-60°
53.6			Contact with shale, sharp ? parallel to X-cut bedding						CNT 35°
53.6	60.0	6.4	4b; 4a; 60% black carb. (1-10% C) shale with 40% greyish-green to grey white bleached silicified shale, shattered broken core. Bright yellow to rusty orange lim coats fr. Rare transp. qz x-lls.	4.3	0	0.2	2	75	Fr. 0-70° V. 0-30° BD 40-60°
53.6	55.5	1.9	Upper 1.1m of core black shale, lower 0.3m is bl. silicified shale, shattered core.	1.4	0	0.3	3	90	Fr. 30-90°
55.5	58.5	3.0	Upper 0.7m black shale, lower 0.7m bleached silicified shale.	1.4	0	0.1	1	100	Fr. 0-90°
58.5	59.3	0.8	Black shattered shale	0.8	0	0	0	70	Fr. 50-70°
59.3	60	0.7	Rusty brown lim stained bleached shale 50% clay altered 50% silicified.	0.7	0	0	0	100	Fr. 30-90°
60.0			Broken contact with porphyry						

LOGGING FORM

Project: Brick DDH # 8-5-85 Location: L6+50E 2+61N
 Angle -45° Bearing 030° Total Depth 122.54M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
60.0	86.0	26.0	7a; Strongly to weakly altered porphyry, biotite only locally apparent and altered to white or greenish mica, felds altered to clay-sericite (greenish). 70% lim (brownish to pale yellow) stain 30% grey-green colour, 10-20% quartz phenos. Lim (bright yellow to rusty brown) on fr. Rare less than or equal to 5mm euhed to milky qz veins with 0-20% lim (? alt py) locally 1-10% dissem py in porphyry.	24.9	11.9	0.3	1	8	Fr. 50-10°
60.0	74.3	4.3	Blocky in part broken core, strong clay alt. of felds, less than or equal to 1% leached vugs, mod. soft core 60% lim stain on margins of fr., 40% greenish yellow.	4.1	0.5	0.4	1	15	Fr. 20-50°
60.5	61.6	1.1	Broken core	1.1	0	0.4	1	30	Fr. 0-50°
62.9	64.3	1.4	Broken blocky core lim (bright yellow) + clay-gouge coat fr.	1.2	0.1	0.1	1	20	Fr. 20-50°
67.4	68.2	0.8	100% brown lim stain strong clay alt., bright yellow lim (? orp) + clay on fact.	0.8	0.2	0.2	1	35	Fr. 20-40°
67.4	68.0	0.6	Broken, less than or equal to 5mm clay gouge + lim on fr.	0.6	0	0.3	2	40	Fr. 20-48°
70.67	72.07	1.4	Broken core mod-strong clay-ser. alt. 90% dk. brown lim. stain.	1.4	0	0	0	30	Fr. 70-30°
73.1	73.5	0.4	Mod. alt. porphyry 50% brown lim. stain	0.4	0	0	0	25	Fr. 0-48°
74.15			2-4mm qz vein (in part qz druse) with 15% lim + ? 5% golden yellow orp. infilling/coating qz.						V. 15°
74.8			1-3mm qz (euhed) v. lim + bright yellow orp infill/coating qz.						V. 20°
75.3			10% golden yellow orp on fr.						Fr. 45°

LOGGING FORM

Project: Brick DDH # B-5-85 Location: L6+50E 2+61N
 Angle -45° Bearing 030° Total Depth 122.54M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
76.0	76.8	0.8	Broken core, lim on fr	0.3	0	0	0	30	Fr. 0-40°
76.5	76.8	0.3		0					
76.8	77.9	1.1	Fractured blocky core Mn wad + lim on fr. fract's healed.	1.1	0.	0	0	25	Fr. 45-0°
78.3	85.2	6.9	Blocky in part. Broken, mod alt. 60% lim stained core, Mn wad + lim on fr./qz. veins (grey)	6.1	2.0	0.6	2	15	Fr. 10-60°
78.7	79.8	1.1	Broken	0.5	0	0.1	1	30	Fr.
79.2	79.8	0.6		0					
80.5	81.5	1.0	Broken core	1.0	0	3.0	3	35	Fr. 10-78°
80.55	80.57	0.02	Grey qz. vein	0.02	0	100	1	0	CNT + V. 65°
82.2	85.2	3.0	Broken blocky core. Strong-mod. clay alt. in part mod. soft friable. Mn wad on fr. Qz Mn-lim veins vuggy-?leached.	3.0	0	1.0	2	20	Fr. 60-30° V. 20-70°
82.5	83.4	0.9	Broken, friable moderately soft core	0.9	0	0.2	1	30	Fr. 60-40°
83.15	83.16	0.01	Lim-clay-qz vein breccia	0.01	0	100	1	0	CNT 35°
84.8	85.2	0.4	Broken core	0.3	0	0	0	40	Fr. 0-40°
85.4	86.0	0.6	Blocky core	0.4	0.1	0	0	15	Fr. 0-30°
86.0			Contact with shale						CNT 50-60°
86.0	101.1	15.1	<u>4a</u> : Black carb. shale with 10% grading to 1% med-grey black py bearing (10-30%) mudstone beds (1-15 cm generally 2cm thick) 0.5% of int. 0.5-3cm 60-90% massive strat. py beds. (2-10% C in black shale) lim on some fr. Py veins, also qz-py + 0-5% cal. all less than or equal to 2mm thick. Lower contact is approximate, based on lack of/ decreasing no. of mudstone beds and increase of C content.	9.9	0.1	0.5	5	25	Fr. 0-60° V. 0-40° BD 30-60°

LOGGING FORM

Project: Brick DDH # B-5-85 Location: L6+50E 2+61N
 Angle -45° Bearing 030° Total Depth 122.54M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
86.0	101.1	15.1	Blocky broken core	9.9	0.1	0.5	5	25	Fr. 0-60°
86.0	89.0	3.0	Broken, bright yellow brown lim on fr.	1.5	0	0.2	2	50	Fr. 30-60°
89.0	92.0	3.0	Blocky-broken core	3.0	0.1	0.4	4	30	Fr. 20-60°
89.9	89.91	0.01	90% massive py bed strat.	0.01	0	0	0	0	BD + CNT 45°
90.5									BD 40°
92	95.1	3.1	Broken core, qz-cal ± sid, py veins	2.4	0	0.5	5	40	BD + Cl. 40° V. 0-60°
95.1	98.1	3.0	Broken in part shattered core qz-Cal ± py veins, gr. on fr.	2.0	0	0.4	5	60	Fr. 60-30° V. 30-50°
97.5									BD 30°
98.1	101.1	3.0	Broken shattered core, sid on some fr. also sid-cal. ± tr. py on fr., gr. on some fr.	1.0	0	0.1	1	80	Fr. 20-70° BD 40-50°
101.1	122.5	21.4	<u>4c</u> ; Black strongly carb. (10-20%)- Graphitic shale. Graphitic mirror planes on fr. Qz + Qz-Cal-py ± green Fluorite? in veins. Black massive graphitic shales.	11.7	0.6	1.0	8	35	
101.1	104.2	3.1	Black soft carb. mud-gouge	0.25	0				No CNTS
104.2	109.8	5.6m	70% black gouge, 30% sheared to crushed soft black carb. shale lower contact approximate due to lost core.	2.5	0	0.4	5	200	G CNT 30-60°
109.8	113.3	3.5	Broken black gr. core. Qz-py veins (in part euhed. qz) 5% gouge less than or equal to 1 cm	1.5	0	5.0	30	100	Fr. 10-60°
114.6	117.7	3.1	Broken core	0.3	0	1.0	10	80	Fr. 0-70°

LOGGING FORM

Project: Brick DDH # B-5-85 Location: L6+50E 2+61N
 Angle -45° Bearing 030° Total Depth 122.54M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
117.7	122.5	4.8	Broken core Qz-siderite-py-? greenish fluorite (tr. -5%)	3.8	0.2	10.0	50	30	Fr. 0-60°
117.8	117.95	0.15	Py vein, crystals (bladed? aggregates) less than or equal to 1.5cm x-cut by druse. qz veins shale clasts within vein.	0.15	0.1	100	1	0	CNT 0-10°
118.2	118.22	0.02	Vuggy qz-sid-py-greenish? fluorite vein, in part leached.	0.02	0	100	1	0	10-20°
118.3	118.6	0.3	Broken crushed core	0.3	0	2.0	10	100	Fr. 0-30°
118.6	119.2	0.6	Quartz-siderite-pyrite-fluorite veins with tr. -5% honey coloured to brown sphalerite and 0-2% chalcopyrite-bournite, sid on fr.	0.6	0.1	48.0	100		V. 0-90°
119.0	119.2	0.2	Quartz-siderite-py vein/shale breccia 60% shale clasts in vuggy qz matrix -sid infills vugs and is in part leached out. tr. greenish fluorite	0.2	0.1	100	1	10	V. 0-90°
119.4	122.5	3.1	Blocky-broken core, qz-sid-py veins, sid on fr. Black shale seems unusually hard, is either siliceous or silicified.	2.1	0.1	3.0	10	40	Fr + V 0-90°
122.5			E.O.H. Rods stuck, abandoned.						

SUMMARY LOG

DDH B-6-85

Lithology

0 - 12.8 m	Overburden.
12.8 - 22.0 m	Porphyry dyke/sill.
22.0 - 29.3 m	Black shale with trace weakly carbonaceous shale interbeds.
29.3 - 41.8 m	Porphyry dyke/sill.
41.8 - 56.8 m	Black shale with minor weakly carbonaceous shale and greyish-green siltstone interbeds.
56.8 - 57.6 m	Porphyry dyke/sill.
57.6 - 58.6 m	Black shale with minor weakly carbonaceous shale interbeds.
58.6 - 59.6 m	Porphyry dyke/sill.
59.6 - 63.4 m	Black weakly carbonaceous shale with minor carbonaceous shale interbeds.

Drill hole terminated at 63.4 m due to stuck rods (expanding clay gouge). Casing run to 50.0 m to remedy situation, but encountered second clay zone below 61.9 m.

Structure

All lithologies fractured at 5-15 cm intervals throughout drill hole. Limonite-clay on fractures, locally with siderite-pyrite. Quartz-calcite-pyrite+siderite veins occur as ≤ 5 mm veins, averaging 1-2 veins/meter. No veins ≥ 3 cm wide were intersected.

Major Fault/Fracture Zones and Vein

12.8 - 63.4 m	Fracture/fault zone, loss of 12.9 m core.
41.8 - 52.0 m	Fault gouge, loss of 6.7 m core.

60.57 - 60.6 m Quartz-calcite vein.
61.9 - 63.4 m Fault gouge, loss of 1.2 m core.

Alteration

12.8 - 22.0 m Moderately clay-sericite altered porphyry ? in part silicified.
29.3 - 41.8 m Moderately clay-sericite altered porphyry, ? in part silicified.
56.8 - 57.6 m Moderately clay-sericite altered porphyry, ? in part silicified.
58.6 - 59.6 m Moderately clay-sericite altered porphyry, ? in part silicified.
59.6 - 61.9 m ? weakly silicified shale.

Mineralization

25.0 - 27.0 m Bright red hematite/limonite on fractures.
36.1 - 41.8 m Bright yellow amorphous to locally crystalline ? orpiment on fractures. Locally white soft ? zeolite mineral and thin carbon-carbonaceous material on fractures in porphyry.

LOGGING FORM

Project: Brick DDH # B-6-85 Location: L8+00E 3+34N
 Angle -45° Bearing 021° Total Depth 63.4M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
0	12.8	12.8	<u>Overburden</u>	0	0				
12.8	22.0	9.2	<u>7a</u> ; mod. altered porphyry, biot. silver-grey mica (?chlorite/sericite) only locally apparent felds alt. to grey-green clay-sericite, phenos ragged. 5-10% biot, 0-4% py (dissem & aggregate clusters ≤ 3 mm) 10% Qz, 75-85% felds, core is hard, prob. silicified, porphyry is grey-green colour. Py + lim + 0-10% clay coat fr. lim (pale yellow, golden yellow and rusty red-brown, yellow-brown, locally purp-red) on fr.	8.7	2.1	0	0	10	Fr. 10-70°
12.8	22.0	9.2	Fractured blocky core	8.7	2.1	0	0	10	
16.9	22.0	5.1	Blocky broken core	4.7	0.2	0	0	15	Fr. 40-10°
17.6	18.9	1.3	Broken core	0.8	0	0	0	25	Fr. 20-45°
17.7	18.2	0.5		0	0				
18.7	18.75	0.05	Gouge, 70% yellow clay with 30% ≤ 1 cm porphyry clasts, CNTs broken	0.05	0	0	0		
19.1	22.0	2.9	Broken core	2.9	0	0	0	25	Fr. 15-40°
22.0			CNT with shale, broken						?
22.0	29.3	7.3	<u>5</u> ; Black to grey-black massive to weakly laminated shale with 4% 1-3 cm siltstone beds and trace ≤ 2 cm carbonaceous (3-10% C) shale interbeds (unit 5) (soft shale). 1-5% dissem py throughout. Qz (vuggy) veins sporadic locally with py. Py + lim on fr.	4.4	0	0.3	1	35	Fr.+BD 60-40°
22.0	25.0	3.0	Broken core	1.7	0	1.0	2	50	Fr.+BD 60-40°
22.2	22.21	0.01	Qz ? barite vein (grey - H 3-4, dense, massive ?? barite) tr -2% py	0.01	0	100	1	0	CNT 35°

LOGGING FORM

Project: Brick DDH # B-6-85 Location: L8+00E 3+34N
 Angle -45° Bearing 021° Total Depth 63.4M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
24.0	24.05	0.05	Grey-green St. st.bed	0.05	0	0	0	20	BD 45°
25.0	27.0	2.0	Broken - shattered core, bright red lim-hem costs fr. 30% clay gouge - sheared core	1.4	0	0	0	100	Fr. 0-50° Gr. 30-40°
27.0	29.3	2.3	Broken core	1.3	0	0	0	35	Fr. 0-60° BD 40-50°
29.3			CNT with prophyry sharp						CNT 45°
29.3	41.8	12.5	<u>7a</u> ; Porphyry 7a mod. alt., Biot. → grey-silver chl.-ser, felds - greenish-grey clay-sericite tr-5% py mod. hard, locally soft (easily scratched with knife). Same as last 7a unit, (alt. py) bright yellow to rusty red to purple lim-hem coat fr. locally with tr. py and clay	12.5	3.1	0	0	10	Fr. 60-35°
29.3	32.2	2.9		2.9	1.8	0	0	6	Fr. 40-10°
32.2	35.5	3.3	Blocky fr. core, lim-clay-hem coat fr. core soft mod-str clay-sericite alt.	3.3	0.3	0	0	14	Fr. 60-30°
36.1	41.8	5.7	Blocky core, lim-clay + golden yellow earthy to translucent x-line orp. coating with py locally white amorphous soft zeolite coating on some fr., tr.-20% ? black soft sooty carbon on fr., tr. sid on fr.	5.7	1.0	0	0		
37.6	37.9	0.3	6 linear vugs to open fr. infilled/coated with yellow to yellow orange earth to translucent lustrous orp.						Vugs 60-40°
41.8			Contact sharp ? fault CNT with shale						CNT 30°

LOGGING FORM

Project: Brick DDH # B-6-85 Location: L8+00E 3+34N

Angle -45° Bearing 021° Total Depth 63.4M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
41.8	56.8	15.0	5; Black shale, soft black shale, massive to bedded/laminated. 15% 1-15 cm Qz-Cal-py veined siltstone (greenish-grey) beds throughout unit. Below 56.6 unit has 10-20% 1-3 cm black carbonaceous (5-20%C) beds and lacks siltstones. May be gradational change to unit 4a. Rocks slightly harder ? more siliceous at depth (ie., below 59.6 m)	6.7	0.4	0.7	2.0	45	
41.8	52.0	10.2	90% black gouge, 10% sheared core + ≤ 5 cm hard Qz-Cal v. siltstone beds	3.5	0	1.0	5.0	200	CNTU 30° Sh. 30-60°
43.2	44.8	1.6		1.4					
44.8	49.4	4.6		0					
49.4	50.9	1.5		0.3					
50.9	52.0	1.1		0.3					
52.0	55.4	3.4	Broken Qz-Cal-py veined shale + 5% siltstone 1% gouge	1.8	0.2	2.0	10	40	Fr.+BD 0-40°
54.8	54.85	0.05	80% gouge, 20% ≤ 1.5 cm shale frag	0.05	0	0	0	0	CNT+BD 35°
55.4	56.8	1.4	Blocky in part broken core, 1% gouge ≤ 5 mm coats fr.	1.4	0.2	0.8	5	25	Fr.+BD 45-30°
56.8			CNT with Porphyry irreg.						CNT 15-40°
56.8	57.6	0.8	7a; mod. clay-sericite alt. porphyry, biot compl. alt. to white grey mica, felds-clay sericite, mod. hard rock prob. silicified for the degree of alt. 5-10% dissem. to aggregate clusters ≤ 3 mm of py, sid on fr.	0.8	0.3	0	0	10	Fr. 30-40°
57.6			CNT with shale sharp parallel shale strike but x-cutting dip						CNT 40°

LOGGING FORM

Project: Brick DDH # B-6-85 Location: L8+00E 3+34N

Angle -45° Bearing 021° Total Depth 63.4 M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
57.6	58.6	1.0	<u>5,(?4a)</u> ; Blocky shale	1.0	0.2	0	0	18	Fr. 10-30°
57.65									BD 10-20°
58.0									BD 25°
58.5									BD 30°
58.6			CNT with Porphyry sharp 45°						
58.6	59.6	1.0	<u>7a</u> ; Mod. alt. porphyry in part sili- cified sid on fr. Qz (in part euhed, transluscent) Cal + sid veined. 5-10% dissem py	1.0	0.4	6.0	7.0	7	V. 30-60°
59.6			CNT with shale sharp parallel bedding						CNT 45°
59.6	63.4	3.8	<u>5,(?4a)</u> ; Black shale graphitic shear planes on fr. along carb. interbeds. Well bedded/laminated unit. Qz-Cal veined + py tr. sid on fr. minor mud- stone interbeds	2.6	0.2	4.0	10	25	
59.6	60.5	0.9	Broken core	0.9	0			35	Fr. 45-20°
60.5	61.9	1.4	Qz-Cal + py veined shale	1.4	0.2	10.0	8	15	Fr. 50-20° V. 30-45°
60.57	60.6	0.03	70% Qz-Cal vein, 30% frag, vein 80% cal, 20% qz coarsely x-lline vein irreg.	0.03	0	100	1	15	V.CNT 35°
61.2	61.6	0.4	Broken core	0.4	0	0.1	1	60	Fr.+BD 20-30°
61.9	63.4	1.5	Gouge, soft block with 2% crushed qz-cal vein pieces	0.3	0	2.0	30		CNT U 30-40°
62.2	63.4	1.2		0	0	0	0	0	
63.4			EOH Rods stuck - hole terminated						

SUMMARY LOG

DDH B-7-85

Lithology

0 - 10.0 m	Overburden.
10.0 - 45.0 m	Black carbonaceous-graphitic siliceous shale.
45.0 - 61.6 m	Black carbonaceous shale with mudstone interbeds.

Drill hole abandoned at 61.6 m due to extreme caving and sanding in of rods.

Structure

Shales break parallel bedding and fractures (70-30° C/A) at 5-15 cm intervals. Graphite-lime green to orange yellow clay-limonite coat fractures. One to four quartz + calcite-siderite-pyrite-limonite veins/M \leq 3 cm thick, occur throughout shales.

Major Fault/Fractures Zones and Vein

12.1 - 12.2 m	Gouge.
30.0 - 61.6 m	Fracture/fault zone, loss of 5.3 m core.
28.4 - 28.7 m	20% quartz-calcite-limonite veins.
57.0 - 61.6 m	20% gouge, loss of 2.6 m core.

Alteration

22.0 - 25.0 m	Weakly bleached, greyish-brown, moderately clay altered shale in part graphite-carbonaceous material removed, in part friable.
---------------	--

34.1 - 45.0 m Soft, weakly clay altered shale.
57.0 - 61.6 m In part leached-vuggy shale.

Mineralization

Shales contain 1-15% disseminated pyrite with local 3 cm strati-
form pyrite beds. Nodules of ?barite ($\leq 1\%$) present to 20.0 m.

43.2 - 45.0 m ? trace orpiment on fractures.
26.6 - 48.7 m 2% soft ($H \approx 2-3$) grey, grey-silver, grey-white
mineral, as amorphous crusts to wispy acicular
aggregates, coats core adjacent fractures.
Mineral is unknown and crustation formed after
1 day of exposure to air. Sample taken for
XRD determination.

LOGGING FORM

Project: Brick DDH # B-7-85 Location: L8+00E, 4+09N
 Angle -45° Bearing 021° Total Depth 61.6M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
0	9.2	9.2	Overburden	0					
9.2	10.0	0.8	Shale rubble overburden	0.2	0				
10.0	45.0	35.0	4c; Black carbonaceous graphitic shale in part siliceous, laminated to locally massive thin ? ≤ 1 cm grey mod. soft H 3-4 ? barite ? lenses (<1%) over upper 20 m of unit. Gr. mirror planes on most fr. lime green clay ? + orange-yellow clay and lim on some fr. also iridescent tarnish on gr. mirror plane fr. Qz-Cal + ? barite veins common.	32.3	3.2	1.0	4	15	Fr. + BD 70-45°
10.0	16.2	6.2	Blocky core	6.2	0.3	0.8	3	20	Fr. + BD 45-60°
11.0	11.5	0.5	Shattered core soft ? bleached weakly clay alt.	0.5	0	0.3	2	100	Fr. 0-60°
12.1	12.2	0.1	Gouge, black clay	0.1	0				CNT 60°
12.3	13.1	0.8	Dk. grey-black bleached vuggy soft wkly clay alt. shale	0.8	0	0.2	1	50	Fr. 30-60°
14.5	16.2	1.7	Blocky broken core in part soft friable ? wkly clay alt. pale yellow orange lim. on fr.	1.7	0	0.9	5	30	Fr. 0-60° V. 30-60°
15.2	15.9	0.7	Shattered core	0.7	0	0.3	2	100	Fr. 0-60°
16.2	18.9	2.7	In part blocky bright yellow lim on fr. qz-cal. veined. 1% barite ≤ 1 cm leached/vuggy nodules	2.7	0.5	1.2	5	10	Fr. 10-60°
18.9	26.5	7.6	Blocky - broken core lim (golden yellow-pale yellow) on fr. Qz-cal veins	7.6	0.2	1.0	6	20	BD 50-60°
21.0	21.1	0.1	Irreg. leached vuggy, grey bl. sections	0.1	0.0	0.4	4		
22.2	25.0	2.8	Broken soft wkly ? clay alt. shale, in part friable, 1% lim coated fr.	2.8	0	0.4	2	70	Fr. 55-10°

LOGGING FORM

Project: Brick DDH # B-7-85 Location: L8+00E, 4+09N

Angle -45° Bearing 021° Total Depth 61.6M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
22.8	23.1	0.3	Clay altered, soft friable <u>brown</u> shale. C removed	0.3	0	0	0	75	Fr. + BD 60°
23.1	25.0	1.9	Broken wkly clay alt. shale, 2% <u>brown</u> bleached bands	1.9	0	0.5	3	65	Fr. 0-60°
26.5	29.2	2.7	In part blocky hard, brittle siliceous graphitic shale, Gr. shear planes on Qz-0-20% cal., tr. sid-lim veins, veins vuggy with bright yellow to orange yellow lim infilling vugs	2.7	1.4	4.0	15	10	Fr. 60-20° V. 60-45°
27.8	27.82	0.02	Vuggy Qz-lim vein	0.02	0	100	1	5	V + BD 45°
28.4	28.7	0.3	Qz-lim-cal.-sid veins in part vuggy with euhed qz - x-lls	0.3	0.1	20.0	25		V. 40-60°
29.2	38.0	8.8	Hard, shattered broken, brittle siliceous graphitic-carbonaceous shale massive, healed high angle fractures (0-30°) x-cut + offset, Qz-cal, veins. Graphitic mirror planes on fr. Sid coats fr. Qz-cal-sid veins, rusty lim (? + orp) infills some fr. and veins	7.6	0.7	5.0	10	25	Fr. 0-90°
29.6	30.5	0.9	Broken shattered	0.9	0	6.0	10	80	Fr. 0-40°
30.2	30.3	0.1	Qz-Sid-rusty orange ? lim veins	0.1	0	30.0	50	15	V. 30-40°
31.2	31.7	0.5	Shattered	0.5	0	1.2	5	90	Fr. 0-30°
31.7	34.1	2.4	Loss of 0.7 m over int.	2.0					
31.9	32.3	0.4	Qz-veins, tr. calc. + sid.	0	0	28.0	20	15	V. 60-30°
32.3	34.1	1.8	Broken shattered core	1.5	0.1	10.0	20	95	Fr. 0-90°
32.6	33.5	0.9	Irreg. anatomasing qz-sid-lim veins, broken core in part rubble	0.8	0.1	32.0	40	40	V. 0-60°
34.1	37.2	3.1	Broken core in part softer over <25 cm intervals ? alt. or less siliceous carb. shale. Sid-cal. on fr. Qz-cal-sid veins, locally rusty brown lim on fr.	3.1	0	1.2	10	65	Fr. 10-50°

LOGGING FORM

Project: Brick DDH # B-7-85 Location: L8+00E, 4+09N
 Angle -45° Bearing 021° Total Depth 61.6M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
37.2	40.2	3.0	Broken shattered core, pale yellow lim-sid on fr., soft ? alt. shale	1.4	0	1.0	10	100	Fr. 0-60°
40.2	42.2	3.0	Broken shattered core <u>soft</u> , rusty yellow lim ? stain on fr. irridescent tarnish on fr. 10% on int gouge	2.0	0	0.8	6	90	Fr. 10-40°
43.2	45.0	1.8	Shattered sheared crushed soft core, lim + tr realgar (yellow-orange) coats fr. and stains core 30% yellow-rusty-orange stains. Qz-lim veins, graphite mirror planes on fr. irridescent tarnish abundant	1.8	0	6.0	20		Fr. 30-60°
45.0	61.6	16.6	<u>4a</u> ; Interbedded black carbonaceous shale and 10-40% dk grey mudstones. Amount of mudstone beds laminae - < 3 cm beds increases with depth. Dk grey mudstones contain 0-20% dissem. py. tr. 1-30 mm Qz-Py bands ?/veins parallel bedding. Gr. locally along bedding planes	14.0	0.4	0.6	0.5	18	Fr. + BD 45-60°
45.0	61.6	16.6	Blocky fractures parallel bedding	14.0	0.4				Fr. + BD 60-45°
45.0	50.2	5.2	Blocky, broken core pale yellow lim on fr.	5.2	0	0	0	50	Fr. + BD 55-45°
45.3	45.5	0.2	Rusty red - red-orange to rusty yellow coating on fr. ? lim/orp/As minerals	0.2	0	0	0	50	Fr. 45-55°
45.5	47.5	2.0	Broken core	2.0	0	0	0	70	Fr. 60-45°
46.6	48.7	2.1	Grey - Grey white to silver coloured sub-metallic mineral coats outside of core along/from fr. (2% of interval) soft (H 2-3) forms crusts to wispy acicular aggregates.	2.1	0	0	0	35	Fr. 60-55°
48.7	50.2	1.5	Blocky - broken core yellow lim on some fr.	1.5	0	0	0	0	Fr. 60-50°
50.2	55.5	5.3	Blocky core. Gr. on some fr., Qz-cal-euhed py ? veins/bands parallel bedding	5.3	0.4	0.2	1	15	Fr. + BD 55-65°

LOGGING FORM

Project: Brick DDH # B-7-85 Location: L8+00E, 4+09N

Angle -45⁰ Bearing 021⁰ Total Depth 61.6M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VI/M	V/M	Fr/M	C/A
55.5	61.6	6.1	Blocky broken core	3.5	0	1.0	1	60	Fr. + BD 50-65 ⁰
56.67	56.7	0.03	65% py, 30% qz, 5% sid vein. Py euhed, parallel bedding	0.03	0	100	1	20	V. 50 ⁰
57.0	61.6	4.6	Broken core lower third of interval is 50% gouge with white qz micro- veining. Gouge in part vuggy? leached with pale brown clay-sid in vugs	2.0	0	2.0	10	80	Fr. 60-30 ⁰
61.6			EOH						

SUMMARY LOG

DDH B-8-85

Lithology

0 - 15.1 m	Overburden
15.1 - 18.2 m	Porphyry dyke/sill.
18.2 - 22.3 m	Black carbonaceous shale with mudstone interbeds.
22.3 - 33.2 m	Porphyry dyke/sill.
33.2 - 91.6 m	Black carbonaceous to graphitic shale with mudstone interbeds. In part more carbonaceous and graphitic than other intersections of this lithology (i.e. DDH B-1 and 4-85).
91.6 - 120.5 m	Black carbonaceous shale with mudstone interbeds.
120.5 - 194.6 m	Black graphitic-carbonaceous siliceous shale.
194.6 - 216.0 m	Grey-black weakly carbonaceous siliceous shale
216.0 - 250.6 m	Black to grey-black weakly to non-carbonaceous shale with minor siltstone interbeds and sandstone laminae.

Structure

Shales break parallel bedding and fractures at 5-10 cm intervals. Bedding averages 30-40° C/A to approximately 140 m and gradually changes to 60-70° C/A to EOH. Porphyry fractured at 10-25 cm intervals. One to five quartz + calcite, pyrite, siderite, limonite veins/m, ≤ 5 cm wide occur throughout shales. Graphite-limonite + calcite coat fractures within the shales, limonite on fractures in porphyry.

