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P & L GEOLOGICAL SERVICES**BOX 5036****LAC LE JEUNE, B.C., V1S 1Y8****PH:250-828-0522****FAX:250-828-0512****email: plgeo@kamloops.net**TO: Dave Hefebure FAX#: 250-952-0381FROM: Linda Dandy**COMMENTS:**

Re: Figure 3 -

- Extend Emerald Au Zone - dashed - to intersections 300m + 600m south of Emerald Pit
 - For Bi Au Zone - the Figure on the next page show drill intersections (from U/G drilling) that intersected the zones. - NOTE - ignore the holes marked LTH-97-1 to 6 as they were drilled for lower dolomite band.
 - See also table extracted from 1999 property summary for results of these drill holes.
- Have fun with this L.

TOTAL PAGES INCLUDING COVER 8

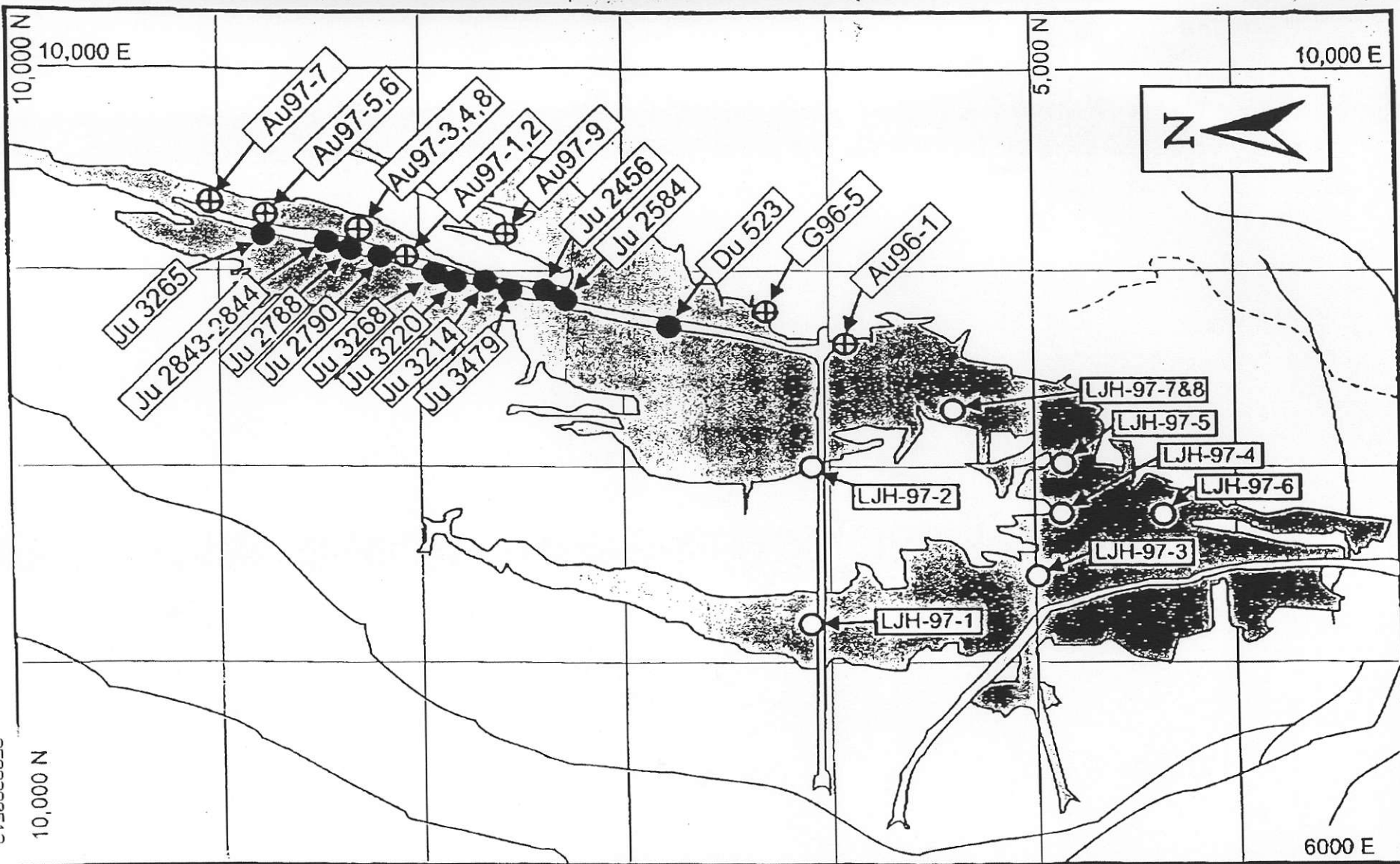
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PandL Geo

02



- Stage I - Gold Bismuth Zone
- ⊕ Stage II - Gold Bismuth Zone
- Stage III - Lower Jersey Horizon
- ▭ Former Jersey Mine Workings
- - - Tunnels Underneath Workings

SULTAN MINERALS INC.
DRILL HOLE LOCATION MAP
 Gold Bismuth Zone and Lower Jersey Horizon
 May 1997



DAVE
 Note LjH-97-7+8 intersected gold zone. Also geological interpretation (computer modeling) has indicated that the zone goes as far south

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PAGE. 02

MINERAL PROPERTIES OF THE COMPANY

1) JERSEY-EMERALD PROPERTY, SALMO, B.C.

