



Province of  
British Columbia

Ministry of  
Energy, Mines and  
Petroleum Resources  
ARIS  
GEOLOGICAL SURVEY BRANCH

Fifth Floor, 1810 Blanshard Street  
Victoria  
British Columbia  
V8V 1X4  
Telephone: (604) 952-0382  
Fax: (604) 952-0381

District Geologist, Cranbrook

Off Confidential: 94.10.15

ASSESSMENT REPORT 23300

MINING DIVISION: Greenwood

PROPERTY: Lexington  
LOCATION: LAT 49 01 00 LONG 118 37 00  
UTM 11 5430348 381790  
NTS 082E02E

CAMP: 008 Greenwood Camp

CLAIM(S): Lexington (L.645), City of Paris (L.622), City of Denver (L.1161)  
Oro (L.614), Puyallop (L.1152), OR 3-12, Excelsior, St. Lawrence  
New Jack of Spades, Cuba, Jean Fr., Jean 11, LSE 1-4, St. Maurice Fr.  
Bing

OPERATOR(S): Britannia Gold Corp  
AUTHOR(S): Butler, S.P.; Ronning, P.  
REPORT YEAR: 1994, 439 Pages  
COMMODITIES  
SEARCHED FOR: Copper, Gold  
KEYWORDS: Carboniferous-Permian, Serpentinities, Lower Jurassic  
Lexington porphyries, Dacites, Faults, Folds, Veins, Replacement, Quartz  
Pyrite, Magnetite, Chalcopyrite, Gold

WORK  
DONE: Drilling, Geological, Geophysical, Physical, Geochemical  
DIAD 1826.2 m 13 hole(s); BQ  
Map(s) - 12; Scale(s) - 1:500, 1:250  
GEOL 300.0 ha  
Map(s) - 4; Scale(s) - 1:1000, 1:500  
IPOL 18.0 km  
Map(s) - 8; Scale(s) - 1:2500  
MAGG 19.4 km  
Map(s) - 1; Scale(s) - 1:1500  
PETR 5 sample(s)  
RECL  
SAMP 1500 sample(s) ; AU, CU, AG  
TREN 233.0 m 3 trench(es)  
Map(s) - 4; Scale(s) - 1:100

MINFILE: 082ESE041, 082ESE042

LOG NO:	JUN 15 1994	RD.
ACTION:	<i>back from amendment</i>	
FILE NO:		

# REPORT ON THE

## 1993 LEXINGTON PROJECT



GREENWOOD MINING DIVISION  
BRITISH COLUMBIA

NTS: 82E/2E

LATITUDE 49°00'54" LONGITUDE 118°37'12"

FOR

BRITANNIA GOLD CORP.

17th FLOOR, 401 W. GEORGIA ST.  
VANCOUVER, B.C.

SUB-RECORDER  
RECEIVED  
FEB 28 1994  
M.R. # ..... \$ .....  
VANCOUVER, B.C.

BY:

SEAN P. BUTLER, P.Geo.

and

PETER A. RONNING, P.Eng.

February 15, 1994

FILMED

PART 1 OF 4

25,700

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

# TABLE OF CONTENTS

LIST OF ILLUSTRATIONS AND TABLES.....	iii /
SUMMARY AND CONCLUSIONS.....	1 /
INTRODUCTION.....	3 /
LOCATION AND ACCESS .....	3 /
LIST OF CLAIMS.....	3 /
PHYSIOGRAPHY.....	5 /
HISTORY.....	5 /
RESULTS OF 1993 WORK PROGRAM .....	9 /
SURFACE GEOLOGY.....	9 /
RE-LOGGING OLD DRILL CORE .....	10 /
GEOPHYSICS.....	10 /
GEOLOGY AND GEOPHYSICS.....	11 /
REGIONAL GEOLOGY.....	11 /
PROPERTY GEOLOGY .....	14 /
1993 WORK.....	15 /
MAIN ZONE .....	15 /
B93-1 TO B93-3 .....	16 /
INDUCED POLARIZATION.....	17 /
LEXINGTON AND TG-81 AREA.....	17 /
B93-4 TO B93-10 .....	18 /
INDUCED POLARIZATION.....	20 /
TRENCH NUMBER 3.....	20 /
PROSPECTING.....	21 /
GOLDEN CACHE AREA.....	22 /
TRENCHES NUMBER 1 AND 2 .....	22 /
DETAILED MAGNETOMETER SURVEY .....	23 /
B93-11 TO B93-13 .....	24 /
NORTHWEST GRID.....	25 /
MAGNETOMETER SURVEY .....	25 /
GEOLOGICAL MAPPING .....	25 /
UNDERGROUND MAPPING .....	26 /
CITY OF PARIS GEOLOGY.....	27 /
GRENOBLE ADIT GEOLOGY.....	27 /
CLOSURE OF OLD UNDERGROUND WORKINGS.....	28 /
RECOMMENDATIONS.....	29 /
BIBLIOGRAPHY.....	30 /

## APPENDICES

APPENDIX I.....	✓
1993 DIAMOND DRILL HOLE LOGS.....	✓
APPENDIX II.....	✓
RE-LOGS OLD CORE.....	✓
APPENDIX III.....	✓
ROCK UNIT ABBREVIATIONS USED IN CORE LOGGING .....	✓
APPENDIX IV.....	✓
STATEMENTS OF QUALIFICATIONS .....	✓
SEAN P. BUTLER.....	✓
PETER A. RONNING.....	✓

APPENDIX V.....	EXPENDITURES.....
APPENDIX VI.....	ANALYSIS CERTIFICATES AND METHODS.....
APPENDIX VII.....	INDUCED POLARIZATION REPORT.....
APPENDIX VIII.....	STRUCTURAL GEOLOGY REPORT.....
APPENDIX IX.....	PETROGRAPHIC REPORT.....

## LIST OF ILLUSTRATIONS AND TABLES

FIGURE #	ILLUSTRATION	FOLLOWING PAGE
1	LOCATION MAP.....	3 /
2	TOPOGRAPHIC MAP.....	3 /
3	CLAIMS MAP.....	4 /
4	REGIONAL GEOLOGY.....	11 /
5	PROPERTY GEOLOGY SOUTHEAST (1:1000).....	IN POCKET /
6	PROPERTY GEOLOGY CENTER (1:1000).....	IN POCKET /
7	PROPERTY GEOLOGY NORTHWEST (1:1000).....	IN POCKET /
8	DRILL PLAN MAIN ZONE SOUTHEAST END (1:500).....	IN POCKET /
9	DRILL SECTION B93-1 & B93-2 (1:500).....	IN POCKET /
10	DRILL SECTION B93-3 (1:500).....	IN POCKET /
11A	IP CHARGEABILITY PLAN MAIN ZONE (1:2500).....	IN POCKET /
11B	IP RESISTIVITY PLAN MAIN ZONE (1:2500).....	IN POCKET /
12A	IP CHARGEABILITY SECTION L.4E MAIN ZONE (1:2500).....	IN POCKET /
12B	IP RESISTIVITY SECTION L.4E MAIN ZONE (1:2500).....	IN POCKET /
13	DRILL PLAN TG-81 AREA (1:500).....	IN POCKET /
14	DRILL SECTION B93-4 TO B93-6 (1:500).....	IN POCKET /
15	DRILL SECTION B93-6, B93-9 AND B93-10 (1:500).....	IN POCKET /
16	DRILL SECTION B93-7 (1:500).....	IN POCKET /
17	DRILL SECTION B93-8 (1:500).....	IN POCKET /
18A	IP CHARGEABILITY PLAN TG-81 GRID (1:2500).....	IN POCKET /
18B	IP RESISTIVITY PLAN TG-81 GRID (1:2500).....	IN POCKET /
19A	IP CHARGEABILITY SECTION L.81B TG-81 AREA (1:2500).....	IN POCKET /
19B	IP RESISTIVITY SECTION L.81B TG-81 AREA (1:2500).....	IN POCKET /
20	TRENCH NUMBER 3 LEXINGTON AREA (1:100).....	IN POCKET /
21	TRENCH NUMBER 1 GOLDEN CACHE (1:100).....	IN POCKET /
22A & B	TRENCH NUMBER 2 GOLDEN CACHE (1:100).....	IN POCKET /
23	DETAILED MAGNETOMETER AND DRILL PLAN GOLDEN CACHE (1:500).....	IN POCKET /
24	DRILL SECTION B93-11 (1:250).....	IN POCKET /
25	DRILL SECTION B93-12 (1:250).....	IN POCKET /
26	DRILL SECTION B93-13 (1:250).....	IN POCKET /
27	MAGNETOMETER PLAN NORTHWEST GRID (1:1500).....	IN POCKET /
28	UNDERGROUND GEOLOGY CITY OF PARIS (1:500).....	IN POCKET /

APPENDICES AND FIGURES IN POCKETS ARE LOCATED IN SEPARATE VOLUMES ✓

## SUMMARY AND CONCLUSIONS

The Lexington claim group is located in British Columbia in the Greenwood Mining Division approximately ten kilometres southeast of the City of Greenwood, B.C. and 540 kilometres by road from Vancouver, B.C. In the summer of 1993 an extensive and detailed geological and geophysical program was completed on the property by Britannia Gold Corp. This work included surface geological mapping, sampling, re-logging old drill core, drilling and logging new diamond drill core, backhoe trenching with detailed mapping and sampling, ground magnetometer surveys, induced polarization surveys and underground mapping.

This work was done mainly over the Goosmus Shear area within the Goosmus and Gidon Creek valleys. The area of the Goosmus Shear was geologically mapped at a scale of 1:500 and plotted at 1:1000. Within the Goosmus Shear Zone, key mineralized zones include the Main Zone, TG-81-Lexington and Golden Cache.

Prior to 1993 work, the Main Zone was known to contain a reserve of 145,000 tons grading 0.28 ounces per ton gold and 1.48% copper (Wortman, 1992). The 1993 work in the Main Zone area includes IP geophysics, surface and underground geological mapping, core-relogging and diamond drilling. The diamond drilling in the Main Zone has indicated continuity of the zone into previous gaps in the drill pattern in the DH-21 area.

The TG-81 area is named for the 1981 drill hole which contained 0.494 ounces per ton gold and 1.485% copper over 4.8 metres. This drill hole is about 100m southeast of the end of the Lexington Adit workings, which dates from about 1892. The Lexington and TG-81 area was explored using surface geological mapping, backhoe trenching, core re-logging, IP geophysics and diamond drilling. The trenching uncovered the source of the gold rich magnetite boulders found in 1992 in a magnetite zone in the serpentinite-dacite contact. Diamond drilling in the TG-81 area has outlined a strong structural fold whose hinge area contains a significant copper-gold intercept in B93-6 with 0.345 ounces per ton gold and 1.094 % copper over 14.3m.

The Golden Cache area had backhoe trenching, geological mapping, core re-logging, diamond drilling and ground magnetics completed in 1993. This resulted in the clear definition of a magnetite rich horizon on a serpentinite-dacite contact.

The Northwest Grid extension was established in 1993 and geologically mapped. There was also a ground magnetics survey completed. The work in this area extends our knowledge of the geology from the Vacher Zone area northwestward toward previous mapping in the Number 7 Mine area. The mapping and geophysics have indicated that the target mineralized horizon does not extend more than 30m northwestward past the Golden Cache area.

The 1993 work served to reinforce the fact that the potentially economic mineralization is controlled by a clearly defined structural horizon. The key lithological/structural package consists of a 50 to 200 metre thick quartz feldspar porphyry, the property dacite, sandwiched between the Upper and Lower Serpentine. Mineralization is concentrated near the contact between the Lower Serpentine and the overlying dacite. It is thickest and richest in or near certain structures in which the contact is warped as a result of folding or faulting. The ore minerals are chalcopyrite and native gold, with metallic gangue minerals of pyrite and/or magnetite, in a serpentinite and/or dacite host. The mineralization is considered to be replacement type along or near this structural break.

The ore reserve in the Main Zone should now be recalculated, incorporating historical data that has been acquired since Wortman's (1992) study, as well as new data. Future studies should be directed at developing techniques to locate favourable structures in the target horizon. These should include further IP test work in the TG-81 - Lexington area. If successful there, geophysics and detailed mapping should be extended between TG-81 and the Golden Cache. Target areas developed should be drilled.

A geological resource should be calculated for the Lone Star area. The process of calculating will highlight those areas where more drilling could enhance grades or tonnage.

**Respectfully Submitted**

*Sean P. Butler*

**Sean P. Butler**

# INTRODUCTION

## LOCATION AND ACCESS

*(Figures #1 and #2)*

The Lexington claim group is located in the Greenwood Mining Division, approximately 10 kilometres southeast of the City of Greenwood, B. C., and 540 kilometres by road from Vancouver, B.C. The geographic point latitude 49° 00' 54" and longitude 118° 37' 12" is near the center of the project area. The property is located on NTS map sheet 82E/2E. The main project area is within the drainages of Goosmus Creek and Gidon Creek, with claims extending into neighbouring drainages.

Access to the claim group from Grand Forks is by driving west on Highway #3 for 5 kilometres to the Gibbs Creek Road. This good gravel road (and its tributary gravel road the City of Paris Road, up Stacey Creek) climbs for about 5 kilometres to the Lone Star Haul Road. Continue driving south on the heavy duty gravel Lone Star Haul Road to the City of Paris Road.