Major Fault/Fracture Zones and Vein

15.1 - 23.2 m	Fracture/fault zone, loss of 1.2 m core.
33.2 - 210.0 m	Fracture/fault zone, loss of 41.1 m core.
33.2 - 91.5 m	Fault zone, loss of 13.7 m core.
33.2 - 39.5 m	30% gouge.
44.1 - 46.3 m	10% gouge.
52.4 - 52.8 m	25% quartz-calcite veins.
58.5 - 63.2 m	10% gouge.
68.8 - 69.2 m	25% quartz-calcite-pyrite veins.
72.7 - 74.15 m	15% quartz-calcite-siderite-pyrite veins.
76.8 - 79.7 m	15% gouge.
83.0 - 89.0 m	30% gouge, loss of 3.5 m core.
105.83 - 105.88 m	Quartz-pyrite vein.
120.5 - 183.7 m	Fault zone, loss of 24.9 m core.
123.1 - 124.2 m	25% clay-limonite-quartz-?zeolite veins.
160.3 - 168.2 m	70% gouge, 5-10% quartz vein, loss of 4.6 m core.
233.55 - 233.65 m	Gouge.
240.9 - 241.3 m	Fracture zone.
244.5 - 244.9 m	Fracture zone.

Alteration

15.1 - 18.2 m	Moderately to strongly clay-sericite altered limonite stained porphyry.
19.4 - 22.3 m	Weakly clay altered shale, in part friable
22.3 - 33.2 m	Moderately to strongly clay-sericite altered limonite stained porphyry.
115.8 - 116.3 m	Greenish black moderately clay altered shale, in part vuggy leached.
123.1 - 124.2 m	Grey-green bleached moderately clay altered shale, carbonaceous material removed.
160.3 - 168.2 m	? weakly clay altered shale.

Mineralization

1-15% disseminated pyrite in all lithologies, 0.1-30 cm stratiform pyrite beds.

15.1 - 22.3 m	? limonite-orpiment crusts on fractures.
25.2 - 26.9 m	? golden yellow orpiment and pale emerald green-aquarmarine soft (H 2-3) ? zeolite coat fractures.
213.0 - 221.2 m	9% 1-30 cm stratiform, massive pyrite beds and irregular lenses.
220.9 - 221.2 m	Massive pyrite beds.

LOGGING FORM

Project: Brick DDH # B-8-85 Location: L7+00E 3+00N
 Angle -45° Bearing 021° Total Depth 250.60 M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VI/M	V/M	Fr/M	C/A
0	15.1	15.1	Overburden	0					
15.1	18.2	3.1	<u>7a</u> ; Mod-strongly clay sericite alt. porphyry biot alt. to clay (not visible) felds alt. to yellow-green clay 10-15% quartz. 60% pale yellow lim. stain. Lim. + clay on fr., locally with dk. red-purple hem. coating tr. bright yellow earthy amorphous coating lim. orpiment on some fr.	3.1	0.7	0	0	10	Fr. 40-0°
18.2			CNT with shale sharp, sub parallel bedding. No bleaching.						45°
18.2	22.3	4.1	<u>4a</u> ; black carb. shale with 5-15% dk. grey mudstone interbeds pale yellow lim. + clay coats most fr. with (locally) graphite Qz + tr. calcite-lim. V. Broken shattered core.	2.9	0	0.6	5	90	Fr. + BD 40-50°
19.4	22.3	2.9	Softer, in part friable broken shattered core. 5% less than or equal to 3 cm gouge zones over interval.	1.8	0	1.0	7	110	Fr. 40-50°
22.3			CNT with porphyry sharp						CNT 30°
22.3	33.2	10.9	<u>7a</u> ; Mod to strong clay-sericite alt. porphyry. Biot- alt. clay-sericite (only locally visible) felds to greenish-yellow clay-sericite 10-15% qz. 0-5% dissem. py on to euhedral. Alt. decreases with depth. Fr. coated with lim. + clay, locally dk. purple-red hem. stain.	10.9	6.0	0.3	1	8	Fr. 60-20°
22.3	23.2	0.9	Blocky fr. core, lim. + cl. on fr. strongly alt., 60% pal yellow lim. stain.	0.9	0.1	0	0	15	Fr. 10-50°
23.2	26.9	3.7	Strongly alt. in part blocky, 20% pale yellow lim. stain.	3.7	2.1	0	0	8	Fr. 60-30°

LOGGING FORM

Project: Brick DDH # B-8-85 Location: L7+00E 3+00N
 Angle -45° Bearing 021° Total Depth 250.60 M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
25.2	26.9	1.7	Golden yellow ?orp. crusts of brittle material on fr. also soft H2 pale emerald green-acquamarine crust/coating ?zeolite underlies orp.	1.7	0.7	0	0	7	Fr. 30-40°
26.9	33.2	6.3	Mod. alt. porphyry pale to bright yellow + rusty brown lim. stain on fr., high angle fr. have purple-red hem. py + qz-veins.	6.3	3.0	0.7	1	6	Fr. 60-10°
33.2			CNT with shale sharp						CNT 80°
33.2	120.5	87.3	<u>4a-4c</u> ; Black carbonaceous shale to graphitic shale with 0-15% dk. grey mudstone interbeds. At 1-50cm. int., less than or equal to 3cm thick. Gr. mirror planes common, qz-cal + py veins, tr.-1% less than or equal to 1cm strat. py beds. Appears to be a hybrid unit.	77.4	5.3	0.9	5	25	Fr. 60-0°
33.2	91.5	58.3	Blocky broken core abundant gouge zones.	45.2	1.6	0.9	5	30	
33.2	35.3	2.1	Broken shattered core 65% gouge	2.1	0	1.2	5	90	Fr. 60-45°
34.1	35.3	1.2	90% black gouge	1.2	0	1.5	6		G. 60-45°
35.3	37.1	1.8	Broken core 10% gouge sheared core Qz-cal-py veins	1.8	0	3.0	10	100	Fr. 60-30° V. 0-90°
36.3									BD 60°
37.1	39.5	2.4	Broken core 10% gouge/sheared core Qz-cal-py V.	2.4	0	5.0	15	80	Fr. 0-60°
39.5	44.1	4.6	Blocky in part broken core, 2% less than or equal to 3cm gouge zones. Qz-cal. microveined.	5.6	0	0.8	3	30	Fr. 65-40° G. 60-45°

LOGGING FORM

Project: Brick DDH # B-8-85 Location: L7+00E 3+00N

Angle -45° Bearing 021° Total Depth 250.60 M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
41.5									BD 35°
44.1	46.3	2.2	Broken core 10% gouge + rubble/sheared core. Gr. mirror planes on fr.	1.8	0	0.4	2	75	Fr. 60-30°
46.35									BD 35°
46.3	49.3	3.0	Broken shattered sheared core 35% black gouge, qz-cal. veined	2.2	0	3.0	15	80	Fr. 0-40° BD 40-0°
48.8	49.3	0.5	Gouge	0.5	0	0.6	3		CNT 50°
49.3	55.0	5.7	Broken sheared shattered core, Gr. mirror planes on fr. Qz-cal. veined 5% less than or equal to 2cm gouge zones throughout.	4.4	0	3.0	10	90	Fr. + BD 0-30° V. 0-90°
49.5									BD 5°
50.8									BD 20°
52.4	52.8	0.4	Qz-vein breccia, 75% shale shot through with qz ± 0-5% cal. veins.	0.3	0	25.0	70	40	V. 0-90°
52.8	55.0	2.2	Broken crushed rubble core. cal ± 0-30% Qz. veins. 5% less than or equal to 4cm gouge zones.	1.0	0	2.0	4	100	Fr. 10-40°
55.0	58.5	3.5	Blocky in part, broken core.	3.5	0.1	0.5	2	20	Fr. 60-10° V. 20-60°
55.5	55.53	0.03	Quartz vein	0.03	0	100	1	20	V. 50°
55.6	56.2	0.6	Crushed broken 5% gouge	0.6	0	0.3	1	80	Fr. 30-50°
58.5	63.2	4.7	Broken core 10% gouge less than or equal to 10cm thick zones. Qz-cal. veins.	3.1	0	1.5	10	80	Fr. 60-30°
58.5	61.5	3.0	8% gouge + crushed rubble	2.2	0	4.0	15	80	Fr. + BD 40-60°

LOGGING FORM

Project: Brick DDH # B-8-85 Location: L7+00E 3+00N
 Angle -45° Bearing 021° Total Depth 250.60 M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
60.9	60.93	0.03	White vuggy qz vein 30% shale frags	0.03	0	100	1	20	V? 60°
61.4	61.44	0.04	white vuggy qz. vein, tr. sid. in vugs, 20% shale frags.	0.04	0	100	1	30	V. 60-45°
61.5	63.2	1.7	Broken core 40% gouge qz-sid. veins	1.1	0	0.9	8	80	Fr. 60-30°
63.2	65.7	2.5	Blocky broken core, qz-sid veins	2.2	0	0.7	5	50	BD + Fr. 0-30°
65.7	68.8	3.1	Blocky in part broken core, qz-cal. veins.	2.8	0	2.0	10	50	Fr. + BD 30-10°
65.8	65.83	0.03	Qz-cal. vein	0.03	0	100	1	50	V. 30°
68.7	69.2	0.5	Qz-cal. veins (50/50 Q/C) tr-5% sid. 5% py, 75.0% shale, shot through with vein.	0.4	0	25.0	100	50	V. 50-20°
69.2	72.6	3.4	Blocky broken core	3.3	0	0.8	2	50	Fr. 40-30°
70.2	70.4	0.2	40% sheared core	0.2	0	5.0	3	90	Fr. 30-40°
71.0	72.6	1.6	10% sheared core, gr. shear planes on fr.	1.6	0	0.7	4	45	Fr. 0-40°
72.6	75.8	3.2	Qz-cal-py vein + tr. sid. irreg. veins	3.2	0.6	10.0	70	25	Fr. 40-60°
72.7	73.3	0.6	Qz + cal. veins	0.6	0.3	15.0	50	8	V. 60-30°
73.9	74.15	0.25	Qz-cal.-py-sid V.	0.25	0.2	20.0	75	8	V. 80-20°
75.3	75.6	0.3	Broken shattered	0.3	0	0.5	2	60	Fr. 40-20°
75.75	75.78	0.03	Qz-cal (60/40) + 5% py vein, 25% shale frags.	0.03	0	100	1	15	V. 45°
75.8	81.5	5.7	Shattered sheared core.	4.6	0.2	0.3	4	100	Fr.+Sh.+ BD 60-10°
76.8	79.7	2.9	Shattered sheared core, 15% soft gouge less than or equal to 8cm chunks.	1.2	0	0.3	2	120	Fr. 60-20°

LOGGING FORM

Project: Brick DDH # B-8-85 Location: L7+00E 3+00N

Angle -45° Bearing 021° Total Depth 250.60 M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
80.0	80.2	0.2	Leached vuggy black shale, py-qz + sid. veined, 20% dissem. py in rock.	0.2	0.2	20.0	10	4	V. 0-90°
80.2	81.5	1.3	Broken shattered core, 5% sheared core to gouge.	1.3	0	0.1	1	130	Fr. 20-50°
81.5	86.0	4.5	Broken blocky core	2.7	0	0.1	2	70	Fr. + BD 60-30°
83.0	86.0	3.0	25% black sheared core/gouge, broken	1.2	0	0	0	100	Fr. 60-40°
86.0	89.0	3.0	45% black sheared core/gouge broken shattered.	1.3	0	0.8	2	140	Fr. 60-0°
89.0	91.6	2.6	5% sheared core, blocky broken core	1.6	0	0.2	2	90	Fr. 30-50°
91.6	120.5	28.9	4a; Black carb. shale with 15-35% dk. grey less than or equal to 3cm mudstone (5-20% py dissem) interbeds finely laminated layered. 1% 1-150 mm massive strat. py beds + lenses throughout, Qz-Cal-py+ sid. veins. Fr. parallel bedding tr. calcite on high angle fr. rare carb.-gr. on fr.	28.6	3.3	0.4	2	25	BD + Fr. 50-35°
91.6	95.1	3.5	Blocky broken	3.2	0	0.4	2	45	Fr. + BD 60-45°
95.1	104.5	9.4	Blocky core	9.3	0.35	0.4	2	30	Fr. + BD 50-35°
96.28	96.3	0.02	100% py bed.	0.02	0	0	0	40	BD + CNT 45°
96.9	97.0	0.1	Gouge-crushed core	0.1	0	0	0	150	CNT 60-50°
98.0	98.6	0.6	Broken, 5% crushed core/gouge	0.6	0	0.1	1	90	Fr. 40-50°
99.6	99.63	0.03	70% ameoid py blebs stratabound, 30% grey qz.	0.0	0	0	0	0	CNT 40°
99.9	100.4	0.5	Broken	0.5	0	0	0	100	Fr. + BD 45°
101.6	102.0	0.4	Broken	0.4	0	0	0	100	Fr. 0-50°
104.0	104.2	0.2	Sheared crushed core	0.2	0	0	0	200	Sh. 30-50°

LOGGING FORM

Project: Brick DDH # B-8-85 Location: L7+00E 3+00N
 Angle -45° Bearing 021° Total Depth 250.60 M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
104.5	107.3	2.8	In part blocky	2.8	1.2	2.0	2	12	Fr. + BD 30-45°
105.83	105.88	0.05	White Qz-vein, tr. py.	0.05	0.0	100	1	10	CNT+BD 50-40°
107.05	107.2	0.15	80% py, 20% qz, ?vein irreg. sharp contacts subparallel x-cutting bedding.	0.15	0.15	100	1	0	CNT 40°
107.3	108.4	1.1	Broken blocky	1.1	0	0	0	60	Fr. 30-40°
108.4	111.6	3.2	2% less than or equal to 4cm py-qz. ?strat. beds. Gr. mirror planes on some fr.	3.2	1.25	0.7	2	13	Fr.+BD 20-48°
108.6	108.62	0.02	70% py 30% qz. tr. calc. irreg. vein/bed subparallel bedding.	0.04	0	100	1	10	CNT 40°
111.6	116.4	4.8	Blocky in part. Broken core, qz-cal and qz-cal-py veins.	4.8	0.1	1.1	5	25	Fr.+BD 35-45°
111.95	111.96	0.01	Gouge	0.01	0	0	0		CNT 50°
112.8	113.2	0.4	Crushed-sheared core/gouge	0.4	0	0	0	200	Sh. 50-40°
113.5	113.52	0.02	80% py, 20% qz. tr. calc. vein/bed? irreg. shp cnt, subparallel bedding in part coxcomb text. ?fibrous py blades.	0.02	0	100	1	20	CNT 30-45°
115.8	116.3	0.5	Greenish black soft clay ?alt. shale in part vuggy leached. ?sid. veins.	0.5	0	0.6	3	30	Fr. 0-90°
116.4	117.0	0.6	Calcareous siltstone to marlstone, fine grained, calcite veined.	0.6	0.4	4.0	40	5	
117.0	120.5	3.5	Blocky in part, broken core.	3.5	0.3	0.1	1	20	Fr.+BD 20-35°
117.6	117.9	0.3	Broken	0.3	0	0	0	50	Fr. 50-30°
118.6	120.5	1.9	Bright yellow to rusty yellow-orange lim. on fr.	1.9	0.3	0	0	25	Fr. 20-35°

LOGGING FORM

Project: Brick DDH # B-8-85 Location: L7+00E 3+00N
 Angle -45° Bearing 021° Total Depth 250.60 M

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
120.5	194.6	74.1	4c; Black graphitic-carbonaceous siliceous shale, massive to laminated, hard-brittle unit graphitic mirror planes on most fr. locally with calcite and yellow lim. Qz-cal. micro-veined.	48.7	1.4	0.7	3	25	Fr. 35-20°
120.5	183.7	63.2	Fracture/fault zone. Blocky broken core.						
123.1	124.2	1.1	Grey green bleached clay altered shale with 0.5-3.5 cm yellow <u>clay-lim.</u> + 5-20% white (milky) H4 concentrically zoned crystals (spherical less than or equal to 6mm) and minor qz. in vein carb. material removed from shale	1.1	0.4	25.0	10	10	V. 10-60°
124.2	125.0	0.8	Broken blocky	0.8	0	0	0	40	Fr. 0-60°
126.3	128.6	2.3	Broken blocky core	2.3	0	0.6	2	50	Fr. 0-60°
128.6	131.7	3.1	Broken core 5% gouge, qz vein, lim. on some fr.	1.8	0	0.9	7	35	Fr. 60-40°
131.7	134.7	3.0	Shattered core	1.5	0.1	0.2	3	60	Fr. 60-0°
134.5	134.53	0.03	py vein, 95%, 5% grey qz, might be stratiform med. grained py.	0.03	0	100	1		V. 25°
134.7	138	3.3	Blocky shattered core	1.9	0	1.0	2	40	Fr. 0-50°
137.6	137.63	0.03	Yellow lim.-clay with 5% less than or equal to 5mm white-pale yellow H3-4 ?zeolite min., similar to 123.1-124.2 interval	0.03	0	100	1	30	V. 20-30°
138	140.8	2.8	Broken core, lim. on fr.	0.7	0	0	0	80	Fr. 60-40°
140.8	143.9	3.1	Tryconed out, rods were stuck	0					
143.9	146.9	3.0	Broken shattered core. Qz ± lim. veins	2.6	0	8.0	20	50	
143.9	144.3	0.4	Qz-lim. veins, rubble	1.0	0	10.0	30	100	Fr. + V. 0-90°

LOGGING FORM

Project: Brick DDH # B-8-85 Location: L7+00E 3+00N
 Angle -45° Bearing 021° Total Depth 250.60

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
144.3	150.0	5.7	Blocky in part broken core.	5.4	0.1	0.2	1	30	Fr. + BD 60-50°
147.6	148.0	0.4	Broken shattered	0.4	0	0	0	100	Fr. 60-40°
150.0	153.0	3.0	Broken shattered core 3% carb. gouge less than or equal to 5cm.	2.2	0	1.0	2	45	Fr. + BD 50-40°
152.4	152.41	0.01	Yellow-rusty orange lim.-clay vein	0.01	0	100	1	40	V. 45°
153.0	154.5	1.5	Blocky broken core, Qz veins.	1.3	0	1.0	2	35	Fr. 50-30°
154.5	156.0	1.5	Blocky broken core, lim. on fr., Qz - py veins.	1.2	0	0.8	3	40	Fr. + BD 50-40°
156.0	160.3	4.3	Broken shattered core, qz-lim. + py veins.	1.3	0	2.0	4	95	Fr. 50-10°
160.3	162.2	1.9		0					
162.2	165.2	3.0	Black soft clay gouge ?clay altered? first 10cm of core is white qz-vein 5% lim.st.	1.4	0	7.0	1		
165.2	168.2	3.0	Gouge + crushed core over first 1.2m core, remainder shattered, in part clay altered.	1.9	0	0	0	100	Fr. 90-10°
168.2	171.3	3.1	Broken shattered core, lim. on fr.	1.4	0	0	0	90	Fr. 70-20° BD 70°
171.2	174.3	3.1	Broken core/rubble	0.7	0	0.4	2	50	Fr. 70-40°
174.3	177.3	3.0	Broken core	1.4	0	0.2	1	45	Fr. 70-50°
177.3	180.0	2.7	Broken crushed core	1.4	0	1.0	7	50	Fr. 0-40°
180.0	183.4	3.4	Blocky broken core lim. on high angle fr., qz-lim. veins	3.4	0.1	0.5	2	30	Fr. 0-30° BD 75-60°
180.8	181.2	0.4	Broken core lim. on fr. qz. veins	0.4	0	2.0	1	100	Fr. + BD 75°

LOGGING FORM

Project: Brick DDH # B-8-85 Location: L7+00E 3+00N
 Angle -45° Bearing 021° Total Depth 250.60

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
183.0	183.4	0.4	Broken core	0.4	0	0	0	70	Fr. 60-0°
183.4	192	8.6	Blocky in part broken lim. on high angle fr.	8.6	0.6	0	0	25	Fr. + BD 75-65°
189.5	189.9	0.4	Broken core	0.4	0	0	0	100	Fr. + BD 70-60°
192.0	194.6	2.6	Broken shattered core, 5% crushed rock/gouge.	2.1	0	0.1	1	100	Fr. 0-70°
194.6	216.0	21.4	4d; Dark grey, grey black, bluish black, brittle hard wkly carb. siliceous shale flaser lam. to bedded irreg. carb. lenses/layers less than or equal to 2cm. 1-10% dissem. py. throughout with thin sulphide-pyrite stratiform lenses + blebs (less than or equal to 5.0cm, 2% of unit on avg). Locally carb. material on fr. Lower contact gradational, based on change to less siliceous shale or presence of sand/silt laminae.	19.6	2.0				BD + FR. 10-60°
194.6	209.7	15.1	Blocky broken core lim. stain locally on fr.	3.3	0.3	0	0	25	Fr. 80-60°
194.6	196.0	1.4	Broken/blocky	1.2	0	0	0	45	Fr. 70-30°
196.0	197.5	1.5	Blocky core	1.5	0.1	0	0	30	Fr. 70-30°
197.0	197.1	0.1	Irreg. rusty yellow lim. stain in core ?alt. py?	1.5	0.1	0	0	30	Fr. 70-30°
197.5	198.7	1.2	Broken core	1.0	0	0	0	60	Fr. 0-70°
198.0	198.4	0.4	40% rusty yellow brown lim. stain of core as less than or equal to 2cm band (?alt. py) parallel bedding.	1.0	0	0	0	60	Fr. 0-70° BD 70°
198.7	201.7	3.0	Crushed broken core	1.5	0	0	0	100	Fr. 0-70°
201.7	204.5	2.8	Black/broken core, qz. vein	2.8	0.2	0.3	2	30	Fr. 70-30°

LOGGING FORM

Project: Brick DDH # B-8-85 Location: L7+00E 3+00N

Angle -45° Bearing 021° Total Depth 250.60

FROM	TO	INTERVAL	DESCRIPTION	Rec.	RQD	VT/M	V/M	Fr/M	C/A
204.5	204.8	0.3	Broken	0.3	0	0	0	60	Fr. 10-80°
205.3	205.7	0.4	Broken core lim. on fr.	0.4	0	0	0	60	Fr. 0-60°
205.7	208.5	2.8	Broken blocky core minor lim. on fr.	2.8	0.1	0	0	45	Fr. 0-70°
209.7	215.6	5.9	In part blocky 3% 1-30mm irreg. py blebs to irreg. bands throughout, increasing in frequency with depth Qz-lim. veins x-cut bedding.	5.9	1.6	0.2	1	15	Fr. 60-70°
212.0	212.5	0.5	Blocky broken	0.5	0	0	0	25	Fr. 0-50°
213.0	214.5	1.5	6% less than or equal to 2cm strat. py bands-blebs.	1.5	0.45	0	0	12	Fr. + BD 60-70°
214.5	215.6	1.1	10% less than or equal to 4 cm irreg. ameboid py. strat.	1.1	0.2	0	0	15	Fr. + BD 60-55°
215.0	250.6	35.6	5; Black to dk. grey shale with 4% thin sandstone laminae and 10% Siltstone beds. Shale massive to laminated in part flaser bedded siltstone + SS beds are qz-cal. veined. Yellow to red hematite on Fr.	33.3	11.7	0.4	2	8	BD + Fr. 65-80° Fr. 10-35°
216.0	221.2	5.2	10% 1-30cm strat. py to ameboid blebs	5.2	2.7	0.2	1	8	Fr. + BD 65-75°
220.9	221.2	0.3	Strat. py bed 100% py Qz-Cal. micro veined.	0.3	0.2	8.0	5	3	CNT 70°
226.6	226.7	0.1	Siltstone, greenish grey Qz-Cal. veined grad. upper, sharp lower CNT	0.1	0	4.0	15	9	CNT 70°
228.63	228.67	0.04	Strat. py bed irreg. sharp CNT	0.04	0	0	0	5	CNT 70-60°
228.7	229.0	0.3	Grey-green siltstone bed. Qz-Cal. veins.	0.3	0.2	10.0	40	3	V. 10-60°
231.5	231.65	0.15	Grey siltstone bed, Qz-Cal. veined	0.15	0	30.0	40	7	V. 10-40°
233.55	233.65	0.10	Gouge/crushed core	0.10	0	0	0	200	Fr. 65-30°

APPENDIX 5

Drill Hole Assay Data



4200B - 10 STREET N.E.
 CALGARY, ALBERTA
 T2E 6K3
 PHONE: (403) 250-1901

16-AUG-85
 PAGE: 1 OF 10
 COPY: 1 OF 1

AUTHORITY: M. AUPPERLE

AGIP CANADA LTD.
 3000, 350-7 AVENUE S.W.
 CALGARY, ALBERTA T2P 3N9

PROJECT: 500059-913
 P. O. : 13161, 13163

WORK ORDER: 2155D-85

ATTN: E.B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: DRILL CORE

SAMPLE NUMBER	FIRE ASSAY	
	AU GRAMS/M	AG GRAMS/M
B-1:24.4	0.055	0.37
B-1:26	0.033	0.28
B-1:27.5	0.014	0.14
B-1:29	0.113	0.53
B-1:30.5	0.093	0.89
B-1:32	0.104	1.0
B-1:33.5	0.245	0.98
B-1:34	2.24	5.0
B-1:34.5	0.117	1.63
B-1:35	0.186	1.73
B-1:36.5	0.217	1.51
B-1:38	0.538	1.65
B-1:39.5	0.137	1.45
B-1:41	0.091	1.73
B-1:42.5	0.231	1.33
B-1:44	0.246	2.1
B-1:45.5	0.478	2.46
B-1:47	0.48	1.34
B-1:48.5	0.533	1.9
B-1:50	0.473	1.41
B-1:51.5	0.204	1.01
B-1:53	0.51	0.84
B-1:54.5	0.166	0.28
B-1:56	0.08	0.3
B-1:57.5	0.069	0.28
B-1:59	0.023	0.46
B-1:60.5	0.041	0.48
B-1:62	0.095	0.72
B-1:64.2	0.077	0.44
B-1:65	0.013	0.51



4200B - 10 STREET N.E.
 CALGARY, ALBERTA
 T2E 6K3
 PHONE: (403) 250-1901

16-AUG-85
 PAGE: 1 OF 10
 COPY: 1 OF 1

AUTHORITY: M. SUFFERLE

AGIP CANADA LTD.
 3000, 350-7 AVENUE S.W.
 CALGARY, ALBERTA T2P 3N9

PROJECT: 500039-E12
 P. O. : 13181,13183

WORK ORDER: 81530-85

ATTN: E.B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: DRILL CORE

S A M P L E N U M B E R	FIRE ASSAY	
	AU GRAMS/M	AG GRAMS/M
B-1:66.5	0.011	0.5
B-1:68	0.021	0.54
B-1:69.5	0.015	0.63
B-1:71	0.072	0.76
B-1:72.5	0.031	0.95
B-1:74	0.015	0.6
B-1:75.5	0.015	0.54
B-1:77	0.012	0.36
B-1:78.5	0.013	0.57
B-1:80	0.015	0.51
B-1:81.5	0.052	0.52
B-1:83	0.056	0.43
B-1:84.5	0.021	0.9
B-1:86	0.011	0.23
B-1:87.5	0.013	0.16
B-1:89	0.087	0.36
B-1:90.5	0.033	0.17
B-1:92	0.097	0.23
B-1:93.5	0.14	0.42
B-1:95	0.146	0.64
B-1:96.5	0.374	0.7
B-1:98	0.133	0.64
B-1:99.5	0.071	0.56
B-1:101	0.044	0.52
B-1:102.5	0.03	0.39
B-1:104	0.131	0.7
B-1:105.7	0.21	1.31
B-1:107.2	0.14	1.0
B-1:108	0.137	1.34
B-1:109.5	0.131	1.51



4200B - 10 STREET N.E.
 CALGARY, ALBERTA
 T2E 6K3
 PHONE: (403) 250-1901

15740167-00
 PAGE: 3 OF 10
 COPY: 1 OF 3

AUTHORISED BY: MUPPERLE

AGIP CANADA LTD.
 3000, 350-7 AVENUE S.W.
 CALGARY, ALBERTA T2P 3M9

PROJECT: 500039-E11
 P. O. : 11151.13183

WORK ORDER: 8155D-85

ATTN: S.B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: DRILL CORE

S A M P L E N U M B E R	FIRE ASSAY	
	AU GRAMS/M	AG GRAMS/M
B-1:111	0.193	0.94
B-1:112.5	0.173	1.16
B-1:114	0.052	1.72
B-1:115.5	0.022	2.55
B-1:117	0.044	3.46
B-1:117.4	0.028	1.57
B-1:117.9	0.078	3.68
B-1:119.4	0.151	3.04
B-1:121	0.127	2.07
B-1:124.3	0.24	1.99
B-1:125.6	0.31	1.27
B-1:127	0.076	3.45
B-1:128.5	0.291	1.52
B-1:132.7	0.111	1.69
B-1:134.5	0.058	3.22
B-1:136	0.057	1.91
B-1:137.8	0.073	3.7
B-1:140	0.048	2.27
B-1:141.5	0.052	2.08
B-1:144.5	0.109	3.89
B-1:147.4	0.231	3.2
B-1:148.4	0.129	2.15
B-1:157.3	0.17	1.2
B-1:160.5	0.056	0.81
B-1:162	0.04	0.43
B-1:164.4	0.047	0.42
B-1:166	0.142	2.1
B-1:167.5	0.103	0.48
B-1:170.5	0.06	0.46
B-1:171.5	0.033	0.42



