MAR 19880001: OLDMAN RIVER

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The Oldman River Project

(SOUTHWESTERN ALBERTA)

T. 13, R. 06, W. of 5

GEOLOGICAL REPORT ON EXPLORATION

CARRIED OUT IN SUMMER 1988

Prepared for :

RAPPAREE RESOURCES LTD

OF CALGARY

Prepared by :

H.P. SALAT - Consultant

November 1988

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SUMMARY

Situated at the headwaters of the Oldman River, in Southwestern Alberta, a mineralized occurrence along a steep cliff, in the side of which two short horizontal adits had been driven many years ago, is the subject of the present report which relates the renewed effort of exploration and attempt to appraise its potential.

Due to environmental constraints, only geological and hand samplings were carried out on the mineral leases covering the showing. It has been found that mineralization, essentially Zn, Ag with accessory Pb and Cd, wes hosted in a paleokarst system within the Upper Devonian Palliser Formation. A combination of channel sampling on the cliff-face and soil sampling geochemistry above it on a sloping plateau, allows to evaluate the grade of the mineralization at an average of 5 to 7% Zn, 1 oz/T Ag, 1% Pb and 1 lb/T Cd, and to indicate a potential for the area of 2 to 2.5 MT of ore.

1 - Location, access and legal description. (Fig.1)

A short program of exploration and evaluation has been implemented over the area where an old showing and two adits sit near the base of the Rocky Mountains Front Range in Southwestern Alberta. It took place during the last part of August 1988.

Located at the headwaters of the Oldman River, the concerned area is covered by permits ("the property") requested or assigned to Mr N.S. Dodd of Lundbreck and to Rapparee Resources Ltd, both of whom have concluded an agreement to carry out exploration. This area includes all the lands within the Province of Alberta and described as sections 23, 26, 27 and 34 of Township 13, Range 06, West of the Fifth Meridian. It also covers:

the NW corner as well as legal subdivisions 5 and 6 of section 24,

legal subdivision 4 of section 25,

south half and NW corner as well as legal subdivisions 9 and 10 of section 35,

all within T 13, R 06, W of 5.

However due to restrictive legislation, most of the area south of the boundary between sections 34-35 and 26-27 (see figure 1), falls within designated Beehive Natural Area where exploration for minerals have been ruled out by Order-in-Council on April 2nd 1987.

Access to the area is provided by a good gravel road branching off from highway 940 and paralleling the Oldman River westward up to Oyster creek. Used by recreationists and lumber trucks, the road ends approximately 7 km short of the property. From that point, hiking trails lead to the alpine country where no motorized vehicles are allowed under the Eastern Slopes Protection policy. Therefore, with the authorization to carry light exploration granted by the Forest Lands Use Branch on July 22nd, men had to walk or ride, and equipment had to be transported either in backpacks or on horseback.

2 - Geology.

2-1 Regional geology.

The general area is one of steep forest covered hills; some summits break through the timber line and lie in the geomorphological alpine zone. To the West, these hills merge with the high ridges and cliffs of the Front Range of the Rocky Mountains.

The surface geology reflects the two morphological domains whereby the lower hills are underlain by the siliclastic formations of Jurassic and Cretaceous ages. The towering cliffs blocking the view to the West, are made of Paleozoic carbonates and mark the boundary between

Alberta and British Columbia. At the contact, the major Lewis thrust fault brings the Paleozoic formations eastward to stand squarely above the younger sandstone, shale and coal seams.

The straddling of the two different lithological packages is very conspicuous to the West and exemplifies the structural style of thrusted sheets folded and stacked above each other during the last major Laramide orogeny. However,to the East, although the structural style remains the same, the more weather recessive nature of the strata tends to subdue the morphological signature of folds and thrusts.

2-2 Local geology of the Property. (Fig. 3 & 4)

The southern portion of the Foothills and Front Range extending between the Highwood river and Coleman has been cursorily mapped by Geophoto Ltd (a now defunct branch of GSI Ltd of Calgary) for private interests in the 60's and by D.K. Norris (1956) who produced a preliminary geological map (Map 14-1958) along with the presently out-of-print report GSC Paper 58-5. Much use of airphoto interpretation is evident through the mapping of the Beehive Mountain map-sheet which covers the NTS area 82 J/2 (East half) and therefore the property area; all the geological contours and faults indicate at best approximate location of what they attempt to feature.

In accordance with the accepted nomenclature and from our own observations, the following stratigraphy is presented as it applies to the formations encountered over the property or in its immediate vicinity.

2-2-1 The Mesozoic formations:

The area which is dealt with in this report, is situated right above the Lewis thrust fault. This prominent feature brings into a relatively low dipping contact, a huge sequence of carbonate formations above a package of bright tan to light brown ferrigeneous, calcareous silts and sandstones of the Kootenay Formation (Lower Cretaceous).

The detrital rocks contain much chert fragments and are often interlayered with shale and coal seams (1 to 2 meter thick). They dip 25° to 30° toward the West.

To the North of the property, many polygenic conglomerate, brown to green sandstone, purple siltstone and shale of the Blairmore Group, outcrop next to the thrust front. On the basis of loading features and sandy dikes into shale and silt, these beds appear overturned.

2-2-2 The Paleozoic Formations.

Pushed eastward over the younger Mesozoic formations, the cliff forming Paleozoic formations offer great exposure of relatively undisturbed carbonates and minor shales.

Althouh not supported by detailed micro-paleontological(conodonts) study in these fossil poor limestones or dolomites, it is possible to recognize from bottom to top:

- Upper Devonian (Fammenian) Palliser Formation, composed of light grey micritic limestone. Fairly massive, this unit is poor in fossils (a few rounded undefined shells, less than 1cm in size), but contains many foraging fossilized tubular marks and shows some strongly bioturbated horizons.

This nodular limestone displays a lot of white crystallites and many conjugate calcite filled jointings, indicating a vertical (load) stress. Beside, some veining are stretched into sigmoidal steps , a sign of limited amount of slippage. The bedding is measured at N167°E 65°W (north of the property) to 43°W in the vicinity of the adits.