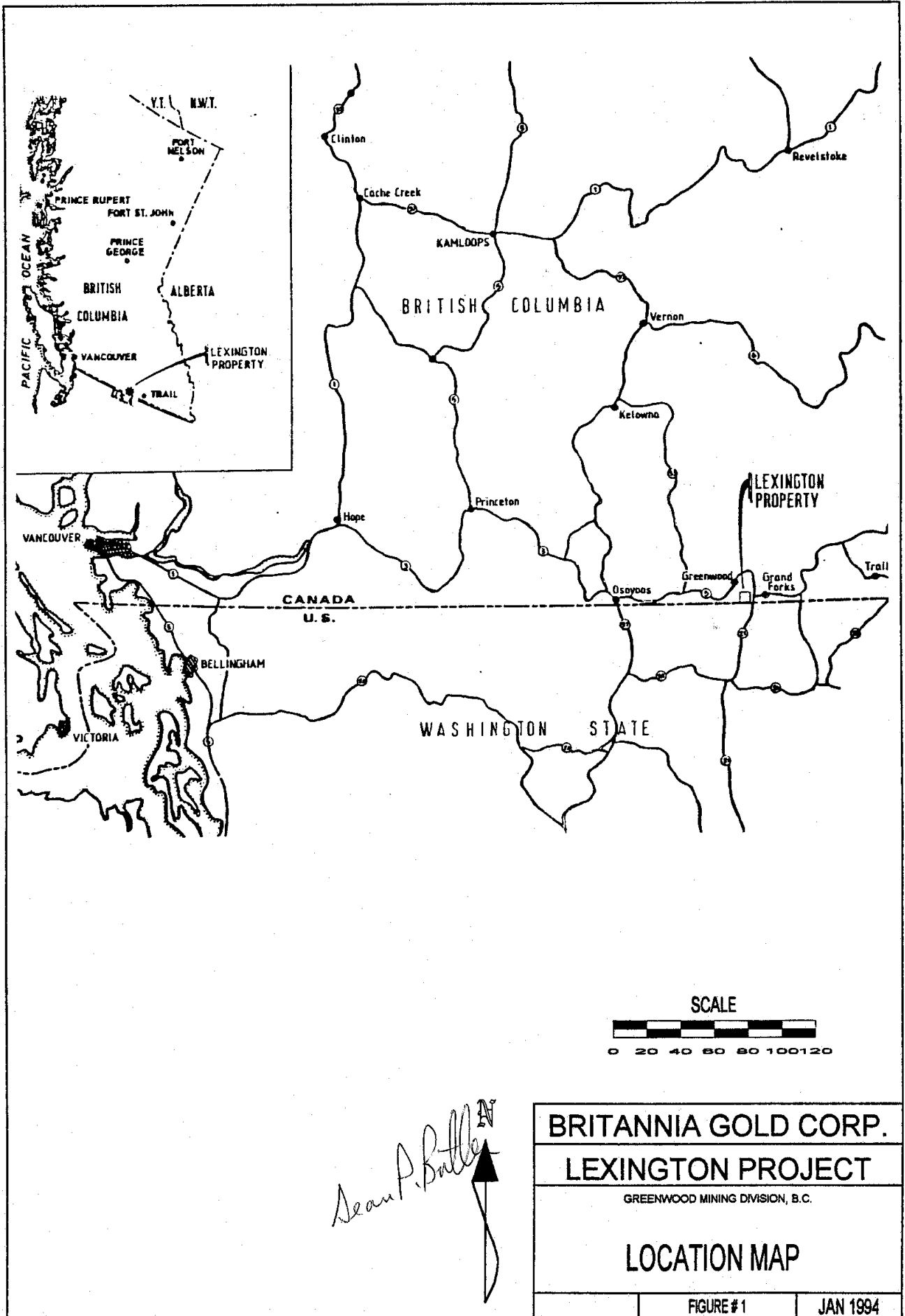
Access is available from Greenwood, west on Highway #3, for 3 kilometres then south on the McCarren Creek road to either the Gidon Creek Road or the City of Paris Road, both of which lead to the property re-joining each other between the Vacher and Golden Cache Zones. Optionally, the Lone Star Haul Road is accessed from Greenwood by driving out of town along the Phoenix Mine Road to the beginning of the haul road at the Phoenix Cenotaph, near the old open pit, and driving south.

Once on the claims there are many gravel and dirt roads that offer good access to most parts of the claim group. There is a natural gas pipeline and high voltage electrical power line in the McCarren Creek Valley just north of the claim group.

## LIST OF CLAIMS

*(Figure #3)*

The following is a list of the mineral claims included in the Lexington Property. Expiry dates listed below are the present dates of expiry before applying the assessment credit for the work outlined in this report.



BRITANNIA GOLD CORP.

LEXINGTON PROJECT

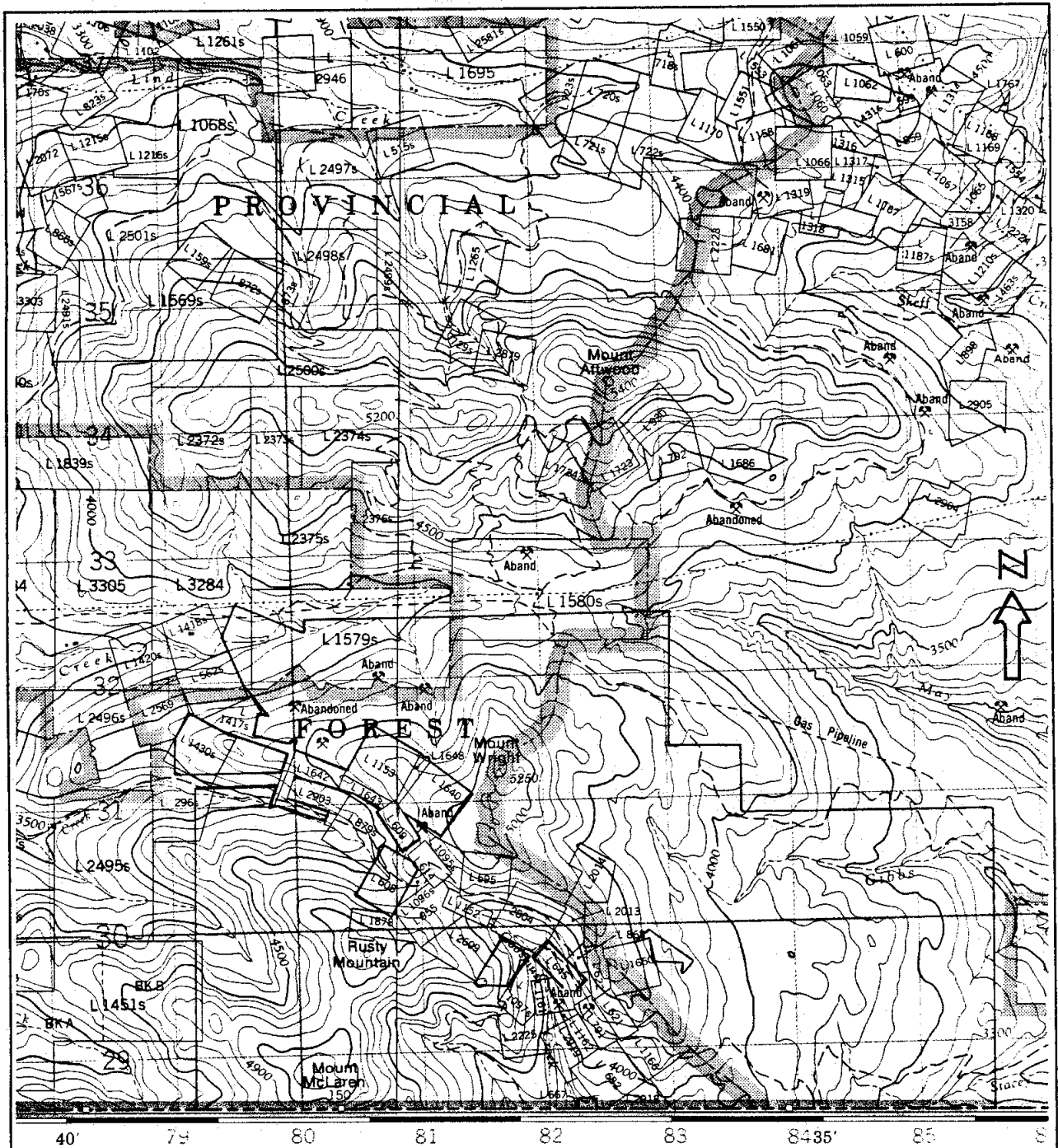
GREENWOOD MINING DIVISION, B.C.

LOCATION MAP

FIGURE #1

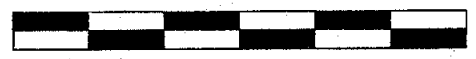
JAN 1994





40 79 80 81 82 83 8435' 85 8

SCALE (km)



0.0 0.5 1.0 1.5 2.0 2.5 3.0

*Sean P. Butler*

**BRITANNIA GOLD CORP.**

**LEXINGTON PROJECT**

GREENWOOD MINING DIVISION, B.C.

NTS 82E/2E

**TOPOGRAPHIC MAP**

SCALE 1:50,000

FIGURE #2

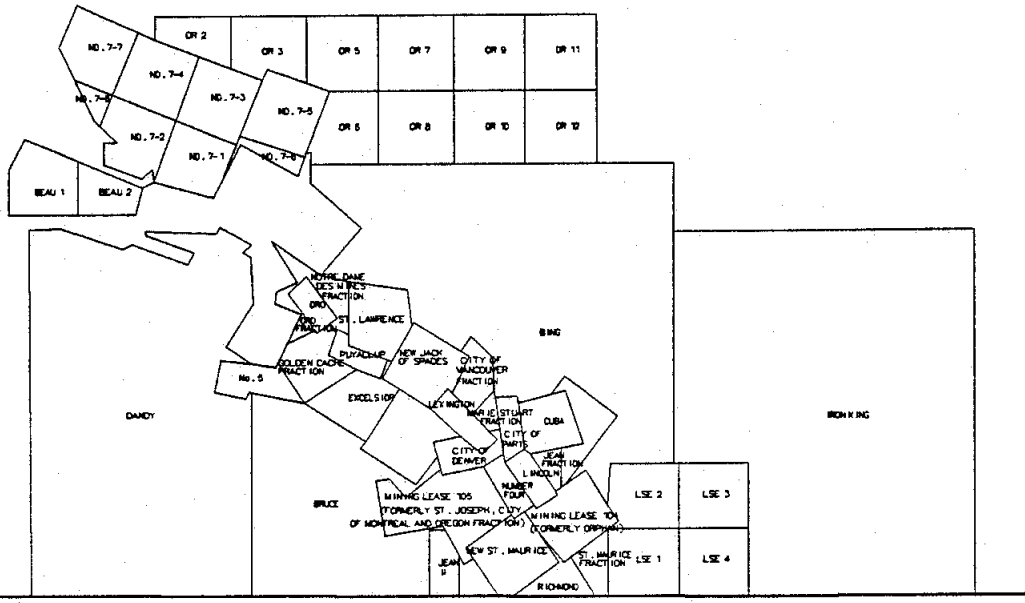
JAN 1994

The expiry date of all mineral claims and reverted crown grants will be extended to the year 2003, following application of assessment work outlined in this report.

Claim Name	Expiry Date	Record #	Comments
New St. Maurice		L682	Crown Granted Claims listed with Lot #s.
Richmond		L2918	
Golden Cache Fr.		L955	
City of Paris		L622	
Lincoln		L621	
No. 4		L791	
City of Vancouver Fr.		L2013	
Lexington		L645	
City of Denver		L1161	
Notre Dame des Mines Fr.		L1095	
Oro		L614	
Oro Fr.		L1096	
Puyallup		L1152	
Orphan	28-Jun-95	216289	
St. Joseph, etc.	28-Jun-95	216290	
Beau 1	29-May-94	214906	
Beau 2	29-May-94	214907	
St. Maurice Fraction	17-Dec-94	214521	
No. 7-5	13-Jan-95	216667	
No. 7-6 Fr.	13-Jan-95	216668	
No. 7-7	13-Jan-95	216665	
No. 7-8 Fr.	13-Jan-95	216666	
OR 2	03-Feb-95	215207	
OR 3	03-Feb-95	215208	
OR 5	03-Feb-95	215209	
OR 6	03-Feb-95	215210	
OR 7	03-Feb-95	215211	
OR 8	03-Feb-95	215212	
OR 9	03-Feb-95	215213	
OR 10	03-Feb-95	215214	
OR 11	03-Feb-95	215215	
OR 12	03-Feb-95	215216	
Bing	30-Jun-95	214536	20 units
Bruce	30-Jun-95	214537	9 units
Iron King	29-Jul-95	214697	20 units
Dandy	30-Jul-95	214763	20 units
No. 7-1	15-Dec-95	216440	
No. 7-2	15-Dec-95	216441	
No. 7-3	15-Dec-95	216442	
No. 7-4	15-Dec-95	216443	
St. Lawrence	19-Apr-96	214165	
New Jack of Spades	19-Apr-96	214164	
Jean Fraction	04-May-96	216438	
Jean 11	13-Jun-96	216439	
LSE 1	31-Jul-96	214193	
LSE 2	31-Jul-96	214194	
LSE 3	31-Jul-96	214195	
LSE 4	31-Jul-96	214196	

CANADA

USA



SCALE (km)



0.0 0.5 1.0 1.5 2.0 2.5 3.0

*Sean P. [Signature]*

BRITANNIA GOLD CORP.

LEXINGTON PROJECT

GREENWOOD MINING DIVISION, B.C.