4200B - 10 STREET N.E.
 CALGARY, ALBERTA
 T2E 6K3
 PHONE: (403) 250-1901

15-00147-00
 PAGE: 4 OF 10
 COPY: 1 OF 3

AUTHORITY: M. RUFFERLE

AGIP CANADA LTD.
 3000, 350-7 AVENUE S.W.
 CALGARY, ALBERTA T2P 3N9

PROJECT: 500000-E13
 S. O. : 13181, 13183

MURK ORDER: 21530-85

ATTN: E.B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: DRILL CORE

S A M P L E N U M B E R	FIRE ASSAY	
	AU GRAMS/M	AG GRAMS/M
B-1:173	0.054	0.52
B-1:174.5	0.077	0.51
B-1:176	0.213	0.42
B-1:178.9	0.223	0.71
B-1:180.5	0.592	0.76
B-1:182.9	0.25	0.69
B-1:184.5	0.166	1.1
B-1:186.5	0.06	1.04
B-1:188	0.052	0.92
B-1:189.5	0.053	1.07
B-1:191	0.062	1.6
B-1:192.5	0.05	0.99
B-1:194	0.05	0.94
B-1:195.5	0.055	0.9
B-2:18.9	0.016	0.96
B-2:20.3	0.021	0.44
B-2:22	0.183	0.69
B-2:23.5	0.048	0.28
B-2:25	0.027	0.26
B-2:26.5	0.035	0.5
B-2:28	0.024	0.3
B-2:29.5	0.026	0.71
B-2:31	0.02	0.53
B-2:32.5	0.021	0.52
B-2:34	0.016	0.56
B-2:35.5	0.037	0.47
B-2:37	0.013	0.6
B-2:38.5	0.055	0.46
B-2:40	0.017	0.43
B-2:41.5	0.011	0.33



4200B - 10 STREET N.E.
CALGARY, ALBERTA
T2E 6K3

PHONE: (403) 250-1901
15-AUG-85
PAGE: 5 OF 10
COPY: 1 OF 1

AUTHORITY: M. ADRIEN

AGIP CANADA LTD.
3000, 350-7 AVENUE S.W.
CALGARY, ALBERTA T2P 3N9

PROJECT: 500039-E13
P. O. 13181.1313

WORK ORDER: 21330-85

ATTN: E.B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: DRILL CORE

SAMPLE NUMBER	FIRE ASSAY	
	AU GRAMS/M	AG GRAMS/M
B-2:43	0.018	1.35
B-2:44.5	0.032	0.27
B-2:46	0.02	1.02
B-2:47.5	0.014	0.52
B-2:49	0.024	0.43
B-2:50.5	0.013	0.31
B-2:52	0.018	0.66
B-2:53.5	0.011	0.38
B-2:55	0.012	0.29
B-2:56.5	0.018	0.35
B-2:58	0.01	0.41
B-2:59.5	0.015	0.53
B-2:61	0.064	0.72
B-2:62.5	0.015	1.31
B-2:64	0.012	0.73
B-2:65.5	0.009	0.45
B-2:67	0.008	0.51
B-2:68.5	0.008	0.53
B-2:70	0.007	0.49
B-2:71.5	0.005	0.41
B-2:73	0.012	0.7
B-2:74.5	0.011	0.53
B-2:76	0.007	0.29
B-2:77.5	0.008	0.52
B-2:79	0.01	0.4
B-2:80.5	0.008	0.24
B-2:81.5	0.006	0.08
B-2:83	0.009	0.18
B-2:84.5	0.022	0.23
B-2:85	0.008	0.39



4200B - 10 STREET N.E.
 CALGARY, ALBERTA
 T2E 6K3
 PHONE: (403) 250-1901

15-HU-85
 PAGE: 6 OF 10
 COPY: 1 OF 2

AUTHORITY: M. HUPFERLE

AGIP CANADA LTD.
 3000, 350-7 AVENUE S.W.
 CALGARY, ALBERTA T2P 3M9

PROJECT: 91-0089-E13
 P. O. : 11001-10382

WORK ORDER: 61050-85

ATTN: E.B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: DRILL CORE

S A M P L E N U M B E R	FIRE ASSAY	
	AU GRAMS/M	AG GRAMS/M
B-2:86.5	0.01	0.32
B-2:88	0.006	0.3
B-2:89.5	0.008	0.35
B-2:91	0.01	0.28
B-2:92.5	0.003	0.26
B-2:94	0.004	0.34
B-2:95.5	0.016	0.47
B-2:97	0.005	0.37
B-2:98.5	0.005	0.41
B-2:100	0.004	0.42
B-2:101.4	0.009	0.2
B-2:101.9	0.008	0.51
B-2:103	0.009	0.26
B-2:104.5	0.005	0.28
B-2:106	0.008	0.52
B-2:107.5	0.011	0.48
B-2:109	0.009	0.39
B-2:110.5	0.007	0.38
B-2:112	0.012	0.43
B-2:113.5	0.022	0.36
B-2:115	0.021	0.27
B-2:116.5	0.008	0.35
B-2:118	0.012	0.19
B-2:119.5	0.006	0.1
B-2:121	0.005	0.19
B-2:122.5	0.004	0.27
B-2:124	0.003	0.08
B-2:124.9	0.011	0.53
B-2:126.9	0.015	0.37
B-2:128.	0.008	0.23



4200B - 10 STREET N.E.
CALGARY, ALBERTA
T2E 6K3
PHONE: (403) 250-1901

16-0113-85
PAGE: 7 OF 10
COPY: 1 OF 3

AUTHORITY: M. ADPERCE

AGIP CANADA LTD.
3000, 350-7 AVENUE S.W.
CALGARY, ALBERTA T2P 3N9

PROJECT: 500039-813
P. O. : 13181.13183

WORK ORDER: 815ED-85

ATTN: E.B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: DRILL CORE

SAMPLE NUMBER	FIRE ASSAY	FIRE ASSAY
	AU GRAMS/M	AG GRAMS/M
B-2:129.5	0.007	0.29
B-2:131	0.013	0.2
B-2:132.5	0.006	0.22
B-2:134	0.008	0.31
B-2:135.5	0.01	0.48
B-2:137	0.031	0.57
B-2:138.5	0.009	0.38
B-2:140	0.01	0.9
B-2:141.5	0.007	0.5
B-2:143	0.008	0.87
B-2:144.5	0.009	0.84
B-2:146	0.009	0.8
B-2:147.5	0.01	0.6
B-2:149	0.017	1.15
B-2:150.5	0.009	0.72
B-2:152	0.015	0.99
B-2:153.5	0.009	0.73
B-2:155	0.011	0.66
B-2:156.5	0.01	0.58
B-2:158	0.016	0.92
B-2:159.5	0.012	0.47
B-2:161	0.011	0.44
B-2:162.5	0.011	0.35
B-2:164	0.015	0.32
B-2:165.5	0.031	0.38
B-2:167	0.009	0.36
B-2:168.5	0.005	0.37
B-2:170	0.012	0.39
B-2:171.5	0.011	0.68
B-2:173	0.014	1.05



4200B - 10 STREET N.E.
 CALGARY, ALBERTA
 T2E 6K3
 PHONE: (403) 250-1901

16-HUG-85
 PAGE: 8 OF 10
 COPY: 1 OF 3

AUTHORITY: M. AUPPERLE

AGIP CANADA LTD.
 3000, 350-7 AVENUE S.W.
 CALGARY, ALBERTA T2P 3N9

PROJECT: 500039-613
 5-2-85 13151,13152

WORK ORDER: 51530-55

ATTN: E.B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: DRILL CORE

SAMPLE NUMBER	FIRE ASSAY	
	AU GRAMS/M	AG GRAMS/M
B-2:174.5	0.011	0.86
B-2:176	0.008	0.88
B-2:177.5	0.008	1.18
B-2:179	0.01	1.2
B-2:180.4	0.015	1.31
B-2:181.8	0.021	1.76
B-2:183	0.021	2.22
B-2:184.5	0.027	3.85
B-2:186.4	0.017	2.4
B-2:188	0.024	2.87
B-2:189	0.021	2.65
B-2:191	0.018	3.43
B-2:192.5	0.013	4.26
B-2:194	0.02	2.25
B-2:195.5	0.014	1.05
B-2:197	0.013	0.91
B-2:198.5	0.007	0.57
B-3:31.1	0.017	0.49
B-3:32.3	0.012	0.44
B-3:33.5	0.01	0.28
B-3:35	0.008	0.45
B-3:36.5	0.007	0.4
B-3:38	0.009	0.3
B-3:39.5	0.008	0.56
B-3:41.5	0.009	0.6
B-3:44.6	0.01	0.64
B-3:46.5	0.008	0.48
B-3:48	0.009	1.46
B-3:49.5	0.007	0.57
B-3:51	0.007	0.6



4200B - 10 STREET N.E.
 CALGARY, ALBERTA
 T2E 6K3
 PHONE: (403) 250-1901

16-004-83
 PAGE: 9 OF 10
 COPY: 1 OF 1

AUTHORITY: M. RUPPERLE

AGIP CANADA LTD.
 3000, 350-7 AVENUE S.W.
 CALGARY, ALBERTA T2P 3N9

PROJECT: 500035-E13
 P. O. : 13131,13132

WORK ORDER: 2133D-83

ATTN: E.B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: DRILL CORE

S A M P L E N U M B E R	FIRE ASSAY	
	AU GRAMS/M	AG GRAMS/M
B-3:52.5	0.026	1.03
B-3:54	0.011	0.55
B-3:55.5	0.009	0.39
B-3:56.5	0.007	0.01
B-3:57.3	0.008	0.38
B-3:58.5	0.007	0.31
B-3:60	0.006	0.3
B-3:61.5	0.011	0.61
B-3:63	0.006	0.36
B-3:64.5	0.006	0.3
B-3:66	0.004	0.44
B-3:67.5	0.005	0.4
B-3:69	0.01	0.42
B-3:70.5	0.004	0.19
B-3:71.3	0.003	0.32
B-3:72.5	0.004	0.27
B-3:74	0.004	0.34
B-3:75.5	0.003	0.26
B-3:77	0.004	0.29
B-3:78.5	0.003	0.14
B-3:80	0.02	0.45
B-3:81.5	0.005	0.22
B-3:83	0.006	0.18
B-3:84.5	0.007	0.16
B-3:86	0.538	0.08
B-3:87.5	0.003	0.35
B-3:89	0.006	0.3
B-3:90.5	0.01	0.17
B-3:92	0.01	0.38
B-3:93.5	0.011	0.36



4200B - 10 STREET N.E.
CALGARY, ALBERTA
T2E 6K3
PHONE: (403) 250-1901

16-AUG-85
PAGE: 10 OF 10
COPY: 1 OF 3

AUTHORITY: M. AUFFERLE

AGIF CANADA LTD.
3000, 350-7 AVENUE S.W.
CALGARY, ALBERTA T2P 3N9

PROJECT: 000039-E13
P. O. : 13181.13183

WORK ORDER: 21530-85

ATTN: E.B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: DRILL CORE

SAMPLE NUMBER	FIRE ASSAY	FIRE ASSAY
	AU GRAMS/M	AG GRAMS/M
B-3:95	0.009	0.31
B-3:96.5	0.013	0.22
B-3:98	0.009	0.26
B-3:99.5	0.008	0.23

SIGNED: _____

C. Douglas Read
C. Douglas Read,
LABORATORY MANAGER

FOOTNOTES:

P=QUESTIONABLE PRECISION; *=INTERFERENCE; TR=TRACE; ND=NOT DETECTED;
IS=INSUFFICIENT SAMPLE; NA=NOT ANALYZED; MS=MISSING SAMPLE



4200B - 10 STREET N.E.

CALGARY, ALBERTA

T2E 6K3

PHONE: (403) 250-1901

TELEFAX: (403) 250-1901

PAGE: 1 OF 2

COPY: 1 OF 1

AUTHORITY: M. GUEPPEL

AGIP CANADA LTD.
5000, 550-7 AVENUE S.W.
CALGARY, ALBERTA T2P 3A9

PROJECT: SWS-213
P. O. BOX 15189

WORK ORDER: B1570-55

ATTN: E.B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: DRILL CORE

SAMPLE NUMBER	FIRE ASSAY	FIRE ASSAY
	AU GRAMS/M	AG GRAMS/M
B-4:3.7	0.064	0.95
B-4:6.7	0.04	0.53
B-4:7.5	0.012	0.23
B-4:9.8	1.07	1.66
B-4:11.5	0.017	0.31
B-4:13	0.013	0.22
B-4:14.5	0.008	0.27
B-4:16	0.005	0.35
B-4:17.5	0.007	0.41
B-4:19	0.016	0.13
B-4:20.5	0.007	0.15
B-4:22	0.024	0.31
B-4:23.5	0.022	0.38
B-4:25	0.014	0.2
B-4:27.5	0.01	0.5
B-4:28.5	0.024	0.75
B-4:30	0.016	2.48
B-4:31.5	0.017	1.98
B-4:33	0.005	0.7
B-4:34.5	0.009	1.1
B-4:36	0.007	0.48
B-4:37.5	0.018	0.84
B-4:39	0.102	1.1
B-4:40.5	0.02	0.78
B-4:42	0.014	0.85
B-4:43.5	0.009	0.31
B-4:45	0.009	0.21
B-4:46.5	0.009	0.13
B-4:47.4	0.018	0.58
B-4:48.6	0.012	0.19



4200B - 10 STREET N.E.

CALGARY, ALBERTA

T2E 6K3

PHONE: (403) 250-1901

33-4007-85

PAGE: 1 OF 6

COPY: 1 OF 2

AUTHORITY: M. AUF-ERLE

AGIP CANADA LTD.
3000, 350-7 AVENUE S.W.
CALGARY, ALBERTA T2P 3N9

PROJECT: 500099-ELS
P. O. 13184, 13185

WORK ORDER: 81670-85

ATTN: E.B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: DRILL CORE

S A M P L E N U M B E R	FIRE ASSAY	
	AU GRAMS/M	AG GRAMS/M
B-4:50	0.011	0.18
B-4:51.5	0.014	0.05
B-4:53	0.04	0.76
B-4:54.5	0.122	2.04
B-4:56.4	0.013	0.25
B-4:57.5	0.013	0.25
B-4:59	0.076	0.56
B-4:60.5	0.011	0.92
B-4:62	0.017	0.35
B-4:63.5	0.071	2.82
B-4:65	0.016	0.68
B-4:66.5	0.038	0.24
B-4:68	0.093	1.29
B-4:69.5	0.018	0.31
B-4:71	0.038	0.32
B-4:72.5	0.044	0.5
B-4:73.2	0.062	0.61
B-4:74	0.017	0.11
B-4:74.9	0.02	0.33
B-4:76.5	0.089	1.61
B-4:78.0	0.018	0.28
B-4:79.5	0.015	0.09
B-4:81	0.054	0.24
B-4:82.5	0.025	0.25
B-4:84	0.105	0.36
B-4:84.8	0.057	0.42
B-4:86	0.075	0.33
B-4:87.3	0.014	0.43
B-4:89	0.014	0.3
B-4:90.5	0.013	0.55



4200B - 10 STREET N.E.
 CALGARY, ALBERTA
 T2E 6K3

PHONE: (403) 250-1901
 52-4015-83
 PAGE: 3 OF 5
 COPY: 1 OF 2

AUTHOR: J. W. HOPPERLE

AGIP CANADA LTD.
 3000, 350-7 AVENUE S.W.
 CALGARY, ALBERTA T2C 1P1

PROJECT: 500028-213
 P. O. 13154, 13185

WORK ORDER: 51670-23

ATTN: E.B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: DRILL CORE

SAMPLE NUMBER	FIRE ASSAY	FIRE ASSAY
	AU GRAMS/M	AG GRAMS/M
B-4:92	0.033	1.17
B-4:93.5	0.05	0.35
B-4:95	0.05	0.33
B-4:96.5	0.005	0.21
B-4:98	0.009	0.12
B-4:99.5	0.036	0.15
B-4:101	0.004	0.18
B-4:102.5	0.005	0.62
B-4:104	0.013	0.83
B-4:105.5	0.011	0.36
B-4:107	0.01	0.45
B-4:108.5	0.01	0.28
B-4:110	0.008	0.24
B-4:111.5	0.005	0.1
B-4:113	0.004	0.18
B-4:114.2	0.014	0.16
B-4:115.5	0.009	0.78
B-4:117	0.008	0.31
B-4:118.5	0.006	0.47
B-4:120	0.01	0.48
B-4:121.5	0.008	0.54
B-4:122.5	0.014	0.9
B-4:124	0.009	0.37
B-4:125.5	0.011	0.53
B-4:127	0.019	0.66
B-4:128.5	0.012	0.52
B-4:130	0.01	0.45
B-4:131.5	0.003	0.89
B-4:133	0.003	0.62
B-4:134.5	0.003	0.22



4200B - 10 STREET N.E.
 CALGARY, ALBERTA
 T2E 6K3
 PHONE: (403) 250-1901

22-403-85
 PAGE: 4 OF 5
 COPY: 1 OF 1

AUTHORITY: M. RUPPERLE

AGIP CANADA LTD.
 3000, 350-7 AVENUE S.W.
 CALGARY, ALBERTA T2P 3M9

PROJECT: 00019-9/3
 P. O. : 13184, 13185

WORK ORDER: 81670-50

ATTN: E.B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: DRILL CORE

SAMPLE NUMBER	FIRE ASSAY	FIRE ASSAY
	AU GRAMS/M	AG GRAMS/M
B-4:136	0.007	0.11
B-4:137.5	0.22	1.91
B-4:139.1	0.319	1.73
B-4:140.7	0.079	0.98
B-4:142.7	0.017	0.69
B-4:143.4	0.019	1.56
B-4:145	0.005	3.43
B-4:146.9	0.011	3.37
B-4:148.5	0.038	3.76
B-4:150	0.052	0.93
B-4:151.5	0.079	0.61
B-4:153	0.327	1.48
B-4:156	0.69	2.73
B-4:159.1	0.82	3.35
B-4:162.2	0.118	3.57
B-4:168.2	0.294	3.96
B-4:171.2	0.316	2.23
B-4:174.3	0.187	1.93
B-4:177.3	0.242	3.04
B-4:180.4	0.225	2.69
B-4:185.9	0.485	3.76
B-4:192.6	0.203	3.92
B-4:195.3	0.91	4.45
B-4:198.7	1.44	5.63
B-4:201.7	1.54	9.35
B-4:204.8	1.09	5.21
B-4:207.8	0.245	1.96
B-4:212.3	0.214	2.9
B-4:218.9	0.06	1.72
B-4:223.1	0.037	1.38



4200B - 10 STREET N.E.
 CALGARY, ALBERTA
 T2E 6K3
 PHONE: (403) 250-1901

32-406-85
 PAGE: 5 OF 6
 COPY: 1 OF 2

AUTHOR: J.W. HUFFERLE

AGIP CANADA LTD.
 5000, 500-7 AVENUE S.W.
 CALGARY, ALBERTA T2P 3N9

PROJECT: 500009-E13
 - 0. 13124, 13125

WORK ORDER: 81670-85

ATTN: E.B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: DRILL CORE

SAMPLE NUMBER	FIRE ASSAY	FIRE ASSAY
	AU GRAMS/M	AG GRAMS/M
B-4:226.1	0.042	1.62
B-5:30	0.008	1.38
B-5:31.4	0.022	0.56
B-5:32.1	0.012	0.67
B-5:34	0.013	1.04
B-5:35.5	0.023	0.91
B-5:37	0.009	0.47
B-5:38.5	0.017	0.43
B-5:40	0.033	0.58
B-5:41.5	0.03	0.85
B-5:43	0.032	1.13
B-5:44.5	0.098	1.54
B-5:46	0.35	1.83
B-5:47.5	0.098	1.68
B-5:50.5	0.024	0.55
B-5:52	0.098	0.73
B-5:53.6	0.029	1.46
B-5:55.5	0.038	1.57
B-5:58.5	0.027	1.8
B-5:60	0.018	0.79
B-5:61.5	0.018	0.78
B-5:63	0.026	0.73
B-5:64.3	0.02	0.63
B-5:66	0.027	0.63
B-5:67.5	0.017	0.35
B-5:69	0.018	0.22
B-5:70.5	0.014	0.34
B-5:72	0.017	1.09
B-5:73.5	0.024	2.13
B-5:75	0.014	0.73



4200B - 10 STREET N.E.
 CALGARY, ALBERTA
 T2E 6K3
 PHONE: (403) 250-1901

403-250-1901
 PAGE: 6 OF 6
 DATE: 1 OF 1

AUTHORITY: M. RUPPERLE

AGIP CANADA LTD.
 5000, 350-7 AVENUE S.W.
 CALGARY, ALBERTA T2P 3A9

PROJECT: 500039-213
 P. O. 1 13124, 13125

DATE ORDER: 8/16/88

ATTN: E.B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: DRILL CORE

SAMPLE NUMBER	FIRE ASSAY	
	AU GRAMS/M	AG GRAMS/M
B-5:76.8	0.016	1.67
B-5:78	0.016	0.94
B-5:79.8	0.032	1.48
B-5:81.5	0.017	0.78
B-5:83	0.028	0.79
B-5:84.5	0.022	1.81
B-5:86	0.026	2.05
B-5:89	0.012	0.82
B-5:90.5	0.011	0.39
B-5:92	0.003	0.70
B-5:93.5	0.005	0.54
B-5:95.1	0.007	0.44
B-5:98.1	0.01	0.14
B-5:101.1	0.016	0.26
B-5:104.2	0.055	1.16
B-5:108.8	0.23	2.7
B-5:113.3	0.301	3.52
B-5:114.6	0.167	3.1
B-5:117.7	0.236	5.64
B-5:118.6	0.28	2.83
B-5:119.4	0.188	2.71
B-5:49.0	0.062	0.82

SIGNED: _____

C. Douglas Read
 C. Douglas Read,
 LABORATORY MANAGER

FOOTNOTES:

P=QUESTIONABLE PRECISION: *=INTERFERENCE: TR=TRACE: ND=NOT DETECTED:
 IS=INSUFFICIENT SAMPLE: NA=NOT ANALYZED: MS=MISSING SAMPLE



4200B - 10 STREET N.E.
CALGARY, ALBERTA
T2E 6K3
PHONE: (403) 250-1901

AUTHORITY: SUPPLIER

PAGE: 3 OF 4
COPY: 1 OF 1

AGIP CANADA LTD.
3000, 350-7 AVENUE S.W.
CALGARY, ALBERTA T2P 3N9

PROJECT: 50004-85
P. S. 1015

WORK ORDER: 81250-85

ATTN: S. S. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: DRILL CORE

SAMPLE NUMBER	FIRE ASSAY	FIRE ASSAY
	AU GRAMS/M	AG GRAMS/M
B-6:12.8	0.011	0.33
B-6:14	0.219	0.68
B-6:15.5	0.137	1.03
B-6:17	0.014	0.78
B-6:18.2	0.152	6.17
B-6:19.6	0.248	8.23
B-6:20.5	0.185	7.34
B-6:22	0.008	0.16
B-6:25	0.009	0.15
B-6:25.3	0.015	2.21
B-6:30.5	0.164	4.84
B-6:32	0.011	0.68
B-6:33.5	0.008	0.44
B-6:35	0.003	0.15
B-6:36.5	0.003	0.64
B-6:38	0.005	0.58
B-6:39.5	0.003	0.42
B-6:40.5	0.092	1.87
B-6:41.8	0.179	4.04
B-6:43.2	0.182	3.61
B-6:49.4	0.168	6.98
B-6:50.9	0.327	8.09
B-6:52	0.717	2.24
B-6:55.4	0.074	1.06
B-6:56.8	0.107	0.56
B-6:57.6	0.044	0.67
B-6:58.6	0.944	1.52
B-6:59.6	0.227	5.67
B-6:61.1	0.626	6.28
B-7:10	0.009	2.94



4200B - 10 STREET N.E.
 CALGARY, ALBERTA
 T2E 6K3
 PHONE: (403) 250-1901

PROJECT: 500039-213
 P. O. : 13157
 DATE: 1985-08-01
 PAGE: 1 OF 1
 COPY: 1 OF 1

AGIP CANADA LTD.

3000, 350-7 AVENUE S.W.
 CALGARY, ALBERTA T2P 5M9

PROJECT: 500039-213
 P. O. : 13157

ORDER NUMBER: E1550-85

ATTN: E.S. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: DRILL CORE

SAMPLE NUMBER	FIRE ASSAY	
	AU GRAMS/M	AS GRAMS/M
B-7:11	0.015	4.36
B-7:12.5	0.017	3.34
B-7:14	0.015	6.72
B-7:15.5	0.014	5.23
B-7:17	0.009	4.89
B-7:18.5	0.003	3.87
B-7:20	0.003	3.68
B-7:21.5	0.003	3.42
B-7:22.8	0.01	3.92
B-7:25	0.004	3.64
B-7:26.5	0.002	3.92
B-7:28	0.003	4.23
B-7:28.4	0.006	5.33
B-7:28.7	0.014	3.61
B-7:30	0.01	3.07
B-7:31.5	0.004	2.25
B-7:34.1	0.01	4.24
B-7:35.6	0.004	4.23
B-7:37.2	0.003	3.06
B-7:40.2	0.002	1.89
B-7:43.2	0.004	3.56
B-7:44.7	0.003	4.01
B-7:46.3	0.006	3.57
B-7:48	0.003	2.31
B-7:49.5	0.002	0.83
B-7:51	0.003	0.12
B-7:52.5	0.004	0.08
B-7:54	0.003	0.29
B-7:55.5	0.006	0.04
B-7:57	0.004	0.25



4200B - 10 STREET N.E.
CALGARY, ALBERTA
T2E 6K3

PHONE: (403) 250-1901

19-AUG-85
PAGE: 4 OF 4
COPY: 1 OF 1

AUTHORITY: ALPPELE

AGIP CANADA LTD.
3000, 350-7 AVENUE S.W.
CALGARY, ALBERTA T2P 3M9

PROJECT: 500019-813
P. O. . 13187

WORK ORDER: 91850-85

ATTN: S.B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SIGNED: _____

C. Douglas Read
C. Douglas Read,
LABORATORY MANAGER

FOOTNOTES:

P=QUESTIONABLE PRECISION; *=INTERFERENCE; TR=TRACE; ND=NOT DETECTED;
IS=INSUFFICIENT SAMPLE; NA=NOT ANALYZED; MS=MISSING SAMPLE



4200B - 10 STREET N.E.
CALGARY, ALBERTA
T2E 6K3
PHONE: (403) 250-1901

ARCHIVED COPY

11-SEP-85
PAGE: 1 OF 3
COPY: 1 OF 1

AGIP CANADA LTD.
5000, 150-7 AVENUE S.W.
CALGARY, ALBERTA T2C 3M9

PROJECT: 000039-E13
P. N. : 13154

WORK ORDER: 8193D-85

ATTN: E.B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: DRILL CORE

SAMPLE NUMBER	ETFE ASSAY	FIRE ASSAY
	AU	AG
	GRAMS/M	GRAMS/M
B-8:70	0.216	3.73
B-8:71.5	0.132	3.01
B-8:73	0.236	2.86
B-8:74.5	0.163	3.06
B-8:76.8	0.098	0.55
B-8:79.9	0.014	0.07
B-8:81.5	<0.002	<0.02
B-8:83	0.004	<0.02
B-8:86	0.029	<0.02
B-8:89	0.005	<0.02
B-8:92	<0.002	<0.02
B-8:93.5	<0.002	<0.02
B-8:95	0.007	<0.02
B-8:96.3	0.003	<0.02
B-8:98	0.004	<0.02
B-8:99.5	0.002	0.08
B-8:101	0.003	0.13
B-8:102.5	0.004	<0.02
B-8:104	<0.002	<0.02
B-8:105.5	0.01	<0.02
B-8:107.05	0.004	<0.02
B-8:107.2	0.007	<0.02
B-8:108.5	0.007	<0.02
B-8:110	0.005	<0.02
B-8:111.5	0.002	0.09
B-8:112.3	0.003	0.33
B-8:114.7	0.007	3.2
B-8:115.3	0.003	1.16
B-8:116.4	<0.002	0.35
B-8:117	<0.002	2.71



4200B - 10 STREET N.E.
 CALGARY, ALBERTA
 T2E 6K3
 PHONE: (403) 250-1901

AGIP CANADA LTD. TORONTO

AGIP CANADA LTD.
 2000, 2007 AVENUE S.W.
 CALGARY, ALBERTA T2P 3M9

44-555-55
 PAGE: 2 OF 2
 DATE: 1 OF 3

PROJECT: SOWA-811
 P. O. 1-1189

WORK ORDER: 81-950-85

ATTN: S.B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: DRILL CORE

SAMPLE NUMBER	FIRE ASSAY	FIRE ASSAY
	AU GRAMS/M	AG GRAMS/M
B-8:112.5	0.007	3.05
B-8:120	0.004	2.79
B-8:121.5	0.009	2.41
B-8:123	0.011	4.55
B-8:124.2	0.044	3.53
B-8:126	0.053	2.25
B-8:128.6	0.21	5.2
B-8:131.7	0.089	2.23
B-8:134.7	0.1	2.01
B-8:136	0.116	2.75
B-8:143.9	0.024	3.94
B-8:146.9	0.021	3.81
B-8:150	0.006	2.69
B-8:153	0.004	2.81
B-8:154.5	0.008	2.69
B-8:156	0.011	3.25
B-8:162.2	0.014	4.73
B-8:165.2	0.005	2.25
B-8:168.2	0.017	3.35
B-8:171.3	0.004	2.16
B-8:174.3	0.072	2.1
B-8:177.3	0.084	1.39
B-8:180	0.053	0.98
B-8:181.5	0.021	1.56
B-8:183	0.011	1.85
B-8:184.5	0.012	1.27
B-8:186	0.02	1.14
B-8:187.5	0.003	0.53
B-8:189	0.011	0.56
B-8:190.5	0.013	0.46



4200B - 10 STREET N.E.
CALGARY, ALBERTA
T2E 6K3
PHONE: (403) 250-1901

11-SEP-85
PAGE: 4 OF 5
COPY: 1 OF 2

AGIP CANADA LTD.