The very top is indicated by recurrent presence of burrowed hardground in clastic crinoidal grey limestone, evolving in more laminated micrite rich in Cyrtospirifer shells. In the "mine" area, right at the top of the formation, a conspicuous tan weathering micritic limestone stands as a good local marker horizon; its color is due to a few cubes of pyrite and some thin siltstone interlayers as well as remnants of limonitic crusts (paleosol), evidence of a major emersion event.

- Mississippian Exshaw Formation : the next sequence begins with a thin (15 to 20m) layer of black shales. Toward the top, this unit becomes more and more limy to the point where marly interbeds start to stand out, and gradually passes into the gey micritic Banff Formation which also contains some cherty horizons.

The Banff formation is well identified by its regular alternating dark grey shaly limestones and light grey micrites.

-The cliff forming Rundle Group (Mississippian to Pennsylvanian) represents a huge limestone package which gives rise to the high peaks and ramparts of the Front Range. Not surveyed in detail, it includes cross-bedded calcarenites, chert nodule micrite and displays large scale slump structures.

2-2-3 The paleokarst system:

In the "mine" area, the dense structureless Palliser formation changes abruptly into a brownish crumbly and crystalline dolomitic massif layered with two separate horizons of anastomosing calcite veinings.

However the dolomitization is not uniform and varies in intensity. On closer look, it appears that entire blocks up to 20 x 5m of grey limestone are preserved, some are yet attached to their original bed like roof pendant or beams. Overall, the most abundant facies are disorganized rubble breccias, recemented rounded calcirudites and crackle breccias, but in the easternmost exposures that of drusy, cavernous mosaic breccia is more prevalent with porosity up to 25%. The matrix is usually a sucrosic dolomite and often stalactitic and laminated vadose calcitic precipitates are observed.

On its west and northern border, the dolomitic masse is exposed along serrated cliffs where it terminates abruptly (with some very limited interfingering) against the dense micritic limestone forming steep but smooth rock faces. There, the main facies encountered consists of wriggled laminae of dark and light sucrosic dolomite and some calcitic interlayers resembling "zebra structure".

All these features point toward the existence of a large paleokarst structure, having originated just a few meters below the unconformity and emersion surface indicated by hardgrounds and rusty paleosols as previously noted at the contact with overlying Exshaw formation. So far it can be seen that the karst system is more or less parallel to the stratigraphy as the brownish dolomite is still exposed along the edge of the high plateau before disappearing under the momentous screes of rubbles coming down from the Mississipian cliffs.

3 - Mineralization and sampling.

3-1 Description.

The steeply sloping plateau which underlies most of the property, terminates toward the North, into a dissected, very ragged cliff curving westward and merging with the north-south trending limestone wall of the Palliser Formation. This cliff cuts deeply into the dolomitic paleokarst system where the mineralized occurrences can be observed.

In the past, two adits (10 and 35 meter long respectively) have been driven horizontally into the side of the cliff. No record was kept or is available at present, about the time, purpose, people or company involved in the undertaking.

The two adits were excavated at the top of the scree fan where it meets the base of the very crumbly cliff and is fairly accessible. They are located at the lower part of the first of two major calcitic stratiformal zones and where massive pyritic and marcassite pods are present and assume a keel-like shape.

The amount of iron sulfides in place, gives rise to rusty patches conspicuously situated at the bottom of the first major anostomosing white calcite vein horizon. Systematic grab sampling (figure 2) returned some high values indicating the presence of Zinc, Lead, Silver, some Cadmium and anomalous Gold. Values are sporadic in terms of lead and silver but the zinc content remains fairly high throughout. It appears that the best results are not tied to the pyrite-marcassite masses but lay outside. A similar observation was made in the Nanasivik mine (Olsen, R.A., 1984) where an identical pyritic base does exist.

3-2 Profiling and results: (figure 3)

In view of the broad rock exposure offered and in spite of the steepness and crumbliness of the cliff face, as complete as possible channel sampling was in order. The task was undertaken with the help of ropes, harness and rappel.

Several profiles were sampled along the cliff, which also included sampling of the second anastomosing white calcite veining system situated 30m above the previous one. Associated with this upper horizon, extensive limonite-goethite layers and ferrigeneous crusts were encountered which have yielded some fair values (ORP-3N with 5 meters at 4% Zn and half an ounce of Silver). This interesting result indicates that silver is not only tied up with lead in galena as the grab sampling of the adit outcrop (fig.2) could have suggested. 25 meters away where this horizon tapers off toward the cliff edge, sampling over 6 meters containing some of the iron oxide layers still returned .24% Zn, in spite of its very leached state and honeycomb texture (ORP-3S).

The widest portion of exposed mineralization is found toward the base of the thick (15 to 20m) lower calcitic veined horizon. The bottom 7 meters of profile ORP-1 yielded 7.23% Zn, 2.84% Pb and 1.13 oz/T Ag.; again, the lowest 10 meters along ORP-3C has returned 3% Zn, .21% Pb and .3 oz/T Ag. As for ORP-4, a 2 meter channel sample taken 5m above the lower adit and 3m to the West, it provided 4.5% Zn and 1.6 oz/T of Ag.

So, it appears the mineralization is continuous over at least 100m along the strike of the lower calcitic veined horizon and between 7 and 10m thick. Obviously, the study is yet preliminary and it would require further investigation into the third dimension to ascertain the shape of the mineralization and its association to a particular facies or locale within the paleokarst system.

4 - Soil Geochemistry. (figures 4, 5 & 6))

The structure of the carbonate beds and evidently that of the paleokarst system, implies that the same beds or horizons should outcrop southward along the steeply inclined plateau behind the mineralized cliff (see figure 4). Indeed, the slopes are either covered by alpine soils with herbaceous vegetation, moss and lichen, or by fans of debris rolled down from the higher cliffs. Excluding some areas of bouldery avalanches, the seepage of water and weathering contribute to follow on the geochemical dispersion of mineralization even under some -reasonable- cover.