NTS 82E/2E

CLAIMS MAP

SCALE 1:50,000

FIGURE # 3

JAN 1994

No. 5 .....	26-Sep-96 .....	214942
Maria Stuart .....	26-Sep-96 .....	214851
Excelsior.....	16-Oct-96 .....	214206

## PHYSIOGRAPHY

The elevation varies from 1200 metres on the eastern side of the property in the July Creek valley to just over 1600 metres on the top of Mt. Wright. The topography is moderate, with local steep areas. The mountain tops are rounded, with long gentle ridges extending for several kilometres. The major drainage in the claim area is the southern flowing Goosmus Creek, that crosses into Washington State in the south center of the Lexington project area. There is a long ridge formed with Mount McLaren, Rusty Mountain, Mount Wright and Mount Attwood that divides the drainages on the property. There is another gentle ridge that descends south from Mount Wright, dividing the Goosmus and July Creek valleys, extending down to the Kettle River south of Danville, Wa. McCarren Creek drains the north end of the project area joining Boundary Creek, south of Greenwood.

The vegetation in the area consists of hemlock, tamarack, cedar, pine and some deciduous trees. There are locally areas of thick underbrush. The whole claim area is criss-crossed by numerous overgrown logging and mining trails and log cabin ruins are very common. The creek valleys are generally filled with glacial sediments, with the best rock exposure on ridges and mountain tops.

## HISTORY

The early work in the area was on and around the City of Paris claim, with some work on the Lexington claim. The earliest significant work, in 1892, was development of two adjacent shafts and underground drifting on a pyrite-chalcopyrite rich quartz vein. Also in 1892, sinking a shallow shaft with limited drifting was done along a narrow tetrahedrite vein, on the Lincoln claim, 200 metres south of the two City of Paris shafts. By 1899 the City of Paris Gold Mining Company controlled the property and began major underground development. The company drove a 245 metre long cross-cut to the northeast to intersect the vein approximately 100 metres below surface. Development of a 180 metre long drift to the northwest generally followed the vein. Mining followed several different structures underground when they drifted 90 metres southeast toward the area underneath the Lincoln shaft. Work elsewhere on the property at this time included 75 metres of drifting on a pyrite-chalcopyrite zone on the Lexington claim 600 metres northwest of the City of Paris portal.

After a year of production ending in 1900, the City of Paris mine was dormant until 1922, when prospecting began again. There was minor production on the City of Paris claim in 1938. Total production from the City of Paris was 2100 tons grading 3.14% Cu, 0.40 oz/t Au and 2.1 oz/t Ag.

The next major work on the Canadian side of the border was in 1962 when King Midas Mines Ltd. consolidated the old crown-granted claims and did a reconnaissance geochemical and geophysical survey. A short northwesterly trending adit was developed on a tetrahedrite bearing quartz vein near the collar of the Lincoln shaft, yielding a few tons of argentiferous ore.

In 1967, Lexington Mines Ltd. acquired the claims covering what was later the Main Zone and the ground to the north and gradually increased their holdings to 132 claims and mineral leases in 1970. Lexington's initial work involved soil geochemistry, induced polarization and about 3050 metres of bulldozer trenching. From April 1969 to July 1970, Lexington Mines Ltd. completed 33 BQ and NQ diamond drill holes totaling 5,564m (18,225 feet) during which the copper-gold Main Zone was discovered.

Granby Mining optioned Lexington Mines' property in 1972 and drilled 37 percussion holes, for a total of 2,018m (6,620 feet). This drilling tested IP anomalies northwest of the Main Zone and attempted to outline open pit copper reserves between the Lexington Adit and the Main Zone.

In early 1974 Aalenian Resources optioned much of Lexington Mines' holdings, and drilled four additional diamond drill holes (totaling 1,103 feet, 336m) and 13 percussion holes (totaling 3,195 feet, 974m) in the Main Zone area. Aalenian dropped the option in 1975 and no further work was done until Grenoble Energy acquired the key claims in 1979.

Starting in May 1980 Grenoble Energy drove a 115m horizontal test adit into the area where the Main Zone subcrops on surface. A raise was mined up into the mineralized zone and 20 diamond drill holes were collared underground.

Teck Corp. optioned Grenoble's holdings in March 1981 and the ground south to the border from R.H. Seraphim and others in June 1981. Initially twenty-three NQ diamond drill holes were done in the Main Zone area (14,880 feet, 4,535m). In late 1982 to May 1983 Teck drilled 24 more NQ holes (for 3,228.7m), mostly northwest of the Main Zone toward the Lexington Adit and on the Richmond group of claims to the south owned by Seraphim and others.

The property was acquired by Canadian Pawnee Oil Corp. in July 1984 and other claims were added to the east and west in August 1986. Canadian Pawnee conducted a program including linecutting, soil geochemistry, geophysics (Pulse EM, ground magnetometer, VLF-EM, and SP) and diamond drilling in the summer of 1986. The seven NQ diamond drill holes (2,104 feet, 641.3m) were centered near the Lexington portal area.

Nine diamond drill holes were completed in January and February of 1987 infilling areas of the Main Zone (3,410 feet, 1,039m). In 1988, ten NQ holes were drilled in the Main Zone, four in the Vacher Zone area and three in the Golden Cache area (totaling 2,780.21m).

During 1992, Britannia Gold Corp. drilled 6 BQ holes, completed several ground magnetometer surveys, had the grid rehabilitated and accomplished extensive surface geological mapping. Four of the diamond drill holes were in the Vacher Zone and two in the area of the Lincoln portal. Most of the 1986 Canadian Pawnee Grid (rehabilitated in 1992) was geologically mapped at 1:500 scale.

The Richmond group of claims are south of the Lexington group of claims, on the Canadian side of the border. Silver Standard Mines Ltd. held these claims by option in 1967, drilling five percussion holes. Two diamond drill holes were drilled along the border, in 1968, with disappointing results. Silver Standard completed a further 17 percussion holes in 1970. The ground was optioned by Teck in 1981, and diamond drilled in 1982, as mentioned above. Kassin Resources drilled six diamond drill holes in 1987. In early 1993, this ground was acquired by Britannia Gold Corp.

On strike, in the same geological environment south of the Canada - U.S.A. border, is the Lone Star property where from 1890 to 1920 sporadic underground production yielded 40,900 tons, of which 6500 tons graded 2.6% Cu, 0.032 oz/t Au, and 0.19 oz/t Ag. In the 1950's the Lone Star ground was explored by Attwood Resources and Granby, mainly diamond drilling and re-opening the old workings. In the early 1970's the property was explored extensively by several companies, including Granby, Coastal Mining, and Israel-Continental. In 1977-78 Granby Mining Co. operated an open pit. Approximately 400,000 tons of ore were trucked to the Phoenix mill, along the Lone Star Haul Road, for processing. In the early 1980's Azure Resources did surface geological mapping as well as many percussion, reverse circulation and diamond drill holes on the Lone Star claims. Later, U.S. Borax/Kennecott did extensive mapping and some diamond drilling from 1989 to 1991. These claims are presently owned by BGP Resources, an American subsidiary of Britannia Gold Corp.

The No. 7 Mine claims, in the north end of the Lexington group, were originally located in 1891 (Kyba, 1984). Underground work began in 1902, on the No. 7 quartz vein. The principal metals in the quartz vein are gold, silver and lead. Between 1901 and 1903, 940 tons of ore were shipped containing 256 ounces of gold and 12,398 ounces of silver. The Consolidated Mining and Smelting Company acquired the No. 7 Mine and adjoining claims in 1909. In 1910, an aerial tramway was constructed to the Boundary Falls Smelter, and 5,186 tons of ore with 1,249 ounces of gold and 47,084 ounces of silver were shipped up to 1913. The next activity was by W.E. McArthur Jr., who staked the ground in 1967 and again in 1975. His work includes 21 trenches, 700 feet of diamond drill core, a new adit and 28 feet of underground work. Kettle River Resources acquired the ground in 1983 and re-collared the tunnel and did 250 feet of underground rehabilitation. In 1984 a grid was established with geology, geochemistry, geophysics and trenching completed (Kyba, 1984).

The Mabel property, although not part of the claim holdings of Britannia Gold Corp., occurs within Britannia's property. Initial work in 1892 included shallow trenches and shafts on small pyritiferous quartz veins and pyrrhotite bearing siliceous argillites. In 1937, a 100 foot deep inclined shaft was developed on a diorite-schist contact, yielding minor gold, silver and copper. King Midas Mines Ltd., developed a 400 foot long adit below the previous workings, in the early 1960's. Apparently no significant mineralization was found in this work (Church, 1970a).

## RESULTS OF 1993 WORK PROGRAM

The 1993 work program was highly detailed and included the following activities:

<b>ACTIVITY</b>	<b>LOCATION</b>	<b>AMOUNT OF WORK COMPLETED</b>
DIAMOND DRILLING	MAIN ZONE, TG-81 AREA & GOLDEN CACHE	13 BQ DRILL HOLES, 1862.2m
OLD CORE RE-LOGGING (ANALYZED SELECT AREAS)	RICHMOND, MAIN ZONE, TG-81 AREA and GOLDEN CACHE (TECK & MOST CANADIAN PAWNEE DRILL CORE)	BQ & NQ DRILL CORE, 10223.2m in 66 holes re-logged.
GEOLOGICAL MAPPING	REMAPPED CENTER OF THE PROPERTY (GOOSMUS SHEAR, PLUS)	SCALE 1:500 (PLOTTED @1:1000), about 300 Ha
UNDERGROUND MAPPING	CITY OF PARIS, GRENOBLE	SCALE 1:500, 765m and 110m in length
BACKHOE TRENCHING	LEXINGTON & GOLDEN CACHE AREAS	3 TRENCHES, 233m long, detail mapping and sampling
INDUCED POLARIZATION	MAIN ZONE & TG-81 AREA	2 SURVEYS of 2000m of sectional and 16,000m of plan grid length
GROUND MAGNETOMETER	GOLDEN CACHE & NORTHWEST GRID	DETAIL (2m stations along 5m grid line spacing on 1.042 km of grid) AND RECONNAISSANCE (12.5m stations along 50m grid line spacing on 18.3 km of grid) SCALE SURVEYS

## **SURFACE GEOLOGY**

*(Figures #5, #6 and #7)*

In the spring and early summer of 1993 Dr. Peter Read, structural geologist, was contracted to map the geology of the property. Working with the geology maps of Shearer, 1993, as a base, he added geological interpretation based on the collection of additional outcrop and structural geological data. This geological mapping, combined with the re-logging of available old drill core, added to the geological understanding in this complex environment.



The 1986 grid of Canadian Pawnee was extended to the northwest in September, 1993 and this area was geologically mapped to add to the existing geology. At the same time as this new Northwest mapping, detailed geological re-mapping of the Golden Cache area was done to better correlate the geology uncovered in two new trenches, a detailed magnetometer survey and three diamond drill holes.

There is very limited to no outcrop in the area of interest between the south end of the Lincoln claim and the Lone Star pit. Therefore there is no surface geology map on the Richmond and north end of the Lone Star claim groups.

The geology in the area to the northeast of the No. 7 fault from the Main Zone to the Vacher Zone (Figure #6) is from Ebisch (1990). It is included to add to the local understanding of the geology but has not been confirmed in the field.

## **RE-LOGGING OLD DRILL CORE**

### *(Appendix II)*

Most of the core drilled by Teck Corp. (1980-1981) and about half of the Canadian Pawnee drill core (1988 and some of 1986) is available for inspection at the Skylark Minesite outside Greenwood. In the early summer of 1993 Dr. Read and Britannia Gold Corp. personnel re-logged this core. This was done to consolidate the number of rock units, increase the consistency of the description of these units, collect more geological structural data than previously and to better understand the major alteration units. This work is reflected in improved drill section interpretations of the Main Zone. This information has been consolidated in the drill hole computer data base of the project.

## **GEOPHYSICS**

There were two geophysical methods used on this project, ground magnetics and induced polarization.

The ground magnetic surveys employed two Scintrex EDA OMNI IV magnetometers, one used as a base station the other as a field unit. These instruments have built in programming to correct for diurnal variations. Corrected data was dumped into a computer at the end of every day. There were two large systematic surveys completed on this project, over the Northwest Grid and a detailed survey over the Golden Cache area. The Northwest Grid was covered at 12.5m intervals and the Golden Cache Grid was detailed at 2m spacings.

The Induced Polarization Survey was completed by Delta Geoscience Ltd. of Delta, B.C. The IP was done to determine if the gradient array method would give better resolution than previous methods and to see if sections could be more closely correlated with known geology. The report of methods used in this work and a brief description of results is outlined in Appendix VII.