3900 550-7 AVENUE S.W.
CALGARY, ALBERTA T2P 3P9

PROJECT: 900039-818
P. O. : 13189

WORK ORDER: 81920-85

ATTN: E. B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: DRILL CORE

SAMPLE NUMBER	FIRE ASSAY	FIRE ASSAY
	AU GRAMS/M	AG GRAMS/M
E-8:192	0.044	0.83
E-8:194.6	0.014	0.27
E-8:196	0.021	1.11
E-8:197.5	0.025	1.75
E-8:198.7	0.017	0.45
E-8:201.7	0.033	0.67
E-8:202.7	0.031	0.51
E-8:204.2	0.037	0.54
E-8:205.7	0.044	1.63
E-8:207	0.036	0.81
E-8:208.5	0.051	1.41
E-8:210	0.053	1.87
E-8:211.5	0.056	0.82
E-8:213	0.043	0.73
E-8:214.5	0.044	1.17
E-8:215	0.031	0.68
E-8:217.5	0.032	0.77
E-8:219	0.015	0.99
E-8:220.5	0.012	0.23
E-8:220.9	0.014	0.1
E-8:221.2	0.03	0.56
E-8:222.5	0.012	0.48
E-8:224	0.014	1.35
E-8:225.1	0.009	0.9
E-8:226.2	0.016	1.03
E-8:227.5	0.013	1.66
E-8:229	0.019	1.07
E-8:230.5	0.016	0.88
E-8:232	0.015	0.7
E-8:233.5	0.012	0.62



4200B - 10 STREET N.E.
 CALGARY, ALBERTA
 T2E 6K3
 PHONE: (403) 250-1901

11-SEP-80
 PAGE: 3 OF 3
 COPY: 1 OF 1

AUTHORITY: M. GUNTERLE

AGIP CANADA LTD.
 3000, 350-7 AVENUE S.W.
 CALGARY, ALBERTA T2P 1M7

PROJECT: 3000-7-313
 S. O. 7-1313

WORK ORDER: 81930-80

ATTN: E.B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: DRILL CORE

SAMPLE NUMBER	FIRE ASSAY	
	AU GRAMS/M	AG GRAMS/M
B-8:235	0.015	0.75
B-8:236.5	0.012	0.45
B-8:238	0.011	0.57
B-8:239.5	0.011	1.25
B-8:241	0.006	0.96
B-8:242.5	0.009	0.54
B-8:244	0.011	0.35
B-8:245.5	0.013	0.68
B-8:247	0.008	0.84
B-8:248.5	0.019	0.95
B-8:250	0.009	0.7

SIGNED: *C. Douglas Read*
 C. Douglas Read,
 LABORATORY MANAGER

FOOTNOTES:
 Q=QUESTIONABLE PRECISION; I=INTERFERENCES; T=TRACE; ND=NOT DETECTED;
 IS=INSUFFICIENT SAMPLE, RE-NOT ANALYZED, RE-MISSING SAMPLES
 SERVICES FOR THE EARTH AND ENVIRONMENTAL SCIENCE



4200B - 10 STREET N.E.
 CALGARY, ALBERTA
 T2E 6K3
 PHONE: (403) 250-1901

39-406-85
 PAGE: 1 OF 2
 COPY: 3 OF 2

AUTHORITY: M. AUFFERLE

AGIF CANADA LTD.
 3000, 350-7 AVENUE S.W.
 CALGARY, ALBERTA T2F 3N9

PROJECT: 500039-E14
 P. O. : 13184, 13185

WORK ORDER: 91730-85

ATTN: E.B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: DRILL CUTTINGS

S A M P L E N U M B E R	FIRE ASSAY	
	AU GRAMS/M	AG GRAMS/M
B-4 S:143.9	0.032	2.71
B-4 S:146.9	0.045	1.84
B-4 S:150	0.055	2.03
B-4 S:153	0.157	1.82
B-4 S:156	0.406	2.17
B-4 S:159.1	0.376	2.53
B-4 S:162.2	0.269	2.9
B-4 S:165.5	0.388	3.07
B-4 S:168.3	0.19	2.97
B-4 S:171.5	0.592	4.62
B-4 S:174.4	0.33	3.57
B-4 S:177.4	0.373	3.38
B-4 S:180.4	0.312	3.17
B-4 S:183.5	0.352	4.01
B-4 S:186.5	0.336	6.22
B-4 S:189.6	0.625	6.04
B-4 S:195.6	0.291	6.34
B-4 S:198.7	0.776	5.78
B-4 S:204.8	0.345	2.63
B-4 S:210.9	0.209	2.31
B-4 S:214.0	0.231	2.59
B-4 S:220.1	0.364	2.41
B-4 S:226.2	0.224	2.23
B-5 S:52.4	0.065	2.78
B-5 S:55.5	0.038	1.16
B-5 S:58.5	0.042	1.35
B-5 S:61.6	0.033	1.17
B-5 S:86	0.032	1.76
B-5 S:89	0.006	1.23
B-5 S:92	0.011	1.13



4200B - 10 STREET N.E.
CALGARY, ALBERTA
T2E 6K3
PHONE: (403) 250-1901

89-HUG-85
PAGE: 2 OF 2
COPY: 2 OF 2

AUTHORITY: M. SUPPERLE

AGIP CANADA LTD.
3000, 350-7 AVENUE S.W.
CALGARY, ALBERTA T2P 3N9

PROJECT: 500039-E14
P. O. : 13184, 13185

WORK ORDER: 81730-85

ATTN: E.B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: DRILL CUTTINGS

SAMPLE NUMBER	FIRE ASSAY	
	AU GRAMS/M	AG GRAMS/M
B-5 S:95.1	0.03	1.33
B-5 S:98.2	0.031	0.49
B-5 S:101.2	0.029	0.42
B-5 S:104.2	0.037	0.51
B-5 S:110.3	0.221	2.81
B-5 S:113.4	0.21	2.89
B-5 S:116.4	0.198	2.16
B-5 S:119.5	0.135	1.87

SIGNED: *C. Douglas*
C. Douglas Read,
LABORATORY MANAGER

FOOTNOTES:
P=QUESTIONABLE PRECISION; A=INTERFERENCE; TR=TRACE; ND=NOT DETECTED;
IS=INSUFFICIENT SAMPLE; NA=NOT ANALYZED; MS=MISSING SAMPLE



4200B - 10 STREET N.E.
CALGARY, ALBERTA
T2E 6K3
PHONE: (403) 250-1901

29-406-85
PAGE: 1 OF 3
COPY: 2 OF 2

AUTHORITY: M. AUPPERLE

AGIP CANADA LTD.
3000, 350-7 AVENUE S.W.
CALGARY, ALBERTA T2P 3N9

PROJECT: 500039-E14
P. O. : 13189

WORK ORDER: 81920-85

ATTN: E.B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: DRILL CUTTINGS

SAMPLE NUMBER	FIRE ASSAY	FIRE ASSAY
	AU GRAMS/M	AG GRAMS/M
B-6-S:18.9	0.036	6.65
B-6-S:22	0.073	6.54
B-6-S:25	0.014	2.87
B-6-S:28	0.071	4.43
B-6-S:40.2	0.203	2.02
B-6-S:43.3	0.267	3.48
B-6-S:46.3	0.211	4.16
B-6-S:49.4	0.226	4.12
B-6-S:52.4	0.215	2.39
B-6-S:55.5	0.106	1.51
B-6-S:58.5	0.319	4.74
B-7-S:34.1	0.003	3.93
B-7-S:37.2	<0.002	2.44
B-7-S:40.2	<0.002	1.69
B-7-S:43.3	0.003	2.85
B-7-S:46.3	0.013	2.84
B-7-S:55.5	0.004	0.08
B-7-S:58.5	0.004	0.19
B-8-S:31	0.044	1.53
B-8-S:34.1	0.12	4.65
B-8-S:43.3	0.128	4.26
B-8-S:46.3	0.184	3.75
B-8-S:49.4	0.173	4.17
B-8-S:52.4	0.257	4.39
B-8-S:55.5	0.256	2.53
B-8-S:58.5	0.224	2.13
B-8-S:61.6	0.146	2.53
B-8-S:64.6	0.142	2.61
B-8-S:76.8	0.061	0.74
B-8-S:79.9	0.033	0.91



4200B - 10 STREET N.E.
CALGARY, ALBERTA
T2E 6K3
PHONE: (403) 250-1901

30-AUG-85
PAGE: 2 OF 3
COPY: 3 OF 3

AUTHORITY: M. AUPPERLE

AGIP CANADA LTD.
3000, 350-7 AVENUE S.W.
CALGARY, ALBERTA T2E 3N9

PROJECT: 500039-E14
P. O. : 13189

WORK ORDER: 81930-85

ATTN: E.B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: DRILL CUTTINGS

S A M P L E N U M B E R	FIRE ASSAY	
	AU GRAMS/M	AG GRAMS/M
B-8-S:82.9	0.046	0.85
B-8-S:86	0.043	0.85
B-8-S:89	0.029	0.99
B-8-S:122.5	0.013	2.68
B-8-S:125.6	0.079	1.58
B-8-S:128.6	0.026	1.52
B-8-S:131.7	0.07	1.17
B-8-S:134.7	0.078	1.13
B-8-S:137.8	0.095	2.91
B-8-S:140.8	0.146	2.73
B-8-S:143.9	0.085	1.78
B-8-S:146.9	0.022	3.14
B-8-S:153	0.015	3.56
B-8-S:156	0.024	3.34
B-8-S:159.1	0.062	3.02
B-8-S:162.2	0.073	2.92
B-8-S:165.2	0.081	3.06
B-8-S:168.3	0.062	3.17
B-8-S:171.3	0.048	3.14
B-8-S:174.4	0.049	2.45
B-8-S:177.4	0.064	3.62
B-8-S:189.6	0.004	1.08
B-8-S:192.6	<0.002	1.17
B-8-S:195.7	0.051	1.32
B-8-S:198.7	0.009	1.2
B-8-S:201.8	0.017	4.13
B-8-S:304.8	0.026	8.05



4200B - 10 STREET N.E.
CALGARY, ALBERTA
T2E 6K3
PHONE: (403) 250-1901

39-403-85
PAGE: 3 OF 3
COPY: 2 OF 2

AUTHORITY: M. HUPPERLE

AGIP CANADA LTD.
3000, 350-7 AVENUE S.W.
CALGARY, ALBERTA T2P 3N9

PROJECT: 500039-E14
P. O. : 13189

WORK ORDER: 8192D-85

ATTN: E.B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SIGNED: _____

C. Douglas Read
C. Douglas Read,
LABORATORY MANAGER

FOOTNOTES:

P=QUESTIONABLE PRECISION; *=INTERFERENCE; TR=TRACE; ND=NOT DETECTED;
IS=INSUFFICIENT SAMPLE; NA=NOT ANALYZED; MS=MISSING SAMPLE



4200B - 10 STREET N.E.
 CALGARY, ALBERTA
 T2E 6K3
 PHONE: (403) 250-1901

AUTHORITY: M. ADPPEPLE

85-001-201
 PAGE: 1 OF 1
 COPY: 1 OF 2

AGIP CANADA LTD.
 3000 350-7 AVENUE S.W.
 CALGARY, ALBERTA T2P 3N9

PROJECT: 890039E-13
 P. O. : 1985

WORK ORDER: 82180-55

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: DRILL CORE

SAMPLE NUMBER	FIRE ASSAY:	FIRE ASSAY:
	AU GRAMS/MT	AG GRAMS/MT
B-1:134.0	1.51	6.04
B-1:48.5	0.68	2.45
B-1:180.5	0.473	0.85
B-2:13.9	0.022	0.93
B-2:192.5	0.014	4.8
B-3:86.0	0.011	0.23
B-3:99.5	0.012	0.46
B-4:98.0	0.747	1.7
B-4:195.3	0.773	4.26
B-4:155.7	0.995	4.26
B-4:201.7	1.15	3.29
B-4:204.8	0.81	4.75
B-5:46	0.395	1.11
B-5:117.7	0.325	5.5
B-6:25	0.021	0.28
B-6:29.3	0.03	2.31
B-6:58.6	0.598	1.15
B-6:61.1	0.477	5.77
B-7:26.5	0.008	3.15

SIGNED: _____

C. Douglas Read
 C. Douglas Read,
 LABORATORY MANAGER

OCT 25 1985

RECEIVED
 OCT 25 1985
REGISTERED

FOOTNOTES:

F=QUESTIONABLE PRECISION; *=INTERFERENCE; TR=TRACE; ND=NOT DETECTED;
 IS=INSUFFICIENT SAMPLE; NA=NOT ANALYZED; MS=MISSING SAMPLE

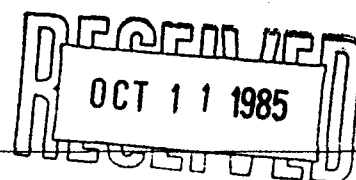
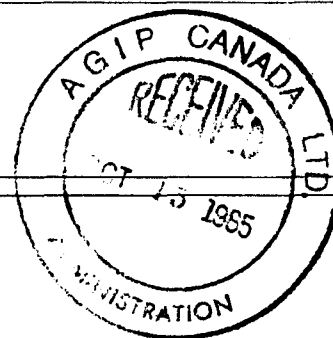
Bondar-Clegg & Company Ltd.
130 Pemberton Ave.
North Vancouver, B.C.
Canada V7P 2R5
Phone: (604) 985-0681
Telex: 04-352667



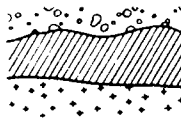
BONDAR-CLEGG

**Certificate
of Analysis**

DARRINGER MAGENTA LIMITED
M. MUPPERLE
AGIP CANADA LTD.
3000-350-7 AVE. S.W.
CALGARY, ALTA T2P 3N9



Bondar-Clegg & Company Ltd.
 130 Pemberton Ave
 North Vancouver, B.C.
 Canada V7P 2R5
 Phone: (604) 985-0681
 Telex: 04-352667



BONDAR-CLEGG

**Certificate
 of Analysis**

REPORT: 425-3080 (COMPLETE)

REFERENCE INFO:

CLIENT: BARRINGER MAGENTA LIMITED

SUBMITTED BY: C READ

PROJECT: NONE GIVEN

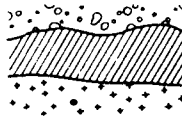
DATE PRINTED: 7-OCT-85

ORDER	ELEMENT	NUMBER OF ANALYSES	LOWER DETECTION LIMIT	EXTRACTION	METHOD
1	Au Gold - FIRE ASSAY	19	0.07 GMT		
2	Ag Silver	19	0.7 GMT		

SAMPLE TYPES	NUMBER	SIZE FRACTIONS	NUMBER	SAMPLE PREPARATIONS	NUMBER
P PREPARED PULP	19	4 AS REC'D	19	PULVERIZING	19

REPORT COPIES TO: MR. C. D. READ
 M. AUPPERLE

INVOICE TO: MR. C. D. READ



REPORT: 425-3090

PROJECT: NONE GIVEN

PAGE 1

SAMPLE NUMBER	ELEMENT UNITS	Au GMT	Ag GMT
------------------	------------------	-----------	-----------

P4 B1 34		2.81	7.5
P4 B1 48.5		1.03	2.7
P4 B1 180.5		0.72	1.7
P4 B2 18.9		<0.07	1.0
P4 B2 192.5		<0.07	4.8

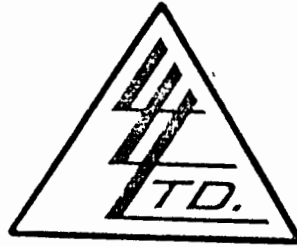
P4 B3 3.86		<0.07	0.7
P4 B3 99.5		0.07	1.0
P4 B4 9.8		1.23	1.7
P4 B4 195.3		1.23	4.5
P4 B4 198.7		1.89	5.8

P4 B4 201.7		1.44	7.9
P4 B4 204.8		1.17	5.1
P4 B5 46		0.62	1.4
P4 B5 117.7		0.38	5.5
P4 B6 25		0.07	0.7

P4 B6 29.3		0.07	1.0
P4 B6 58.6		0.86	1.4
P4 B6 61.1		0.72	6.2
P4 B7 26.5		<0.07	3.4

Quality Control

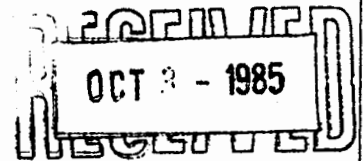
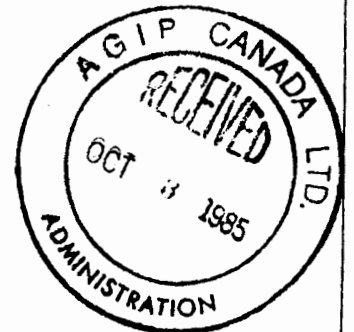
To: BARRINGER MAGENTA
 4200B - 10th Street N.E.,
 Calgary, Alberta T2E 6K3
 Attn: C.D. Read
 cc: M. Aupperle - AGIP Canada



File No. 27971
 Date October 1, 1985
 Samples Pulps

Certificate of
ASSAY of
LORING LABORATORIES LTD.

SAMPLE No.	GRAMS/TONNE GOLD	GRAMS/TONNE SILVER
<u>Pulp Samples</u>		
B1- 34	2.469	4.80
B1- 48.5	.309	1.71
B1-180.5	Trace	Trace
B2- 18.9	Trace	Trace
B2-192.5	Trace	1.03
B3- 86	.103	Trace
B3- 99.5	Trace	Trace
B4- 98	.960	3.43
B4-195.3	.171	4.46
B4-198.7	1.543	5.14
B4-201.7	.891	8.23
B4-204.8	1.200	5.83
B5- 46	.720	7.54
B5-117.7	.686	10.97
B6- 25	.103	3.77
B6- 29.3	Trace	7.89
B6- 58.6	.789	3.43
B6- 61.1	.617	8.57
B7- 26.5	Trace	3.43

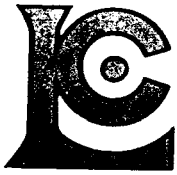


I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE
 ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES

Rejects Retained one month.

Pulps Retained one month
 unless specific arrangements
 made in advance

A. J.



Chemex Labs Ltd.

212 Brooksbank Ave.
North Vancouver, B.C.
Canada V7J 2C1

Analytical Chemists • Geochemists • Registered Assayers

Phone: (604) 984-0221
Telex: 043-52597

CERTIFICATE OF ASSAY

TO : BARRINGER MAGENTA LABORATORIES (ALBERTA) LTD. **

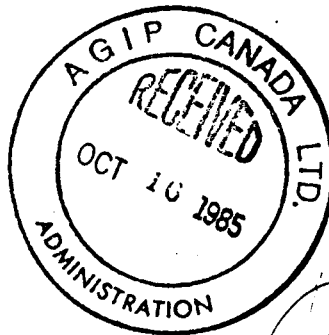
CERT. # : A8516798-001-A
INVOICE # : I8516798
DATE : 9-OCT-85
P.O. # : NONE

4200 B - 10TH ST. N.E.
CALGARY, ALBERTA
T2E 6K3

AGIP CANADA LTD
3000-350 7th AVE, S.W.
CALGARY, ALBERTA
T2P 3N9

VCC: MR. M. AUPPERLE

Sample description	Prep code	Ag g/tonne	Au g/tonne				
B1-34	214	8.8	2.64	--	--	--	--
B1-48.5	214	2.8	0.96	--	--	--	--
B1-180.5	214	1.0	0.62	--	--	--	--
B2-18.9	214	2.3	<0.07	--	--	--	--
B2-192.5	214	5.3	<0.07	--	--	--	--
B3-86	214	0.5	<0.07	--	--	--	--
B3-99.5	214	1.0	<0.07	--	--	--	--
B4-9.8	214	1.9	0.96	--	--	--	--
B4-195.3	214	4.7	0.82	--	--	--	--
B4-198.7	214	5.5	1.54	--	--	--	--
B4-201.7	214	7.5	1.37	--	--	--	--
B4-204.8	214	6.0	1.16	--	--	--	--
B5-46	214	1.7	0.62	--	--	--	--
B5-117.7	214	6.0	0.41	--	--	--	--
B6-25	214	0.8	<0.07	--	--	--	--
B6-29.3	214	2.8	<0.07	--	--	--	--
B6-58.6	214	1.3	0.82	--	--	--	--
B6-61.1	214	7.0	0.68	--	--	--	--
B7-26.5	214	3.0	<0.07	--	--	--	--



Stamp: RECEIVED OCT 10 1985

P. Stwaite

VOI rev. 4/85

Registered Assayer, Province of British Columbia

APPENDIX 6

Drill Hole Geochemistry Data

```

**      **      *****      *****      *****
****    ****    *****    *****    *****
***  ****  ***  ***  *****  ***  ****  ***
***  ***  ***  *****  *****  ***  ****  ***
***  ***  ***  *****  *****  ***  ****  ***
**      **      *****      *****      *****
*      *      *      *****      *      *      *

```

Midland Earth Science Associates	Maurette Resources & Services Ltd.
Conway House, Conway Street,	109 - 5621 - 11 Street N.E.
LONG EATON, NOTTINGHAM, U. K.	CALGARY, ALBERTA, CANADA
Phone NOTTINGHAM (0602) 725244	Phone (403) 295 - 1081
Telex 377538 MESAUK G	

Usercode: *MLT

File-code: ACL1

Multifiles:

File-code: ACL1A

Date: 26-SEP-85

File-code: ACL1B

Date: 26-SEP-85

Date 2 : 01-OCT-85

Maurette ref: CGY 43

Milton J. Aupperle

AGIP ref: 500039-E13

Asip Canada Limited
3000, 350-7th Avenue S.W.
Calgary
Alberta T2P 3N9

N.B.

1. Oxide data are quoted in weight percent oxide
2. Elemental data are quoted in parts per million
3. Values below the (2s) detection limit are quoted as zero

Var.\ID:	B-1 24.4	B-1 27.5	B-1 34	B-1 44	B-1 54.5	B-1 56
SI02	66.04	67.89	39.82	77.67	83.32	84.05
.203	19.46	16.56	8.30	11.68	10.76	9.60
FE203	3.59	4.33	14.61	3.96	1.95	1.73
MGO	1.80	0.72	6.71	0.83	0.39	0.50
IO	2.42	2.70	12.57	0.91	0.42	0.68
NA20	0.50	1.91	0.04	0.11	0.13	0.10
K20	4.23	4.36	1.39	2.09	1.51	1.61
Total	98.04	98.48	83.43	97.24	98.49	98.28
;	279	41	1247	235	180	206
BA	1369	1230	189	1679	1321	1472
CU	46	26	643	53	36	43
;	54	49	36	7	7	7
S	8442	3331	107551	19302	9523	8419
SB	18	2	116	46	24	21
!	77	59	3983	223	334	843

Var.\ID:	B-1 64.2	B-1 74	B-1 84.5	B-1 93.5	B-1 104	B-1 114
02	80.34	79.71	79.34	75.89	70.65	67.48
HL203	10.53	12.20	13.16	13.07	18.88	12.20
FE203	2.77	2.37	2.49	2.86	4.19	3.99
IO	1.45	0.46	0.42	0.38	0.77	0.57
LAO	1.48	0.40	0.35	0.20	0.22	4.55
NA20	0.04	0.10	0.10	0.15	0.03	0.03
IO	1.45	1.92	1.94	2.11	3.86	2.17
Total	98.06	97.15	97.79	94.67	98.58	90.99
AS	423	69	128	153	39	141
BA	1262	2145	2088	2207	1106	2202
;	42	32	33	26	84	54
FB	9	20	15	20	33	21
S	11986	7411	15584	17863	19202	23055
;	29	16	25	48	28	55
LN	235	247	402	124	649	1815

Var.\ID: B-1 124.3 B-1 134.5 B-1 144.5 B-1 157.3 B-1 164.4 B-1 174.5

	B-1 124.3	B-1 134.5	B-1 144.5	B-1 157.3	B-1 164.4	B-1 174.5
SI02	88.58	73.48	82.47	68.25	79.89	82.79
L203	4.11	8.31	6.61	10.38	12.10	9.85
FE203	3.98	8.53	6.56	6.76	3.91	2.78
MGO	0.31	0.41	0.31	0.72	0.46	0.35
AD	0.74	0.77	0.66	2.14	0.10	0.82
NA20	0.00	0.00	0.00	0.02	0.03	0.03
K20	0.60	1.49	1.15	1.82	2.11	1.71
Total	98.32	92.99	97.76	90.09	98.59	98.33
S	322	197	251	377	84	87
BA	497	2110	1630	3359	6420	5234
CU	57	98	75	88	96	77
B	301	27	15	16	10	12
J	10267	58759	37443	35000	21449	17218
SB	310	57	75	70	26	16
N	1402	584	468	1039	131	34

Var.\ID: B-1 180.5 B-1 184.5 B-1 194 B-2 18.9 B-2 28 B-2 38.5

	B-1 180.5	B-1 184.5	B-1 194	B-2 18.9	B-2 28	B-2 38.5
SI02	84.79	87.82	78.62	57.26	84.96	87.52
L203	8.89	6.95	14.14	10.65	5.51	6.51
FE203	3.00	2.70	3.11	21.51	3.68	2.79
MGO	0.26	0.17	0.41	0.34	0.50	0.18
AD	0.08	0.06	0.15	1.01	0.92	0.04
NA20	0.00	0.02	0.11	0.02	0.00	0.02
K20	1.48	1.15	2.36	0.69	0.88	1.13
Total	98.50	98.87	98.91	91.48	96.47	98.18
S	329	227	182	349	71	78
BA	4293	3471	5134	3058	2842	3439
CU	59	69	73	891	117	36
B	7	11	6	12	10	12
S	17136	13187	15803	11580	16215	15897
SB	47	66	104	42	7	9
N	34	22	117	2124	170	24

Var.\ID:	B-2 49	B-2 59.5	B-2 68.5	B-2 79	B-2 89.5	B-2 98.5
SI02	75.27	60.60	70.96	72.88	51.46	65.80
L203	13.24	10.61	12.56	14.55	13.43	19.54
FE203	4.11	10.84	10.67	6.53	21.36	3.76
MGO	0.42	2.19	0.91	0.99	2.15	0.75
AD	0.04	6.18	0.34	0.90	2.35	0.38
NA20	0.05	0.00	0.08	0.13	0.10	0.28
K20	2.25	1.73	2.11	2.37	2.00	2.82
Total	95.38	92.16	97.63	98.36	92.85	93.34
S	42	446	94	31	26	23
BA	4547	2996	3488	3533	2840	3763
CU	27	168	81	56	52	43
R	5	12	12	18	12	19
Q	32202	7547	6114	6158	2772	3036
SB	5	17	4	0	0	1
V	15	401	280	106	426	149

Var.\ID:	B-2 109	B-2 119.5	B-2 129.5	B-2 140	B-2 149	B-2 159.5
SI02	65.44	66.36	71.98	73.42	74.63	76.55
L203	20.69	23.87	15.93	11.98	13.09	12.94
FE203	4.48	3.47	5.58	2.38	4.81	2.79
AD	0.79	0.80	1.20	0.31	0.65	0.58
AD	0.31	0.27	1.40	0.14	0.36	0.50
NA20	0.34	0.41	0.34	0.15	0.16	0.18
Q0	2.86	2.94	2.14	1.86	1.97	1.98
Total	94.91	98.13	98.56	90.23	95.67	95.50
S	26	21	16	26	41	18
BA	3732	3700	2989	4125	3934	4458
CU	43	37	42	46	58	55
R	14	20	15	15	23	17
S	1569	2672	6855	10064	14771	7016
R	0	1	0	0	4	1
V	116	113	73	46	132	891

Var.\ID:	B-2 168.5	B-2 179	B-2 189	B-2 198.5	B-3 31.1	B-3 41.5
SI02	64.31	71.76	67.65	72.07	69.49	64.86
_203	17.17	12.89	15.23	13.27	20.97	21.27
FE203	3.26	6.06	6.60	4.63	3.23	7.54
MGO	0.61	0.90	0.99	1.10	0.41	0.52
AO	0.17	1.84	2.58	2.51	0.05	0.11
NA20	0.19	0.10	0.14	0.13	0.20	0.27
K20	2.74	1.73	2.09	1.92	3.04	2.98
Total	88.44	95.27	95.29	95.61	97.39	97.55
S	24	24	40	7	27	35
BA	6566	8197	6879	6252	4070	3641
CU	53	58	70	46	158	89
S	15	18	15	9	49	27
S	5507	30851	39861	10408	8492	4592
SB	0	6	0	0	39	1
I	153	216	146	137	0	130

Var.\ID:	B-3 52.5	B-3 61.5	B-3 71.3	B-3 81.5	B-3 86	B-3 90.5
IO2	66.83	63.63	64.47	65.58	66.72	68.88
AL203	19.69	22.38	22.51	21.92	22.95	18.70
FE203	6.02	4.25	4.03	3.74	2.92	2.87
IO	0.36	0.57	0.69	0.69	0.65	0.42
LAO	0.14	0.17	0.23	0.26	0.22	0.61
NA20	0.19	0.34	0.36	0.36	0.40	0.28
IO	2.82	2.90	2.90	2.65	2.83	2.68
Total	96.05	94.24	95.20	95.20	96.68	94.43
AS	50	42	12	22	16	24
BA	3379	3439	3828	3484	3904	4097
I	170	50	36	34	40	63
FB	30	24	13	15	17	19
S	11799	7427	1331	3493	1096	8137
S	0	0	0	0	0	1
ZN	140	166	174	110	148	91