Soil sampling was devised along a gid covering all the plateau (figure 4) except the very rocky slopes down toward the valleys or creeping up against the carbonate cliffs. 117 samples were collected with a grubhoe and analized for Zn, Pb, Ag and Cd.

The results of the geochemical analysis (by atomic absorption technique performed by Loring Laboratories of Calgary - see Appendix 2) shows some interesting features. Contoured maps for zinc and lead (taken at mean values plus one standard deviation for threshold) confirm the extension of the lower calcitic horizon, at least for one hundred meters before it is obliterated under a major rock slide (between profiles 1+00S and 2+50S). Thereafter, strike and dip make it disappear into the slope of the mountains, the more so since rubble from above constitute a thick talus fan.

Geochemical expression of the upper horizon is more subtle to detect for two reasons. The mineralization itself doesn't have any Pb associated and is mostly Zn an Ag; secondly, its exposure on the plateau side is rapidly restricted by the debris fans and avalanches of superjacent limestone ledges. Anyway, the extension of that horizon is strongly suggested by the high zinc background within the northern half of the soil sampling grid - it is twice as high as in the southern part- and by the contouring of the 400ppm level.

Again, to the South and West, the 200ppm and up contour line implies that mineralized rock formation tends to crop out underneath the talus fan and soils.

5 - Mineral Potential of yhe Property.

Based upon strictly surface observations and essay results from hend sampling, one can attempt to put forth - may be prematurely?- some ideas about the economical mineral potential of the Oldman River property.

Additional caveats need to be presented on the nature of the mineralization; the long exposure of the cliff face, to atmospheric agents is inducive to oxidation and leaching of economical sulfides.

In so doing, it decreases the metal content of the mineralized outcrops. Weathering has also helped the alteration of host rock and to transforming it into a very crumbly rubble; the process has led here to the destruction and comminutation of the dolomite while the white calcite has remained relatively unaffected.The mineralization is usually tied to the dolomitization of the karstic host and as a consequence, has been also displaced and removed.

Everything considered, we can estimate from present situation, that mineralization averages 5 to 7% Zn, 1% Pb and 1oz/T Ag over a thickness of 7 meters and 100 meter-long exposure. Cadmium is generally associated to the order of half a pound per tonne and may constitute a worthwhile by-product.

The value of one tonne of mineralization can be estimated to be in the range of $90 to $120 at today's metal prices. Taking a mean thickness of 7 meters over a width of 100 meters and a density of 2.90, the tonnage per meter of section is 2000 T/meter. Projection into the third dimension is hard to predict but from soil sampling, continuity seems to exist. On the basis of usually very elongated and persistent karstic caves of similar size and by comparison with equivalent mineralized systems (Pine Point, Nanisivik, Leadville district in Colorado), a length of one to two kilometers can be assumed. Additional level of ore may be expected and is alluded by the example of the upper mineralized calcitic horizon, which has not been taken into account in the present calculation.

A minimum of 2 to 2.5 MT of ore is therefore prognosed on the property. From assays of grab samples, Gold has appeared in traces and its presence is strikingly unusual in such an environment. Obviously, more work is absolutely required to prove up the actual amount of ore contained here, in the side of these mountains.

6 - Recommendations.

Mineralization is definitely in large quantity over the property and consists of Zinc and Silver as the main components with Lead and Cadmium as minor products.

Limited in time and by stringent environmental regulations, the present investigation was nevertheless able to uncover and appreciate the real potential. However, further undertakings are necessary to appraise and block out the continuity of the mineralization under ground level.

To achieve this purpose, the following works are recommended:

- a detailed IP geophysical survey over the extent of the plateau area, along with unexpensive VLF-Mag measurements.

-a core drilling program, in two phases, for a total of 10,000 feet (3,000 meters) to test the continuity, geometry, size and content of mineralization at depth. From the foregoing consideration and with the help of IP geophysics, sites for a series of 300feet (90 m) to 500 feet (150m) holes would be established. Environmental constraints would call for a helicopter supported program.

7 - References

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Norris, D.K. - 1956 - Beehive Mountain, British Columbia and Alberta (82 J/2 East half); G.S.C. Map 14-1958.

Olson, R.A. - 1984 - Genesis of Paleokarst and Strata-bound Zinc-Lead Sulfides Deposits in a Proterozoic Dolostone, Northern Baffin Island, Canada; Economic Geology, vol. 79, p1056-1103.

8- Proposal for follow-up budget.

1/ Geophysics: IP dipole-dipole with VLF-Mag and (optional) mise-a-la-masse techniques	$	10,000
2/ Drilling: diamond core drilling,		
-Phase 1 : 3000 feet (1000m) at $35/foot	$	105,000
-Phase 2 : 7000 feet (2000m) at $35/foot	$	245,000
3/ Helicopter support	$	120,000
4/ Geological supervision, core logging and asseying	$	30,000
5/ Accomodation , supplies & transportation	$	15,000
sub-total	$	525,000
6/ Management & administration charges at 10% of sub-total	$	52,500
TOTAL	$	577,500

9 - Statement of Expenditures.

- Geological field work : consulting fees	$ 7372,00
- Supplies, lodging and food	$ 3432,49
- Transportation :	
Horses rental	$ 2000,00
Rapparee 4x4 truck, 3225km @ 35¢/km	$ 967,60
- Chemical Assays	$ 2044,11
- Report:	
consulting fees	$ 1921,85
drafting & reproduction	$ 708,00
sub-total	$18446,05
- Administration- Management charges at 10%	$ 1844,60
TOTAL AMOUNT OF EXPENDITURES	$20290,65

CERTIFICATE

I, HUGHES P. SALAT, of the City of Calgary, Alberta, certify that:

1/ My present address is [redacted], Calgary, Alberta, T3A 1T1 and my occupation is that of a consulting geologist.

2/ I am a graduate of the Ecole Nationale Supérieure de Géologie Appliquée de Nancy and of Faculty of Earth Sciences, University of Nancy (France) with a degree in Geological Engineering, have obtained an M.Sc.equivalence and completed all credit requirements for a degree of Ph.D. at the University of Southern California in Los Angeles (unwritten thesis due to military recall).