## GEOLOGY AND GEOPHYSICS

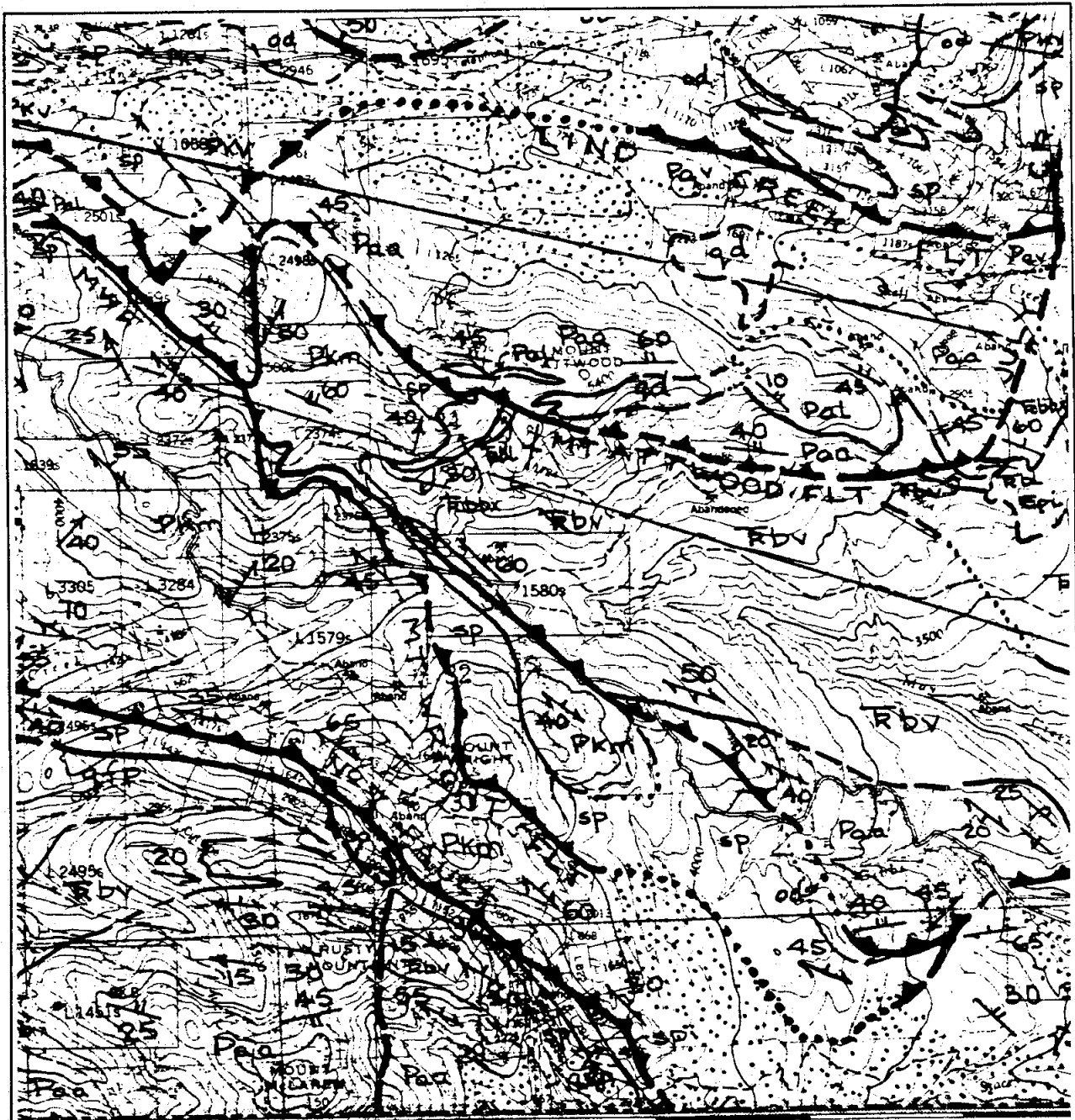
### REGIONAL GEOLOGY

*(Figure #4)*

The Lexington property occurs at the northwest corner of the Republic Graben. The Republic Graben is north-north-easterly trending, approximately 10 to 15 kilometres wide and about 120 kilometres long. The Tertiary aged Bacon Creek Fault forms the western boundary of the Republic Graben and is traced to just southwest of the Lone Star pit, in Washington State. The vertical movement on this north-north-east trending fault has been transferred along a regional pattern of thrust faults (Fyles, 1990), including the Goosmus Shear Zone, that curve around the north end of the Tenas Mary Creek Metamorphic Complex (Knob Hill Group equivalent) and the rocks of the Attwood and Brooklyn Groups that flank the complex to the north. This fault system eventually turns south north of Midway. These faults join up with the north-south trending Bodie Mountain Fault, along the eastern side of the Toroda Creek Graben. The fault structure equivalent to the Bacon Creek Fault apparently carries on in the Rock Candy Creek area, north of the disruption of its continuity in the Phoenix-Lexington area.

The northwesterly trending Goosmus Shear Zone, bounds a set of northeasterly dipping serpentinite lenses (Upper and Lower Serpentinite), a quartz eye porphyry intrusive and other non-porphyrific flows and tuffs (the "dacite"), andesite dykes and porphyritic diorite dykes. The serpentinitized ultramafic rocks appear to be tectonically emplaced as two major lenses dipping from 30° to 50° to the east and northeast, with many smaller slices and wedges. The eastern boundary of the Goosmus Shear Zone is Fyles' (1990), No. 7 fault, a northeasterly dipping thrust fault. The western side of the Shear Zone is an undefined structure on the western slope of Goosmus Creek valley. The Lexington property, with its copper-gold mineralized zones, occurs over the Goosmus Shear Zone.

There are two principal structural elements in the Lexington area. The previously mentioned, locally northwest trending Goosmus Shear Zone is of pre-Tertiary age (with probable significant reverse



78 79 80 81 82 83 84 85 86

SCALE (km)



0.0 0.5 1.0 1.5 2.0 2.5 3.0

GEOLOGY FROM FYLES, 1990

Major Regional Geological Units

- Epi Penticton Group-intrusives-Tertiary
- qfp Lexington Intrusions - Jurassic
- TRv Brooklyn Formation-volcanics - Triassic
- Pa Attwood Group-siltstone, phyllites - Carboniferous or Permian
- Pkm Knob Hill Group-schists, etc. - Carboniferous or Permian
- od Knob Hill Group-Old diorite - Carboniferous or Permian
- sp Knob Hill Group-serpentinite - Carboniferous or Permian

- Faults
- Foliation

N

*Sean P. Fuller*

**BRITANNIA GOLD CORP.**

**LEXINGTON PROJECT**

GREENWOOD MINING DIVISION, B.C.

**REGIONAL GEOLOGY**

SCALE 1:50,000      FIGURE #4      JAN 1994

movement in the Tertiary) and consists of stacked thrust sheets with ultramafic margins. Northerly trending, normal faults (average attitudes vary from N15°E to N35°E) of Tertiary age appear to be steep with recognized displacements of up to 900 feet (Pearson, 1967).

The regional gravity map included in Tempelman-Kluit (1989) indicates that a gravity low underlies the property. This is an indication of a large possible deep seated silicic intrusive body under the property.

The following table outlines the major rock units in the region on and surrounding the Lexington Group of claims:

<b>Probable Age</b>  <b>UNIT NAME</b> (Alternate Names or correlative units)  (Project Map Unit Number(s) on Figures 5,6 and 7)	<b>Description</b>
<b>Upper Eocene — Oligocene</b>	
<b>DIORITE</b> (Penticton Group, (Coryell Intrusions), Fyles, 1990) (Scatter Creek Intrusive Complex - US usage) (UNITS 14 and 15)	The diorites are medium grained, microporphyratic, non-foliated, medium coloured dykes. In thin section they consist of 1 to 4mm long plagioclase lathes with subhedral biotite and pyroxene (Church, 1970a).  Several narrow diorite dykes in the center of the dacite body are sub-parallel to the serpentinite-dacite contact.  Large, abundant diorite dikes disrupt mineralization in the southeast end of the Main Zone defining the termination of reserve blocks. These dykes appear to post date the andesites in the south end of the Main Zone, as seen in the City of Paris workings. Outcrops or drill core intercepts of the diorite crossing the andesite have not been seen.  Scatter Creek Intrusives are common throughout the Republic Graben and Goosmus Shear.
<b>Post Jurassic</b>	
<b>ANDESITE</b> (Ebisch, 1990 correlates with Cretaceous Shasket Creek Complex) (Church, 1970a, correlates with Eocene Marron Formation (Penticton Group), post Diorite) (Fyles, 1990, correlates with Eocene Marron Formation, without distinguishing diorite or andesite as earliest unit) (UNIT 7)	The andesite consists of scattered, chloritized, greenish-brown hornblende lathes, 1 to 3 mm long, weakly to strongly aligned parallel to the local shear foliation. This is all in a fine grained matrix of randomly arranged plagioclase plates with minor interstitial magnetite and a few grains of quartz (Church, 1970a). This unit forms dykes and sills and disrupts mineralization along the lower dacite-serpentinite contact. Foliation is extensive in this unit and is strong enough that this unit is pre-Diorite.  A fragmental andesite of similar composition contains small, fine grained, dark green, angular fragments of probable andesite origin. It has been suggested, without compelling evidence, that the fragmental andesite may correlate with the conglomerate described below.

<p><b>CONGLOMERATE</b> (No Outcrop on Maps)</p>	<p>This is an angular conglomerate containing fragments of bull quartz and elongated, light grey to whitish siltstone in a dark grey silty to sandy matrix. It is found at the top of the Upper Dacite in the Lone Star Pit and in the Richmond area. It resembles the Sharpstone Conglomerate of the Brooklyn Formation, but lacks the characteristic angular ribbon chert fragments.</p>
<p><b>Cretaceous</b></p>	
<p><b>SHASKET CREEK ALKALIC COMPLEX</b> (Same age as Nelson Calc-Alkalic Intrusives in the Greenwood area) (Possibly UNIT 2)</p>	<p>A light grey aplite and crowded syenite, some monzonite. This unit does not outcrop in Canada, but outcrops extensively on the east side of the Lone Star Property and further south.</p>
<p><b>Lower Jurassic</b></p>	
<p><b>DACITE</b> (Lexington Porphyry) (Intermediate Volcanic) (UNITS 6a-e)</p>	<p>Volcanics and related fine intrusives. Intrusive phases include quartz feldspar porphyry and quartz porphyry. Betmanis (1983) described andesitic to dacitic fragmental and welded tuffs. Typical porphyry phases contain subhedral quartz phenocrysts and composite quartz eyes 2-7 mm in diameter, set in a matrix of euhedral sodic plagioclase, chloritized biotite and interstitial fine grained quartz and feldspar. Sericite and chlorite alteration are common. Most of the dacite is moderately foliated and contains ½-1% disseminated pyrite. In mineralized areas it contains 2-5 % disseminated pyrite with minor chalcopyrite. Malachite is frequent as fracture fillings and fine disseminations. Mylonitization has locally destroyed or reduced the size of phenocrysts, therefore leaving rocks resembling fine grained rhyolite or dacite (Parker and Calkins, 1964).</p> <p>An elongate, composite, quartz-feldspar-porphyry-felsite intrusion that follows the general course of Goosmus Creek. This is an extension of the largest body of Lexington Porphyry, located to the west of the property, near the junction of Gidon and McCarren Creeks.</p> <p>Church (1986) determined the age of the Lexington Porphyry using uranium-lead in zircons to be Early Jurassic, probably Sinemurian, with inherited Proterozoic or Archean lead.</p>
<p><b>Triassic</b></p>	
<p><b>POSSIBLY THE BASALT DYKES</b> (Brooklyn Formation) (Possibly UNIT 16)</p>	<p>Unconformably overlies the Knob Hill and Attwood groups. There are three main lithologies: chert breccia (Sharpstone Conglomerate), limestone and volcanics. The volcanics outcrop in the property area and include greenstone and green pyroclastic breccia and sub-volcanic microdiorite. There are several basalt and basalt like dykes in various places including the northwest grid and Lone Star pit area.</p>
<p><b>Carboniferous or Permian</b></p>	
<p><b>ARGILLITES AND POSSIBLY THE BASALT DYKES</b> (Attwood Group) (UNITS 3 and 16 in the Southwest corner of Figure 7)</p>	<p>Mainly dark grey to black argillite, siliceous argillite, phyllite and slate with minor dark limestone, chert- and argillite-chip conglomerate and greenstone. The age from fossils is Carboniferous to Permian, comparable to Knob Hill Group, but stratigraphic relations are unknown. The rocks are tightly folded.</p> <p>A large body of mainly grey phyllite straddles the border on the southwest side of the property and is indicated to outcrop in the area of the northwest grid. Fyles map indicates a black siltstone and phyllite to be part of this unit. Church has three units in the property area, a black shale and greywacke unit, a metavolcanic (mostly meta basalts and andesites) and a unit that includes conglomerates, breccias and sandstones. The outcrops in the south portion of the northwest grid that are mapped as argillites and basalts are most likely part of the Attwood Formation.</p>

<p><b>SERPENTINITE</b> (Ultramafic) (Talc Schist) (Listwanite) (UNITS 10,11,12 and 13)</p>	<p>This unit forms two elongate masses (the Upper and Lower Serpentinities), and several smaller lenses and off-shoots. It consists primarily of antigorite-rich serpentinite formed from a peridotite protolith. Foliated talcose rock (talc schist) is prominent in the serpentinite near the dacite footwall contact but is present on all contacts and locally in the center of serpentinite bodies. Talc schists also occur locally as narrow dykes or slices within the dacite. Other assemblages include talc and brucite ± carbonate, or carbonate-quartz ± mariposite (fuchsite?) rock, the latter mapped and logged as listwanite. Magnetite is abundant in the serpentinite and talc schist, as fine grained disseminations.</p> <p>Tectonically emplaced probably between the Mesozoic and Tertiary, from a disrupted ophiolite sequence of the Carboniferous or Permian Knob Hill Group (Fyles, 1990).</p>
<p><b>SCHISTS (ARGILLACEOUS, SILTY, CHLORITIC AND SERICITIC-QUARTZITIC VARIETIES)</b> (Knob Hill Group) (Tenas Mary Creek Metamorphic Complex, US usage) (UNITS 1,3,4 and 5 on the northeast side of the mapping)</p>	<p>Two levels of deformation and metamorphism are defined for this formation by Fyles, 1990. They are a greenschist facies metamorphism and a sheared and deformed package.</p> <p>The sheared and deformed package is present on the northeast portion of the mapping area and described here. The rocks include green chlorite and chlorite-amphibole schists, grey quartz-mica schist and phyllite and grey quartz-mica gneiss which shows a penetrative foliation and one or more lineations. They appear from field specimens to generally be metamorphosed siltstones and argillites and have been mapped on the northeast side of the No. 7 Fault.</p>

## PROPERTY GEOLOGY

(Figures #5, #6 and #7)

The major rock units in the Lexington area within the Goosmus Shear, as identified in the 1993 work, are known as the "Lower Serpentinite," which is tectonically overlain by the "dacite" (a.k.a.: Upper Dacite). The "dacite," a group of fine grained intrusives and possibly related volcanics, is tectonically overlain by the "Upper Serpentinite". There is a dacite unit (a.k.a.: Lower Dacite) that structurally underlies the Lower Serpentinite, but it has rarely been intersected in drill core and is a low priority copper-gold mineral target. There is a slice of serpentinite, approximately 15m wide, within the dacite in the Lincoln portal area (known as the Lincoln Slice).