Var.\ID:	B-4 3.7	B-4 9.8	B-4 19	B-4 30	B-4 39	B-4 50
SI02	66.31	65.51	63.26	62.08	70.44	67.87
L203	22.88	22.61	16.38	20.84	16.25	13.72
FE203	3.30	1.88	4.03	5.26	3.85	2.77
MGO	0.54	0.60	1.01	1.44	0.58	0.56
LAO	0.14	1.01	2.82	0.88	0.06	2.02
NA20	0.11	0.00	1.78	0.31	0.33	1.80
K20	3.21	2.93	3.42	3.98	3.29	4.07
Total	96.49	94.54	92.70	94.79	94.80	92.81
S	369	331	77	133	696	59
BA	439	412	1021	2115	2094	939
CU	38	34	32	77	43	13
B	50	63	55	17	25	39
S	3566	26848	11256	42424	20097	2855
SB	44	71	0	21	44	1
N	178	64	109	199	51	121

Var.\ID:	B-4 60.5	B-4 71	B-4 81	B-4 90.5	B-4 99.5	B-4 110
SI02	79.77	82.10	66.41	66.11	64.78	65.50
L203	8.94	9.95	18.16	17.69	17.77	15.74
FE203	4.08	2.71	3.80	3.29	4.10	3.15
MGO	1.60	0.52	0.56	0.59	0.94	0.62
LAO	2.25	0.12	1.29	2.28	3.58	2.79
NA20	0.11	0.06	1.57	1.95	2.34	2.07
K20	1.75	2.15	4.36	4.68	3.80	4.59
Total	98.50	97.61	96.15	96.60	97.30	94.45
S	51	208	123	290	6	7
BA	1118	1168	1169	1091	960	971
CU	63	93	65	34	29	33
B	23	18	55	51	47	46
S	20091	11028	9365	8757	9842	5314
SB	15	17	13	5	2	2
N	529	106	152	177	41	82

Var.\ID:	B-4 120	B-4 130	B-4 139.1	B-4 142.7	B-4 150	B-4 159.1
SI02	80.79	80.10	76.30	74.93	82.25	80.49
_203	11.59	13.15	15.27	9.98	8.51	6.10
FE203	2.73	2.34	2.85	5.82	4.02	3.48
MGD	0.85	0.57	0.87	0.90	0.17	0.20
30	0.49	0.22	0.95	1.20	0.18	0.37
NA20	0.30	0.28	0.07	0.06	0.02	0.00
K20	1.83	2.15	2.16	1.05	0.99	0.72
Total	98.58	98.81	98.47	93.93	96.14	91.36
3	15	14	387	133	246	528
BA	1419	1789	2116	1232	896	355
CU	47	36	36	49	46	49
3	10	9	30	13	17	30
S	7365	6616	18625	24943	12551	29463
SB	0	6	59	24	42	97
I	226	581	299	1049	746	359

Var.\ID:	B-4 162.2	B-4 171.3	B-4 180.4	B-4 185.9	B-4 195.3	B-4 198.7
102	89.67	71.04	80.49	78.79	83.34	75.85
HL203	4.50	7.73	6.66	6.93	6.47	11.44
FE203	3.88	7.71	4.09	4.19	4.56	4.47
30	0.10	0.22	0.25	0.21	0.14	0.49
LAD	0.11	1.84	0.62	1.33	1.16	0.60
NA20	0.00	0.00	0.00	0.00	0.00	0.00
30	0.66	1.14	1.12	1.07	0.83	1.91
Total	98.93	89.67	93.23	92.52	96.50	94.76
MS	288	1039	674	955	1203	1343
BA	745	1087	1484	1592	836	2878
I	96	86	46	57	78	65
SB	21	25	15	18	9	8
S	21883	68629	30594	35406	34690	33404
3	34	165	78	148	317	344
LN	2534	943	260	306	411	515

Var.\ID:	B-4 201.7	B-4 207.8	B-4 218.9	B-4 226.1	B-5 30	B-5 40
SI02	79.83	88.07	68.39	85.78	52.61	65.57
AL203	8.88	4.06	7.60	7.19	2.03	21.73
FE203	5.02	2.19	13.53	4.53	13.26	3.12
MGO	0.30	0.10	0.30	0.19	12.73	0.69
CAO	0.50	0.91	0.90	0.08	11.82	0.04
NA2O	0.02	0.00	0.03	0.00	0.00	0.03
K2O	1.36	0.50	0.84	1.10	0.20	4.71
Total	95.92	95.83	91.59	98.87	92.64	95.90
S	885	142	111	50	192	213
BA	2036	763	2472	2431	107	1093
CU	58	36	50	48	1015	15
B	17	8	12	5	14	43
S	44574	11613	14919	26690	33975	1619
SB	283	59	11	10	14	61
N	342	315	2469	59	729	274

Var.\ID:	B-5 50.5	B-5 60	B-5 70.5	B-5 79.8	B-5 89	B-5 98.1
IO2	66.53	67.88	59.05	65.55	79.17	85.39
AL203	22.10	20.86	19.46	21.99	13.64	8.78
FE203	3.10	3.96	4.82	3.60	2.54	1.72
MGO	0.59	0.57	0.92	0.80	0.32	0.43
CAO	0.04	0.06	0.61	0.09	0.07	0.38
NA2O	0.02	0.02	0.21	0.05	0.11	0.06
K2O	4.23	3.92	4.69	4.70	2.29	1.25
Total	96.63	97.27	89.77	96.80	98.15	98.01
AS	171	296	281	333	50	95
BA	715	589	1434	1071	1710	1003
CU	15	20	55	92	37	29
SB	53	35	45	98	25	11
S	1263	5485	12895	6106	14389	9481
SB	100	53	30	96	26	19
ZN	229	201	677	272	116	792

Var.\ID: B-5 108.8 B-5 117.7 B-6 12.8 B-6 19.6 B-6 22 B-6 30.5

SI02	87.91	85.57	69.20	67.04	63.83	69.76
_L203	5.33	3.08	21.06	22.21	21.35	21.30
FE203	2.27	6.09	3.45	2.97	6.63	3.19
MGO	0.12	0.05	0.71	0.55	1.10	0.72
AD	2.04	0.08	0.52	0.25	0.35	0.46
NA20	0.00	0.00	0.02	0.00	0.08	0.00
K20	0.71	0.51	3.38	3.94	3.57	3.47

Total	98.40	95.41	98.35	96.96	96.90	98.92
-------	-------	-------	-------	-------	-------	-------

3	624	615	151	145	279	120
BA	658	707	493	767	1347	463
CU	60	60	31	63	50	30
3	19	16	110	124	17	34
S	11732	39233	12325	13355	26407	11954
SB	141	149	25	59	17	35
V	1604	814	170	191	276	143

Var.\ID: B-6 32 B-6 41.8 B-6 52 B-6 57.6 B-6 58.6 B-6 61.1

ID2	66.33	63.44	60.54	65.54	68.36	61.48
AL203	22.40	22.53	19.59	22.69	20.51	20.60
FE203	4.70	4.22	6.64	5.23	3.91	6.24
30	0.58	1.05	1.57	0.74	1.39	1.66
CA0	0.30	0.88	2.94	0.37	1.64	3.01
NA20	0.00	0.10	0.11	0.16	0.04	0.09
20	3.79	3.91	3.40	3.98	3.51	3.33

Total	98.11	96.14	94.79	98.71	99.37	96.41
-------	-------	-------	-------	-------	-------	-------

AS	178	352	337	158	215	744
BA	487	1566	1452	1810	872	1351
J	61	26	43	37	14	38
FB	35	18	16	37	25	18
S	13793	20923	29056	32326	14751	31543
3	35	50	43	47	30	73
ZN	368	183	189	161	108	155

Var.\ID:	B-7 10	B-7 20	B-7 30	B-7 40.2	B-7 51	B-7 57
SI02	85.77	76.36	88.28	86.70	75.81	75.54
_L203	4.54	5.46	3.50	6.27	13.43	12.38
FE203	3.48	3.93	3.96	4.76	3.55	3.83
MGO	0.13	0.14	0.06	0.12	0.36	0.33
AD	0.33	5.13	0.05	0.14	0.07	0.12
NA20	0.00	0.00	0.00	0.00	0.12	0.09
K20	0.71	0.89	0.69	0.82	2.09	1.93
Total	94.97	91.93	96.54	98.82	95.42	94.23
3	28	43	39	168	26	32
BA	1146	1327	923	781	1839	1613
CU	72	69	77	137	38	29
3	5	13	14	10	10	13
S	2913	4038	6224	5433	23476	17958
SB	8	31	42	61	14	6
4	3	76	0	17	140	442

Var.\ID:	B-8 15.1	B-8 25	B-8 35.3	B-8 46.3	B-8 56.9	B-8 65.5
ID2	65.50	66.08	80.13	73.42	68.92	76.89
AL203	20.39	20.76	10.16	11.28	9.45	10.83
FE203	3.17	3.29	4.65	4.02	5.23	3.21
30	0.54	0.77	0.68	0.57	0.52	0.60
CA0	0.09	0.10	0.56	0.44	0.56	0.68
NA20	0.00	0.04	0.02	0.00	0.00	0.06
20	3.74	4.22	1.77	1.74	1.53	1.70
Total	93.43	95.25	97.96	91.49	86.22	93.97
AS	176	189	464	399	216	158
BA	489	865	1007	1144	1157	1423
I	35	53	53	32	40	32
FB	287	48	17	14	24	12
S	7870	14833	16156	15916	20244	15283
3	104	64	263	223	103	88
LN	126	55	392	306	465	738

Var.\ID:	B-8 74.5	B-8 86	B-8 95	B-8 105.5	B-8 115.8	B-8 126
SI02	79.17	79.15	74.08	76.13	43.02	83.12
L203	11.85	12.74	12.35	15.03	12.36	9.04
FE203	3.63	3.88	6.43	3.62	26.34	2.53
MGO	0.84	0.35	1.36	0.43	0.30	0.20
AO	0.89	0.12	1.03	0.20	7.65	0.10
NA20	0.06	0.05	0.06	0.13	0.28	0.04
K20	1.74	1.49	1.66	2.27	1.46	1.40
Total	98.17	97.78	96.98	97.82	91.42	96.43
B	141	63	44	28	68	86
BA	1237	1154	1363	2155	2590	1327
CU	31	55	41	34	53	91
B	14	13	21	14	19	11
S	19856	26249	42988	22077	30054	20871
SB	141	25	12	7	51	70
V	364	430	247	217	18477	3746

Var.\ID:	B-8 134.7	B-8 146.9	B-8 156	B-8 165	B-8 174.3	B-8 184.5
ID2	84.22	78.92	80.33	84.27	83.40	78.09
AL203	7.23	9.02	8.52	7.61	5.72	7.87
FE203	5.89	6.52	6.46	4.08	5.85	6.74
30	0.07	0.29	0.30	0.26	0.19	0.27
CA0	0.09	0.32	1.34	0.76	1.01	1.75
NA20	0.00	0.02	0.02	0.00	0.15	0.03
20	0.82	1.47	1.35	1.21	0.93	1.31
Total	98.33	96.56	98.34	98.20	97.25	96.05
AS	156	46	29	28	89	74
BA	790	2267	2320	2517	2137	3166
J	155	101	106	93	91	88
FB	9	13	10	11	7	13
S	7378	44317	43995	27880	30347	44243
3	60	18	12	2	11	5
LN	837	94	141	55	32	337

Var.\ID:	B-S 194.6	B-S 205.7	B-S 216	B-S 225.1	B-S 235	B-S 245.5
SI02	80.14	83.58	80.67	78.79	70.29	69.64
AL203	10.53	6.80	10.96	13.88	16.58	20.36
FE203	4.94	6.48	4.22	3.03	5.98	3.72
MGO	0.34	0.17	0.32	0.34	0.45	0.66
CAO	0.16	0.08	0.09	0.11	0.16	0.20
NA2O	0.03	0.02	0.06	0.10	0.18	0.25
K2O	1.68	1.02	1.81	2.28	2.77	2.96
Total	97.82	98.16	98.13	98.52	96.41	97.78
AS	46	65	44	30	43	19
BA	6838	4806	4922	4513	4505	5174
CU	111	174	103	81	90	50
FR	11	18	10	20	21	21
S	19687	14495	19975	2570	3074	4987
SB	0	10	2	0	1	2
ZN	146	235	39	91	152	142

APPENDIX 7

X-Ray Diffraction Data

19 Sept., 1985

M.J. Aupperle
AGIP Canada Ltd.
3000-350 7th Ave. SW
Calgary, Alta.
T2P 3N9

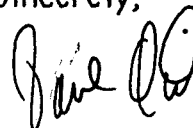
Dear Milton:

The XRD mineralogical analysis results for the 4 core samples listed on your sample analysis form #07087 are as follows:

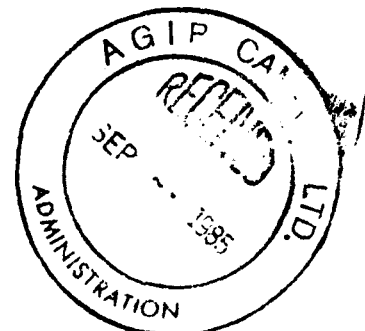
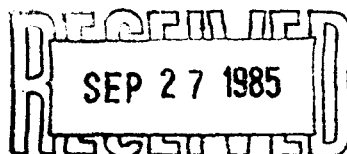
- B-4-17.0 white accicular, translucent mineral =
epsomite $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$
- B-7-48 accicular mineral =
alunogen $\text{Al}_2(\text{SO}_4)_3 \cdot 17\text{H}_2\text{O}$ with
melanterite $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$, graphite and trace illite
- B-8-123.5 quartz plus siderite (+/- borax?)
no barite present
- B-8-26.5 whole rock: illite plus quartz (iron stained)
pale green soft mineral = melanterite (see B-7-48)

Please note that most of the sulfates are water-soluble and are probably very recent. The epsomite, alunogen and melanterite could be synthetics derived from the combination of drilling materials and the host rock.

Sincerely,



David H. Quirt



7/11/61

AGIP CANADA LTD.

PEAK AREA AND CLAY PROPORTION DATA 07-NOV-85

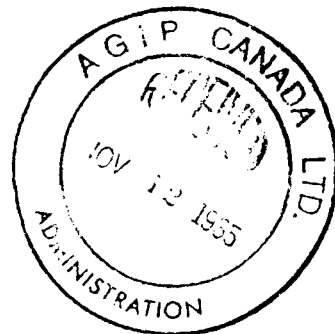
	I+C+K= 100					I= 100					KUBLER	ZCL
	I	C	K	I001	I002	I	C	K	Q	H		
B-1-70.5	100	0	0	100	39	100	0	0	0	0	4.6	5
B-1-127.0	100	0	0	100	30	100	0	0	0	0	5.7	4
B-1-128.5	100	0	0	100	32	100	0	0	0	0	5.0	4
B-2-181.8	99	1	0	100	33	100	1	0	0	0	7.3	4
B-3-61.5	97	3	0	100	30	100	3	0	0	0	9.4	6
B-4-13	99	0	1	100	46	100	0	1	0	0	6.6	8
B-4-27.5	99	0	1	100	33	100	0	1	0	0	6.4	11
B-4-46.5	84	16	0	100	24	100	19	0	0	0	8.8	11
B-4-117	89	11	0	100	32	100	12	0	0	0	6.0	12
B-4-192.6	100	0	0	100	32	100	0	0	0	0	6.0	5
B-6-41.8	96	0	4	100	44	100	0	4	0	0	5.7	20
B-7-51	98	1	0	100	26	100	2	0	0	0	6.9	5
M-21-85	100	0	0	100	40	100	0	0	0	0	5.7	13

END OF DATA INPUT

- notes:
- B-4-46.5 contains substantial amounts of pyrochlore
 - B-4-117 contains some pyrochlore
 - B-4-192.6 contains moderate amounts of hematite
 - B-2-128.5 does not contain alunite*
 - B-1-127.0 does not contain alunite* - possibly a K-Al sulfate hydroxide or a Ca-Al sulfate hydroxide
 - B-4-13 does not contain alunite, realgar*
 - B-2-181.8 possibly contains some dolomite
 - B-3-61.5 possibly contains some siderite

*at the level of detection of this method

JWC



APPENDIX 8

Petrographic Reports



Vancouver Petrographics Ltd.

JAMES VINNELL, Manager
JOHN G. PAYNE, Ph. D. Geologist

P.O. BOX 39
8887 NASH STREET
FORT LANGLEY, B.C.
VOX 1J0

PHONE (604) 888-1323

Invoice 5356

Report for: Milton J. Aupperle,
Agip Canada Ltd.,
First Canadian Centre,
3000, 350 - 7th Avenue S.W.,
Calgary, Alberta,
T2P 3N9.

September 6, 1985

Samples: B-1 - 34.3, 43.15, 127.3, 180.5;
B-2 - 182.8;
B-4 - 14.2, 26.5, 74.1, 116.4, 168.0, 186.0;
B-7 - 14.1, 25.0, 29.3, 52.4;
B-8 - 24.3, 215.1.

Summary:

The samples are a suite of carbonaceous - pyritic shales, and associated rocks, which have been altered and mineralized in various ways; there are also three samples of porphyritic intrusive/subvolcanic rocks, two of which are altered.

Some of the pyritic rocks contain pyrite which is syngenetic; others contain pyrite which has clearly been introduced, probably as a result of remobilisation of the syngenetic pyrite. The porphyries are a likely source of heat and mineralizing fluids, which are dominated by quartz.

Apart from pyrite, the dominant sulphide is sphalerite. This is usually associated with quartz, but very fine sphalerite disseminated in the shales with pyrite may also be syngenetic. In one quartzitic sample the sphalerite is intergrown with stibnite. One sample contains disseminated realgar. Small amounts of chalcopyrite are often associated with sphalerite. No other sulphides, arsenides or halides were recognised.

Minor amounts of carbonate alteration have occurred in some of the rocks; one sample is a pyritic limestone which may be a complete replacement. Alunite occurs in one of the porphyries.

The rock types and alteration are summarised overleaf.

A. L. Littlejohn, M.Sc.

SUMMARY OF ROCK TYPES.

A) PORPHYRIES: B-4-14.2, B-4-26.5, B-8-24.3.

B-4-26.5 is an unaltered quartz-monzonite porphyry consisting of plagioclase, biotite and quartz phenocrysts (plagioclase dominant) in a K-spar and quartz groundmass. Pyrrhotite is a major accessory.

B-4-14.2 is a granite porphyry consisting of a graphic-like intergrowth of quartz and feldspar (K-spar) with a few quartz and feldspar phenocrysts. The feldspar has been pervasively and highly altered with sericite. Alunite occurs in patches in the altered feldspar and in veinlets.

B-8-24.3 is a quartz-diorite porphyry consisting of quartz phenocrysts in a plagioclase groundmass. Moderate pervasive sericite alteration of the feldspar has occurred.

B) CARBONACEOUS - PYRITIC SHALES: B-1-43.15, 180.5, 182.8; B-4-74.1, 116.4; B-7-25.0, 52.4.

These samples are finely layered sediments consisting mainly of extremely fine sericite, graphite and pyrite; B-1-180.5 and B-4-74.1 are siliceous indicating a cherty component in the depositional system; sample B-4-116.5 contains a cherty band. Fine quartz and quartzite clasts occur in B-1-180.5, B-7-52.4 and B-4-116.4. B-7-25.0 and B-7-52.4 are banded shales in which bands 1 to 3mm in width are highly graphitic and alternate with less graphitic bands; sample B-1-180.5 is finely banded.

The pyrite in samples B-7-25.0, B-7-52.4 and B-1-180.5 (banded shales) forms extremely fine grains disseminated throughout and concentrated in thin bands. Spherical aggregates and larger cubic grains also occur. This pyrite appears to be mainly syngenetic. Pyrite in the other shale samples has been either remobilised or introduced. The grains are ragged, full of fine inclusions and concentrated in patches and streaks; some are associated with quartz veins. In sample B-4-116.4 particularly, pyrite porphyroblasts show zonal growth and the graphitic layering may pass through the grains as a line of fine inclusions.

Samples B-1-43.15, B-4-74.1 and B-4-116.4 are altered. In the latter two samples alteration is associated with fine quartz veins. The main result of this is the development of a bleached zone one or two millimeters wide around the vein; most of the graphite has been oxidised, otherwise no apparent change in the fabric has occurred. Sample B-1-43.15 is a completely bleached shale with little graphite; some of the pyrite occurs concentrated in a patch but otherwise it appears unaltered.

Sample B-4-116.4 shows further effects of alteration. Pyrite forms porphyroblasts described above; pyrite is also concentrated in the cherty band. Sphalerite occurs in the vein. Realgar is disseminated in the shale. Fine quartz clasts have been partly replaced by carbonate. Chlorite has formed in association with sericite in the chert band and the bleached zone.

SUMMARY OF ROCK TYPES (cont.)

C) SILICIFIED CARBONACEOUS SHALES: B-1-127.3, B-4-186.0.

These samples consist mainly of quartz with small fragments of shale and diffuse patches and wisps of graphite. Sample B-4-186.0 contains small amounts of sphalerite and pyrite intergrown with the quartz but most of the pyrite has been deposited in the shale and graphite fragments. Sample B-1-127.3 contains sphalerite, pyrite and stibnite. The stibnite is closely associated with sphalerite, forming small patches around it. Both are contained in interstitial patches of calcite. Most of the pyrite occurs in the quartz or graphitic whips but some is also associated with the carbonate. The carbonate patches are sometimes associated with alunite.

D) HIGHLY CARBONACEOUS SHALE WITH QUARTZ VEINLETS: B-4-168.0, B-7-14.1,
B-7-29.3.

This samples are rather compact shales which are highly graphitic. The graphite is so dominant and so finely intermixed with silicates that the nature of the silicate is not clear; I suspect that they are cherty shales. There is a criss-crossing system of fine quartz veinlets. In sample B-7-29.3 there is also a patch of quartz which has incorporated graphite into it, forming colloform patches. Extremely fine pyrite and sphalerite are present in the shaley parts of the rocks but are rare in the samples from B-7; in sample B-4-168.0 sphalerite occurs in the quartz veins and pyrite is disseminated in the shale.

E) CARBONACEOUS CHERT: B-8-215.1.

This sample is a chert consisting of fine quartz with a fine streaky layer-like network of graphite within it. Fine pyrite occurs in the graphite. There is also a pyritic layer which consists of pyrite cubes crowded within fine quartz.

F) LIMESTONE WITH PYRITE: B-1-34.3.

This sample consists mainly of calcite and pyrite. The pyrite is disseminated, sometimes in streaks and thin layers within the carbonate. About half of the carbonate forms small clear grains which grade into diffuse patches of very fine grains which contain the pyrite. There is a vein of this carbonate and this is full of pyrite; patches of sphalerite occur near the vein and are surrounded by pyrite.

B-1-127.3: SILICIFIED CARBONACEOUS SHALE.

This sample consists of mainly of quartz with small patches of remnant carbonaceous shale along with diffuse patches, whisps and discontinuous veinlets of graphite derived from the shale. Carbonate fills spaces between the quartz veins and is associated with sphalerite, some pyrite and stibnite; alunite (?) is also present. The shale is extremely fine grained and consists mainly of graphite with lesser amounts of quartz; clasts are not present. Minerals are:

quartz	72%
shale	8 (graphite and quartz)
graphite (vein)	6
calcite	6
sericite	2
alunite (?)	2
pyrite	2
sphalerite	2
stibnite	minor
Mn-oxide	trace

Quartz forms subidiomorphic to shapeless interlocking grains which are mostly 1 to 3mm in size. It is highly strained and there are small patches and thin zones in which the quartz has recrystallised to shapeless grains less than 0.1mm in size. It is rather dirty with submicroscopic included graphite. Small diffuse patches, thin whisps and discontinuous veinlets of extremely fine, massive graphite occur between and partly within the quartz throughout the section. The diffuse patches of graphite are mainly close to patches of shale, a few millimeters in size, which are cut by a closely spaced system of quartz veinlets up to 0.3mm in width which pass into the more massive quartz.

Carbonate (calcite) mineralization followed the silicification. There are subrounded and vein-like patches a few millimeters in size in which idiomorphic quartz grains about 0.5mm in size have formed. These are cemented by calcite (which forms the bulk of the patches). Around the calcite grains (subrhombic, 0.1 to 0.5mm in size) and some of the quartz grains there is a thin network of very fine alunite (? - perhaps jarosite). Calcite also forms very fine grains in thin diffuse veinlets between and within the quartz. In these is is sometimes associated with sericite. Extremely fine sericite occurs in small patches and thin zones adjacent to the shale or in dirty quartz. In one of the shale patches sericite (and calcite) have replaced parts of the shale, leaving a coarse network of shale around the sericite. In one patch of carbonate, partly within shale, there is a vein-like patch of Mn-oxide about 0.5mm wide.

(continued)

B-1-43.15: PYRITIC SHALE.

This sample is a very fine grained sediment consisting mainly of sericite and pyrite. There is a thin bed in which extremely fine quartz is intergrown with the sericite. There is a thin bed in which streaky patches of graphite are present. More graphite may have been present, as in most of the shales of this suite, but has been bleached out; however there is no clear evidence for this in the section. Minerals are:

sericite	74%
pyrite	15
graphite	8
quartz	3
chalcopyrite	trace
sphalerite	trace

The bulk of the rock consists of a compact streaky mass of sericite with grain size less than 0.005mm. Within this there is layer about 1mm wide in which ragged, diffuse patches of quartz up to 0.2mm in size are intergrown with the sericite. Grain size of the quartz is less than 0.002mm. There is also a layer about 2mm wide in which diffuse, streaky patches of extremely fine graphite are intimately intergrown with the sericite. The sericite is slightly coarser in this layer. Patches are up to 0.5mm in size. Very thin whisps of graphite, up to 0.3mm in length occur throughout the mass of sericite.

Pyrite forms rounded to subcubic grains 0.005 to 0.05mm in size which are disseminated throughout the rock. Aggregates and clusters of a few occur in places. Pyrite also occurs along seams up to 0.05mm in width which are graphitic; fine pyrite occurs in the graphitic whisps. The graphitic layer is crowded with pyrite and it is coarser with many grains up to 0.2mm in size. These are "dirty" with fine sericite inclusions. Pyrite is also concentrated in part of an ovoid patch about 6mm in size which is crowded with the coarser pyrite grains. There is no graphite in this patch; perhaps it has been bleached out ?

Chalcopyrite forms subrounded grains 0.002 to 0.05mm in size which are scattered amongst the pyrite concentrations, often occurring adjacent to the pyrite grains and aggregates. Sphalerite also occurs in this manner.

B-1-34.3: LIMESTONE WITH PYRITE.

This sample consists mainly of an intergrowth of fine calcite and pyrite. The pyrite grains are somewhat elongated and may be concentrated along thin layers; they lie parallel to these. It is possible that this could be a completely altered shale (or other rock) and the alignment of the pyrite reflects the original bedding. Some of the carbonate (and pyrite) occurs in a vein cutting across this structure; the contacts are not sharp in section and the pyrite along the layers appears to have been introduced from the vein. However there is no sign of any relict texture or mineralogy. Minerals are:

calcite	78%
pyrite	20
sericite	2
sphalerite	minor
chalcopyrite	trace
quartz	trace
K-spar	trace
stibnite	rare

The calcite forms subhedral to shapeless grains about 0.2mm in size which grade into diffuse patches of much finer (0.02mm) grains giving the appearance of a cement around them. Both types occur in about equal amounts. The larger calcite grains are clear while the smaller are rather cloudy and dirty, due in part to extremely fine pyrite, but this carbonate may be Fe-bearing (?). The fine cloudy carbonate is dominant in the vein and has clearly been introduced. Could the original rock have been a limestone which has been altered by carbonate and pyrite ??

Pyrite forms ragged elongated grains and aggregates 0.1 to 0.3mm in length which coalesce into thin streaks up to 1mm in length. There are also many much finer rounded to cubic grains scattered between the larger ones. The pyrite is disseminated evenly throughout the rock but in places there is a more or less massive concentration in layers about 0.3mm in width. The pyrite tends to occur within the patches of cloudy carbonate. In one layer the pyrite is intergrown with sericite.

The vein is about 2mm wide and consists largely of a mass of fine cloudy calcite intimately intergrown with ragged pyrite grains and aggregates. Very fine sericite is intergrown with the calcite and pyrite. The pyrite tends to be concentrated at the edges. There is a small patch of fine quartz associated with a spherical patch of K-spar about 0.2mm in size.

Most of the sphalerite occurs in or close to the vein. It forms rounded to shapeless grains 0.1 to 0.5mm in size and usually occurs in clusters of a few grains. Very fine sphalerite grains are scattered throughout the rock. The sphalerite is often surrounded by pyrite. Very fine chalcopyrite inclusions occur along crystallographic directions in many of the sphalerites. Pyrite also occurs sometimes and one thin elongated stibnite inclusion occurs associated with chalcopyrite. Shapeless grains and aggregates of chalcopyrite less than 0.05mm in size occur near the sphalerite; small subrounded grains may occur adjacent to it.

B-1-127.3 (cont.)

As well as the patches of quartz, calcite, sericite and alunite there are several subangular interstitial patches 0.5 to 2.0mm in size which consist of calcite intimately intergrown with sulphides. Sphalerite is the main phase in these and forms subrounded to subangular grains 0.2 to 0.8mm in size. In one larger patch there are also cubic to rounded pyrite grains 0.05 to 0.2mm in size which also occur in aggregates. The sphalerite is partly surrounded by angular or shapeless grains of stibnite up to 0.5mm in size. Thin fractures are filled with stibnite. Some stibnite cements small clusters of pyrite. The calcite is crowded with elongated stibnite about 0.1mm in size. A few small calcite patches and veinlets contain fine stibnite only.

As well as occurring in the calcite patches, much of the pyrite is associated with the graphitic patches and wispy veinlets; it is also scattered between the quartz grains throughout the section.