In October of 1993 the Issuer entered into an option agreement with Lloyd Addie and Robert Bourdon, whereby the Issuer acquired an option to purchase a 100% interest in the Jersey Claim Group near Salmo, B.C. for consideration of 200,000 shares of the Issuer and cash payments totaling \$43,388.86. The claims overlie the former Jersey and Emerald lead, zinc and tungsten mines operated by Placer Dome from 1947 to 1972.

The Issuer's interest in the JERSEY-EMERALD property is subject to a 3% NSR royalty, however, the Issuer can reduce the NSR royalty to 1.5% by making additional cash and share payments totaling \$500,000 and 50,000 shares on completion of a positive feasibility study.

The optioned property is comprised of 28 crown granted mineral claims, 4 two-post claims and 80 mineral units encompassing approximately 1,700 hectares in the Nelson Mining Division. The property has since been expanded by staking, optioning and purchasing additional claims and now includes 47 crown granted mineral claims, 60 two-post claims and 278 mineral units in 15 four-post claims.

Location and Access

The JERSEY-EMERALD property is located in southeastern British Columbia at latitude 49°06'N and longitude 117°13'W (NTS 82F/3), 10 kilometres southeast of the community of Salmo. The claims cover an area of approximately 4000 hectares between the Salmo River on the west and the top of Nevada Mountain on the east, and are bounded by Hidden Creek on the north and the South Salmo River on the south. Year round gravel roads and power lines cross the property and water is plentiful. Underground workings of the historic Jersey and Dodger deposits are in excellent condition allowing for future underground access with little rehabilitation.

History and Previous Work

The earliest record of exploration in the area dates back to 1895 when gossanous areas on the south side of Iron Mountain attracted the attention of prospectors. The area was initially explored for gold and the 1896 Minister of Mines Report states that assays as high as 100 g/t (3.5 oz/t) gold were obtained. Continued prospecting discovered lead mineralization on the Emerald claims and shipments were made beginning in 1910. In 1938 tungsten and molybdenite mineralization was discovered in skarn bands at the site of the long abandoned gold workings. In 1942 and 1943 the government put the Emerald Tungsten Mine into production to serve the war effort. The mine then remained inactive until 1947 when Canadian Exploration Ltd. (now Placer Dome) purchased the property. Tungsten production recommenced in 1947 and lead-zinc production in 1949. Tungsten production of 1.6 million tons grading 0.76% tungsten was produced from the Emerald, Feency, Invincible and Dodger deposits. Lead-zinc production of 8.4 million tons grading 1.95% lead and 3.83% zinc was produced from the Jersey and Emerald deposits. The JERSEY-EMERALD property remained inactive from 1973 when the mine closed until 1993 when Sultan Minerals optioned the property.

Regional Geology

The JERSEY-EMERALD property lies near the south end of the Kootenay Arc and is underlain by rocks of the Cambrian Laib Formation and the Ordovician(?) Active Formation. The Laib Formation is comprised of mixed carbonates and pelites which have been subdivided into the Truman Member brown argillites, the Emerald Member black argillites, the Reeves Member limestones. The eastern part of the property has historically been mapped as a much younger (Ordovician) Active argillite, however recent work by Sultan Minerals indicates that the contact may in fact be conformable and that the Active Formation appears to be geochemically identical to the Laib Formation Emerald Member black argillites. Three Cretaceous granitic stocks intrude the Jersey mine rocks.

Economic Geology

Work done from 1994 to 1997 by Sultan Minerals has defined three distinct deposit types on the JERSEY-EMERALD property. These are carbonate-hosted lead-zinc (Irish style massive sulphide), Sedex type zinc-silver-copper, and intrusive related gold-bismuth-tungsten (Fort Knox/Pogo) mineralization. With these three major "drill ready" deposit targets on the JERSEY-EMERALD property, all of which have the potential for >10 millions tonnes, Sultan Minerals Inc. is in a position to become a significant gold and base metal producer.

1) Lower Jersey Horizon (Carbonate-hosted lead-zinc)

The historic Jersey and Emerald lead-zinc deposits occur in dolomite horizons within the Reeves limestone unit. In 1995, diamond drilling encountered a second lead-zinc bearing dolomite horizon located 55 metres below the Jersey mine horizon. Research of Placer Dome's old drill logs and sections uncovered several drill intersections which penetrated this Lower Jersey dolomite horizon, sometimes containing significant lead-zinc values. This horizon appears to underlie the entire Jersey Mine area, giving enormous potential for locating an economic lead-zinc deposit.