3/ I have been practising continuously my profession of geologist since 1968 in Canada and Europe in mineral exploration, first with Aquitaine Company of Canada then with SNEAP (Elf-Aquitaine).
Concomitantly ,from 1983 to 1987, I was also worked for the latter, as petroleum geologist on international projects dealing with Central Africa, Indonesia and South America.
Since 1988, I operate as an independent consultant in mineral and oil-gas exploration from the above-mentionned address.

4/ I am a member of the Association of Professional Engineers, Geologists and Geophysicists of the Province of Alberta, of the Geological Association of Canada and of the Canadian Institute of Mining and Metallurgy.

PROFESSIONAL GEOLOGIST H. SALAT ALBERTA

Hughes P. Salat
Consulting Geologist.

APPENDIX I

SOIL SAMPLES DESCRIPTION

LINE 0+00S

0+50W	dark soil + 25% talus fines (t.f.)
0+25W	t.f. + C (mineral) soil.
0+00	s.a.a.
0+25E	pebbles + brown alpine Rendoll soil.
0+50E	pebbles + brown soil, rich in humus.
0+75E	s.a.a.
1+00E	s.a.a.
1+25E	s.a.a.
1+50E	s.a.a.

LINE 0+25S

1+50E	t.f. + brown soil.
1+25E	s.a.a.
1+00E	s.a.a.
0+75E	s.a.a.
0+50E	s.a.a.
0+25E	s.a.a.
0+00	s.a.a.
0+25W	grassy; dk brown humus + C horizon
0+50W	t.f. + brown soil.
0+75W	grassy; humic dk bn soil
1+00W	boulders, pebbles + bn soil.

LINE 0+50S

1+50W	boulders with grassy patches; dk bn humus.
1+25W	s.a.a.
1+00W	s.a.a.
0+75W	s.a.a.
0+50W	large grassy slope; dk bn thick humus.
0+25W	talus w/ pebbles + bn/dk bn humic Rendoll.

0+00 talus, C horizon + bn soil.

0+25E s.a.a.

0+50E s.a.a.

0+75E talus w/ C soil.

1+00E s.a.a.

1+25E s.a.a.

1+50E t.f.

LINE 1+00S

1+00E t.f. + light bn C soil.

0+75E s.a.a.

0+50E s.a.a.

0+25E grassy slope; good development of Rendoll soilw/ humus rich B horizon below mainly humic & moss A horizon.

0+00 s.a.a.

0+25W bouldery talus slope; dk bn C horizon w/ pebbles.

0+50W s.a.a.

0+75W rock slide; no sample.

1+00W bouldery,gassy patches; humic A.

1+25W s.a.a.

1+50W grassy slope; dk bn humic alpine Rendoll soil.

LINE 2+00S

2+00W t.f. & boulders next to big rock slide.

1+75W s.a.a.

1+75W (+10mS) small cirque w/ running trickle in mud & silt.

1+50W rock slide; no sample.

1+50W (+20mS) mud flat w/ seeping water.

1+25W all rock slide, boulders only; no sample.

LINE 2+50S

0+00 edge of rock slide,w/ some grassy spots amidst boulders; high in humus (moss) A horizon, dk bn.

0+25W s.a.a.

0+50W hump near flat basin; humus rich dk bn soil (mainly A), moss & hard leave grass.

0+75W s.a.a.

1+00W s.a.a.

1+25W muddy flat, roots mixed w/ clay and medium bn waterlogged B horizon.

LINE 3+00S

3+00W East side of gentle slope on N-S grassy ridge coming down from cirque (Mississippian); bn humic A/C soil.

2+75W same slope (20°); top dk bn-grey humus, below mixed bn humus, then light bn-beige B/C horizon.

2+50W streaks of rubble<+ moss bands; humus mixed dk bn/ bn soil.

2+25W in a flatter area; dk bn humic A, then mixed lighter bn C/A.

2+00W next to rock slide edge; only humus.

1+75W nose of small rock slide; moss patches w/ rock flour & C horizon.

1+50W s.a.a.

1+25W base of rock slide, edge of basin; flat area w/ peat.

1+00W humic A soil.

0+75W frost boil.

0+50W s.a.a.

0+25W grassy flat; dk bn humic soil.

0+00 s.a.a.

0+25E s.a.a.

0+50E side of big grassy slope (10°-20°); highly humic, dk bn, mixed below w/ light bn soil.

0+75E s.a.a.

1+00E s.a.a.

LINE 3+50S

1+00E slope; dk bn humic A, light grey-bn humic C horizon.

0+75E edge of basin; s.a.a.

0+50E flat area; s.a.a.

0+25E dk bn humic pebbly A soil.

0+00 s.a.a.

0+25W	s.a.a.
0+50W	frost boil.
0+75W	humic and mineral (C) soil on rocky hump.
1+00W	frost boil.
1+25W	rocky slide; no sample.
1+50W	s.a.a.
1+75W	bouldery; high humic dk bn A.
2+00W	rock and moss frost bands (similar to frost boils); very light bn clayey and C soil.
2+25W	s.a.a.
2+50W	slope of an elongated ridge; bn C soil.
2+75W	s.a.a.
3+00W	s.a.a.

LINE 4+00S

2+50W	E. slope of long ridge; dk bn humic A+C soil.
2+25W	bn humic + rock flour C soil.
2+00W	s.a.a.
1+75W	s.a.a.
1+50W	N. facing slope of curved ridge, bordering the flattish area to the S.; rocky high humic dk bn A soil.
1+25W	s.a.a.
1+00W	light bn (rock flour) C soil in flat area.
0+75W	in little swale; deep dk bn humic A, light bn B/C soil.
0+50W	other side of hump; dk bn humic A and C soil.
0+25W	s.a.a.
0+00	s.a.a.
0+25E	s.a.a.
0+50E	big eastern slope of plateau; moss patches and rocks; humus.
0+75E	dk bn humic A, bn humic B and rocky C soil (Rendoll type).
1+00E	s.a.a.
1+25E	s.a.a.