B-1-180.5: CARBONACEOUS, SILICEOUS SHALE.

This sample is a very fine grained sediment with a very fine, somewhat crumpled bedding which is offset slightly by cross-cutting, sinuous fractures which may be filled with graphite or quartz and pyrite. The bulk of the rock consists of an extremely fine cherty quartz, sericite and graphite; small quartz and quartzite clasts are scattered amongst this intergrowth. Darker beds are graphite and pyrite rich. Minerals are:

cherty quartz	25%
sericite	25
graphite	35
quartz clasts	10 (includes minor quartzite)
pyrite	5
sphalerite	trace
zircon	trace

The cherty quartz forms a compact mass of shapeless interlocking grains about 0.001mm in size. Disseminated along the bedding and mixed with this are thin ragged flakes of sericite about 0.02mm in length. There is no concentration of sericite. Graphite is also intimately mixed with the chert and forms grains mostly less than 0.005mm in size, with a few up to 0.02mm. It tends to occur in thin wisps and streaks. The graphite is concentrated in beds up to 0.5mm in width where fine wispy laminae are closely spaced amongst the cherty quartz and sericite.

Quartz clasts are rounded to subangular and vary in size from 0.02 to 0.2mm. The finer are scattered throughout, but the coarser are concentrated along beds up to 0.5mm wide which are poor in graphite. Quartz makes up about 20% of these beds. Associated with the quartz clasts are small fragments of very fine quartzite (or chert). A few rounded zircons about 0.01mm in size occur in some of the more quartzitic beds.

Pyrite forms rounded grains 0.002 to 0.005mm in size which are disseminated weakly throughout but mostly concentrated in the thin graphitic beds. In these spherical aggregates up to 0.01mm in size occur as well. About half of the pyrite forms small aggregates of subcubic grains 0.1 to 0.3mm in size. These are often intergrown with "cherty" quartz which forms fine shapeless or elongated grains growing perpendicular to the edge of the pyrite grains. These patches are associated with thin sinuous quartz veinlets up to 0.2mm in width which cut across, and offset, the bedding. Pyrite grains in these sometimes contain fine inclusions of pyrrhotite. Small amounts of sericite are sometimes intergrown with the quartz and pyrite. The quartz veinlets are associated with thin sinuous veinlets of graphite less than 0.2mm in width.

B-2-182.8: CARBONACEOUS SHALE.

This sample is a fine grained sediment consisting mainly of very fine quartz clasts in an extremely fine sericite-graphite matrix. Streaks of pyrite occur along the vaguely defined bedding. The quartz clasts have been partly altered to calcite; the sulphides may have been introduced along with this. Minerals are:

graphite	40%
sericite	24
quartz	22
pyrite	8
sphalerite	3
calcite	3
chalcopyrite	trace

Quartz clasts are subrounded to subangular and range in size from 0.01 to 0.1mm. Rare fragments of quartzite up to 0.3mm in size are also present. The clasts occur scattered within an extremely fine intimate mixture of sericite and graphite with grain size less than 0.002mm. In places there are vague concentrations of clasts within a thin layer. Rare quartzite clasts up to 0.3mm in size are present. Many of the quartz clasts have been replaced by calcite.

Pyrite forms rounded grains 0.01 to 0.1mm in size which are scattered about the rock. The larger grains are usually aggregates of the smaller. Commonly aggregates are thin lenses 0.2 to 0.6mm in length. However there are several lensoid aggregates 1 to 3mm in size. There is also a layer-like lens about 2mm thick. This consists of rounded grains and small lensoid aggregates of pyrite crowded together. Sphalerite is also present in this part of the rock. It forms rounded to ovoid grains 0.1 to 0.5mm in size. The pyrite tends to occur around the sphalerite and may be partly intergrown with it. Some sphalerite grains have a narrow zone of carbonate around them. Rarely there is a thin zone of cherty quartz around the sphalerite and pyrite. The sphalerite is full of fine vermicular chalcopyrite grains, oriented along crystallographic directions. Fine grains of chalcopyrite occur adjacent to some sphalerite grains.

B-4-14.2: GRANITE PORPHYRY (ALTERED WITH SERICITE, ALUNITE (?))

This sample is a medium to fine grained intrusive/subvolcanic rock apparently consisting originally of a graphic-like intergrowth of quartz and K-spar with a few quartz and K-spar phenocrysts. Intense alteration of the feldspar has occurred resulting in the development of fine sericite (with some intermixed kaolinite); yellow stain on the offcut block is mainly absorption by the altered feldspar. There is a network of very fine alunite veinlets associated with the development of thin muscovite (or coarse sericite) flakes. Minerals are:

K-spar	45%	(98% altered to sericite, minor kaolinite)
quartz	36	
quartz phenocrysts	4	
muscovite	10	
alunite	5	
feldspar phenocrysts	minor	(100% altered to sericite)
zircon	trace	
Fe-Ti oxide	trace	

The original feldspar formed subhedral grains 0.2 to 0.5mm in size which are intergrown with subrounded quartz grains of variable size up to 1.0mm in size, but the intergrowth is graphic so that each quartz "grain" consists of subangular pieces 0.2 to 0.5mm in size intergrown with the tabular feldspars. Rounded quartz phenocrysts up to 2.5mm in size, with no included feldspar, are scattered amongst the graphic intergrowth. There are also a few feldspar phenocrysts but these have been completely altered to a mass of very fine sericite. A few rounded to ovoid zircons less than 0.1mm in size are included in the tabular feldspars.

Very fine sericite alteration of the K-spar has been intense and pervasive; only vague remnants can be discerned. In places extremely fine kaolinitic clay is intermixed with the sericite. Extremely fine Fe-Ti oxides are scattered in the sericite.

As well as replacing the feldspar, the sericite coarsens to muscovite. In a few places small aggregates of ragged sericite flakes up to 0.2mm in length occur between quartz grains, but mostly the coarse white mica forms very thin (0.1mm) flakes up to 3mm in length. These occur within the altered K-spar, forming a widely spaced, discontinuous network. In the core of these flakes there is often a zone of extremely fine alunite. Small diffuse patches, consisting of subrounded grains less than 0.005mm in size, occur within the sericitic K-spar. There are also a few thin, discontinuous veinlets of this material alone.

B-4-26.5: QUARTZ-MONZONITE PORPHYRY.

This sample is a medium grained inequigranular intrusive rock consisting mainly of plagioclase and biotite phenocrysts in a fine grained K-spar - quartz groundmass. It is mildly altered with (deuteric ??) sericite. Minerals are:

plagioclase phenocrysts	24%
biotite phenocrysts	10
quartz phenocrysts	4
K-spar groundmass	28
quartz groundmass	23
plagioclase groundmass	8
sericite	2
pyrrhotite	1
zircon	minor
ilmenite	trace

Plagioclase phenocrysts are subhedral to euhedral and vary in size from 0.5 to 1.5mm. Aggregates of a few are common. Some are strongly zoned with fine oscillations. The cores are usually cloudy with very fine sericite. Small biotites are sometimes included within the larger ones; biotite phenocrysts form ragged flakes up to 1.5mm in size. Quartz phenocrysts are rounded and 0.5 to 2.5mm in size. Small K-spar grains are sometimes included within them.

The groundmass consists of an intergrowth of K-spar and quartz with a few small subhedral plagioclase grains amongst them. The quartz forms subangular grains 0.1 to 0.2mm in size which are embedded in a mass of fine K-spar, forming a mesh-like texture around the quartz grains. There is very fine sericite disseminated within the K-spar and in a few patches up to 1mm in size it has been replaced. Subcubic to ovoid grains of zircon less than 0.1mm in size are scattered amongst the quartz and K-spar; a few occur included in biotite.

Pyrrhotite forms subcubic, rounded or irregularly shaped grains 0.05 to 0.5mm in size, averaging about 0.1mm, which are scattered throughout the groundmass amongst the the quartz and K-spar. Clusters occur around and sometimes within the biotite and also in the sericitised K-spar patches. It is associated with traces of ilmenite which forms subtabular grains less than 0.1mm in size occurring adjacent or close to pyrrhotite (in the clusters). There is a grain about 0.3mm in size within a biotite in which pyrrhotite and ilmenite form a fine graphic intergrowth.

B-4-74.1: CARBONACEOUS, SILICEOUS SHALE WITH QUARTZ VEINS.

This sample is a rather compact shaley sediment consisting mainly of extremely fine cherty quartz, sericite and graphite. A fine diffuse network of quartz stringers cuts through it and there are also veinlets of quartz which have a bleached halo around them. Minerals are:

cherty quartz	40%
sericite	20
graphite	30
pyrite	8
quartz vein	2
sphalerite	trace

Cherty quartz forms a mass of subrounded interlocking grains about 0.002mm in size. Graphite forms finer grains which are intimately intergrown with this and are concentrated in a system of extremely thin, closely spaced whisps and streaks along the bedding. Ragged sericite flakes less than 0.005mm in size are also intergrown with the quartz and tend to be weakly concentrated in diffuse lensoid patches up to 0.2mm in size which occur between the graphitic whisps. Sericite also occurs intimately intergrown with quartz in a network of fine stringers less than 0.1mm in width and spaced 0.5 to 2mm apart. These grade into the surrounding shale and appear to have formed during induration, rather than by introduction of quartz veins.

Pyrite forms ragged rounded grains 0.002 to 0.02mm in size which are disseminated throughout the rock. A few cubic grains up to 0.1mm in size also occur. The larger grains are concentrated in lensoid aggregates and clusters up to 0.2mm in size which occur in thin layers. Fine sericite and quartz are intergrown with these. Sphalerite forms shapeless grains up to 0.02mm in size which are intergrown with the pyrite aggregates and clusters.

There are two quartz veins in the section; one is 0.2mm in width, the other is 0.6mm. The quartz in these forms subrounded to subangular interlocking grains about 0.1m in size. There is a bleached zone 1 to 2mm wide on either side of the quartz veins. In these most of the graphite has been lost, but pyrite remains. The quartz has become coarser, forming rounded grains about 0.05mm in size and fine sericite is disseminated between them. The layering is less well defined but is still evident from the orientation of the sericite.

B-4-116.4: CARBONACEOUS SHALE WITH CHERT BAND AND QUARTZ VEIN.

This sample is a very fine grained sediment consisting largely of an intimate mixture of sericite and graphite. Fine quartz clasts are scattered amongst these. There is a band about 6mm thick which is probably chert (possibly an early silicification?). Both the shale and the chert have been cut by a thin vein of quartz which has a bleached halo around it. This is associated with the development of pyrite porphyroblasts within the shale and the chert. Minerals are:

	shale	chert
sericite	45	20
graphite	30	1
quartz (chert)	-	57
quartz (altered clasts)	14	-
quartz (vein)	2	2
pyrite	8	15
chlorite	1	5
sericite (vein)	minor	trace
sphalerite	trace	trace
chalcopryrite	trace	trace
realgar	trace	trace

The shale consists of an extremely fine, streaky, intimate intergrowth of sericite and graphite with grain size less than 0.002mm. Scattered throughout this are rounded to ovoid quartz clasts 0.01 to 0.05mm in size. These have been altered (90%) to sericite, sometimes with chlorite.

The chert consists of mass of subrounded interlocking grains about 0.05mm in size. There are diffuse patches in which the quartz is somewhat elongated or shapeless. The quartz is intergrown with very fine sericite which is disseminated between the quartz and concentrated in diffuse patches (as a result of the later quartz veining). Extremely fine whipsy graphite occurs with the sericite in places. Contact between the chert and the shale is not sharp. There is a zone about 0.5mm wide at each side of the chert band which is sericitic and graphitic and which grades into the shale.

The quartz vein is 0.4mm wide but it has affected both the shale and the chert in a wide zone about it. The quartz in the vein forms rounded grains about 0.1mm in size intergrown with small amounts of ragged sericite flakes. There are also several thin stringers of sericite and quartz in the rest of the rock. This has allowed the alteration of the quartz clasts. A few small shapeless sphalerite grains are intergrown with the quartz in the vein.

The main effect of the vein on the shale is the development of a bleached zone around it and the formation of pyrite and other sulphides (which occur throughout). In the bleached zone almost all the graphite has been oxidised so that only fine indistinct whisps remain. Diffuse patches of very fine chlorite occur mixed with the sericite. The sulphides have formed in the quartz and the chert.

(continued)

B-4-116.4 (cont.)

In the chert the effects of the vein occur more or less throughout the chert. Sericite occurs in diffuse patches which are intimately intergrown with chlorite. This tends to occur around pyrite. The sericite tends to be associated with the more rounded quartz grains, while the shapeless to elongated quartz grains have less sericite intergrown with them. Perhaps some quartz has been added to the chert along with the sericite (?).

As well as sphalerite in the vein there are also several grains of pyrite which are partly in the vein and partly in the shale. Sphalerite grains less than 0.05mm in size are disseminated in both the shale and the chert. These sometimes contain fine chalcopyrite inclusions. Chalcopyrite grains less than 0.01mm in size are also disseminated in the shale and in the chert between the quartz grains or in the sericite/chlorite. Rounded realgar grains less than 0.01mm in size are also disseminated in the shale and chert.

There is slightly more chalcopyrite in the chert than in the shale and proportionately more pyrite in the chert than in the shale. In the shale pyrite forms shapeless skeletal grain less than 0.5mm in size which are disseminated throughout. Most of the pyrite forms larger rounded grains 1 to 2mm in size. These grains are crowded with extremely fine "dirty" sericite and graphite and in some the fine layering can be seen to continue through the grain. The edges are ragged and intimately intergrown with the surrounding sericite and graphite. In the interior of many there is an annulus of the inclusions. In the chert the pyrite grains are highly skeletal but tend to have a more cubic shape. Patches consist of several cubes which are in contact or intergrown with one another. Zonal growth is evident of the presence of a few thin dark lines parallel to the edges.

B-4-168: HIGHLY CARBONACEOUS SHALE WITH QUARTZ VEINLETS.

This sample is an extremely fine grained, compact shaley sediment which consists of a submicroscopic intergrowth of graphite and other minerals (probably quartz and/or sericite). There is so much graphite that only very small diffuse patches of the silicates can be made out and these are so dirty with graphite that optical determination is impossible; even where the section is thin the silicate patches are only semi-transparent. There are no clasts. A criss-crossing system of quartz veinlets is present. Minerals are:

graphite +	90%
quartz vein	9
pyrite	1
sphalerite	minor
sericite	minor

The bulk of the rock consists of a compact featureless mass of extremely fine submicroscopic graphite and silicate with graphite highly dominant. Grains of graphite up to 0.01mm in size are scattered about.

Quartz veins are 0.1 to 1.0mm wide and form a closely spaced criss - crossing network which formed in at least two stages. Quartz grains are rounded to subidiomorphic and vary in size from 0.1 to 1.0mm, the larger more idiomorphic grains occurring at vein intersections. There is a fine fringe of sericite along the contacts of some vein. Extremely thin sericitic stringers also occur. In a few of the thicker veinlets there are small ragged patches of sericite which have formed around fragments of the shale.

Pyrite forms rounded grains 0.002 to 0.05mm in size which are disseminated throughout the graphitic part of the rock. Subcubic to subrounded aggregates and grains up to 0.3mm in size occur close to the veins within the shale part. The larger grains are dirty with fine inclusions (graphite, quartz ?).

Sphalerite occurs in the quartz veins. It forms shapeless to subangular grains 0.05 to 0.3mm in size intergrown with the quartz in the core of the wider veins. Rarely there are small pyrites adjacent to the sphalerite.

B-4-186.0: SILICIFIED CARBONACEOUS SHALE.

This sample consists mainly of quartz with fragments of shale caught up in it. The shale is cut by a closely spaced network of fine quartz veinlets. Small whisps and thin veinlets of graphite within the quartz have been derived from the shale. The shale itself is highly carbonaceous and consists mainly of graphite with lesser amounts of extremely fine quartz; clasts are not present. Minerals are:

quartz	55%	
shale	38	(graphite and fine quartz)
graphite (vein)	4	
sericite	1	
pyrite	1	
sphalerite	1	
calcite	minor	

Quartz forms shapeless to subidiomorphic interlocking grains mostly 0.5 to 2.0mm in size. It is quite highly strained and there are small patches and thin zones of recrystallised quartz with grains size less than 0.1mm. It is rather dirty with fine included graphite; thin whisps and small diffuse patches of graphite occur between the quartz grains throughout. The whisps may grade into discontinuous, sinuous veinlets of extremely fine massive graphite, up to 0.2mm in width, which may pass into the patches of shale or cut across it. There is a closely spaced network of quartz veinlets 0.05 to 0.5mm in width which cut through the shale. These pass into the large patches of coarser quartz.

Pyrite forms cubic to rounded grains 0.05 to 0.3mm in size which occur in the shale adjacent to the quartz. Some occurs in the graphitic veinlets or in patches of dirty quartz. Sphalerite forms shapeless gains 0.1 to 1.0mm in size, averaging about 0.3mm, which occur in small clusters intergrown with the quartz.

Sericite forms extremely fine flakes which occur in thin zones between the quartz and the shale and graphitic veinlets, both in the cross-cutting quartz veinlets and in the more massive patches. There are also a few rounded patches about 1mm in size which consist of thin sericite flakes up to 0.4mm in length, with a crude spherical arrangement. These are cloudy with fine graphite and intergrown with fine pyrite grains. These patches are surrounded by a zone of calcite. Very fine calcite occurs in subangular interstitial patches less than 0.5mm in size. Extremely fine calcite sometimes occurs in quartz adjacent to thin zones of fine recrystallised quartz. The calcite is a dirty brown colour and may be Fe and/or Mn bearing.

B-7-14.1: HIGHLY CARBONACEOUS SHALE WITH QUARTZ VEINLETS.

This sample is a rather compact, highly graphitic shaley sediment in which the graphite is so intimately mixed with silicates (sericite, quartz ?) that they cannot be identified with certainty. Even when the section was thinned down, the diffuse patches of silicate are only semi-transparent. There are a few small quartz clasts scattered about. Very thin quartz veinlets cut through the rock. Minerals are:

graphite +	96%
quartz vein	4
quartz clasts	minor
sericite	trace
limonite	trace
sphalerite	rare

The bulk of the rock consists of an extremely fine, streaky intergrowth of graphite and silicate. Only fine diffuse patches of the silicates occur and these are a dirty brown colour with included graphite. Ragged grains of graphite less than 0.05mm in size are scattered about this intergrowth. Rounded quartz clasts 0.01 to 0.05mm in size are scattered within the graphite/silicate mixture. There are also a few rounded quartzite clasts up to 0.1mm in size. Rare sphalerite grains about 0.01mm in size also occur amongst the graphite and silicate.

There are two stages of quartz veining. There is a subparallel system of fairly closely spaced veinlets 0.01 to 0.1mm in width which have sharp contacts. Cutting these and offsetting them slightly are veinlets 0.5 to 1.0mm in width. These have a ragged margin and are crowded with fine diffuse streaks of graphite; thin sinuous veinlets of graphite occur at the edges and within the adjacent shale. The quartz in these forms very thin elongated or fine shapeless grains less than 0.05mm in size. Small diffuse patches of sericite are intergrown with the quartz in places. There was probably an element of shear when these veins were formed. Extremely thin, later veinlets of limonite have formed within some of the quartz veins.

B-7-25: BANDED CARBONACEOUS SHALE.

This sample is an extremely fine grained sediment consisting mainly of a fine intimate intergrowth of sericite and graphite. Bands 1 to 2mm thick are very dark and are dominated by graphite. These are separated by thinner bands in which the graphite and sericite occur in about equal amounts; there is also a band several millimeters thick, making up about half of the section, in which is highly pyritic and in which graphite and sericite occur in about equal amounts. Minerals are:

graphite	40%
sericite	35
pyrite	18
quartz	7
sphalerite	trace

Sericite and graphite form a fine intimate and somewhat streaky intergrowth with grain size less than 0.002mm; sericite is usually slightly coarser but there are graphite flakes up to 0.05mm in size scattered about. Dark bands are highly graphitic while lighter coloured ones consist of about equal amounts of the two minerals. Contact between the bands is sharp.

Pyrite forms rounded grains 0.002 to 0.05mm in size which are disseminated throughout the rock in both dark and lighter bands. The finer grains often coalesce into spherical aggregates up to 0.1mm. In the graphitic bands the pyrite is concentrated in several layers about 0.1mm wide. Small lensoid aggregates sometimes occur along these. In the lighter coloured bands the pyrite form cubic grains 0.05 to 0.2mm in size as well as the finer rounded grains. There is a cubic grain about 2mm in size in this part of the section. It is dirty with fine sericite and quartz inclusions. Around the cubic pyrite grains there is a thin zone of cherty quartz. This forms thin grains up to 0.05mm in length which have grown perpendicular to the edge of the pyrite. Sphalerite grains up to 0.5mm in size are scattered amongst the pyrites. A grain about 0.2mm in size occurs adjacent to the large pyrite.

B-7-29.3: HIGHLY CARBONACEOUS SHALE WITH QUARTZ VEINS AND PATCHES.

This sample is an extremely fine grained shaley sediment which is so highly graphitic that the silicates (sericite and quartz ?) can not be identified with any certainty. There are small diffuse streaky patches of silicate which, even when thinned down, are only semi-transparent. There is a fine layering apparent in the graphite. Scattered throughout are very fine rounded to ovoid clasts. There are several thin veinlets of quartz cutting through and these grade into patches in which the graphitic material has been incorporated and remobilised so that colloform patches have developed. Traces of late limonite have developed in these. Minerals are:

graphite +	76%
quartz clasts	3
quartz vein	5
quartz patch	9
graphite + (in patch)	7
sericite	trace
limonite	trace
pyrite	rare
sphalerite	rare

The shale part of the section has a typical shaley fabric with fine layering (less than 0.1mm) in which extremely fine graphite is concentrated. These are somewhat sinuous and may pass into one another. Between these are layers of intimately mixed graphite and sericite (with fine silica ?). Subangular graphite grains up to 0.05mm in size occur throughout, particularly in the graphitic layers. Scattered throughout are rounded to ovoid clasts of quartz less than 0.05mm in size. Some of these have been replaced by sericite.

Quartz veins are 0.1 to 0.5mm in width and cut across the layering or along it. They may be discontinuous; finer ones may be sinuous. In those across the layering the quartz forms subrounded grains 0.05 to 0.2mm in size. In those parallel or subparallel to the layering the quartz grains are thin and elongated growing across the vein. Fine diffuse patches of graphitic material are included in the veins.

The quartz veinlets pass into a patch, subparallel to the layering, in which quartz forms subrounded to shapeless grains 0.01 to 0.1mm in size which are intimately intergrown with remobilised graphitic material. This forms partly interconnected, spherulitic, coloform patches up to 0.5mm in size, along with finer diffuse ragged, shapeless patches. In the coloform patches there are outer zones which consist of a colourless clay or chlorite-like material which has anomalous brown birefringence. The quartz is speckled with very fine sericite in small patches. Near the quartz patch/shale contact graphite is concentrated into sinuous vein-like patches up to 0.5mm thick.

Rare pyrite and sphalerite grains less than 0.005mm in size are scattered in the shaley part of the rock.

B-7-52.4: BANDED CARBONACEOUS SHALE.

This sample is a very fine grained sediment consisting mainly of sericite and graphite with scattered quartz and pyrite. Bands are 1 to 4mm wide; dark ones are graphite rich and contain less quartz than the lighter coloured ones. Pyrite is evenly distributed (in quantity) between the two types of bands. Minerals are:

	dark	light
sericite	30%	70%
graphite	55	5
quartz	7	17
pyrite	8	8
sphalerite	trace	trace

The bulk of the rock consists of a streaky, compact mass of very thin sericite flakes about 0.05mm in length. In the dark bands the sericite is intimately intergrown with extremely fine (less than 0.002mm) graphite; sericite occurs with little graphite as very fine, discontinuous streaks within the dark mixture. In the lighter coloured bands the graphite occurs as thin wisps within the mass of sericite; ragged flakes up to 0.02mm in size are disseminated in these.

Quartz forms rounded or flattened grains less than 0.02mm which are scattered amongst the sericite and graphite, being more concentrated in the lighter coloured bands; there is no difference in grain size between the bands. Occasionally there is a thin (0.1mm) seam in which quartz makes up about 30% of the minerals. These occur within the lighter bands and are adjacent to the carbonaceous bands.

Pyrite occurs in about the same amounts in both dark and light bands. In the light bands it is disseminated more or less evenly throughout. In the dark bands it tends to be concentrated in seams about 0.05mm wide, as well as being disseminated. Much of the pyrite forms rounded grains less than 0.002mm, particularly in the carbonaceous bands. Spherical aggregates of the very fine grains and cubic grains up to 0.02mm in size are common in both types of band. There are a few spherical or cubic grains 0.05mm in size. Minor amounts of "cherty" quartz are sometimes associated with the pyrite. Around some of the larger grains there is a small lensoid zone of thin elongated quartz grains with the long axes growing perpendicular to the edge of the pyrite grain.

Subangular, or occasionally spherical, grains of sphalerite, less than 0.005mm in size, are scattered about the rock. They sometimes occur adjacent to pyrite, especially where the pyrite is associated with cherty quartz.

B-8-24.3: QUARTZ-DIORITE PORPHYRY (ALTERED WITH SERICITE).

This sample is a medium grained inequigranular intrusive rock consisting mainly of quartz phenocrysts in a groundmass of plagioclase. The plagioclase is untwinned and has low relief, suggesting that it is sodic (?). Moderate pervasive alteration with sericite has occurred and this is associated with the development of pyrite. Minerals are:

plagioclase	57%
sericite	20
quartz phenocrysts	12
quartz groundmass	3
muscovite	5 (after biotite ?)
pyrite	2
Fe-Ti oxide	1
zircon	minor
apatite	trace

The bulk of the rock consists of a mass of rounded plagioclase grains 0.2 to 0.5mm in size, averaging about 0.3mm. A few subrounded quartz grains less than 0.2mm in size are intergrown with it. Scattered amongst the feldspar are rounded quartz phenocrysts 0.5 to 2.5mm in size. Some of the larger ones are more irregularly shaped and intergrown with the feldspar. Small feldspar inclusions occur in some.

The plagioclase is quite highly sericitic with very thin flakes up to 0.1mm in length disseminated evenly within and between the plagioclase grains. There are also ragged muscovite flakes 0.5 to 1.0mm in length which are partly sericitic and crowded with acicular Fe-Ti oxide grains about 0.05mm in length (mainly rutile). These flakes may have been biotite which have altered during the sericitisation. Extremely fine Fe-Ti oxides are also disseminated throughout the rock.

Pyrite forms subcubic grains 0.05 to 0.3mm in size which are disseminated throughout the sericitic plagioclase. Aggregates and clusters up to 1mm in size are common, consisting of more rounded or shapeless grains. Two stage growth of the pyrite is apparent. There are several grains which have a large cubic core with an outer zone of fine skeletal pyrite.

Accessory minerals included in the groundmass are zircon and apatite. Both form very thin tabular grains up to 0.3mm in length, occurring within the plagioclase. Occasional grains occur in the muscovite.

B-8-215.1: CARBONACEOUS CHERT WITH PYRITE.

This sample is a fine grained chemical sediment consisting of fine quartz, graphite and pyrite. Much of the pyrite is contained within a bed about 2mm thick. Minerals are:

quartz	45%
graphite	27
pyrite	28
limonite	2

Quartz forms rounded to shapeless interlocking grains 0.005 to 0.05mm in size, averaging about 0.01mm. Graphite is much finer and gives the quartz a dirty brown appearance. It is concentrated in a thin interconnected network around rounded to ovoid aggregates of quartz 0.1 to 0.2mm in size. The network is about 0.05mm thick but is somewhat diffuse, sometimes grading into thin streaks and small patches with only indistinct quartz in the core. There are also a few thin layer-like patches of quartz without much graphite. The most intense graphite concentration occurs adjacent to the pyrite bed.

Pyrite in the bed forms subcubic grains 0.1 to 0.3mm in size which are crowded together and sometimes coalesce into massive patches. They are full of minute quartz inclusions. Quartz between the pyrite grains forms very thin grains which grow across the gap between the pyrite grains. The quartz is a dirty brown with submicroscopic graphite but otherwise little graphite is present in the bed. In the rest of the rock pyrite forms rounded grains 0.005 to 0.05mm in size which are disseminated in the graphitic network. They sometimes coalesce into ragged subrounded aggregates up to 0.1mm in size.

There is a vein-like, somewhat diffuse patch of limonite, occurring partly along the bedding. Within this there are vague remnants of rhombic grains suggesting that this may have been a carbonate.



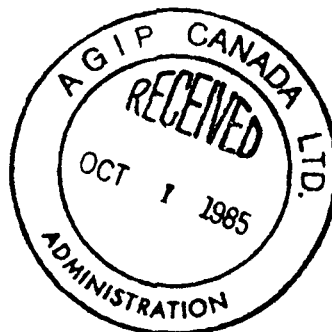
Vancouver Petrographics Ltd.

JAMES VINNELL, Manager
JOHN G. PAYNE, Ph. D. Geologist

P.O. BOX 39
8887 NASH STREET
FORT LANGLEY, B.C.
VOX 1J0

PHONE (604) 888-1323

Invoice 5395



Report for: Milton J. Aupperle,
Agip Canada Ltd.,
First Canadian Centre,
3000, 350 - 7th Avenue S.W.,
Calgary, Alberta,
T2P 3N9.

September 26, 1985

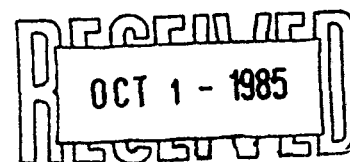
Samples: B-4-196A, 196B, 199, 202, 203, 205, 207.