JERSEY MINE AREA LOWER JERSEY HORIZON RESULTS

SAMPLE NO.	TYPE	LOCATION	PB%	ZN%
J95-2	core (??)	Lower Jersey	???	???
Z96-6 54.86-55.46	core (0.6m)	Lower Jersey		11.0
Z96-6 56.85-57.79	core (0.94m)	Lower Jersey	13.8	1.9
Z96-8 89.4-94.4	core (5.0m)	Lower Jersey	4.9	2.9
LJH-97-3	core (1.5m)	Lower Jersey	1.3	4.8
LJH-97-4	core (4.0m)	Lower Jersey	1.1	2.2

In late 1996 Sultan Minerals optioned the Tungsten King ground located about one kilometre south of the Jersey mine along Lost Creek. Banded lead-zinc mineralization in dolomite outcrops on the Tungsten King ground and it is believed to be a surface expression of the Lower Jersey horizon. Still farther south, across Lost Creek, lies the Truman Hill and Trillion showings, which also exhibit good carbonate hosted lead-zinc mineralization, again believed to be the southern-most extent of the Lower Jersey horizon.

TUNGSTEN KING/TRUMAN HILL AREAS LOWER JERSEY HORIZON RESULTS

SAMPLE NO.	TYPE	LOCATION	PB%	ZN%
TK 8	grab	Tungsten King		3.3
TK 9	1m chip	Tungsten King	0.6	8.6
TK 10	grab	Tungsten King		16.3
TR 1	grab	Truman Hill	1.1	7.9
TR 2	1m chip	Truman Hill	0.6	>10
TR 3	1m chip	Truman Hill	0.7	7.7
TR 4	4m chip	Truman Hill	2.6	8.4
TR 5	grab	Truman Hill		10.4
TR 6	grab	Truman Hill	1.4	9.4
TR 7	grab	Truman Hill	1.3	4.1

Wilson Creek Anomaly (Sedex zinc-silver-copper)

Located south of Lost Creek in the Ordovician Active(?) Formation a large, very high grade zinc, silver, copper and barium soil anomaly exists. The anomaly lies within unaltered black argillaceous shales. Minor limey interbeds occur in the vicinity of the anomaly. The soil anomaly trends from northeast to southwest for 2700 metres and exhibits higher metal values than the geochemical response over the former Jersey Mine. The highest zinc values occur throughout the eastern half of the grid area, with about half of the samples being >1000 ppm zinc. Near the centre of this area, several stations give results from 3000 to

~~>5000 ppm zinc. Associated with the zinc soil anomaly are coincident silver and copper anomalies ranging up to 5.6 ppm silver and 609 ppm copper. Spotty baritic values of >2000 ppm also occur in this area (using partial barium extraction by ICP technique).~~

~~Surface prospecting in the vicinity of the Wilson Creek anomaly has found banded sulphide mineralization consisting of pyrrhotite, pyrite with traces of chalcopyrite and red/brown sphalerite in fresh black argillite.~~

Emerald, Jersey and Dodger Stocks (Intrusive related gold-bismuth-tungsten)

The Cretaceous Emerald, Jersey and Dodger granitic stocks (probably related to a single intrusive body at depth) host sheeted quartz veins of the Fort Knox style. In places these veins contain minor pyrite, pyrrhotite, native bismuth, arsenopyrite and molybdenite. The best examples of the sheeted vein systems can be seen in the vicinity of the historic Invincible and Dodger Tungsten mines. To date, these vein systems have not been evaluated for their gold potential.

The Bismuth Gold Zone, drilled by Sultan Minerals in 1994 to 1997, lies along the east and west margins of the Jersey Mine, located stratigraphically between the Jersey lead-zinc workings and the Emerald and Dodger tungsten workings. On the east side, an average 10 metre wide mineralized band runs for a distance of 1900 metres, and on the west side a 1 metre wide band extends 600 metres. These mineralized bands contain pyrrhotite and/or pyrite with variable amounts of arsenopyrite and bismuth in a quartz-rich gangue. The Bismuth Gold Zone mineralization appears to have combination of vein and skarn styles, and is somewhat similar to Pogo-type mineralization, but occurring much higher in the mineralizing system. Gold values up to 28 g/t over a 1 metre sample width occur in this zone, however the average grade over the entire zone is 2.5 g/t gold.