Mineralization in the Lexington area occurs in three major varieties, the quartz vein systems and the semi-massive sulphide/magnetite zones near the dacite-serpentinite contact and a low grade copper-gold mineralized system of fracture fillings with some similarities to porphyry copper deposits. The best mineral concentrations in the dacite-serpentinite contact areas often occur at locations of faulting or folding.

The main mineralized target, the magnetite-sulphide zone follows at or near the contact at the base of the dacite with the Lower Serpentinite. This contact zone, very frequently, has gouge and/or breccia and the

serpentinite is usually sheared strongly near the contact. The contact is clearly a tectonic break, which the mineralizing solutions have used as a horizon of movement and deposition. This mineralized zone is present at or near this contact in all the drill holes that intersect this contact. The intensity of this mineralization varies from narrow, low grade copper and gold to thick and heavily mineralized, but it is always recognizable. This is the horizon that the Main Zone, the TG-81 zone occur in and is the target zone of the 1993 project. The Lone Star pit zone and the Golden Cache zone are both on serpentinite-dacite contacts but it is not certain they are the same horizon as the Main Zone. From drilling on section 575NW (TG-81 area) and other structural contour work, it is apparent that locations with warping (folding or faulting?) of this horizon appear to be areas of enhanced copper-gold grades and widths. This structural break is a horizon favoured by the andesite dyke that can occasionally cross-cut the mineralization. Also if the dyke is above the zone and thicker than elsewhere that zone can appear to be locally folded down.

Samples of galena in quartz vein material, collected at the Lexington Shaft and the No. 7 Mine in 1992 were analyzed by lead isotope methods. The samples group with the Beaverdell Silver Veins of Tertiary age (Shearer, 1993) and not the Jurassic or Cretaceous age Phoenix mineral system. It is not known whether these vein samples are genetically related to the same mineralizing sources as the Main Zone.

## 1993 WORK

### **MAIN ZONE**

The Main Zone is the area with the best defined copper and gold reserves on the property. It subcrops on the steep slope above the Grenoble adit, and trends at an azimuth of about 110°, extending to the area beneath the Lincoln adit. The zone has a plunge of about 25° down to the southeast, following on or near the horizon between the dacite and the Lower Serpentinite. The higher grade portion of the zone is narrow and curved, either due to folding or possibly offset around andesite dykes. It was discovered in the diamond drilling in 1969 and the area has been the target of most of the drilling on the property since then. Prior to 1969 all exploration in this area was concentrated on the quartz veins on the City of Paris and Lincoln claims that are shallower than the Main Zone.

The core relogging in the Main Zone area by Dr. Read indicates that the post-mineral andesite dykes and sills intrude and disrupt the continuity of the copper-gold mineralized zone. This will have to be taken into consideration in future programs.

### B93-1 TO B93-3

*(Figures #8, #9 and #10)*

Drill holes B93-1 and B93-2 were targeted to fill in the gaps in drilling near the twinned vertical diamond drill holes DH-21 and CP88-02 to increase reserve confidence and tonnage in this area. They are vertical, 15m step outs, off the above mentioned twinned diamond drill holes.

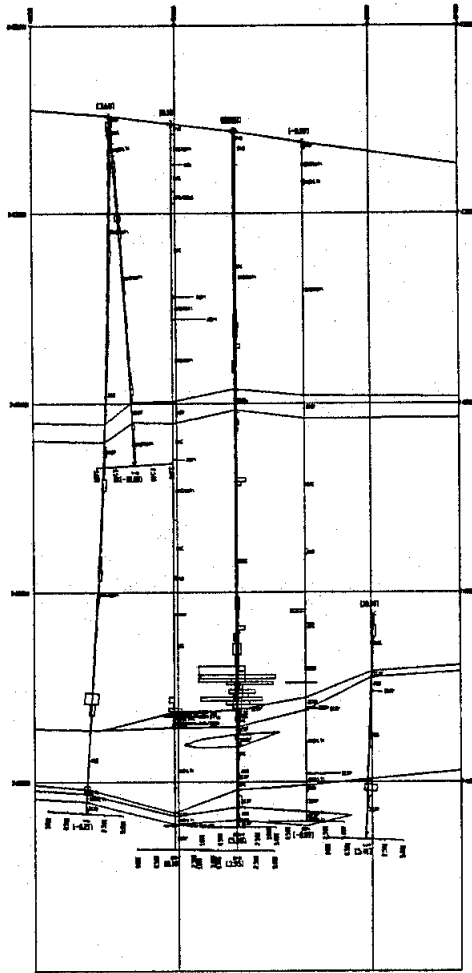
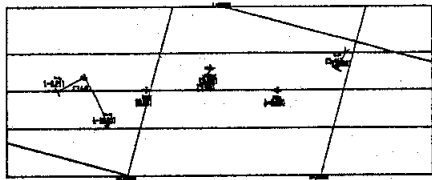
Drill hole B93-1 was collared in the intrusive phase of the dacite. The hole continued through this unit, a dacite tuff and several dykes before hitting a zone of silicification with pyrite at 123.65 in the dacite. The interval from 123.65 to 124.3m has 0.385 ounce per ton gold and negligible copper. A scan of the petrographic slide indicated just 3 isolated particles of native gold as inclusions in pyrite. The section from 139.0 to 139.7m returned 1.39 % copper and 2380 ppb gold. A narrow (0.1m wide) band of magnetite with pyrite and chalcopyrite at 143.1 returned 1.51% copper and 0.528 ounces per ton gold. A petrographic study of a specimen from this section indicated 73% pyrite, 19.5% quartz and 3.5% chalcopyrite with no gold (Harris, 1993). The top of the Lower Serpentinite is at 147.2m. There are several andesite dykes that disrupt and probably replace the ore zone in the serpentinite. There is only one small (0.1m) section of mineralization in the serpentinite with 2.65 % copper at 166.8m.

Hole B93-2 was also collared in dacite, but intersected two argillite bands high in the hole. One of these argillite bands contains angular rock fragments, and is correlative with the "Sharpstone Conglomerate" in the Lone Star Pit and on the Richmond properties. In the area of the serpentinite-dacite contact from 155.0 to 157.15, there is a section of massive pyrite, massive magnetite and quartz veining that contains 0.126 ounces per ton gold and 1.68 % copper for 2.15m. The section below this down to 160.1m has .032 ounces per ton gold and 6352 ppm copper for 2.95m. Below this is a large (22m thick) andesite dyke.

Drill hole B93-3 is a vertical 16m step out to the north of hole DH-26, the most southeasterly hole in the present Main Zone reserves, (Wortman, 1992) and targeted on the Main Zone intercept. It also drills through the serpentinite and dacite fault slice lenses that include the near surface, high grade gold intercept in T-50 about 27m southeast.

This hole was collared in the serpentinite fault slices that occur in this area. These slices are inter layered lenses of the Upper Serpentinite and dacite that formed on the tectonic contact at the base of the Upper Serpentinite. They include sections of fuchsite-rich listwanite. The high grade gold in a magnetite rich section from hole T-50 was not intersected in this hole. There was a narrow copper intercept in the Main





DACITE

DIORITE

DACITE

SERPENTINITE & MAGNETITE ZONES

ANDESITE

SERPENTINITE

SCALE



0 20 40 60 80 100

**BRITANNIA GOLD CORP.**

**LEXINGTON PROJECT**

GREENWOOD MINING DIVISION, B.C.

MAIN ZONE  
SECTION BETWEEN B93-1  
AND B93-2

SECTION AT AZIMUTH 164 DEG LOOKING ENE  
Cu & Au HISTOGRAMS PLOTTED ON EACH HOLE

*Dean P. Butler*

SCALE 1:2000

FIGURE #9A

FEB 1994

Zone dacite horizon, near 186m, at the base of a diorite dyke. There was also another narrow intercept, of massive pyrite with chalcopyrite from 232.82 to 233.2 of 2.10 % copper.

## **INDUCED POLARIZATION**

*(Figures #11a, #11b, #12a and #12b)*

Line 4+00E and adjoining lines on the 1986 Canadian Pawnee grid were extended in order to conduct a gradient IP survey targeted on the Main Zone using these grid lines.

A plan of the IP chargeability and resistivity at a target depth of about 140m is indicated on Figures 11a and 11b. On these plans the Main Zone underlies line 4+00E near 2+00S and 2+25S, and trends from the east-south-east to the west-north-west (azimuth approximately 110°). The Main Zone sitting on the Lower Serpentine has a comparatively high chargeability in the area of 2+00S to 3+00S on line 5+00E and continuing diagonally to the northwest at 0+00S on line 3+00E. This is coincident with a resistivity low, and is possibly the Main Zone with disseminated pyrite extending up into the dacite. The Main Zone crosses line 3+00E at about 1+75S but has moved up dip to a depth above the IP target depth at this point, and therefore does not present an IP response on this plan. The low chargeabilities north of 0+75N on this plan are probably due to the diorite body that outcrops above this IP low. The diorites are quite fresh and low in disseminated sulphide, and would not return a strong chargeability. The cause of the chargeability high with coincident resistivity low in the line 3+00E, 3+00S area is unknown due to a lack of drill holes and rock outcrop data structurally up dip. The largest chargeability high near 2+50S on line 5+00E and extending to 1+00S and 4+00E is terminated near 3+50E. It has the same trend as the serpentinite in this area and may be a fault offset extension of the Main Zone sulphide horizon.

The IP section L.4 (Figures #12a & 12b) was done on Line 4+00E. The Main Zone is centered around 150m deep, near 2+00S along a horizon dipping to the north about 35°. This zone is the center of a large coincident chargeability high and resistivity low that extends up into the dacite. The strong resistivities and low chargeabilities in the area near 0+50N are probably related to the fault exposed on surface in this area. The rocks on the other side of this fault are argillites and diorites.

## **LEXINGTON AND TG-81 AREA**

The Lexington area refers to the area around the Lexington Adit collared near Goosmus Creek on the Lexington crown granted mineral claim. Drill hole TG-81 was drilled by Teck Corp., north of the Main Zone, and intersected high grade gold. This drill hole, collared just above the road to the Vacher Zone is

the center of a lot of past exploration. Other than the Lexington adit and several handpits just up the slope, there is no evidence of old work in this area.

#### **B93-4 TO B93-10**

*(Figures #13, #14, #15, #16 and #17)*

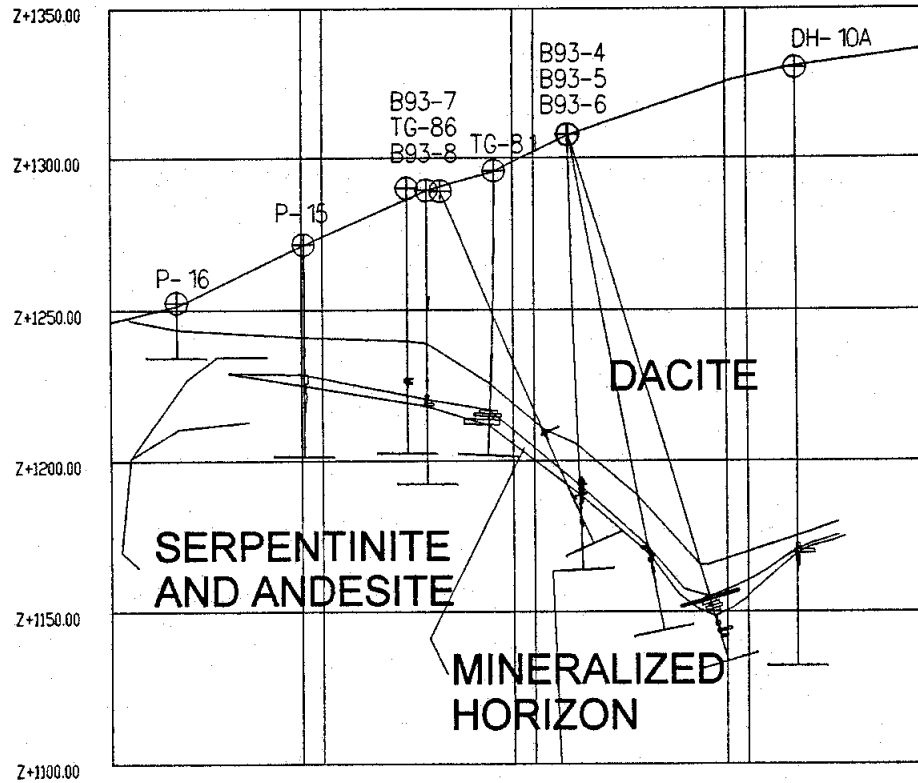
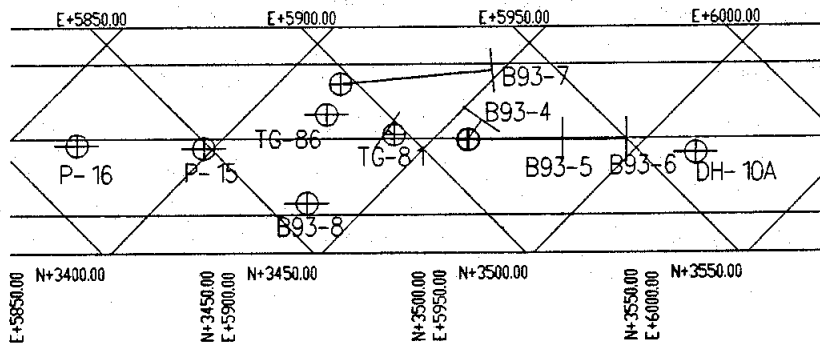
The area to the northeast of drill hole TG-81 was another target identified for concentrated exploration in 1993. A section through hole TG-81 at 045° indicated a large area of potential ore between DH-10A and TG-81. On the old drill sections (pre-1993) there was a very gentle folding of the serpentinite-dacite contact to connect the two drill holes.