LINE 4+50S

1+25E	on wide slope; dk bn humic A and bright bn to light bn non-structured A/B +C horizons.
1+00E	rocky bands and moss bands; bn C soil
0+75E	s.a.a.
0+50E	S. facing slope of plateau; deep dk bn A and bright bn A/B.
0+25E	much the same as above but shallow, with boulders.
0+00	s.a.a.
0+25W	rocky streaks and moss bands; rock flour C horizon.
0+50W	grassy slope; s.a.a. + humic dk bn A on top.
0+75W	deep soil with thick dk A, bright C/B horizons
1+00W	grassy; dk bn A, light grey-bn humic C horizon.
1+25W	rocky talus, S. facing; t.f.
1+50W	s.a.a.
1+75W	s.a.a.
2+00W	t.f.
2+25W	t.f.
2+50W	t.f. with bits of roots.

APPENDIX II

CHEMICAL & GEO-CHEMICAL ASSAYS

2001, 717 - 7th Avenue S.W.,
Calgary, Alberta
T2P 0Z3

Date July 15, 1988
Samples Rock & Soil

Certificate of ASSAY

LORING LABORATORIES LTD.

SAMPLE No.	OZ./TON GOLD	OZ./TON SILVER	% Pb	% Zn	% Cd
"Rock & Soil" "Assay Analysis"					
33676	.002	1.08	.81	14.96	.03
33677	.001	.20	.04	2.90	Trace
33678	.002	2.68	2.45	10.90	.01
33679	.001	.06	.22	1.55	Trace
33680	Trace	.10	.22	.47	Trace
33681	.002	.10	.10	.21	Trace
33682	.001	.20	.16	1.03	Trace
33683	.002	3.58	54.57	10.78	.02
33684	.001	.04	.31	1.01	Trace
33685	.002	.68	2.13	4.82	.01
33686	-	-	.04	.08	-

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

[redacted]
Assayer

ejects Retained one month.
[redacted]tained one month
[redacted]ecific arrangements
[redacted] advance.

[redacted] - 717 - 7th Avenue S.W.,
Calgary, Alberta T2P 0Z3

Date September [illegible]
Sample: Rock

ATTN: H. Salat

Certificate of Assay
LORING LABORATORIES LTD.

SAMPLE NO.	PPB Au	PPM Pb	PPM Zn	PPM Ag	PPM Cd
Rock Samples					
Geochemical Analysis					
ORP-1-2-12	NIL	51	15	0.1	3
ORP-1-12-22	NIL	47	14	0.2	4
ORP-1-22-27	NIL	136	+1000	8.1	46
ORP-1-27-32	NIL	77	182	0.4	3
ORP-1-32-37	NIL	+1000	+1000	+30.0	210
ORP-1-37-39	NIL	+1000	+1000	26.0	90
ORP-1-PARALLEL 12-14	NIL	305	613	0.8	4
ORP-2-TOP-0-2	NIL	273	394	0.4	4
ORP-2-2-6	5	85	182	0.4	4
ORP-3-NORTH-0-5	NIL	205	+1000	17.4	56
ORP-3-NORTH-5-10	NIL	172	693	1.1	3
ORP-3-NORTH-10-20	5	136	418	0.6	3
ORP-3-CENTRAL-0-5	NIL	69	69	0.4	3
ORP-3-CENTRAL-5-10	NIL	88	109	0.4	3
ORP-3-CENTRAL-10-15	NIL	134	228	0.6	3
ORP-3-CENTRAL-15-20	5	+1000	+1000	10.8	76
ORP-3-CENTRAL-20-25	NIL	+1000	+1000	9.8	44
ORP-3-SOUTH-TOP-0-3	NIL	314	+1000	1.0	12
ORP-3-SOUTH-3-6	NIL	165	+1000	0.6	4
ORP-3-SOUTH-6-10	NIL	164	224	0.7	3
ORP-4-0-2	NIL	371	+1000	+30.0	74
ORP-5-WO-5E	NIL	232	703	0.5	4
ORP-5-5-10	NIL	52	465	0.4	4
ORP-5-10-15	NIL	52	626	0.5	5
ORTR-1	NIL	48	151	0.2	4
ORTR-2	NIL	57	50	0.3	3
ORTR-3	5	54	307	0.9	5
ORTR-4	5	51	467	0.5	4
ORTR-5	NIL	48	178	0.4	4
OR-2A	NIL	+1000	+1000	+30.0	305

I Hereby Certify that the above results are those assays made by me upon the herein described samples....

[redacted]
Assayer

Rejects retained one month.
Pulps retained one month
unless specific arrangements
made in advance.

2001, 717 - 7th Avenue S.W.,
Calgary, Alberta T2P 0Z3

Date September [illegible], 1983
Samples Rock

ATTN: H. Salat

Certificate of Assay
LORING LABORATORIES LTD.

SAMPLE NO.	PPB Au	PPM Pb	PPM Zn	PPM Ag	PPM Cd
CABIN SAMPLE	NIL	+1000	+1000	+30.0	292
ORD-A	NIL	428	355	1.6	2
ORD-B	10	502	334	1.8	2
ORD-C	15	86	438	0.3	4
ORD-D	NIL	48	39	2.0	2

I Hereby Certify that the above results are those assays made by me upon the herein described samples....

Rejects retained one month.
Pulps retained one month
unless specific arrangements
made in advance.

[redacted]
Assayer

Calgary, Alberta T2P 0Z3

ATTN: d. Salat

Samples Rock

Certificate of Assay
LORING LABORATORIES LTD.