BISMUTH GOLD ZONE DIAMOND DRILL RESULTS

SAMPLE NO.	TYPE	Au (g/t)	Ag (g/t)
J94-1	core (0.9m)	28.0	
AU96-1 20.22-29.58	core (9.4m)	3.5	22.9
AU96-3 16.95-18.13	core (1.18m)	2.3	71.6
G96-3 20.97-22.05	core (1.08m)	4.1	6.9
G96-5 170.76-179.55	core (8.79m)	2.0	2.0
Including 176.7-178.7	core (2.0m)	8.3	3.0
AU97-7 44.0-45.2	core (1.2m)	5.0	2.7
AU97-8 22.0-25.3	core (3.3m)	1.9	12.0
Including 22.0-23.0	core (1.0m)	2.5	34.8
Including 24.5-25.3	core (0.8m)	4.9	4.1

During the course of the previous drill programs, Placer Dome's drill logs were examined and drill core dating from the 1940s to 1960s were located and sampled for gold and silver by Sultan Minerals Inc. The results of this sampling program are tabled below.

BISMUTH GOLD ZONE RESAMPLING OF HISTORIC DRILLING

SAMPLE NO.	TYPE	Au (g/t)	Ag (g/t)
DU 523 104.2-106.4	core (2.2m)	3.4	5.5
JU 2456 10.5-12.1	core (1.6m)	1.2	18.9
JU 2584 5.6-7.6	core (2.0m)	1.0	16.9
JU 2788 0.0-1.2	core (1.2m)	6.9	4.1
JU 2788 5.8-7.8	core (2.0m)	7.9	6.2
JU 2788 12.9-15.5	core (2.6m)	2.0	3.4
JU 2790 6.0-8.0	core (2.0m)	0.1	86.7
JU 2843 0.0-2.0	core (2.0m)	2.1	2.1

Aspy didn't
necessarily run higher
18m
folded

qtz
possible
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Au

- no
visible
gold
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**BISMUTH GOLD ZONE
RESAMPLING OF HISTORIC DRILLING -continued**

<u>SAMPLE NO.</u>	<u>TYPE</u>	<u>Au (g/t)</u>	<u>Ag (g/t)</u>
JU 2844 0.0-2.2	core (2.2m)	6.6	2.4
JU 3214 12.1-14.5	core (2.4m)	1.6	1.2
JU 3220 0.6-1.0	core (0.4m)	1.7	2.3
JU 3220 11.2-12.1	core (0.9m)	3.5	1.0
JU 3265 17.9-19.2	core (1.3m)	2.7	3.4
JU 3268 21.2-22.0	core (0.8m)	5.3	2.3
JU 3479 25.4-26.6	core (1.2m)	1.6	3.1

Northwest of the Jersey Mine are the historic Leroy gold workings which consist of quartz veins with native bismuth and contain good gold values. A summary of surface samples collected from the Leroy area is seen below.

LEROY AREA - GOLD-BISMUTH VEINS

<u>SAMPLE NO.</u>	<u>TYPE</u>	<u>DESCRIPTION</u>	<u>Au (g/t)</u>	<u>Bi (ppm)</u>
L5	grab	qtz w Bi	8.2	2265
L6	grab	qtz w Bi	25.5	9256
L7	grab	qtz w Bi, py, cpy	2.1	551
1004	grab	qtz w Bi, py, cpy	7.2	6015
1018	grab	qtz	2.7	732
1020	grab	qtz w Bi, py	27.7	3149
1021	40cm chip	qtz w py, Bi	0.6	1159
1022	100cm chip	qtz w py, Bi	1.2	
1024	60cm chip	qtz w py	8.3	1985

Future Work

Follow up work consisting of trenching, chip sampling and diamond drilling is recommended for the three types of mineralization on the JERSEY-EMERALD property. The company is presently seeking a joint venture partner to assist with further exploration and development of these three excellent exploration targets.

2. TRUE BLUE PROPERTY, KASLO, B.C.

The Company recently entered into an option agreement with Otto Janout and Otakar Janout of Nelson, B.C. whereby it can earn 100% interest in a block of 7 four-post and 3 two-post mineral claims comprising approximately 2900 hectares near Kaslo, B.C.

Sultan can earn a 100% interest in the property by making payments of \$70,000 and 200,000 shares and incurring exploration expenditures of \$550,000 over three years. The property is subject to a 3.0% NSR royalty, but Sultan has the right to purchase 50% of the royalty for the greater of 100,000 shares or \$1,000,000 on commencement of commercial production.

Location and Access

The TRUE BLUE property is located five kilometres southwest of the town of Kaslo in southern British Columbia. The adit and glory hole workings of the TRUE BLUE mine are located on a northeasterly facing slope at 1550 metres elevation. The property is road accessible to within one kilometre of the main showing, the remainder of the route is by cut trail. For diamond drilling, access is by helicopter from the town of Kaslo.

Looking South.