The drilling of the first three of the holes showed that the contact was not as gentle and even as was anticipated. The synformal folding or faulting of the contact in this area is identified clearly after drilling the holes in this area. It is also apparent that these areas of folding or faulting are areas of copper-gold concentration.

Drill hole B93-4 was collared with holes B93-5 & 6 about 30m northeast and up the slope from TG-81. B93-4 is a steep (-87.5°) hole that is targeted to test the northeast extension of the mineralization in this area. The top of the hole is in dacite with several narrow andesite dykes. The mineralized zone in this hole is below the dacite-serpentinite contact and below a narrow (~2m) andesite dyke. The top of the serpentinite is near 110m and the zone beginning at 114.0m is characterized by fine grained, black, magnetite with a fine grained talc matrix and narrow bands and disseminated blebs of pyrite. This section from 114.0 to 119.48m (5.48m) contains 0.026 ounces per ton gold and 0.771 % copper. The chalcopyrite occurs as veinlets and bands about ½cm wide, parallel to the local foliation.

Drill hole B93-5 was drilled at 045° azimuth and -79.5° dip to test the continuation of the trend between TG-81 and DH-10A. The top of the serpentinite in this hole is at 124.75m with minor, narrow, poorly mineralized massive pyrite bands at the serpentinite-dacite contact. There is then a thick (~12m wide) andesite dyke and some more serpentinite before the magnetite bands. The best mineralization is from 141.5 to 143.7m with 0.038 ounces per ton gold and 0.929 % copper over 2.2m. This section is predominantly fine grained black magnetite in a fine grained talc matrix with intervening bands of serpentinite and minor disseminated pyrite and chalcopyrite.

The final hole in this section was B93-6, drilled at 045° and -72.5° dip. This hole intersected the serpentinite-dacite contact near the synclinal hinge. There is crenulation folding of the foliation in the dacite above the contact. The mineralized zone in this hole is also within the serpentinite and consists of



SCALE



0 30 60 90 120

**BRITANNIA GOLD CORP.**

**LEXINGTON PROJECT**

GREENWOOD MINING DIVISION, B.C.

TG-81 AREA

**SECTION 575NW**

SECTION AT 045 DEG AZIMUTH LOOKING NORTHWEST

*Sean P. Butler*

SCALE 1:2500

FIGURE #14A

FEB 94

massive pyrite and magnetite bands in serpentinite. The magnetite is the fine grained, talc matrixed black magnetite in the other holes. There is an increase in the amount of pyrite and especially chalcopyrite in this section as streaks, bands and disseminations. These sulphide rich zones contain most of the copper mineralization in this interval. The zone in this hole grades 0.345 ounces per ton gold and 1.094 % copper over 14.3m from 159.4 to 173.7m. Three samples from this interval were petrographically studied by Harris (1993). They indicated traces of native gold in two of the samples, 6319 and 6320, (159.9 to 160.8) and occur in several forms inside pyrite and magnetite and along grain boundaries. The first sample (6319) consists of over half magnetite, with abundant pyrite and chalcopyrite (18% each) and minor sulphides and oxides. There is strong inter growth of the different minerals in this sample, with chalcopyrite often forming a matrix to clusters of pyrite and magnetite grains. Chalcopyrite also forms as disseminated inclusions in magnetite and pyrite grains. The next sample is predominantly pyrite (83%), with some intergrowths of chalcopyrite and carbonate along fractures in the pyrite. The last sample is immediately below the others and is in a talc altered serpentinite (73%). There are abundant disseminated fine grained magnetite grains in this sample. Sulphides are minor components and no native gold was found.

Hole B93-7 was drilled to intersect the zone to the north of hole TG-81, with an azimuth of 048° and a dip of -67°. This hole, typical of most holes, was collared in the dacites and went through several andesite dykes, before crossing the serpentinite-dacite contact. Just below the contact a magnetite and pyrite zone was encountered grading 0.040 ounces per ton gold and 0.93 % copper over 1.85m drill length. The top of this hole encountered several gouge zones and was highly broken.

B93-8 was a step out to the south of TG-81, drilled at -90°. There is a narrow low grade interval of less than 1% copper and minor gold beneath a thick andesite dyke, within the serpentinite.

Holes B93-9 and B93-10 were drilled to follow up and step out 10m on drill hole B93-6. Hole B93-9 is drilled at 245° and -86.5° and intersects similar geology to B93-6, but without the copper and gold values. There is a zone below the serpentinite-dacite contact that grades 0.027 ounces per ton gold and 0.589 % copper over 11.76m, with most of the value in the last 0.30m with 0.118 ounces per ton gold and 7.40 % copper. This 11.76m section consists largely of bands of fine grained black magnetite and talc altered serpentinite. There are also intergrowths and disseminations of chalcopyrite within the strongest sections of magnetite. The final 0.30m is large blebs of chalcopyrite in magnetite.

The last hole drilled in this area, B93-10, was collared next to hole B93-9 at -90°. This hole intersected 0.148 ounces per ton gold and 0.84 % copper over 4.02m length. This is in a massive pyrite and

serpentinite section with minor chalcopyrite from 178.78 to 182.8m, just below the serpentinite-dacite contact.

## **INDUCED POLARIZATION**

*(Figures #18a, #18b, #19a and #19b)*

The IP survey was done on three lines at 045° azimuth, two kilometres in length and spaced 50m apart. Drill hole TG-81 is located at 1000N on line L81B. The lines were numbered L.81A to L.81C, with the section completed on the center line, L.81B.

The plan in this area is focused near an estimated 50m depth. The contact horizon for the TG-81 Zone passes through this plan between 950N and 975N. The chargeability high between 900N and 1150N is probably caused by the magnetite-sulphide mineralized horizon on the contact and disseminated pyrite in the overlying dacites. This is higher in the structural package than expected and can not definitively be explained. There may be a sulphide or disseminated sulphide body in the area near and northeast of drill hole DH-10A. The serpentinite apparently does not have an IP signature on this plan and section. A resistivity high appears beneath it, possibly caused by an underlying diorite that outcrops to the southwest.

The section developed on L.81B shows a horizon of chargeability that parallels the topographic slope at a depth of about 50m below surface. This horizon is probably not significant since it goes against the "grain" of the regional geology and the known local structures. The large IP chargeability high in the center of the section is northeast of holes TG-81 and B93-4 to B93-6, and apparently extends into the dacite. The reason for the two chargeability highs extending vertically down from under the zone are not known, but may be the zone charging up and the IP current being drawn along zones of lower resistivity in the zone and plotting at a higher level on the section. The lower chargeabilities to the northeast of 1200N are probably from the argillites that outcrop here and possibly some deep diorite bodies known to be nearby on surface.

## **TRENCH NUMBER 3**

*(Figure #20)*

Trench Number 3 was dug to uncover the source of several magnetite-rich, gold-bearing boulders found in 1992 (Shearer, 1993) on surface near some shallow hand-dug pits. The direction of the trench is perpendicular to the contact of the Lower Serpentinite and the dacite. It starts at its lowest point in the serpentinite and is cross-cut by a narrow (10-20 cm) andesite dyke. The serpentinite often has sections of disseminated magnetite. It also seems to be quite heavily talc altered, with a few brittle shears, sub-

parallel to the main contact, appearing to be a focus of talc alteration. Moving northward up the trench, closer to the contact, bands of semi-massive to massive magnetite several metres in thickness are visible. There are local sections of strong oxidization of this zone. This contact is the probable source of the magnetite boulders found on the surface, although none of the samples in the trench returned values as high as the 1992 surface boulders.

Further up the trench is a broad andesite dyke, about 8m wide. This andesite dyke, like all others is not mineralized with gold or copper. The lower contact of the andesite dyke with the serpentinite is a strong talc shear, dipping 54° to the north. The top of the trench is in fine grained, white dacite with minor carbonate alteration.

### PROSPECTING

In Shearer's 1993 report there is a reference to a magnetite rich outcrop, along the roadside to the northwest of the Lexington portal at L3+50W and 2+00N, that deserved follow up. This outcrop was found and geochemically sampled and a line of magnetometer readings were made over this area. The outcrop is a weakly magnetic talc schist. The rock sample collected at the outcrop (# 6994) returned 10 ppb gold, 15 ppm copper and 0.9 ppm silver. Magnetometer readings were collected along line L3+50W and extended for 100m either side of the outcrop at 12.5m intervals. The magnetometer readings showed limited contrast over the length of the line, with the readings near the target located in a relative magnetic depression. No other outcrops were found or are recorded in the area.

There are a few magnetite bands in northeasterly dipping talc schists outcropping immediately across Goosmus Creek from the caved Lexington portal (See Figure #5, grid coordinates 5690E 3615N). This outcrop was systematically chip sampled and geochemically analyzed to determine the potential of this target. These samples are numbered 6951 to 6958 and returned the following values:

SAMPLE #	WIDTH	Au (ppb)	Cu (ppm)	Cu (%)	Ag (ppm)
6951	1.0	35	5350	NA	0.8
6952	1.0	245	> 10,000	1.20	1.6
6953	0.8	515	630	NA	0.3
6954	1.0	25	> 10,000	2.01	< 0.2
6955	1.0	500	4700	NA	1.1
6956	0.9	180	4200	NA	0.8
6957	0.7	65	3200	NA	1.1
6958	0.8	25	220	NA	< 0.2

The two samples with >10,000 ppm copper are the only interesting samples. These two samples, 2m apart on the same structure, represent limited true widths (about 0.7m) when the 45° dip is taken into

consideration. The structure is fairly wide (~5m of surface exposure) and locally disseminated, but narrows down to about a metre of massive magnetite in surface exposure at sample #6952 in about 2m distance. The first two samples (#6951 & 6952) are located separately from all the other samples, and are ~1m in width. The other samples (#6953 to 6958) are contiguous and form the wider, partially disseminated, portion of the zone.

## **GOLDEN CACHE AREA**

The Golden Cache Zone is a magnetite rich zone located about 300m south of the Vacher Zone on the center property geology map (Figure #6). This area is geologically complex with limited outcrop, but the main target horizon is a gold bearing magnetite-sulphide body on the contact of a serpentinite and a foliated schistose dacite. There is evidence of old activity (hand pits and caved adits) as well as a record of more recent diamond drilling on this zone. The geological map of the area between Golden Cache and Lexington (in particular close to Lexington) has very little outcrop that defines the location of the serpentinite-dacite contacts. There is less outcrop here than other areas but there is probably some between the field grid lines that were traversed to develop the geological maps.

## **TRENCHES NUMBER 1 AND 2**

*(Figures #21 and #22)*

Trench Number 1 was dug to uncover the extension of the zone crossing in a deep hand dug pit and a magnetometer high on an adjoining grid line. The trench trended at approximately 235° for 70m. This and the other trenches were chip sampled and analyzed geochemically for copper and gold along their entire length, at sample lengths of 1m or less.

The trench was measured from north to south. From 0 to 22m it is in a dacite schist with minor disseminated pyrite. This dacite is assumed to be a sheared equivalent to the dacites in the Main zone and Lexington areas, although there is not enough information to be certain of this. The dacite is fine grained, light green to white depending on alteration. Alteration varies from argillic to weak talc with local patches of carbonate. There are localized zones of small quartz veinlets that can be up to 3% of the dacites. Occasionally 1 to 2mm quartz eyes are visible. The schistose foliation in the dacites of this area, extends as far as the Mabel Mine area, approximately 700m to the northwest. The foliation generally dips to the east at about 60°. This foliation appears to be parallel to the local trend of the dacite-serpentinite contact. There are several quartz porphyritic andesite dykes that cross-cut the dacite sub-parallel to the foliation. At twenty two metres there is a ferricrete band about 1m wide on an andesite dyke contact.