Summary:

With the exception of B-4-203 all these samples are classified as siliceous, carbonaceous shales (or cherts). They consist mainly of a fine intimate intergrowth of quartz and graphite with disseminated pyrite. The pyrite forms scattered cubes up to 1mm in size and much smaller disseminated grains and framboidal aggregates. Sample B-4-203 is a more conventional shale consisting of sericite and graphite with disseminated pyrite. The other rocks are intermediate between carbonaceous chert and highly carbonaceous shale; group E and Group D, respectively, of the report of September 6, 1985. The fabric is similar to the chert sample (B-8-215.1) in which the graphite occurs along very closely spaced, sinuous layers so that ovoid patches of relatively graphite-free quartz occur. The amount of graphite in these rocks varies from 15 to 50%.

All these cherty shales show some degree of silicification, mainly as a system of thin subparallel veinlets and stringers cutting across the layering or bedding. There has been at least two stages of silicification and in some samples silicification is quite intense (B-4-196A, B-4-205). The silicification is associated with remobilisation of graphite into very thin, sinuous layer-like veins and into pygmatic veinlets cutting across the bedding. Small patches of massive graphite occur in the highly silicified samples. The remobilised graphite sometimes offsets some of the quartz veinlets slightly. Pyrite is concentrated into the remobilised graphite. Pyrite and traces of sphalerite occur in the veins; large porphyroblastic pyrite grains probably formed within the cherty shales during silicification. Trace amounts of stibnite occur in sample B-4-202.

(continued)



Summary (cont.)

Qualitative chemical analysis was carried out on the pyrite and sphalerite in samples B-4-202 and B-1-34.3, using an energy dispersive spectrometer attached to a scanning electron microscope. Detection limit in this system is 0.1 to 0.5%, depending on the element and matrix.

All the pyrite in both samples was found to contain only Fe and S; no trace or minor elements were detected. Vein pyrite, porphyroblastic pyrite and fine framboidal pyrite were examined.

Sphalerite in the veins in both samples was found to contain minor to trace amounts (estimated to be less than 5%) of Fe and Mn with Fe greater than Mn, along with Zn and S. Small amounts of Cu are due to fine chalcopyrite inclusions.

The stibnite in sample B-4-202 contained moderate amounts of Cu; it is a chalcostibnite.



A. L. Littlejohn, M.Sc.

B-4-196A: SILICIFIED CARBONACEOUS, SILICEOUS SHALE (CHERT).

This sample is an extremely fine grained sediment consisting mainly of an intimate intergrowth of quartz and graphite. It has been brecciated and cut by a closely spaced system of quartz veins and patches so that small angular pieces of the shale are caught up within the vein system. Pyrite occurs mainly in the shale pieces but some also occurs in the quartz. Minerals are:

vein quartz	55%
quartz	20
graphite	20
pyrite	5
sericite	minor
sphalerite	trace

Fragments of the shale are angular and mostly 0.5 to 5.0mm in size; there are a few larger pieces. All the fragments are cut by very thin quartz stringers. The fragments consist of an extremely fine grained (less than 0.005mm) intimate intergrowth of quartz and graphite. The graphite is concentrated in a very closely spaced system of somewhat sinuous layers. Scattered within this are rounded or ovoid patches less than 0.1mm in size which are relatively free of graphite. There has been some redistribution of the graphite in some fragments. Small patches and thin contorted vein-like patches occur within and around several of the fragments. Ragged pyrite grains and aggregates up to 0.2mm in size are crowded within these. In the shale pieces pyrite forms rounded to cubic grains 0.005 to 0.01mm in size which are disseminated; the rounded grains sometimes coalesce into spherical aggregates up to 0.1mm in size.

In the quartz vein system the quartz forms rounded to shapeless interlocking grains 0.01 to 0.1mm in size along with subhedral grains 0.5 to 1.5mm in size. The smaller grains occur in patches amongst the larger ones. Small vugs may occur within the larger veins and patches, lined with idiomorphic quartz grains. The patches of finer quartz often contain fine graphitic whisps. Small diffuse shale fragments have been incorporated into the patches and veins of coarser quartz, sometimes occurring in clusters. Very fine sericite occurs as a fringe around these.

Some pyrite occurs in the vein system and forms cubic or elongated grains 0.2 to 0.6mm in size. Sometimes these lie across thin veinlets and there is a narrow zone of quartz and sericite around them. Some of the thinner veinlets are filled with pyrite for a few millimeters. Rare pyrrhotite inclusions occur in the pyrite. A few angular sphalerite grains about 0.3mm in size are intergrown with quartz in the core of one of the wider veinlets. One grain partly encloses pyrite.

B-4-196B: SILICEOUS, CARBONACEOUS SHALE (CHERT) WITH QUARTZ VEINLETS.

This sample is an extremely fine grained sediment consisting mainly of an intimate intergrowth of quartz and graphite. There is a fine layering. Pyrite is disseminated amongst the quartz and graphite. There is a fairly closely spaced system of thin quartz veinlets cutting through the rock. Most of these are subparallel but there are many very thin cross cutting veinlets as well. Minerals are:

quartz	36%
graphite	40
vein quartz	18
pyrite	5
sericite	1
sphalerite	trace

Most of the rock consists of an extremely fine grained, intimate intergrowth of cherty quartz and graphite with grain size less than 0.002mm. In thin section the quartz is dirty with included submicroscopic graphite so that it is barely transparent. The graphite is concentrated in very thin, closely spaced, somewhat sinuous layers so that there are many small (0.2mm) rounded patches of quartz which are relatively free of graphite. Ragged graphite grains up to 0.05mm in size are scattered about the intergrowth.

Pyrite is disseminated amongst the quartz and graphite and forms rounded to cubic grains about 0.005mm in size; the rounded grains sometimes coalesce into spherical aggregates up to 0.1mm in size. Cubic grains of pyrite 0.3 to 1.0mm in size are scattered about the rock. These are dirty with extremely fine included quartz and graphite. Cubic pyrite grains mostly less than 0.5mm in size also occur intergrown with quartz in the veinlets. These are less dirty than those in the shale. Rare pyrrhotite inclusions occur in the pyrite. Some of the very thin quartz veinlets are filled with pyrite part way along their length. A few shapeless sphalerite grains less than 0.1mm in size occur within the veinlets.

The veinlets are mostly 0.05 to 0.2mm wide but there are one or two that are up to 1mm wide. Small patches occur at intersections. The quartz forms rounded or shapeless interlocking grains mostly 0.01 to 0.1mm in size, along with subidiomorphic grains up to 0.8mm in size occurring in the thicker veinlets and patches. Very fine sericite is intergrown with the finer quartz grains. Sericite also occurs with quartz in a narrow zone around many of the large pyrite grains which are scattered within the shale part of the section.

B-4-199: CARBONACEOUS, SILICEOUS SHALE.

This sample is an extremely fine grained, finely bedded sediment consisting mainly of an intimate intergrowth of graphite, sericite and quartz. Pyrite is disseminated throughout. Minerals are:

graphite	50%
sericite	20
quartz	20
pyrite	10
sphalerite	trace

Graphite, sericite and quartz form an intimate mixture with grain size less than 0.005mm. The graphite and sericite in particular are finely intergrown. Very thin layers (less than 0.01mm) of graphite or sericite concentration occur along the bedding. Quartz may also be concentrated in beds less than 0.05mm in width and in very thin lenses up to 0.5mm in length. About half of the quartz is in the form of fine clasts. These are rounded and less than 0.05mm in size which are scattered evenly throughout the rock amongst the finer intergrowth. Ragged grains of graphite up to 0.05mm in size are also scattered about the fine intergrowth.

Pyrite forms rounded grains 0.002 to 0.1mm in size which are disseminated evenly throughout the rock. These coalesce into rounded clusters and aggregates up to 0.05mm in size. There are also concentrations of the pyrite in very thin lenses 0.2 to 1.0mm in length along the bedding. Occasionally there is a core of one or two sphalerite grains in these. Small sphalerites are scattered amongst the fine pyrites.

B-4-203: CARBONACEOUS SHALE.

This sample is an extremely fine grained, finely bedded sediment consisting mainly of a fine intimate intergrowth of sericite and graphite. Very fine pyrite is disseminated throughout and also occurs as larger scattered grains. Minerals are:

sericite	70%
graphite	20
pyrite	9
quartz	1
calcite	trace
hematite	trace

The bulk of the rock consists of an extremely fine intimate intergrowth of sericite and graphite with grain size less than 0.005mm. The sericite flakes form a compact streaky mass with graphite between the flakes, sometimes being concentrated along thin (0.1mm) beds. Ragged graphite flakes up to 0.05mm in size are scattered about the finer intergrowth.

Pyrite forms rounded grains about 0.002mm in size which are disseminated throughout the rock. Cubic grains 0.01 to 0.05mm in size also occur and these tend to be concentrated in layers 0.2 to 1.0mm wide. Within these concentrations there are thin elongated aggregates of more massive pyrite, formed by the coalescing of the small cubic grains. A few cubic grains 0.2 to 1.0mm in size are scattered about the rock. These are "dirty" with fine included sericite and graphite, particularly towards the core.

Quartz forms very fine, subrounded grains, less than 0.05mm in size, which occur in thin stringers less than 0.1mm wide which cut across the bedding. Along the bedding there are a few very thin lenses of quartz. Around the large pyrite grains there is sometimes a narrow zone of cherty quartz, forming thin elongated grains growing perpendicular to the edge of the pyrite. Calcite is associated with the quartz, both in the lenses and cross-cutting stringers. It forms very fine grains intergrown with the quartz. The calcite in the quartzitic lenses is sometimes associated with hematite. This forms very fine ragged grains occurring in small clusters within the carbonate grains.

B-4-202: SILICEOUS, CARBONACEOUS SHALE (CHERT) WITH QUARTZ VEINLETS.

This sample is an extremely fine grained, finely bedded sediment consisting mainly of an intimate intergrowth of cherty quartz and graphite. Pyrite is disseminated throughout and also occurs in a parallel system of thin quartz veinlets cutting across the layering. Minerals are:

quartz	65%
graphite	15
pyrite	10
vein quartz	5
sericite	5
stibnite	trace
sphalerite	trace

The bulk of the rock consists of a mass of extremely fine cherty quartz with grain size less than 0.002mm. Intimately intergrown with this is submicroscopic graphite so that in thin section the quartz is a brownish colour and barely transparent. The graphite is concentrated in closely spaced, very thin, somewhat sinuous layers and fine diffuse streaks so that there are many small (0.1 to 0.4mm) ovoid patches of quartz which are relatively free of graphite. A minor amount of rounded quartz clasts about 0.05mm in size are scattered about the quartz-graphite intergrowth. Very thin sericite flakes up to 0.05m in length are also scattered about the rock.

Pyrite forms rounded grains 0.002 to 0.005mm in size which are disseminated throughout the rock. These coalesce into rounded aggregates up to 0.1mm in size. There are also cubic grains 0.1mm in size. The fine pyrite grains and aggregates are often concentrated in the sinuous graphitic layers and streaks. There is a broad layer-like zone in which coarse pyrite grains have developed. These are cubic and 1 to 2mm in size. They are dirty with fine included graphite, quartz and sericite. There is usually a broad zone of thin elongated quartz intergrown with sericite around the large pyrite grains. In many cases this zone is dominantly sericite. Pyrite also occurs in the quartz veinlets where it forms rounded or cubic grains 0.2 to 0.6mm in size intergrown with the quartz. It is free of dirty inclusions. Associated with the pyrite in one of the veinlets is a small aggregates of sphalerite and stibnite. These form ragged grains about 0.05mm in size and they occur adjacent to a pyrite grain, between the quartz.

Quartz veinlets are 0.05 to 0.5mm wide and consist of subrounded to subidiomorphic grains 0.01 to 0.1mm in size. The larger grains tend to be more idiomorphic and usually occur towards the core of the wider veinlets. Fine sericite is often intergrown with the quartz, in small patches, and the edges may be graphitic. Veining is associated with some remobilisation of graphite. A few of the thin sinuous graphitic layers cut across the veinlets, offsetting them slightly. There is also a highly contorted vein of graphite which cuts across the layering and grades into patches which consist of graphite intergrown with fine (vein) quartz and relatively coarse sericite. There is a concentration of fine rounded pyrite grains and aggregates in these.

B-4-205: SILICIFIED CARBONACEOUS, SILICEOUS SHALE (CHERT).

This sample was an extremely fine grained, finely layered sediment consisting mainly of cherty quartz and graphite with disseminated pyrite. It has been quite highly silicified by a system of quartz veinlets and patches. Minerals are:

vein quartz	55%
quartz	15
graphite	20
pyrite	10
sericite	trace

The original rock was a cherty shale consisting mainly of an extremely fine intimate intergrowth of quartz and graphite with grain size less than 0.002mm. The graphite is so finely intergrown with the quartz that, in transmitted light, the quartz is barely transparent. The graphite is concentrated in very closely spaced, thin sinuous layers so that there are small (up to 0.3mm) rounded or ovoid, diffuse patches which are relatively poor in graphite. Rounded pyrite grains less than 0.005mm are disseminated within the quartz-graphite intergrowth. These coalesce into rounded aggregates up to 0.1mm in size which are concentrated in the graphitic parts. A few cubic grains 0.05 to 0.3mm in size also occur. These are dirty with very fine included graphite and quartz. In places these occur in thin lensoid aggregates up to 0.5mm in length occurring along the layering.

Quartz appears to have penetrated along the layering, forming a system of interconnected patches which may be several millimeters in size. Fine veinlets occur in the shaley parts. The quartz forms subrounded interlocking grains 0.01 to 0.5mm in size along with subidiomorphic grains up to 1mm in size. Size distribution is patchy and the subidiomorphic grains tend to occur within the core of the patches or at vein intersections where small vugs have developed. The larger grains are moderately strained. A few small sericitic patches occur sandwiched between quartz grains.

Within the quartz there are many patches of shale of variable sizes. These range from small indistinct patches sandwiched between quartz grains to patches several millimeters in size with indistinct margins. Graphite and pyrite appear to have been remobilised in these. The graphite may be concentrated into thin, highly sinuous or contorted vein-like zones along the layering or cutting across it. The pyrite is concentrated in these and usually forms spherical aggregates of extremely fine grains. These are up to 0.1mm in size. Some small patches consist almost entirely of graphite and pyrite.

B-4-207: SILICEOUS, CARBONACEOUS SHALE (CHERT) WITH QUARTZ VEINLETS.

This sample is an extremely fine grained, finely layered sediment consisting mainly of cherty quartz and graphite with lesser sericite. There is a subparallel system of thin quartz veinlets cutting across the bedding. These contain pyrite and fine pyrite is disseminated throughout. Minerals are:

quartz	50%
vein quartz	10
graphite	30
pyrite	7
sericite	3

The bulk of the rock consists of a mass of extremely fine chert quartz with grain size less than 0.002mm. Submicroscopic graphite occurs intimately intergrown with this so that in thin section it is barely transparent. The graphite tends to be concentrated in very closely spaced, somewhat sinuous layers less than 0.05mm wide so that there are ovoid patches up to 0.3mm in size consisting of relatively graphite-free quartz. Rounded quartz clasts up to 0.05mm in size are scattered about the rock. Thin sericite flakes up to 0.05mm in length are also scattered about the graphite-quartz intergrowth.

Pyrite forms rounded grains 0.002 to 0.005mm in size which are disseminated throughout the rock. These coalesce into rounded aggregates 0.05 to 0.1mm in size. There are also a few cubic grains 0.1 to 1.0mm in size. These are dirty with included graphite, quartz and sericite. There are also a few cubic pyrite grains up to 0.5mm in size which are intergrown with quartz in the veinlets. These are free of dirty included material. The pyrite is concentrated in the fine graphitic layers. Around the larger cubic grains there is sometimes a thin zone of cherty quartz forming thin elongated grains growing at right angles to the edge of the pyrite. Sericite is often associated with this.

Quartz veinlets are 0.05 to 0.5mm wide and occur in a closely spaced subparallel system cutting across the layering. The wider ones are vuggy in places. The quartz in veinlets consists of shapeless interlocking grains less than 0.05mm in size grading up to 0.2mm in size at intersections and in the wider veinlets. Idiomorphic quartz grains line the small vugs. Fine sericite is sometimes intergrown with the quartz. Some of the quartz veinlets have been offset slightly and this is associated with remobilisation of some of the graphite. Sinuous vein-like layers and patches up to 0.5mm wide occur along the bedding or cut it at shallow angle. These are highly pyritic.

APPENDIX 9

Laboratory Methodology

ANALYTICAL METHODS

Water samples are acidified with nitric acid in the field prior to shipping.

Rock and core samples are pulverized and a split of the minus 100 mesh fraction is analyzed.

Silver is analyzed by atomic absorption after hot aqua regia digestion. Gold analyses are by fire assay techniques using a 30 g sample (90 gm in five samples) and an atomic absorption finish.

The whole rock and trace element analysis by Maurette Resources was by non-destructive X-ray Fluorescence Spectrometry method on pelletized samples. The complete whole rock, As-Sb-Hg soil and Pb-Zn-Cu core analysis by Barringer Magenta was by I.C.P. Emission and Atomic absorption spectrometry.

APPENDIX 10

List of Personnel

PERSONNEL ON BRICK PROPERTY

<u>Name</u>	<u>Job Title</u>	<u>Company</u>	<u>Date</u>
E. B. Stewart	Chief Geologist	AGIP	July 27, Aug. 10-12
M. J. Aupperle	Project Geologist	AGIP	June 18 - August 16
W. McCarville	Field Assistant	AGIP	June 18 - August 16
N. Leduc	Foreman	Amity	June 18 - August 18
S. Donnelly	Runner	Amity	June 18 - August 3
S. Leduc	Driller	Amity	June 28 - August 18
K. Grant	Runner	Amity	June 28 - August 18
J. Sheldon	Runner	Amity	August 3 - August 18
J. Donnelly	Cook	Amity	June 18 - August 18
P. Quin	Blaster	Amity	June 18 - June 28



4200B - 10 STREET N.E.
 CALGARY, ALBERTA
 T2E 6K3
 PHONE: (403) 250-1901

11-SEP-85
 PAGES: 1 OF 3
 COPIES: 1 OF 1

AUTHORITY: M. PUPPERLE

AGIP CANADA LTD.
 3000, 350-7 AVENUE S.W.
 CALGARY, ALBERTA T2P 3N9

PROJECT: 500039-F13
 P. O. : 1139

WORK ORDER: 81920-85

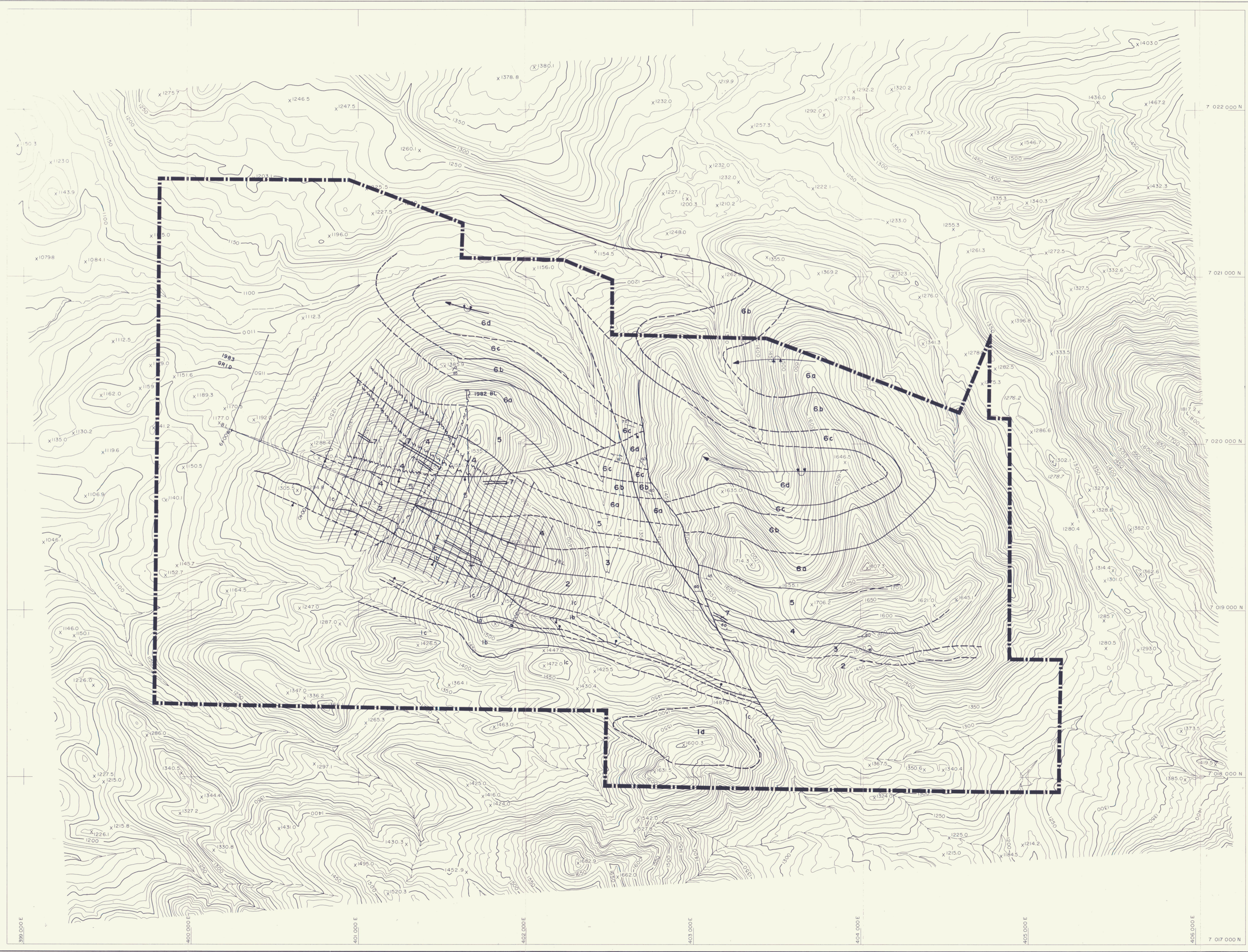
ATTN: E.B. STEWART

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: DRILL CORE

S A M P L E N U M B E R	F I R E A S S A Y	
	AU GRAMS/M	AG GRAMS/M
B-8:15.1	0.033	1.48
B-8:16.6	0.011	0.51
B-8:18.2	0.051	3.39
B-8:22.3	0.013	0.57
B-8:23.5	0.038	0.58
B-8:25	0.031	1.05
B-8:26.6	0.014	1.31
B-8:28	0.039	1.89
B-8:29.5	0.011	1.54
B-8:31	0.033	0.76
B-8:33.2	0.11	3.62
B-8:35.3	0.133	4.68
B-8:36.5	0.16	3.0
B-8:38	0.097	3.7
B-8:39.5	0.158	3.24
B-8:41	0.187	1.52
B-8:42.5	0.184	3.13
B-8:44	0.109	2.61
B-8:46.3	0.272	3.48
B-8:49.3	0.15	3.94
B-8:50.8	0.233	3.24
B-8:52.4	0.292	2.72
B-8:55.4	0.22	1.37
B-8:56.9	0.334	1.13
B-8:58.5	0.14	0.66
B-8:61.5	0.196	2.13
B-8:64	0.231	1.56
B-8:65.5	0.166	1.15
B-8:67	0.213	1.41
B-8:68.5	0.199	2.06



LEGEND

CRETACEOUS

7 Quartz-Feldspar Monzonite Sills and Dykes

MISSISSIPPIAN TO PERMIAN

- 6d Grey-Black shale
- 6c Thick bedded quartz arenite
- 6b Thick bedded grey to white massive to bioclastic limestone with minor black shale
- 6a Interbedded thin bedded grey silty shale, black shale, grey sandstone and minor grey limestone

DEVONIAN TO MISSISSIPPIAN EARN GROUP
Upper Earn Group ("Imperial" Formation):

5 Brown weathering thin bedded shale with siltstone/sandstone interbeds

Lower Earn Group ("Canol" Formation):

- 4 Silver blue weathering siliceous, graphitic shale with minor thin lenses of barite and limestone
- 3 Grey weathering chert pebble conglomerate with minor graphitic shale and brown weathering silty shale

SILURIAN TO DEVONIAN

1d Orange weathering alkaline/volcaniclastic rocks with minor trachyte flows

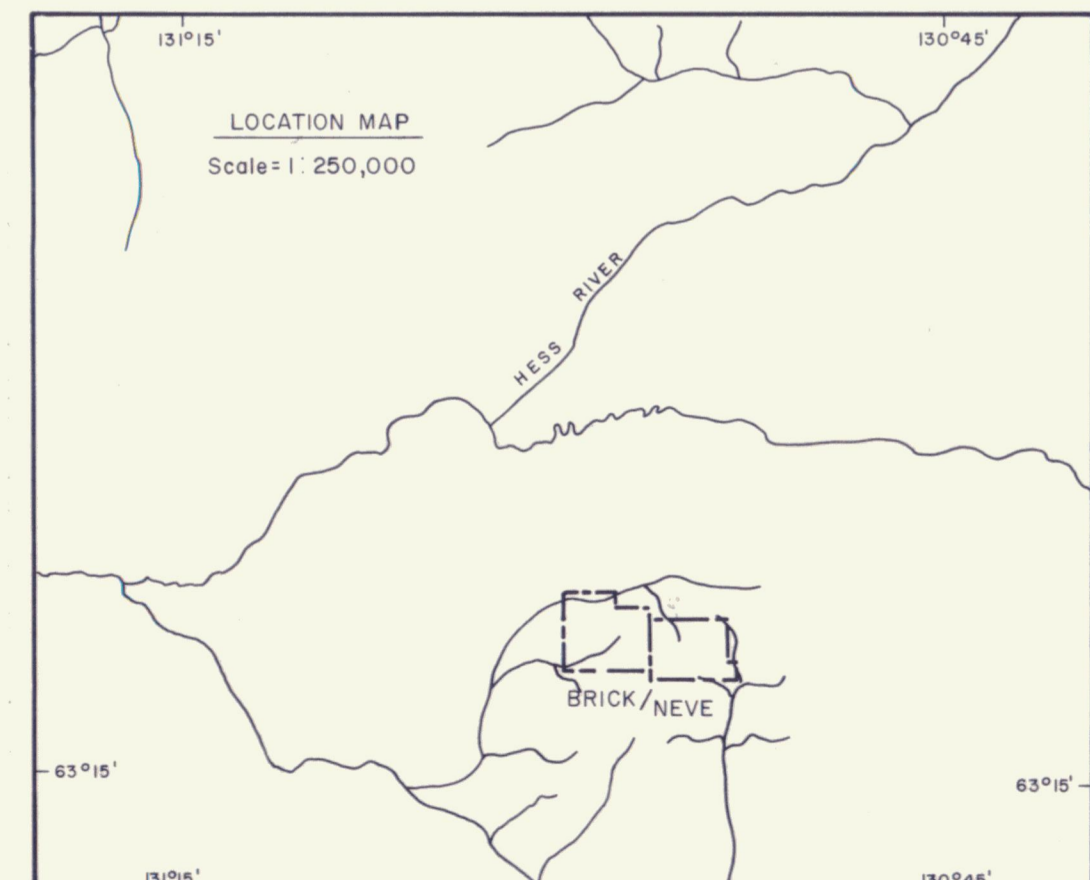
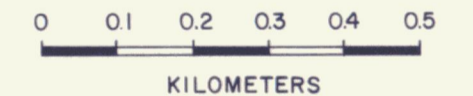
ORDOVICIAN TO DEVONIAN

Road River Formation:

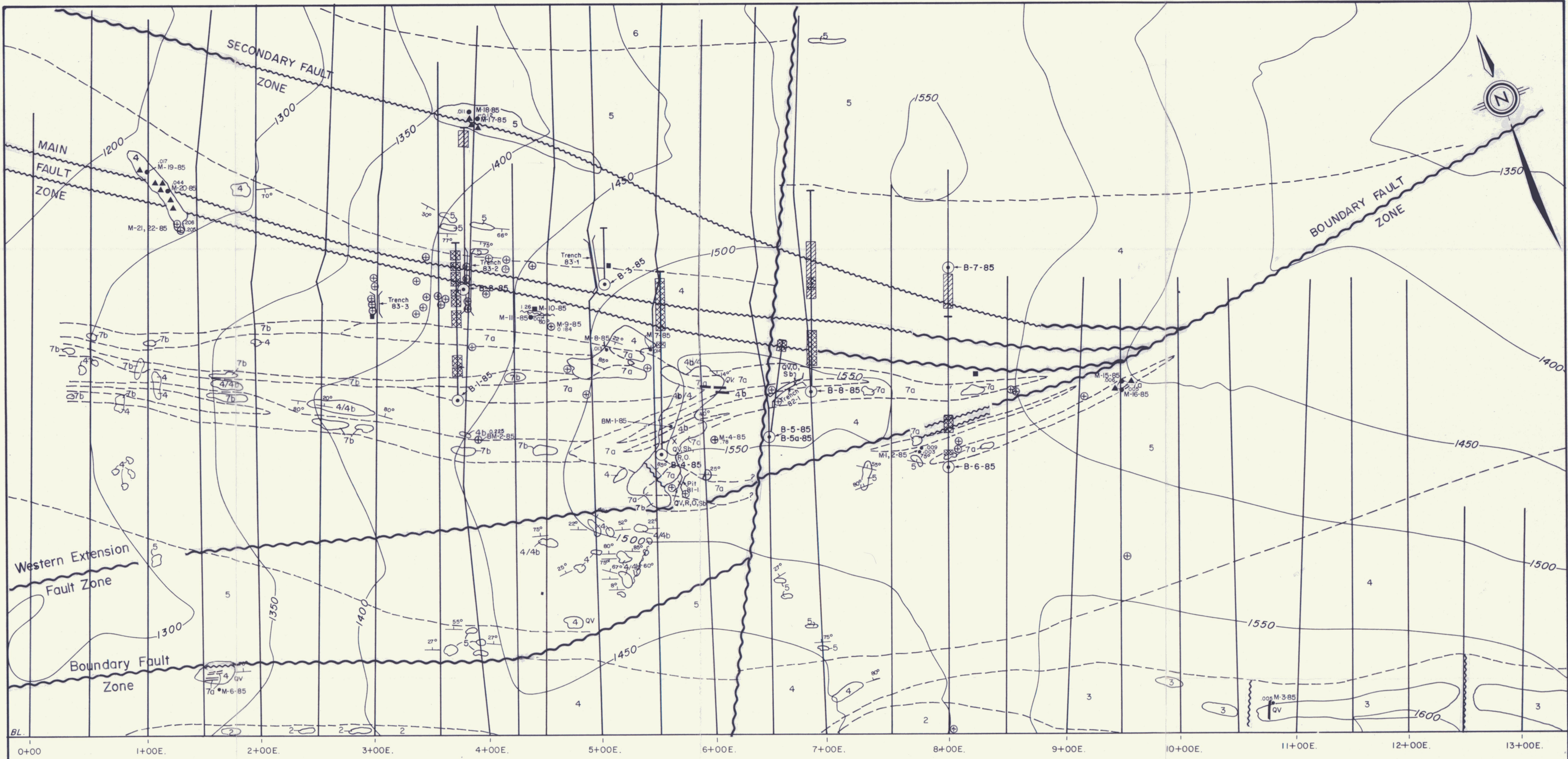
- 1c Tan and black weathering silty limestone
- 1b Brown weathering wispy laminated mudstone
- 1a Blue weathering shale and cherty shale - contains several grapholite horizons