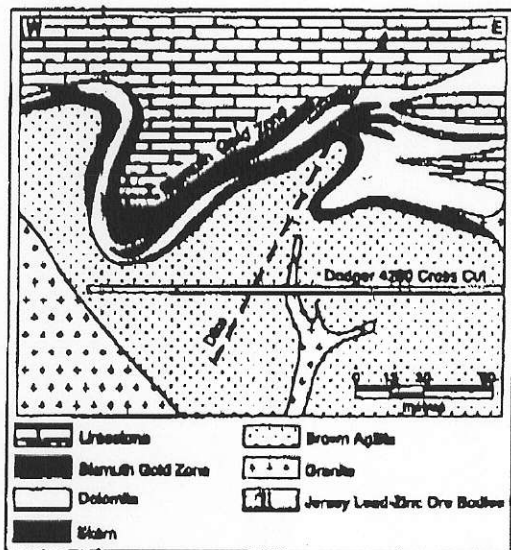
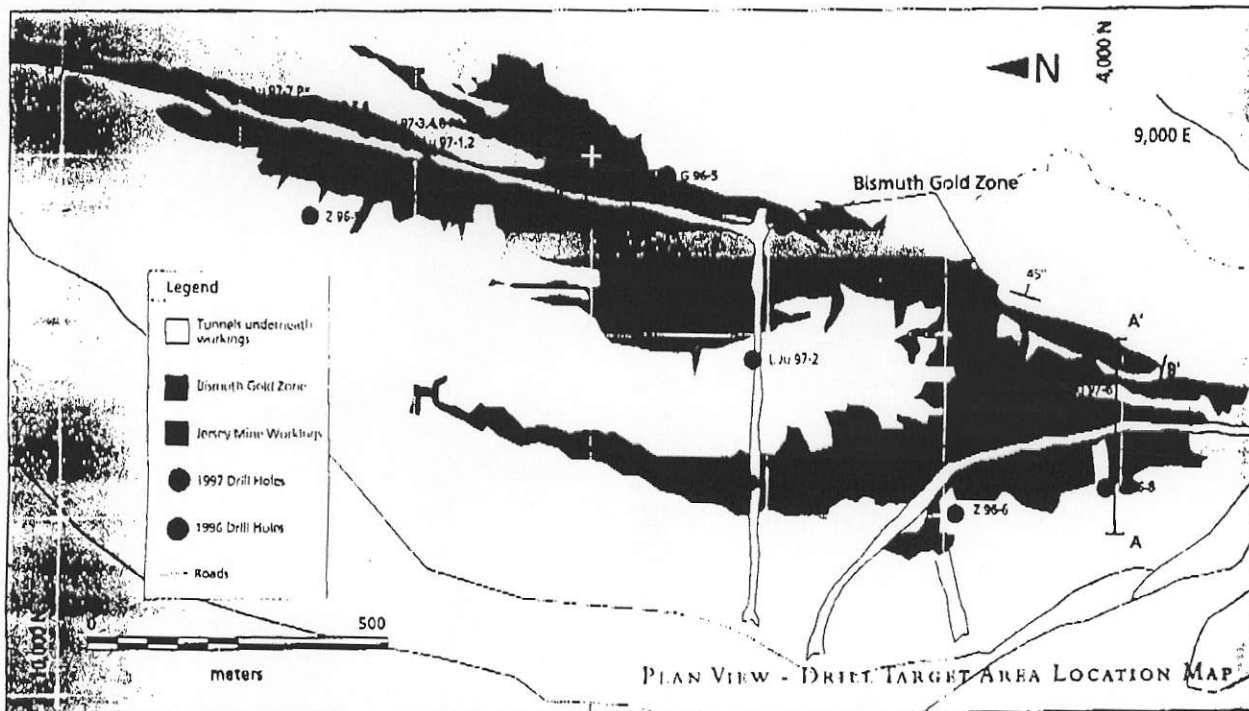
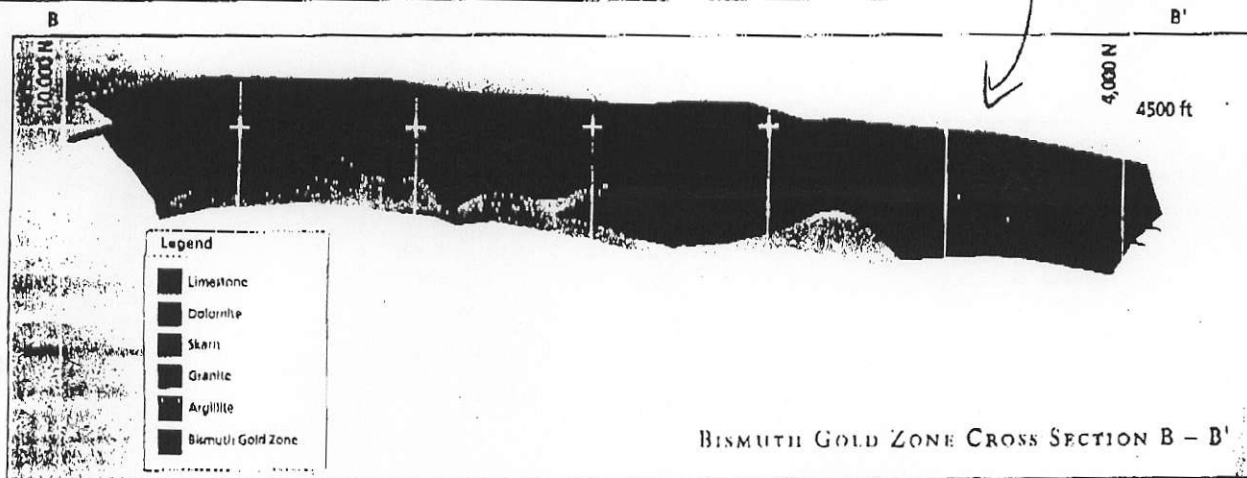