This ferricrete is probably the weathered remains of a pyrite rich band. The contact of the dacite with the ferricrete is sheared with strong foliation and carbonate alteration. The andesite dyke, south of the ferricrete, is dark green, fine grained with disseminated magnetite throughout and a trace of malachite near the contact. Beyond the andesite dyke, at 24m, there is a band of massive, fine grained, black magnetite (approximately 70% magnetite, 2% malachite with talc) to 30m, with minor disseminated chalcopyrite and malachite. The serpentinite from 30 to 70m is a well-foliated talc altered schist containing bands of magnetite and disseminated magnetite throughout. A two metre section of magnetite-chalcopyrite mineralization near 35m grades, 0.147 ounces per ton gold and 2.215 % copper for a true width of 0.75m. Another magnetite rich band returned 0.212 ounces per ton gold in a 1m chip sample. There are several shears, including a prominent one, with some gouge, strong foliation and 10% magnetite, near 52m that strikes 171° and dips 75° to the west. This shear has several magnetite rich bands and related shears from 50 to 52m. The serpentinite, in the south-west end of the trench beyond 52m, is massive, dark green and weakly magnetic.

Trench Number 2 was dug along the center of a pre-existing road ending about 65m southeast of Trench 1 to uncover the continuation of the magnetite band in Trench 1. This assumes the local dacite-serpentinite contact (with magnetite band) follows the regional trend, which it does not in this area. The north end of this trench is serpentinite and appears to have less hydrothermal alteration than the nearby Trench 1. It is usually dark green to black in colour and is moderately foliated to massive, with local sections of creamy white to light green, 1 to 4cm long, fibrous serpentinite, often along fractures. This serpentinite is cross-cut by several quartz porphyritic dacite-like dykes. The dykes are very weakly to non-foliated, unlike the rest of the dacites in the Golden Cache area. These dykes have several different orientations, but most are near vertical. They are whitish-green, weak to moderately silicified, weakly porphyritic with 1-2mm quartz eyes, contain 2% disseminated pyrite and are possibly related to the Lexington porphyry. Within the dykes is a one metre wide fine grained selvage that often contains dark green talc and serpentinite alteration. The contacts are altered with iron oxides, some pyrite and minor fault gouge. On the dyke contact with the serpentinite there is often an envelope of massive, black serpentinite. Continuing south the trench crosses from serpentinite across a gradational contact to the foliated dacite. This dacite is the same as the dacite in the north end of Trench #1, 65m to the west. The entire length of this trench was chip sampled at 1m or smaller sample lengths, with no significant geochemical values returned.

#### **DETAILED MAGNETOMETER SURVEY**

*(Figure #23)*

A detailed magnetometer survey of the area immediately west of and over the Golden Cache Trench Number 1 area was completed, with 2m station spacing on lines 5m apart. The magnetic high in the

trench was centered in the area of the magnetite that occurs along the contact of the dacite and serpentinite. This magnetic high extends to the northwest at about 350° to a significant high just northwest of the old hand pit that had magnetite boulders in it. This is interpreted to be the continuation of the magnetite horizon in the trench, with an increase in probable thickness of this zone over the magnetic high.

#### **B93-11 TO B93-13**

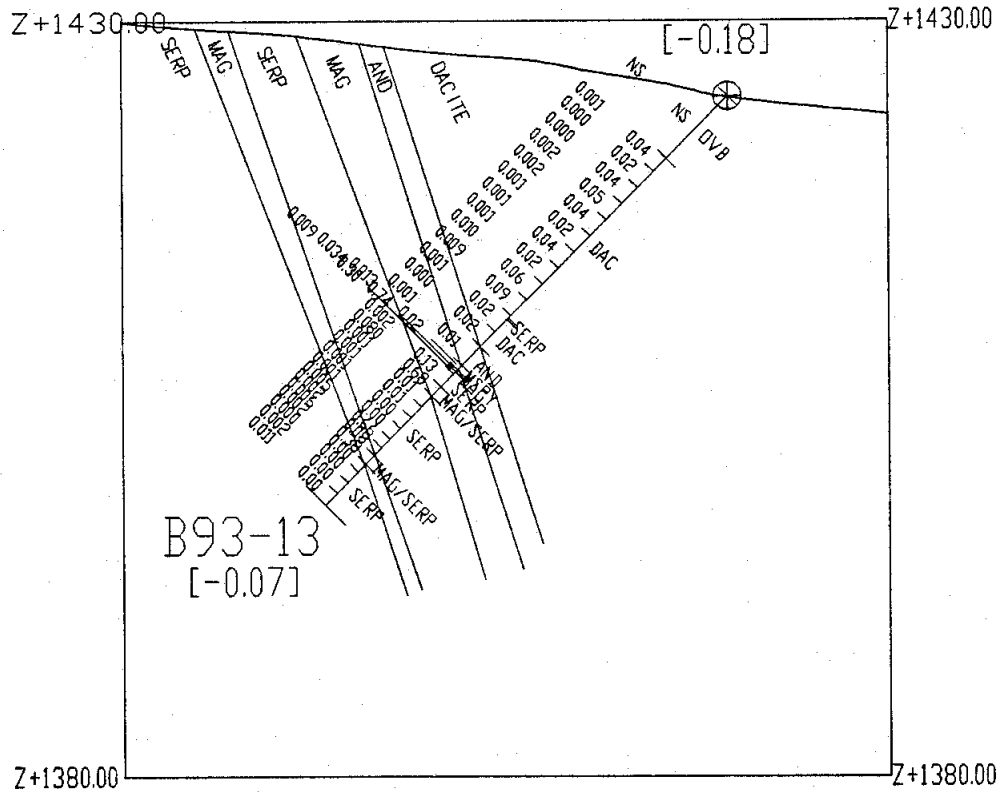
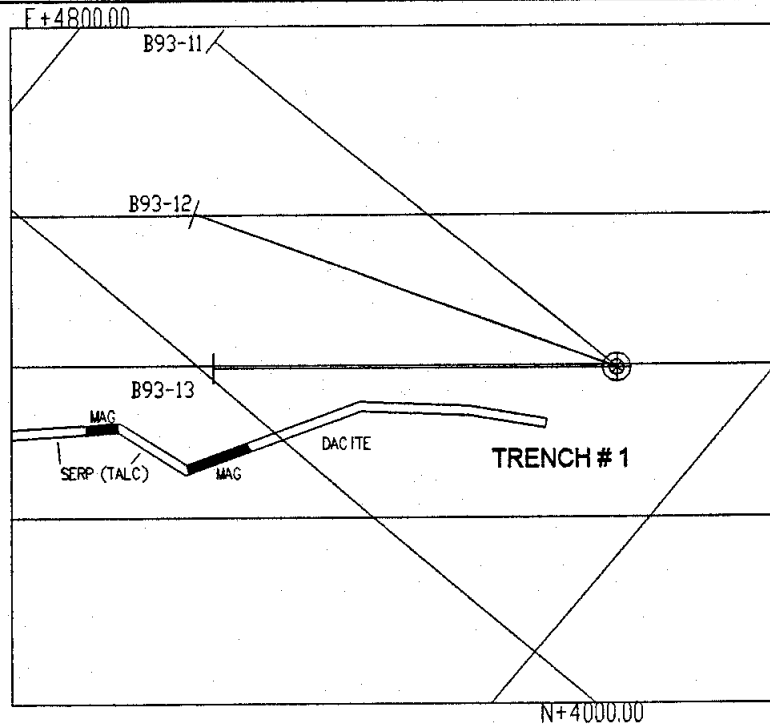
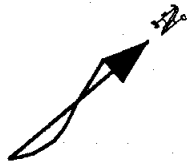
*(Figures #23, #24, #25 and #26)*

Drill holes B93-11 to B93-13 were collared at the same location, near the north end of Trench Number 1 and all dipped at -45°. They were fanned at azimuths approximately 20° apart, targeted at the down dip extension of the magnetometer high to the northwest of Trench #1 and the magnetite zone uncovered in Trench #1.

Hole B93-11 was drilled at an azimuth of 269° and a dip of -45° to intersect the serpentinite-dacite contact underneath a ground magnetic high. The hole was collared in the foliated dacite and went through an andesite dyke with a narrow massive sulphide and serpentinite zone below the dyke. This zone contains 0.014 ounces per ton gold and 0.276 % copper over 2.52 metres. Below the mineralized zone is a talc altered serpentinite with some carbonate alteration.

Drill hole B93-12 has an azimuth of 250° and is also collared in foliated dacites. This hole passes a very low grade massive pyrite section with minor dacite. A 20 cm wide massive magnetite band with 10% pyrite occurs from 25.09 to 25.29m and grades 0.025 ounces per ton gold and 0.54 % copper above a barren section of altered serpentinite and magnetite. From 29.78 to 30.68 (0.9m) is a section of intensely talc and carbonate altered serpentinite with magnetite that grades 0.063 ounces per ton gold and 0.768 % copper. The bottom of the hole is talc altered serpentinite.

B93-13 is drilled at an azimuth of 230° to intersect the down dip extension of the magnetite band in Trench Number 1. This hole intersected 0.4m of 0.022 ounces per ton gold and 0.52 % copper from 25.55 to 25.95m in a massive magnetite zone underlying a barren 0.4m thick massive pyrite zone. There is also a 2.3m magnetite and serpentinite zone further down the hole from 32.0 to 34.3m with 0.383 % copper.



SCALE



BRITANNIA GOLD CORP.

LEXINGTON PROJECT

GREENWOOD MINING DIVISION, B.C.

GOLDEN CACHE

DRILL SECTION B93-13

SCALE 1:500

FIGURE #26A

JAN 1994

*Sean P. Butler*

## **NORTHWEST GRID**

The 1986 field grid developed by Canadian Pawnee Oil was extended in September from the previous western end of 12+00W to the present western end of 19+50W. The grid lines extend from 2+50N to 11+00N, on lines spaced 50m apart, with stations every 25m. This grid was then used for ground control in geological mapping, sampling and a ground magnetometer survey.

## **MAGNETOMETER SURVEY**

*(Figure #27)*

Magnetometer readings were collected every 12.5m along the grid lines and baseline (6+00N). The area with the largest and highest magnetic susceptibility is from 17+00W to 19+50W and between 3+00N and 5+00N. This area is the same area that compass deviations were reported during grid establishment. There is very scattered outcrop with the argillite and basalt outcrops mapped in this area weak to strongly magnetic. It is assumed that these rock units are the cause of the magnetic anomalies, but with the scattered outcrop, this is not certain.

The other area of magnetic highs is a group of northwesterly trending highs from 12+00W / 8+00N to 13+50W / 9+00N. This trend follows the outline of the underlying serpentinites in this area. The other magnetic highs to the north of this are related to other serpentinites that outcrop in this area.

## **GEOLOGICAL MAPPING**

*(Figure #7)*

Geological mapping from the area around the Golden Cache and Vacher Zone was extended to the west over the newly established Northwest grid extension. This work indicated that the serpentinite in the Vacher Zone area extends across through the Mabel Mine area towards the No. 7 Mine. There are several medium sized diorite bodies that have intruded into this area. The diorites are generally dykes, but some have undergone folding or were intruded into curved structures. The dykes are often 10 to 20m wide, can be wider, and show some chill margin grain size decrease. There is often a pyrite "halo" that surrounds these bodies and old exploratory workings in several locations have followed these boundary sulphide concentrations.

The western end of the grid contains outcrops of argillite and basalt, cross-cut by diorite dykes. The outcrop density is too low in most areas to determine the relationship or shape of the argillite and basalts.

On the south end of the grid near 12+00W the argillites are recessive and usually only are recognized as large piles of angular boulders and small outcrops on the margin of resistant diorite dykes. The argillite is fine grained, generally medium brown to black, locally finely laminated, occasionally has weak slaty cleavages and is often weakly magnetic. Occasionally there is some argillic alteration, evidenced by bleaching of the argillites along fracture surfaces.

The basalt occurs generally in the south west end of the grid extension. The rock is fine grained, black, often felty and moderately to strongly magnetic. Pyrrhotite and pyrite are locally present.

The serpentinite that outcrops in the Golden Cache area disappears into an area with no outcrop. The ground magnetic anomaly associated with magnetite along the serpentinite contact in the Golden Cache area trends toward the northwest, but it decreases to background values quickly by line 10+50W. This is either due to the magnetite horizon ending or the overburden became much deeper.

There is a fine grained, medium hardness, medium to dark green rock that occurs on the margins of the diorite dykes that has historically been mapped as volcanic. It occurs in narrow bands along the margin of the diorites in close proximity to the serpentinites and is mapped in this project as serpentinite. It is believed to be a thermal contact metamorphic feature of the serpentinites with the diorite dykes. This rock type is seen in the Mabel Mine area and the area towards the Vacher Zone.

In the center and northwest end of the Northwest grid, bodies of the dacite outcrop, with much lower levels of quartz-sericite alteration than in the Main Zone area. They contain quartz and feldspar phenocrysts. This is the eastern extension of the body of Lexington Porphyry outlined by Church in 1970 located near the confluence of Gidon and McCarren Creeks.

There are also large areas of the Northwest grid with no outcrops, particularly in the central Gidon Creek valley.

## **UNDERGROUND MAPPING**

The Grenoble and City of Paris underground workings were geologically mapped at a scale of 1:500 in 1993. The Lexington portal is caved and unavailable for mapping. The Lexington underground geology from Church (1971) is included on the surface geology map (Figure #5) for reference on these now caved workings.

## CITY OF PARIS GEOLOGY

*(Figure #28)*

The City of Paris workings were developed in 1899 to gain access to a quartz vein that occurs on the contact between the dacite and the Upper Serpentinite. The heading was driven in dacite until it intersected the contact with the quartz vein. The main access heading crossed a narrow quartz vein, about 100m below surface. This vein dips to the east-north-east between 48° and 73° with a strike that corroborates the 340° to north strike of the foliation. The mapping indicates that the gently undulating lower surface of the Upper Serpentinite is not affected by later faults. This vein was drifted along for a short distance on either side of the main access. The vein is banded, lensoidal and usually faulted on the hanging wall and locally folded. The banded and foliated nature imply an early vein. The main haulage cross cuts three andesite dykes as the heading approaches the contact with the Upper Serpentinite. The heading drifted north along the contact with the dacite and serpentinite following the quartz vein on this structure for about 150m. This vein and contact dip to the east-north-east between 37° and 54°. The presence of several stope chutes and a few open stopes indicates that this is where the majority of production in the City of Paris occurred. The very limited slices of dacite in the serpentinite indicate that the Lincoln fault slice has disappeared between surface and the workings.