SAMPLE NO.	OZ./TON SILVER	% Pb	% Zn
"Rock Samples"			
"Assay Analysis"			
ORP-1-22-27	-	-	2.05
ORP-1-32-37	1.50	2.38	8.63
ORP-1-37-39	-	3.30	5.91
[redacted]-3-NORTH-0-5	-	-	3.92
[redacted]-3-CENTRAL-15-20	-	.15	3.60
ORP-3-CENTRAL-20-25	-	.27	2.41
ORP-3-SOUTH-TOP-0-3	-	-	.29
ORP-3-SOUTH-TOP-3-6	-	-	.19
ORP-4-SOUTH-0-2	1.62	-	4.53
OR-2A	1.16	.53	12.47
CABIN SAMPLE	1.66	17.34	12.42

I Hereby Certify that the above results are those assays made by me upon the herein described samples....

Rejects retained one month.
Pulps retained one month
unless specific arrangements
[redacted] made in advance.

[redacted]
Assayer

Calgary, Alberta T2P 0Z3

Samples Rock

ATTN: H. Salat

Certificate of Assay
LORING LABORATORIES LTD.

"Rock Samples"

Geochemical Analysis

SAMPLE NO.	PPM Pb	PPM Zn	PPM Ag	PPM Cd
ORP-5-BELOW	356	510	0.2	4
ORP-5-ABOVE	82	68	NIL	4
2ND ADIT-15M BELOW	80	93	0.1	4
STOP-1A	78	88	0.2	3
STOP-1B	130	363	0.2	3
STOP-1-TOP BEDS 1MM	62	68	0.2	3
STOP-1A-BELOW MISS	60	82	NIL	4
STOP-1B-IN BROWN SPOT	68	75	0.2	4
2+00S-1+75W	16	72	0.1	2
2+00S-2+00W	16	42	0.2	1
[illegible]-0+00	47	47	NIL	4
0+10W	49	43	NIL	3
0+20W	48	32	NIL	3
0+30W	50	52	0.1	3
0+40W	42	39	0.1	3
0+50W	46	35	NIL	3
0+60W	98	776	0.5	5
0+70W	+1000	+1000	1.5	8
0+80W	976	+1000	1.2	8
0+90W	67	116	0.1	4
1+00W	46	55	0.2	3
1+10W	52	49	0.1	4
1+20W	51	47	0.2	3
1+30W	52	64	0.3	3
1+40W	41	67	0.4	3
1+50W	38	72	0.3	3
1+60W	37	98	0.7	4
1+70W	32	145	0.8	3
1+80W	32	41	0.6	3

I Hereby Certify that the above results are those assays made by me upon the herein described samples....

Rejects retained one month.
Pulps retained one month
[illegible]lease specific arrangements
[illegible]e made in advance.

[redacted]
Assayer

Calgary, Alberta T2P 0Z3

Samples Rock

TTN: H. Salat

Certificate of Assay
LORING LABORATORIES LTD.

SAMPLE NO.	PPM Pb	PPM Zn	PPM Ag	PPM Cd
TF-1+90W	32	95	0.4	3
2+00W	33	66	0.7	3
2+10W	30	148	0.6	3
2+20W	38	117	0.5	3
2+30W	38	61	0.5	3
2+40W	42	55	0.4	3

I Hereby Certify that the above results are those assays made by me upon the herein described samples....

Rejects retained one month.
Pulps retained one month
unless specific arrangements
are made in advance.

[redacted]
Assayer

2001, 717 - 7th Avenue S.W.,
Calgary, Alberta T2P 0Z3

Date October 24, 1980

Samples Soil

IN: H. Salat

Certificate of Assay
LORING LABORATORIES LTD.

SAMPLE NO.	PPM Pb	PPM Zn	PPM Ag	PPM Cd
"Soil Samples"				
Geochemical Analysis				
0+00S-0+25W	53	248	0.4	3
0+50W	31	468	0.2	5
0+00	63	226	0.2	3
0+25E	62	141	0.3	3
0+50	66	+1000	0.8	5
0+75	48	299	0.2	4
1+00	49	135	0.1	3
1+25	46	47	0.1	3
1+50	50	234	0.2	4
0+25S 0+25W	42	462	0.2	4
0+50	34	253	0.2	5
0+75	23	291	0.2	3
1+00	30	208	0.1	3
0+00	69	229	0.2	3
0+25E	57	222	0.2	3
0+50	72	992	0.4	4
0+75	88	364	0.1	3
1+00	46	183	0.1	3
1+25	44	106	0.2	3
1+50	54	169	0.2	4
0+50S 0+25W	38	243	0.5	4
0+50	25	307	0.3	4
0+75	30	216	0.5	3
1+00	35	165	0.4	2
1+25	28	191	0.2	2
1+50	36	104	0.3	3
0+00	38	402	0.2	4
0+25E	60	204	0.3	3
0+50	146	+1000	0.5	4
0+75	77	656	0.5	4

I Hereby Certify that the above results are those assays made by me upon the herein described samples....

[redacted]
Assayer

Rejects retained one month.
Pulps retained one month
unless specific arrangements
are made in advance.

2001, 717 - 7th Avenue S.W.,
Calgary, Alberta T2P 0Z3

Date October 24, 1988

Sample Soil

ATTN: H. Salat

Certificate of Assay
LORING LABORATORIES LTD.

SAMPLE NO.	PPM Pb	PPM Zn	PPM Ag	PPM Cd
0+50S-1+00E	56	202	0.3	4
1+25	45	77	0.2	3
1+50	47	131	0.4	4
1+00S-0+25W	33	192	0.3	3
0+50	38	132	0.2	3
1+00	33	144	0.3	3
1+25	28	211	0.8	3
1+50	31	203	0.6	3
0+00	25	306	0.5	3
0+25E	28	306	0.2	3
0+50	59	212	0.1	3
0+75	68	248	0.2	3
1+00	73	377	0.1	3
2+00S-1+50W-20mS	40	134	0.1	3
2+00S-1+75W-10mS	40	94	0.1	3
2+50S-0+25W	25	217	0.1	3
0+50	23	190	0.2	2
0+75	23	233	0.2	2
1+00	21	597	0.3	2
1+25	35	198	0.1	3
0+00	23	166	0.2	2
3+00S-0+25W	24	203	0.2	2
0+50	33	81	0.1	2
0+75	36	88	0.1	3
1+00	23	171	0.1	2
1+25	20	93	0.3	2
1+50	25	123	0.1	2
1+75	88	109	0.1	3
2+00	42	110	0.1	3
2+25	32	97	0.3	2
2+50	22	67	0.1	2
2+75	15	51	NIL	1
3+00	22	214	NIL	2

I Hereby Certify that the above results are those assays made by me upon the herein described samples....