Figure 4

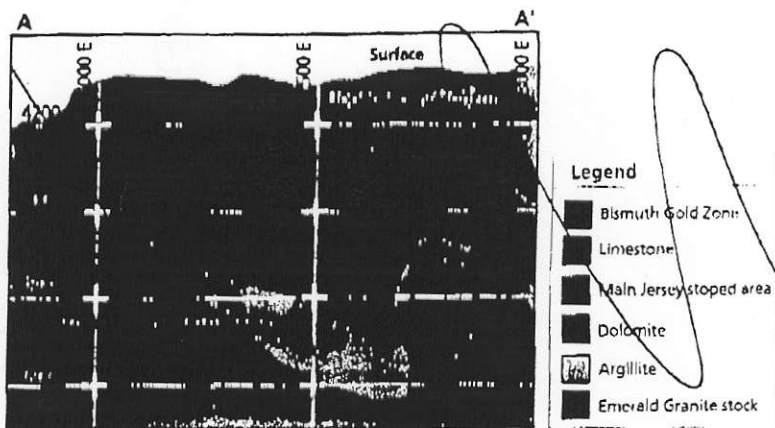
FROM 1996 Sultan Annual Report - This section
 (if you need the coloured version I can send it to you) is accurate

JERSEY-EMERALD PROPERTY SALMO, BRITISH COLUMBIA



A Computer modelling of 2,500 former drill hole logs over the Jersey mine has defined the Bismuth Gold Zone and shows it to be over 1,300 meters long, up to 20 meters thick and to dip east at 45°.

➤ Cross section of the recently identified Lower-Jersey Horizon, situated approximately 60 meters below the former Jersey lead-zinc mine workings.



LOWER-JERSEY HORIZON CROSS SECTION A - A'

R3 Bismuth-Gold Zone (Jersey Emerald Property)

Lead-zinc-silver, tungsten and gold mineralization occurs on the Jersey Emerald property which is located approximately 10 km south of Salmo. The first claims on the property were staked in 1896 on a high grade gold showing called the Emerald. Subsequent prospecting found silver-rich lead mineralization in 1906 at the Emerald lead deposit (082FSW310, Figure 3) which produced more than 25,850 tonnes of ore containing 6,788,936 kilograms of lead, 705,292 grams of silver, and 19,771 kilograms of zinc by 1925 (MINFILE). In 1938, skarn tungsten and molybdenum mineralization was discovered in the area of original staking for gold. This became the Emerald Tungsten Mine which was operated by a Federal Government Agency from 1942 till 1944 and subsequently by Canadian Exploration Ltd. (Placer Dome) from 1947 until 1958. Tungsten was mined from the Emerald (082FSW010), Feeney (082FSW247), Invincible (082FSW218) and Dodger (082FSW011) deposits until 1973 and produced a total of 1.45 million tonnes of ore grading 0.76% WO₃ (Troup, 1994). Canadian Exploration Ltd. discovered the Jersey lead-zinc deposit (082FSW009) to the east and mined it from 1949 to 1970. It produced 7.23 million tonnes grading 1.95% Pb and 3.83% Zn (Troup, 1994) with minor silver.

Insert Figure 3 here

Most of the Jersey Emerald property is underlain by a conformable sequence of sedimentary rocks of the Cambrian Laib formation which has been subdivided into Lower and Upper parts by Fyles and Hewlett (1959). The Lower Laib is composed of three members - the Truman, Reeves and Emerald, while the Upper Laib is not subdivided because it lacks well-defined marker beds. The Truman member is a sequence of phyllite, argillite and limestone consisting of primarily brown argillites on the property. The Reeves member consists of calcareous rocks, typically grey and white or black and white, fine to medium-grained limestone, and occurs between the uppermost argillite or phyllite of the Truman Member and the first argillaceous bed at the base of the overlying Emerald member. The limestone is locally altered to dolomite which is believed to be due to epigenetic replacement (Fyles and Hewlett, 1959). Black argillites and phyllites make up the Emerald Member. The upper part of the Laib consists of green phyllite and micaceous quartzite with minor beds of argillaceous limestone. On the eastern side of the property, the Ordovician Active formation outcrops as black argillite and slate with minor limestone and dolomite. None of the mineralization discussed in this article is hosted by the Active formation. These units have been complexly deformed; Fyles and Hewlett (1959) have identified three phases of folding and thrust and high-angle faults. The principal structure on the property is a north-northeast trending anticline called the Jersey anticline (Figure 3). **(Note from Linda: this structural interpretation is now open to revision, as is the age relationship of the Laib and Active formations.)**