SYMBOLS

- Geological contact (defined, approximate, assumed)
- ↖ Strike and dip of cleavage
- ↖ Overturned syncline (arrow indicates direction of plunge)
- ↖ Overturned anticline (arrow indicates direction of plunge)
- ↖ Normal fault (defined, approximate) arrows indicate direction of movement; dot indicates down thrown side
- Claim boundaries
- ~ Creek
- ↖ Strike and dip of bedding (inclined, overturned)
- Fault Zone



	PROJECT NO:
	SCALE: 1:10,000
TITLE:	NTS: 105-0-7
GEOLOGY 091770	AUTHOR: R R / MJA
	DRAWN BY: J.B.
PROJECT:	DATE: Sept. 1985
BRICK/NEVE PROJECT YUKON	FIGURE: 3



- SYMBOLS**
- Grid Lines
 - Elevation Contours, ASL (meters)
 - DDH Location and Orientation
 - Trench
 - Outcrop
 - Strike and Dip
 - Defined Fault Zone
 - Interpreted Fault Zone
 - Interpreted Lithologic Contact
 - ≥ 1.0 gm/t Ag over ≥ 3 m. Intersection in Drill Hole
 - ≥ 0.10 gm/t Au and ≥ 1.0 gm/t Ag over ≥ 3 m. Intersection in Drill Hole
 - 1985 Sample Location and Number
 - \oplus ≥ 0.1 gm/t Au in Rock Sample
 - \blacksquare ≥ 1.0 gm/t Au in Rock Sample

- QV Quartz Vein
- \blacktriangle Brecciation
- X Mineral Showing
- R Realgar
- Sb Stibnite
- O Orpiment

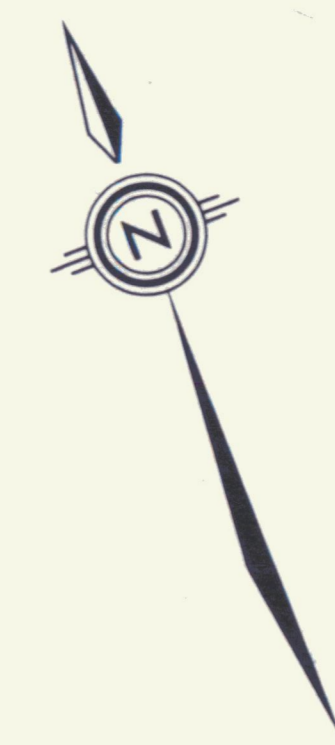
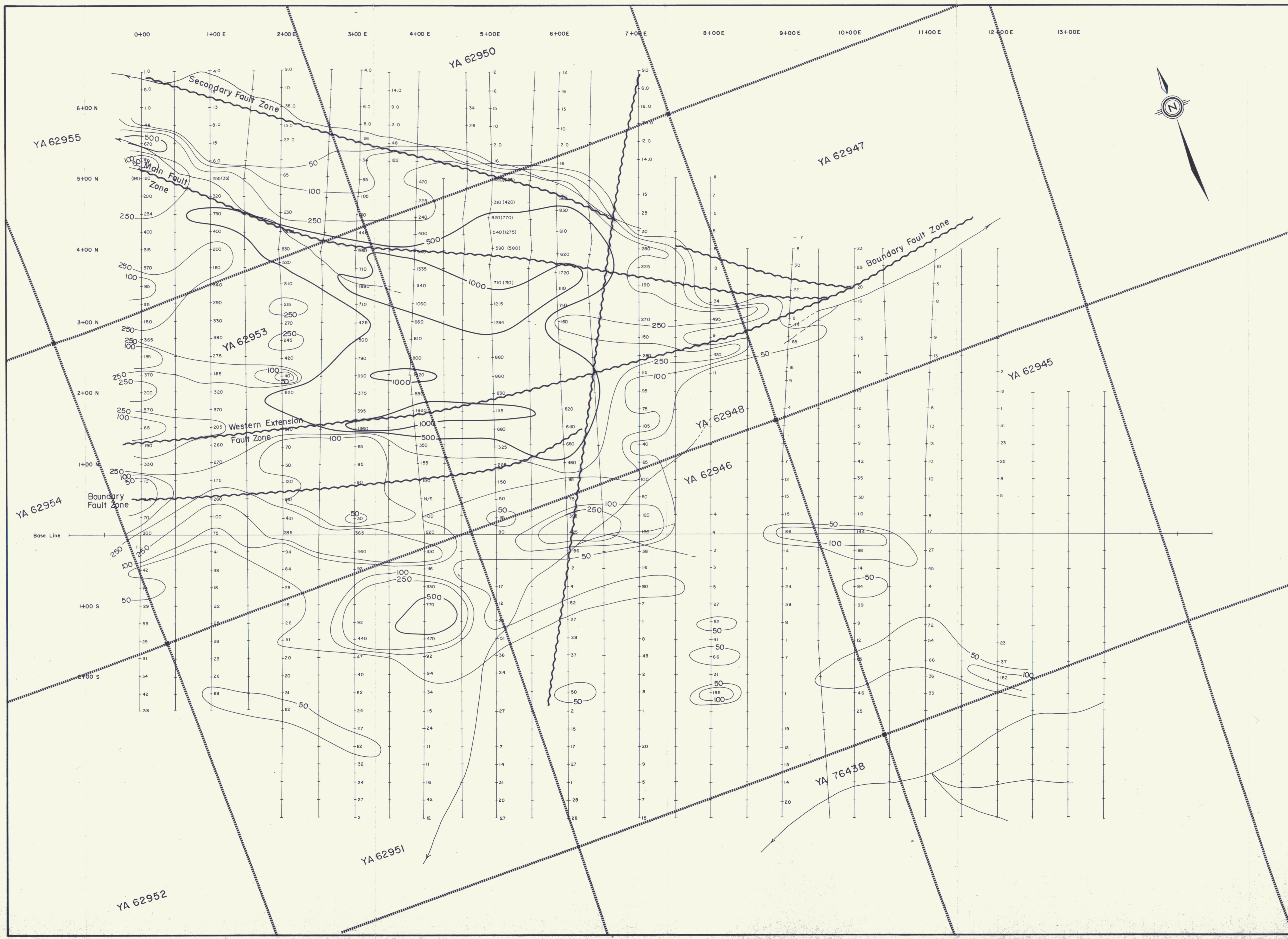
- LITHOLOGY**
- 7a Altered Monzonite Dyke/Sill
 - 7b Unaltered Monzonite Dyke/Sill
 - 6 Grey Arenite and Minor Shale
 - 5 Black Weakly Carbonaceous Shale with Siltstone/Sandstone Interbeds
 - 4 Black Carbonaceous Graphitic Shale, Siliceous Carbonaceous Shale and Mudstone
 - 4b Bleached Equivalent of Unit 4
 - 3 Chert Pebble Conglomerate and Silty Shale
 - 2 Black Carbonaceous Shale to Siliceous Shale
 - 1c Silty Limestone to Marlstone

LOCATION MAP
Scale: 1:250,000

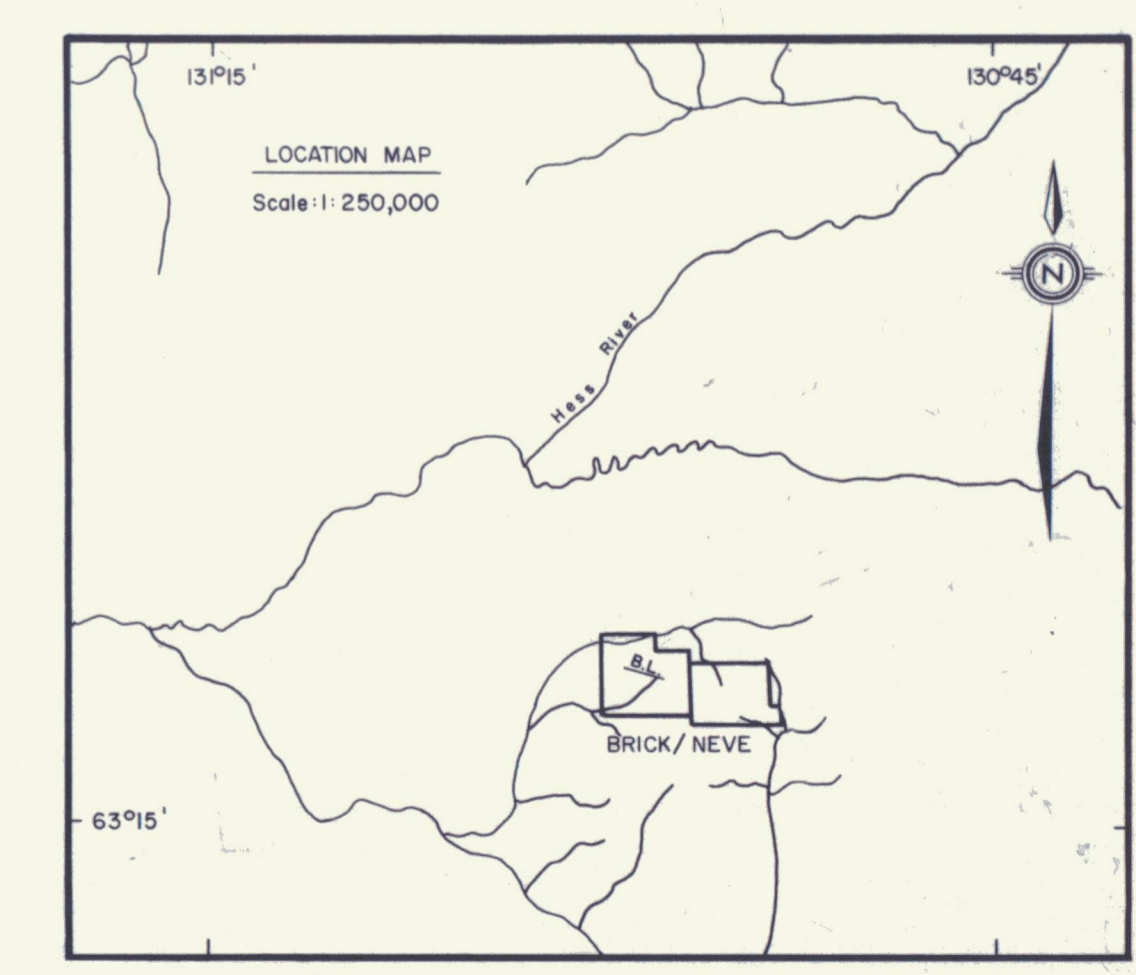
Agip Canada Ltd.

PROJECT NO:	500039
SCALE:	1:2,000
TITLE:	J.O. - SADDLE ZONE COMPILATION
NTS:	105-0-7
SURVEYED BY:	M. J. A.
DRAWN BY:	D. E. M.
PROJECT:	BRICK / NEVE
APPROVED BY:	E. STEWART
DATE:	SEPT, 1985
FIGURE:	5

YUKON

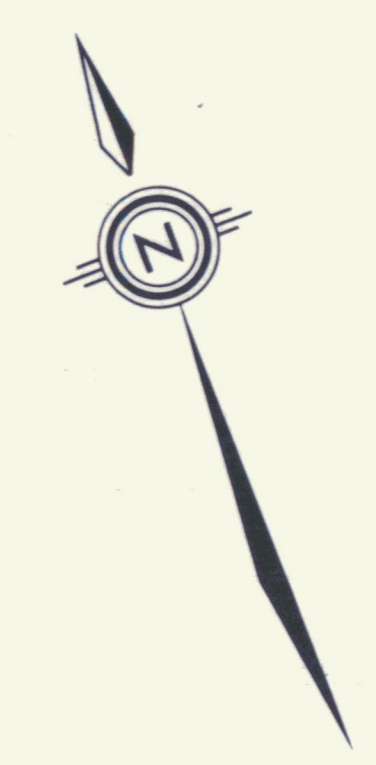
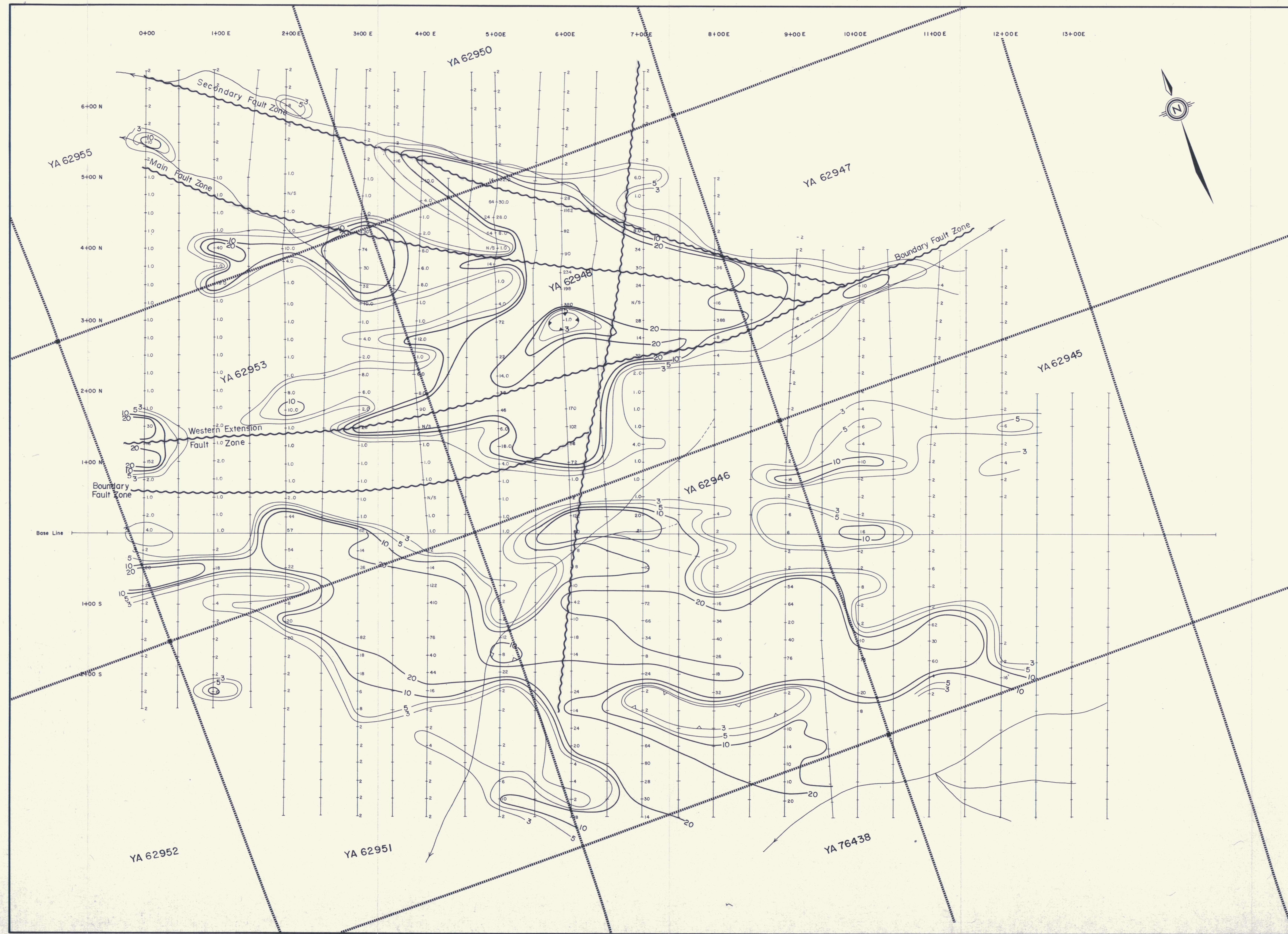


- LEGEND**
- Sample location (if not at picket location) Values of ppm.
 - Contour Interval: 50, 100, 250, 500, 1000 ppm.
 - N.S. Denotes no sample
 - Interpreted Fault Zone
 - YA 62948 Grant Number
 - Claim Post Location

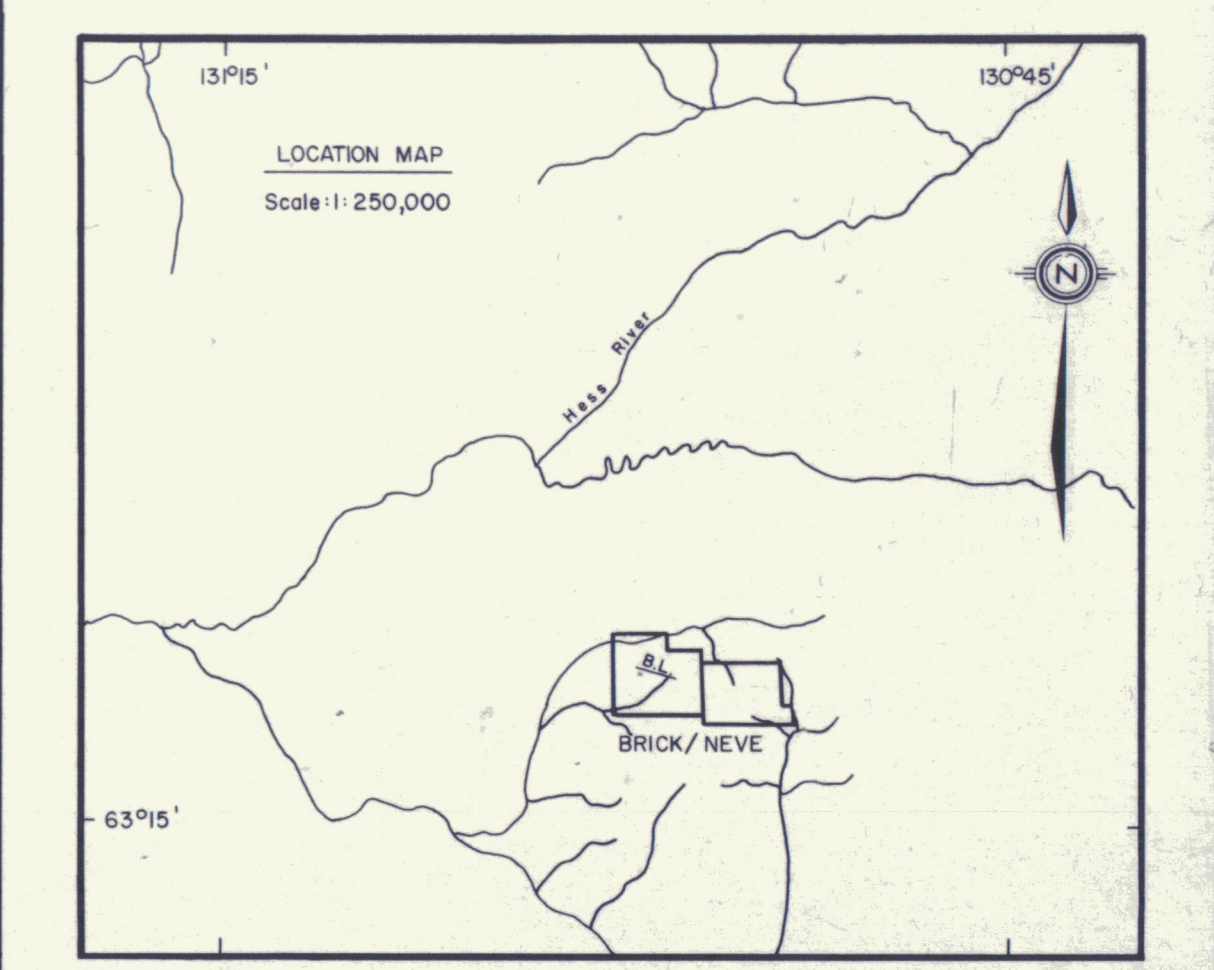


0 20 40 60 80 100 m. 091770

		PROJECT NO: 500039
TITLE: ARSENIC Soil Geochemistry		SCALE: 1:2000
PROJECT: BRICK Brick Grid YUKON		NTS: 105-0-7
		SURVEYED BY: MJA/EBS
		DRAWN BY: G.T.S.
		DATE: SEPT, 1985
		FIGURE: 6

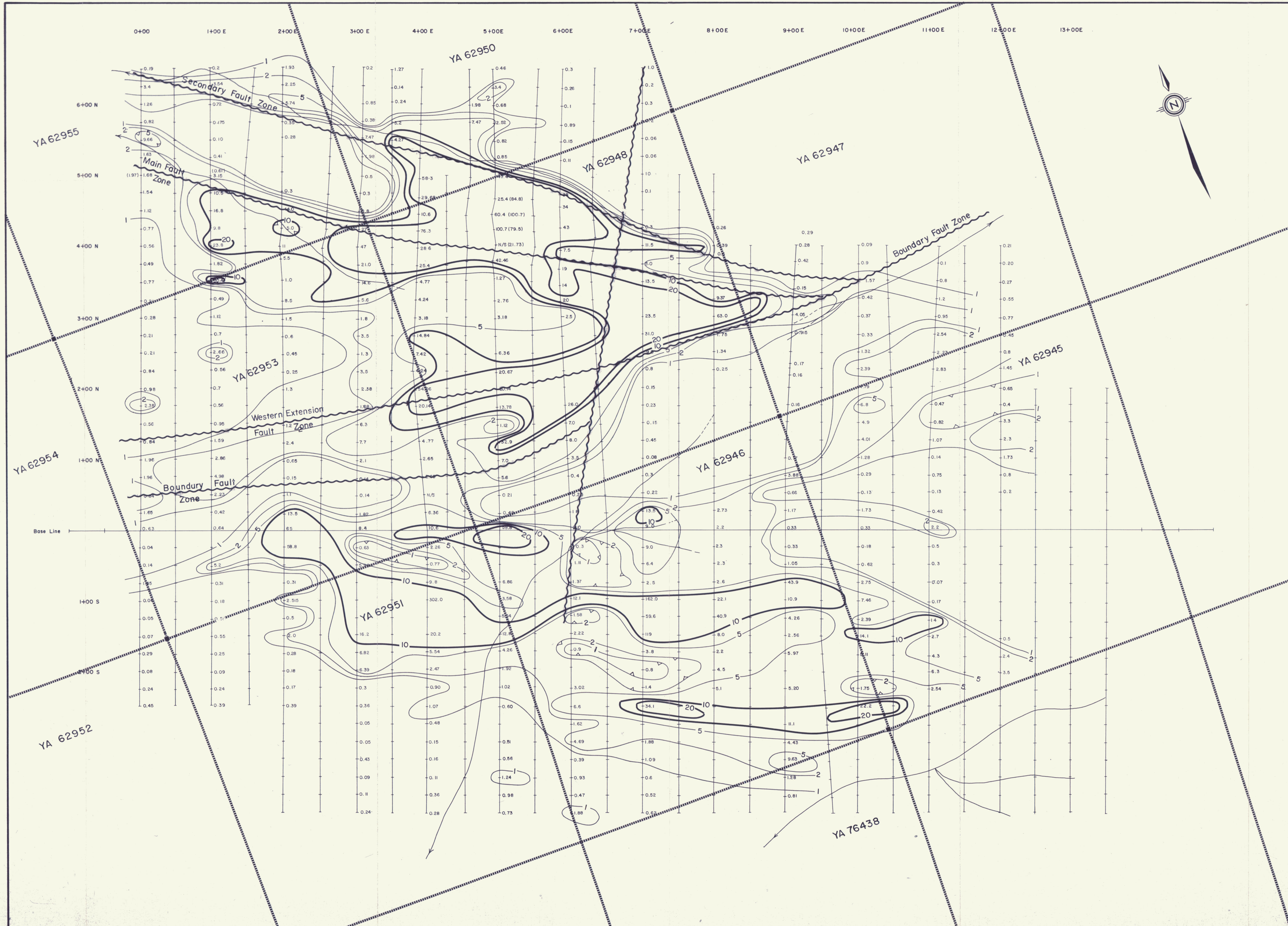


- LEGEND**
- Sample location (if not at picket location) Values of ppm.
 - ~ Contour Interval: 3, 5, 10, 20 ppm.
 - N.S. Denotes no sample
 - ~ Interpreted Fault Zone
 - YA 62948 Grant Number
 - Claim Post Location



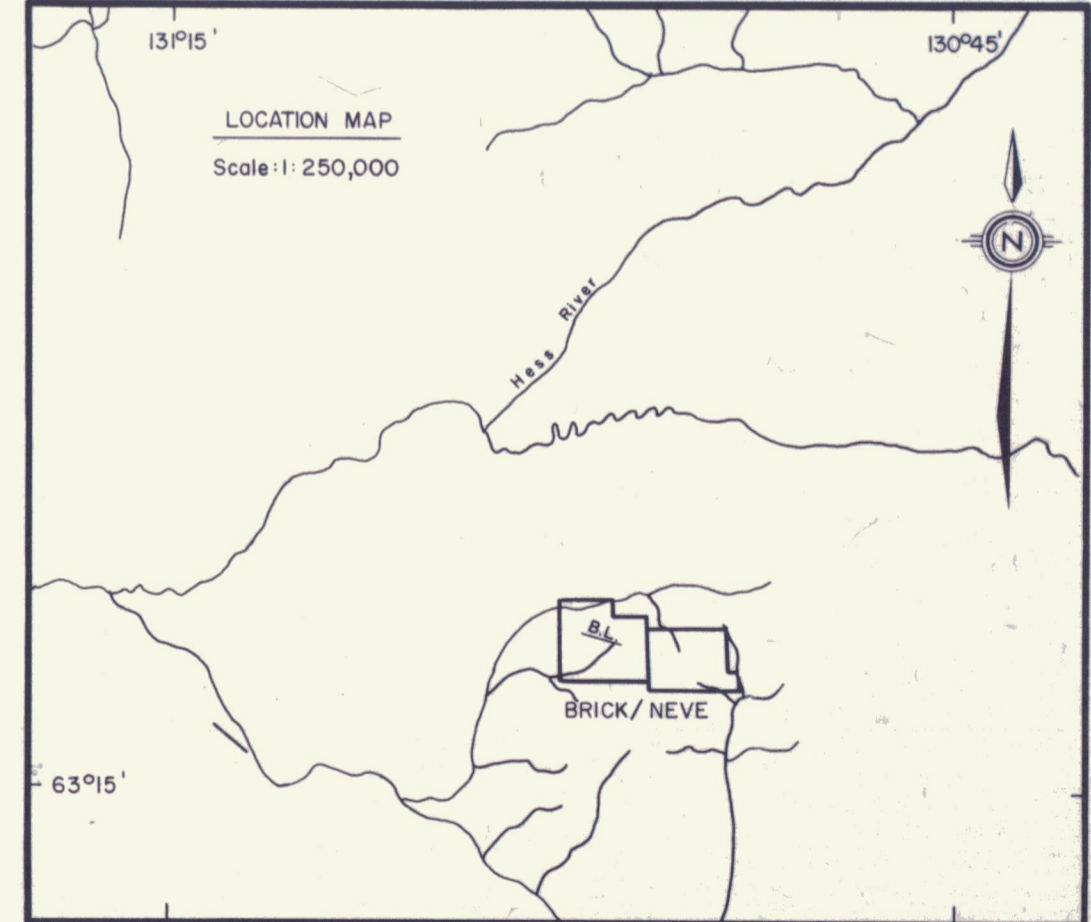
0 20 40 60 80 100 m. 091770

Agip Canada Ltd.		PROJECT NO: 500039
TITLE: ANTIMONY Soil Geochemistry		SCALE: 1:2000
PROJECT: BRICK Brick Grid YUKON		NTS: 105-0-7
		SURVEYED BY: MJA/EBB
		DRAWN BY: G.T.S.
		DATE: SEPT. 1985
		FIGURE: 7



LEGEND

- Sample location (if not at picket location) Values of ppm.
- Contour interval: 1, 2, 5, 10, 20 ppm.
- N.S. Denotes no sample
- Interpreted Fault Zone
- YA 62948 Grant Number
- Claim Post Location



		PROJECT NO: 500039
		SCALE: 1:2000
TITLE: MERCURY Soil Geochemistry		NTS: 105-0-7
		SURVEYED BY: MJA/EBS
PROJECT: BRICK Brick Grid YUKON		DRAWN BY: G.T.S.
		DATE: SEPT, 1985
		FIGURE: 8

091770