Rejects retained one month.
Pulps retained one month
unless specific arrangements made in advance.

[redacted]
Assayer

2001, 717 - 7th Avenue S.W.,
Calgary, Alberta T2P 0Z3

Date October 24, 1988

Sample Soil

ATTN: H. Salat

Certificate of Assay
LORING LABORATORIES LTD.

SAMPLE NO.	PPM Pb	PPM Zn	PPM Ag	PPM Cd
3+00S-0+00W	22	146	0.1	2
0+25E	17	123	NIL	2
0+50	26	141	0.2	1
0+75	20	142	0.2	2
1+00	17	163	0.1	2
3+50S-0+25W	20	104	0.1	1
0+50	30	100	0.1	2
0+75	25	147	0.2	2
1+00	35	71	0.1	2
1+75	20	204	0.1	2
2+00	32	84	0.1	3
2+25	31	68	0.1	2
2+50	20	180	NIL	2
2+75	17	131	0.2	2
3+00	20	175	0.1	2
0+00	19	203	0.3	3
0+25E	20	184	0.1	2
0+50	16	198	0.2	2
0+75	28	120	0.2	3
1+00	30	74	0.3	2
4+00S-0+25W	29	119	0.1	3
0+50	20	49	0.2	2
0+75	18	115	0.2	2
1+00	36	69	0.3	3
1+25	23	172	0.3	2
1+50	20	222	0.2	2
1+75	29	145	0.1	3
2+00	21	171	0.2	2
2+25	22	114	0.3	2
2+50	23	114	0.2	2
0+00	22	196	0.3	2
0+25E	31	88	0.2	3
0+50	22	167	0.2	2

I Hereby Certify that the above results are those assays made by me upon the herein described samples....

Rejects retained one month.
Pulps retained one month
unless specific arrangements
made in advance.

[redacted]
Assayer

2001, 717 - 7th Avenue S.W.,
Calgary, Alberta T2P 0Z3

Date October 24, 1988
Sample's Soil

ATTN: H. Salat

Certificate of Assay
LORING LABORATORIES LTD.

SAMPLE NO.	PPM Pb	PPM Zn	PPM Ag	PPM Cd
4+00S-0+75E	20	166	0.3	2
1+00	22	121	0.4	2
1+25	22	182	0.3	2
4+50S-0+25W	33	85	0.2	3
0+50	32	96	0.2	3
0+75	18	135	0.4	2
1+00	35	48	0.1	2
1+25	42	51	NIL	3
1+50	41	72	0.1	3
1+75	38	51	NIL	3
2+00	39	63	NIL	3
2+25	40	51	NIL	3
2+50	38	99	NIL	3
0+00	34	113	0.2	3
0+25E	26	138	0.2	2
0+50	29	101	0.1	2
0+75	79	80	0.1	3
1+00	36	52	0.1	3
1+25	28	80	0.3	2

I Hereby Certify that the above results are those assays made by me upon the herein described samples....

[redacted]
Assayer

[redacted]jects retained one month.
[redacted]ps retained one month
[redacted]ess specific arrangements are made in advance.

2001, 717 - 7th Avenue S.W.,
Calgary, Alberta T2P 0Z3

Date October 24, 1988
Samples Rock

ATTN: H. Salat

Certificate of Assay
LORING LABORATORIES LTD.

SAMPLE NO.	% Zn
"Rock Samples"	
"Assay Analysis"	
TF-0+70W	.28
TF-0+80W	.31
0+00S-0+50E	.17
0+50S-0+50E	.21

I Hereby Certify that the above results are those assays made by me upon the herein described samples....

Rejects retained one month.
Pulps retained one month
unless specific arrangements
are made in advance.