The layered units are cut by the informally named Dodger and Emerald biotite granite stocks of probable Cretaceous age. Underground developments and related drilling show the Dodger and Emerald stocks are joined at depth (Lawrence, 1997). These granitic stocks are coarse to medium grained and cut by aplite or felsite dykes. Pegmatite occasionally occurs as small patches (< 0.5 m) within the granite; the Dodger stock has a 4 by 5 metre quartz-feldspar pegmatite outcrop exposed near the north adit. A potassium-argon age from biotite from the Dodger stock is 100.0 +/- 3.0 Ma **(This reference should be credited to either Fyles or Little)**. Also on the property, a two-mica granite of unknown age outcrops near the surface expression of the Jersey lead-zinc body, while to the west is a Tertiary augite monzonite stock of the Coryell suite.

On the Jersey Emerald property the lead-zinc, tungsten and gold mineralization are known to correlate with calcareous rocks of the Laib Formation. The older Jersey lead-zinc deposit, which has been interpreted as either syngenetic and/or replacement mineralization, occurs as five bands hosted by dolomitic limestone near the base of the Reeves Member. Dolomitic Reeves limestone also hosts similar base metal deposits, including the HB to the north and Reeves MacDonald to the south (Fyles and Hewlett, 1959). The tungsten skarn mineralization occurs as replacements both in Reeves Member carbonate units immediately adjacent to the granite stocks (e.g. Emerald, Feeney, Invincible, and Dodger 4400) or as zones replacing

limey argillites in the Truman Formation close to the intrusives (e.g. East Dodger; Lawrence, 1997). As noted The Bismuth Gold, Emerald and Leroy gold zones occur near, or at, the base of the Reeves limestone. Portions of both the Bismuth Gold and Emerald zones are found within tens of metres of tungsten skarns and mid Cretaceous intrusions (Dandy, 1997). The remainder of this description focuses on the gold mineralization on the Jersey Emerald property.

Canadian Exploration Ltd., while drilling off the Jersey deposit in the 1940s and 1950s, intersected an underlying pyrrhotite-rich zone in several holes (George Cross News Letter No.27, February 7, 1997; Sultan Minerals Inc. Annual report, 1995). They did not consider the zone as mineralized because it had low base metal contents (it was not assayed for gold at that time). In 1993 Lloyd Addie and Bob Bourdon, both of Nelson, panned fine particles of free gold from the tungsten tailings and eventually identified three parallel gold-bearing zones over the Dodger, Emerald and Leroy occurrences (Figure 3; Troup, 1994). Sultan Minerals Inc. optioned the property in late 1993. Since that time they have investigated both the gold and base metal potential of the property with a combination of surface and underground exploration and drilling. The following description of the Bismuth Gold, Emerald and Leroy gold zones is based largely on work by staff of Sultan Minerals Ltd.

The Bismuth Gold Zone is located on the east side of the Jersey anticline and immediately east of the underground workings of the Jersey lead-zinc zone (**can be generalized as lying between the underlying East Dodger Tungsten deposit and the overlying Jersey Lead-Zinc deposit**) (Figure 3). The mineralization is at the contact between the limestone and dolomite of the Reeves Member and is not exposed on the surface. Canadian Exploration Ltd. first identified this zone in 1963 when they assayed four samples from a native bismuth and arsenopyrite zone which returned 3.4 g/t gold each (Troup, 1994). The zone varies from 1.2 to 18.0 metre thick and roughly parallels and overlies the east limb of the Jersey lead-zinc orebody (Figure 4) and contains pyrrhotite, arsenopyrite, quartz, native bismuth and reportedly stibnite (Troup, 1994). Pyrrhotite is the most abundant sulphide in the drill intersections; however, there are zones where arsenopyrite and bismuth-minerals are the primary sulphides, including two underground exposures. Microprobe analyses of the pyrrhotite, arsenopyrite and quartz mineralization from the Gold Bismuth zone by Ray and Webster (page 60, 1997) identified other minerals, including Mg-rich sideritic carbonate, Bitellurides (tetradymite, pilsenite and joesite-B), bismuthinite and Bi-selenides. Their analyses also showed that the mineralization is anomalous for Ag, Cu, As, Sb, Bi, Te, Se and Be (Table 1).