The headings to the south are more complicated, with several diorite intrusions disrupting continuity of the vein structure followed to the north. There are narrow fault bounded slices of serpentinite and dacite intruded by irregularly shaped diorite dykes. There are a couple of cross cuts off the southern drift with limited raise development on narrow (10 to 20 cm wide) sulphide bands dipping at about 40° to the northeast following fault boundaries of serpentinite-dacite slices. The diorite dykes moved in along surfaces of weakness and remobilized sulphide to the dyke margins. The mining often drifted along these dyke margin sulphide concentrations and limited underhand mining occurred at one location. The south end of the workings is in dacite with a raise developed that breaks surface near the Lincoln portal. The raise at surface follows the Lincoln tetrahedrite rich quartz vein, which follows on or near the serpentinite-dacite contact. The vein was not found underground at the base of the raise in the dacite unit but not on the contact.

## GRENOBLE ADIT GEOLOGY

*(Figure #5)*

The Grenoble Adit, developed by Grenoble Energy in 1980, drifts horizontally through the Main Zone below the location of the zone's sub-crop. The 1993 geological mapping is plotted on the same plan as the

surface geology. The portal is collared in serpentinite and the heading goes into the dacite across a moderately steep northeast dipping fault. Near this fault zone, in the serpentinite, are two narrow andesite dykes running sub-parallel to the fault contact between the dacite and serpentinite that disrupt continuity of the mineralization. Also near the contact in the serpentinite are a few bands of pyrite-chalcopyrite mineralization that are between 10 and 20cm in width and follow the general trend of the contact. Magnetite was observed in small discontinuous patches in the serpentinite, concentrated near the contact. Gentle local folding of the fault and andesite dykes occurs. The end of this heading is in unmineralized dacite.

### **CLOSURE OF OLD UNDERGROUND WORKINGS**

Several hazardous abandoned mine openings were closed by the contractor, Scope Exploration Services, in 1993 to limit danger to the general public. These include doors and locks installed on the City of Paris and Grenoble adits. Fences were erected surrounding the Lincoln shaft and the largest No. 7 shaft. Two smaller No. 7 openings and a small shaft on the Lincoln claim were backfilled using a bulldozer. The Lexington shaft and the City of Paris shafts were covered using drill rods for support and planks or heavy steel mesh for decking. The Lexington portal is caved and therefore inaccessible.

## RECOMMENDATIONS

The following work is recommended to further this project:

- Recalculate the mining resource in the Main Zone. Incorporate the large quantity of historic data acquired by Britannia Gold Corp. since Wortman's 1992 study, including the 1993 diamond drilling.
- Do detailed geological mapping of the area between Lexington and Golden Cache. The intent is to find and plot the outcrops off the field grid lines not previously mapped. This is to extend and define the favourable serpentinite-dacite contacts through the largest area not previously explored on the property.
- Do an induced polarization "electronic drill hole" \* at the site of the mineralized intercept in diamond drill hole B93-6 in the TG-81 area. Use the information to calculate a calibration factor for vertical gradient IP measurements at that location. On the basis of the results, lay out a small IP survey intended to attempt to trace the B93-6 mineralization within a 200 metre radius.
- If the geophysical work described above is successful, continue it between the TG-81 and Golden Cache areas.
- Follow up geological and geophysical targets with drilling. A five hole program, costing in aggregate about \$90,000, would be appropriate initially.
- Calculate a geologic resource for the Lone Star mineralization, using a value cut off similar to that used for the Main Zone.
- Refine drill targets on the Lone Star property in light of the geological resource calculation. Plan a five hole drill program, with a probable cost of about \$100,000.

\* This technique uses an expanding Schlumberger array to do a vertical profile beneath a single point. Comparison with known geology can be used to calculate a numeric factor to be used in calculating depths for IP profiles.

Sean P. Butler - February 28, 1994 .....



## **BIBLIOGRAPHY**

- Betmanis, A.I., 1983a. Report on the 1982/83 diamond drilling exploration program, Grenoble and Seraphim et al properties, Greenwood Mining Division, B.C., May 6, 1983 - private report for property owners.
- Betmanis, A.I., 1983b. Assessment report on diamond drilling on the Goosmus Group of Mineral Claims, Greenwood Mining Division, B.C., - Report for Teck Exploration Ltd. (Drill hole TG-86) Assessment Report 11,365, May 26, 1983.
- Candy, C. 1986., Geophysical Report on Pulse Electromagnetometer, Magnetometer, VLF and Self-Potential Surveys on the Lexington Property for Canadian Pawnee Oil Corp., September 15, 1986.
- Cheney, E.S., Rasmussen, R.G. and Miller, M.G. 1992, Major Faults, Stratigraphy, and Identity of Quesnellia in Washington and Adjacent British Columbia, Department of Geology, University of Washington, October 24, 1992.
- Church, B.N. 1970a., Report on the Lexington Property in Geology, Exploration and Mining in British Columbia, 1970, B.C. Ministry of Energy, Mines and Petroleum Resources. pp. 413-427.
- Church, B.N. 1970b., Geology of the McCarren Creek, Goosmus Creek Area, Greenwood Mining Division, Preliminary Map No. 2, B.C Ministry of Energy, Mines and Petroleum Resources.
- Church, B.N. 1971., Lexington, in Geology, Exploration and Mining in B.C., B.C. Ministry of Energy Mines and Petroleum Resources, pp.376-379.
- Church, B.N. 1985., Notes to Accompany Preliminary Map No. 59, Geology and Mineralization in the Mount Attwood - Phoenix Area Greenwood B.C., Ministry of Energy, Mines and Petroleum Resources.
- Church, B.N. 1986., Geological Setting and Mineralization in the Mount Attwood - Phoenix area of the Greenwood Mining Camp, Ministry of Energy, Mines and Petroleum Resources.
- Day, W.C., 1986. Report on the Lexington Property, for Canadian Pawnee Oil Corp. December 17, 1986.
- Day, W.C., 1987. 1987 Diamond Drilling Report on the Lexington Property, for Canadian Pawnee Oil Corp., (Assessment Report 16,417), April 15, 1987.
- Ellerington, J.D., 1988. Diamond Drilling Report on the Lexington Property, private report for Canadian Pawnee Oil Corp.
- Fominoff, P.J., 1971. Report on an Induced Polarization Survey, Greenwood Area, B.C., for Lexington Mines Ltd. (Assessment Report 3693).
- Fyles, J.T., 1990. Geology of Greenwood - Grand Forks Area, British Columbia, NTS 82E/1&2, Open File 1990-25, British Columbia Ministry of Energy, Mines and Petroleum Resources.
- Harris, J.F., 1993. Petrographic Examination and Determination of Mode of Occurrence of Gold in Assayed Samples, October 26, 1993.
- Hemsworth, F.J., 1968. Report on the Lexington Mines Property, Greenwood B.C., Report in Lexington Mines Prospectus, dated March 5, 1968. 8pp.

- Homenuke, A.M., 1974. Diamond Drilling and Percussion. Assessment Report 5378.
- Homenuke, A.M., 1975. Compilation Report on the Greenwood Gold-Copper Property (Lexington Option) for Aalenian Resources Ltd., March 12, 1975. 22pp.
- Kyba, B.W., 1984. Assessment report on Geological, Geochemical and Geophysical Surveys and Trenching on the No. 7 Property, Greenwood Area, Greenwood Mining Division, B.C. December 17, 1984. 22pp.
- Little, H.W., 1957. Kettle River (East Half), Geological Survey of Canada, Map 6-1957.
- McDougall, J.J., 1988. Report on Richmond - Lone Star, Greenwood Mining Division and Ferry County, Wash., for Kassan Resources Inc., January 14, 1988. 24pp.
- McDougall, J.J., 1993. Report on Lone Star Copper-Gold Property, Ferry Co., Washington, U.S.A., for Britannia Gold Corp., March 10, 1993. 25pp.
- McNaughton, D.A., 1945. Greenwood - Phoenix Area, British Columbia, Geological Survey of Canada, Paper 45-20. 24pp.
- Monger, J.W.H., 1968. Early Tertiary Stratified Rocks, Greenwood Map-Area (82E/2E), Geological Survey of Canada, Paper 67-52, 39pp.
- Moss, R.D., 1988. Report on the 1988 Diamond Drilling Programme, Lexington Copper-Gold Property, Private Report for Candol Developments Ltd., May 20, 1988. 18pp.
- Page, R.O., 1982a. Summary Report on the Grenoble/Lexington, February 10, 1982.
- Page, R.O., 1982b. Interim Report on the Grenoble/Lexington Properties, Greenwood Mining Division, B.C., February 24, 1982.
- Page, R.O., 1982c. Assessment Report on Diamond Drilling on the Goosmus Group of Claims, Greenwood Mining Division, B.C., June 18, 1982.
- Parker, R.L. and Calkins, J.A., 1964. Geology of the Curlew Quadrangle, Ferry County, Washington, Geological Survey Bulletin 1169, United States Geological Survey.
- Pearson R.C., 1967. Notes to accompany U.S.G.S. Map GQ-636, United States Geological Survey.
- Phendler, R.W. and Crowhurst, J.J. 1970. Report on the Lexington Copper Property, Greenwood B.C., private report for Lexington Mines Ltd., March 23, 1970. 15pp.
- Phendler, R.W. 1974a. Report on the Lexington Property, Greenwood Mining Division for Aalenian Resources Ltd., February 12, 1974. 16pp.
- Phendler, R.W. 1974b. Interim Report on the 1974 Drilling Program at the Lexington Mine, Greenwood, British Columbia for Aalenian Resources Ltd., December 9, 1974. 6pp. (Percussion Drilling).
- Phendler, R.W. 1979. Report on the Lexington Copper - Gold Property, Greenwood Mining Division. B.C., for Grenoble Energy Ltd., July 20, 1979. 14pp.
- Phendler, R.W. 1980. Letter re Lexington Property, Greenwood, B.C., 1980 Development Program, dated July 14, 1980. 3pp. (on 45° raise to hole P-12).
- Phendler, R.W. 1982. Exploration report on the Grenoble/Lexington, Seraphim et. al. Properties, Greenwood, Mining Division, B.C., August 25, 1982.

- Phendler, R.W. 1984a. Summary Report on the Lexington Property, Greenwood Mining Division, B.C. for Canadian Pawnee Oil Corp., July 10, 1984. 14pp.
- Phendler, R.W. 1984b. Letter Report on Bulk Sample Open Pit, July 17, 1984. 2pp.
- Reed, A., 1981a. Assessment Report on Diamond Drilling on the City of Paris C.G. (D.L. 622) Holes T-44 and T-45, for Teck Explorations Ltd., July 28, 1981.
- Reed, A., 1981b. Preliminary Evaluation of Grenoble Property - Job 1282 -, Inter-Office Memo, July 31, 1981. 3pp.
- Seraphim, R.H., 1961. Geology of the Central Camp, City of Paris, Lexington and Lincoln Crown Grants - Private Report.
- Seraphim, R.H., 1968. Geological Report on the Lexington Group. Assessment Report 408.
- Seraphim, R.H., 1969. Richmond Group, Summary of 1968 Program for Silver Standard Mines Ltd., February 28, 1969. 3pp.
- Seraphim, R.H., 1983. Ore Reserves on the Lexington Project, Private report to Grenoble Energy Ltd. 5pp.
- Shear, H.H., 1970. Report on the 1969 Work Program for Lexington Mines Ltd. (N.P.L.), Greenwood Mining Division, B.C.
- Shearer, J.T. and McClaren M., 1991. Summary Report on the Lexington Project (City of Paris, Lexington and Lincoln Claims). Greenwood Mining Division, Private Report for Britannia Gold Corp., December 20, 1991. 52pp.
- Shearer, J.T. and Butler, S.P., 1992. Diamond Drilling and Trenching Report on Lexington Project, Vacher Zone, Lincoln/T-50 Area and Main Zone (City of Paris, Lexington and Lincoln Claims), Greenwood Mining Division, for Britannia Gold Corp., May 20, 1992.
- Shearer, J.T., 1993. Geological and Magnetometer Summary Report on the Lexington Project (City of Paris, Lexington and Lincoln Claims and Vacher Zone Lot 1095 Notre Dame Des Mines), Greenwood Mining Division for Britannia Gold Corp., April 1, 1993. 57pp.
- Tempelman-Kluit, D.J., 1989. Geological Map with Occurrences, Fossil Localities, Radiometric Ages and Gravity Field for Pentiction map area (NTS 82E), Southern British Columbia. Geological Survey of Canada, Open File 1969.
- Walcott, P.E., 1993. A Discussion on the Quality, Plotting and Results of the Magnetic Surveys of 1986 and 1992, Lexington Project. Private Report for Britannia Gold Corp., April 1993.
- Weisbrod, E., 1981. Information Packet to Grenoble Shareholders, June 4, 1981. 13pp. (Page-sized maps of underground diamond drilling).
- Wortman, D., 1992. Britannia Gold Corp., Grenoble Project, Greenwood, B.C., Preliminary Mining Study, April 3, 1992.