[redacted]
Assayer

INDEX NO. 19880001

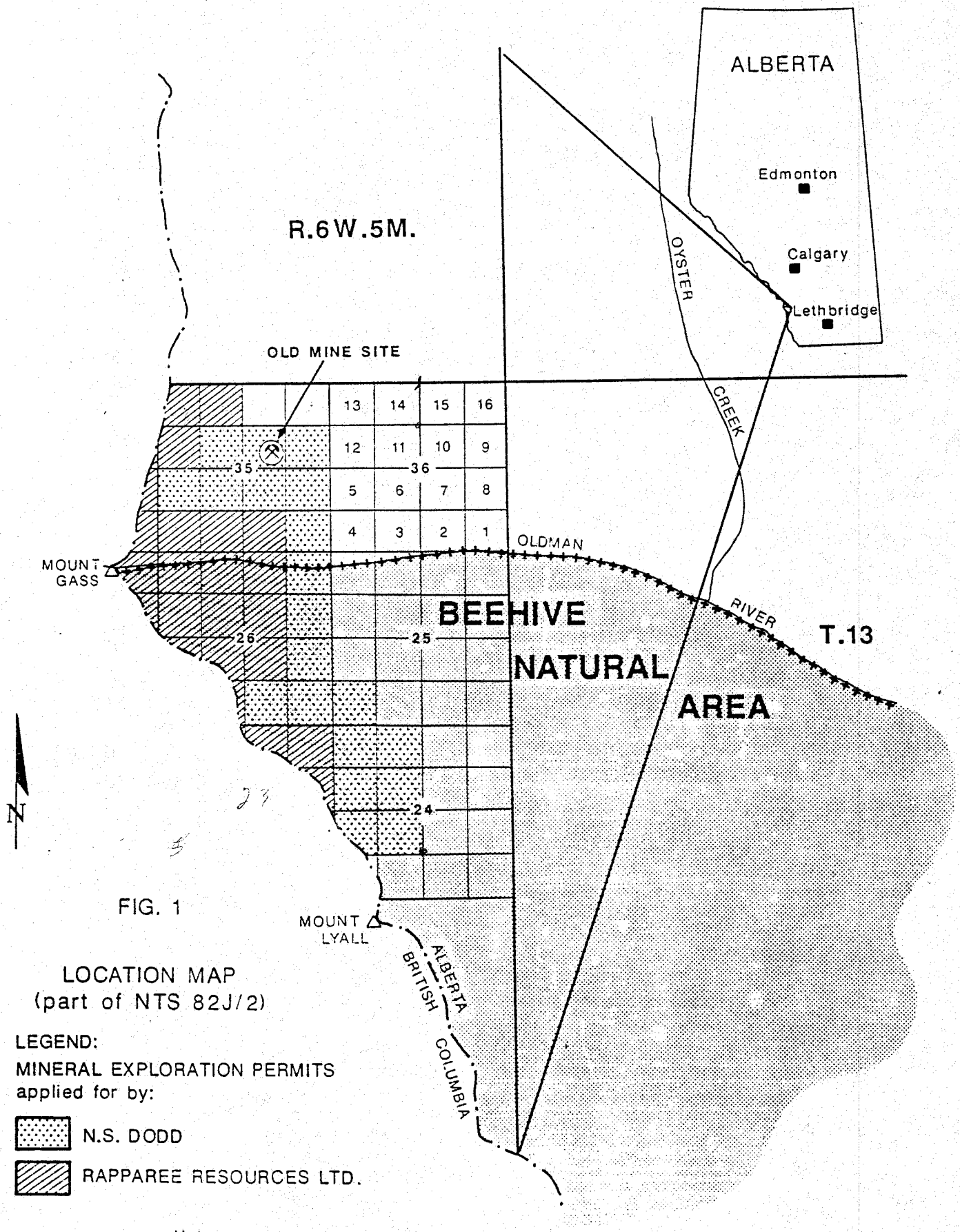

FIG. 1

LOCATION MAP
(part of NTS 82J/2)

INDEX NO. 19880001

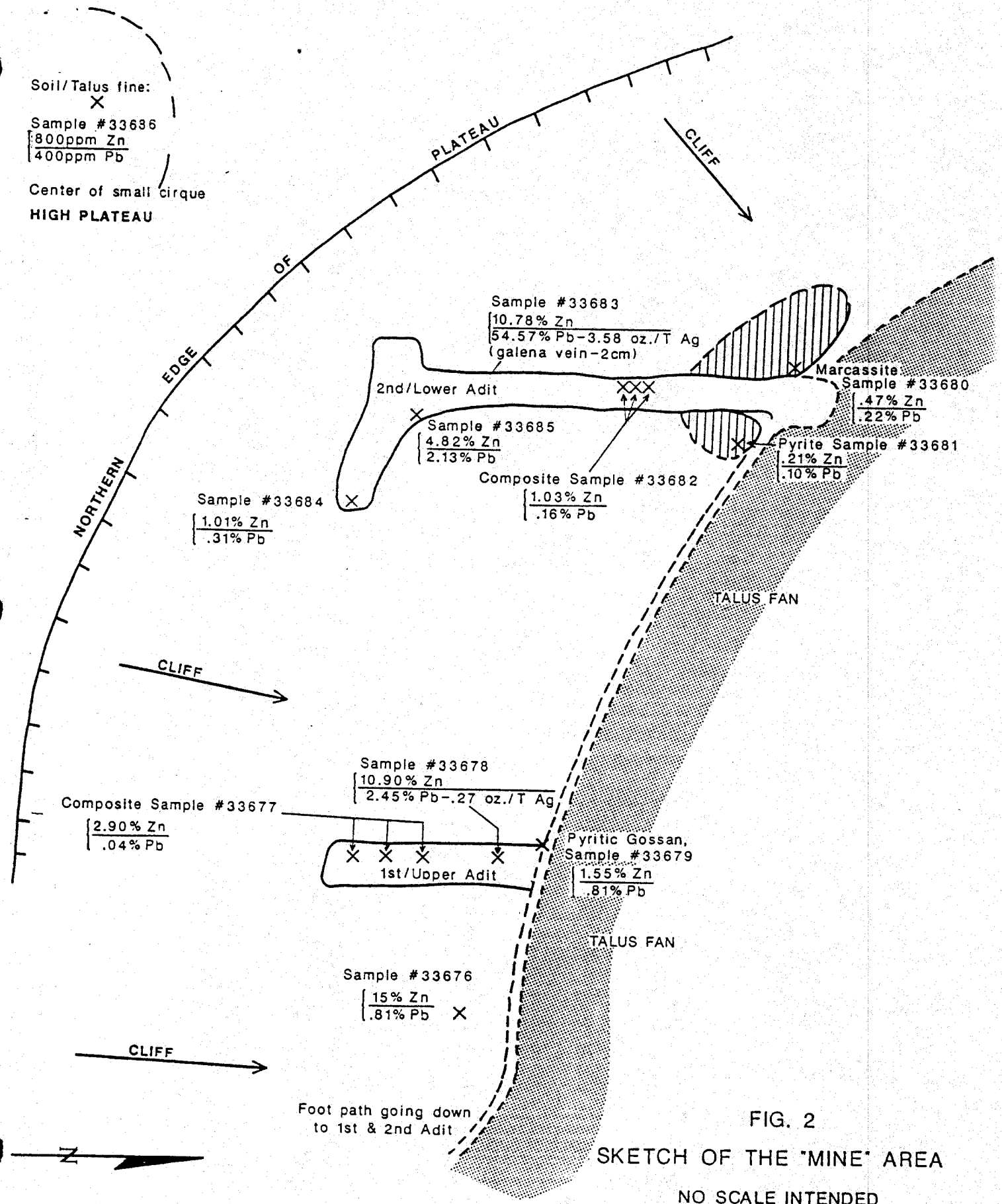

FIG. 2

SKETCH OF THE "MINE" AREA

NO SCALE INTENDED