Two grab samples from the pyrrhotite zones exposed in the Jersey underground workings returned assays of 3.43 and 5.49 g/t Au across 4.0 and 1.0 metres respectively with 0.26% and 0.14% tungsten (Troup, 1994). Two drill holes in 1996 by Sultan Minerals Inc. intersected a 9.0 metre thick, pyrrhotitic horizon with gold grades ranging from 2.0 to 8.3 g/t, including an intersection from 176.7 to 178.7 m grading 8.33 g/t Au and 3.0 g/t Ag in DDH G96-5 and 20.2 to 29.6 m intersection in underground drill hole 96-1 grading 3.23 g/t Au and 22.9 g/t Ag (Sultan Minerals Ltd. press releases, Oct. 10, 1996 and Jan. 10, 1997). With subsequent underground drilling and re-assaying of intervals of 1950s and 1960s drill core, Sultan Minerals Ltd. traced the zone (approximately 9 m thick and grading 2 g/t Au) for 1300 metres, and open in both directions along strike. (Dandy, 1999).

On the west limb of the Jersey anticline, Sultan Minerals Ltd. has defined two other gold zones, called the Emerald and Leroy (Figure 3). The north end of the Emerald zone is coincident with the Emerald Tungsten skarn deposit workings, although the gold mineralization is a separate, linear body. The horizon is represented by a quartz-sulphide unit occurring along the argillite-limestone contact at the south end of the Emerald open pit which grades 5.39 g/t Au and 22 g/t Ag over a 1 metre width (Linda Dandy, personal communication, 1999). It is believed that the same zone is exposed as a 1 to 2 metre wide massive sulphide (pyrrhotite-arsenopyrite-sphalerite) band in trenches and old pits which follow the Reeves limestone and Emerald argillite contact for over 600 metres south of the open pit (Dandy, 1996). In two drill holes located 300 and 600 metres south of the Emerald Tungsten pit, the Emerald Gold Zone was intersected with the latter hole grading 27.3 g/t Au and 34.4 g/t Ag over 0.9 metres (October 10, 1996 press release).

The Leroy zone is exposed in a series of old trenches and crosscut by an adit which stopped short of the main zone. It consists of a quartz band, sometimes with marginal pyrrhotite and minor pyrite mineralization, that is well exposed on surface for 250 m and likely correlates with exposures in pits extending another 450 metres (Dandy, 1996). The quartz band is generally about one metre wide, although locally it swells to 3 metres with sulphides occurring for up to one metre width on either or both margins of the quartz. The quartz band contains native bismuth which correlates with the best gold values (Dandy, 1996). The quartz/pyrrhotite band is at the contact between the Reeves limestone and Emerald argillite, the same stratigraphic position as the Emerald gold zone. Grab sample assays from the Leroy Zone contain gold values varying from below detection limits up to 9.91 and 30.8 g/t Au and 2265 and 9256 ppm Bi for two of the better samples (Dandy, 1996). A two metre chip sample along the wall of the adit, including minor pyrite and pyrrhotite with quartz stringers, marginal to the Leroy Zone, contains 0.37 g/t Au, 7.4 g/t Ag, 106 ppm Cu, 163 ppm Bi and 100 ppm W (Dandy, 1997).

The importance of stratigraphic position in determining the location of the gold mineralization has been noted by Troup (1994). The two favourable horizons mark contacts between Reeves limestone and dolomite (Gold Bismuth zone) or Reeves limestone and argillite (Emerald and Leroy zones). One possible explanation of this relationship is that the fluids forming the gold zones only replace the first calcium-rich rocks encountered near the contact. Therefore, the gold zones are controlled by favourable stratigraphy and the source of the fluids.

More work needs to be done to properly define the characteristics of the three gold zones on the Jersey Emerald property. Obvious common features are:

- a generally conformable nature with stratigraphy;
- an association with the basal Reeves Member limestone;
- the presence of pyrrhotite and arsenopyrite with bismuth minerals (usually native bismuth);
- the existence of both sulphide and quartz-rich zones that appear to grade from one to the other along strike; and
- anomalous bismuth and tungsten contents;

The three gold zones on the Jersey Emerald property exhibit a strong correlation with host lithology, general absence of discernible controlling structures, and textures consistent with a replacement origin. This interpretation is consistent with the close spatial association of the Bismuth Gold and Emerald gold zones with granitic intrusives and tungsten skarns. The Sultan Minerals Ltd. staff and Ray and Webster (1997) have interpreted the Bismuth Gold zone as possible skarn mineralization. The (possibly blanket-like) nature of the mineralization and lack of calc-silicate minerals suggests that these zones might be gold mantos. Regardless of the type of mineralization, the mineralogy, geochemical characteristics, associated styles of mineralization and spatial association with mid Cretaceous granitic intrusions is consistent with these gold zones being a type of plutonic-related gold mineralization.

W mined
An zone

interfingers
into limestone
at north o/c

massive
sulphide
+
Au monzon

Emerald pit

massive sulphides
targets
stems
higher grade

sample
sites
boxes

