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DEL SANTO PROSPECT

Quick, B.C.

(93 L/10 E)

A. L'Orsa  
Texas Gulf Sulphur Co.

Vancouver, B.C.

17 January 1968

## SUMMARY

The Del Santo mineral claims, approximately 21 miles southeast of Smithers, B.C., cover an occurrence of disseminated to massive strata-bound pyrite, pyrrhotite, chalcopyrite, sphalerite and magnetite in thin-bedded chert, rhyolite, limestone and minor argillite bounded by andesitic rocks of the Hazelton Group.

A magnetometer survey was conducted over the immediate area of the showings. The sedimentary rocks ranged from several hundred to 3000 gammas lower than the volcanic rocks. A magnetic high occurring over the mineralized zone measures approximately 500 feet by 100 feet.

Assay results for economic minerals have been generally low. Geochemical samples are not encouraging.

## CONCLUSIONS

The Del Santo prospect is a syngenetic deposit possibly related to submarine volcanism. I consider the prospect particularly significant because it demonstrates that both the environment and the metals were available for the formation of massive syngenetic sulphide occurrences during the time Hazelton Group rocks were deposited.

The sedimentary sequence that carries the sulphide minerals described in this report warrants careful attention, despite the paucity of mineralization observed to date. A study of the prospect and its general geological environment may provide TGS with useful information on the economic potential of this type of deposit within the Hazelton Group and may outline areas where airborne surveys could be applied.

RECOMMENDATIONS

The following work is recommended for the 1968 field season:

1. Contact should be maintained with Mr. Chapman and advice and help offered him if necessary in his bulldozer stripping.
2. The geology along the projections of the sedimentary sequence should be examined and mapped in conjunction with prospecting and possibly additional geochemical sampling.
3. A reconnaissance magnetometer survey along widely-spaced lines should be carried out as a means of following the sedimentary rocks in overburden-covered areas such as exist to the south of the Del Santo showings.
4. Detailed magnetometer surveys should be utilized when evaluating localities of special interest.
5. Additional work is dependent upon the results of the above recommendations.

## INTRODUCTION

The Del Santo prospect was visited 12 June 1967 with Mr. Mel Chapman and 24 June 1967 with Mr. M. Chapman, Dr. J. R. Loudon and Messrs. C.C. McLeod and G.R. Peatfield.

The area is moderately hilly and is generally forested although swamps and meadows are common in places.

Outcrops are very scattered within the area of the claims. Overburden around the prospect pits is generally less than 5 ft. deep.

## Location and Access

The prospect is at approximately 4200 feet elevation about 21 miles in a direct line southeast of Smithers and 5½ miles south of Dome Mountain.

The claims, 9½ miles from Highway 16, are easily reached via the Kerr road and Deception Lake logging road. Permission and a gate key must be obtained from Mr. Paul Watson in order to cross his farm on the Deception Lake road. The road passes in front of Mr. Watson's house and he is usually at home.

## Ownership

The property comprises 12 mineral claims owned by Mr. M. Chapman, Smithers, B.C.

## History and Development

Messrs. Tom Brandon and Tom Brewer of Quick, B.C., owned the prospect in the late 1920's at which time the property was known as the Deep Creek prospect and later as the Tom Tom. Several pits and trenches were dug by the two prospectors.

In 1967 Mr. M. Chapman constructed a road to the showings from the Deception Lake road and did a small amount of stripping with a John Deere 440 bulldozer. Additional stripping with a larger machine is planned by the owner for 1968.

A magnetometer survey was conducted over the showings and immediate vicinity by the writer.

### GEOLOGY

The rocks in the area have been mapped by the G.S.C. as undivided Hazelton Group (GSC Map 671 A).

In scattered outcrops around the Del Santo showings rocks are predominately andesites comprising tuffs, lapilli tuffs and flows that strike northwest ( $345^{\circ}$ ) and vary in dip from vertical to  $70^{\circ}$  northeast. The showings themselves are in a sequence of thin-bedded chert, rhyolite, limestone and argillite that may exceed 200 feet in thickness.

Diorite is exposed for 250 ft. along the Deception Lake road 500 feet south of the showings and similar rock was reported found at the showings during recent trenching by Mr. Chapman. A major fault, the "Farewell Creek Break", strikes northeast through the central part of the claims.

### MINERALIZATION

Disseminated to massive pyrite, pyrrhotite, magnetite and minor chalcopyrite and sphalerite occur in thin-bedded chert, rhyolite, limestone and subsidiary argillite. The sulphide minerals are generally conformable with the host rocks which are in turn conformable with the adjacent northwest-striking andesites. A small northwest-striking fault marks the center of the mineralized zone in pit A (fig. 2). Considerable limonite, pyrolusite and minor azurite were noted.

The mineralized zone is poorly exposed but old prospect pits suggest there are several bands up to 5 feet thick of massive to disseminated sulphide minerals at different stratigraphic horizons. The total width of the sedimentary sequence and thus the mineralized zone is not likely to exceed 100 feet at the trenches, but the zone is open to the northwest and southeast (the general direction of Grouse Mountain). Mr. Chapman has reported float containing sulphide minerals similar to the above about 2 miles south of the Del Santo prospect.

Assay results of samples collected in the prospect pits are given below:

<u>Width</u>	<u>Cu%</u>	<u>Zn%</u>	<u>Au oz/ton</u>	<u>Ag oz/ton</u>	<u>Source</u>
5.5 ft.	0.2	1.5	tr.	0.6	Min.Mines 1928
grab	1.5	2.0	tr.	4.0	Min.Mines 1928
grab	4.68				M. Chapman

Two semiquantitative spectrographic analyses are attached to this report.

#### MAGNETOMETER SURVEY

A magnetometer survey was conducted over the immediate area of the showings (figure 2). Readings were taken at 100 foot intervals on west-trending lines 200 feet apart. 8000 feet of line were covered using a McPhar M700 magnetometer.

The sedimentary rocks ranged from several hundred to 3000 gammas lower than the volcanic rocks. A small, relatively high magnetic area measuring about 500 by 100 feet stands out over the sedimentary rocks and may be a magnetic expression of the mineralized zone.

*Dir Mag low at 2500' NW (58116) No ground mag. in that area.*

#### GEOCHEMISTRY

Five spot soil samples were collected from the A<sub>1</sub> soil horizon within 500 feet of pit B. These samples yielded between 19 and 60 ppm total Cu, about 125 ppm total Zn and up to 6 ppm total Mo.

A silt sample taken from a small stream at point a few yards downstream from a projection of the mineralized zone 200 feet north <sup>of</sup> from pit B returned only 46 ppm total Cu, 125 ppm total Zn and 3 ppm Mo. Another silt sample taken 1500 feet downstream in the same creek yielded 46 ppm total Cu and 140 ppm total Zn.

Anomalous creeks are reported north, east and west of the Del Santo prospect by the TGS geochemical reconnaissance crew (Peatfield, 1967).

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REFERENCES

- British Columbia, 1923, Annual Report of Minister of Mines, p.C168-C169  
Geological Survey, Canada, 1942, Map 671A, Houston, B.C.  
Peatfield, G.R., 1967, Final Report, Dome Mountain Extension Project, Omineca Mining Division, B.C.: Unpublished Report for Texas Gulf Sulphur Co.

3 June 1969 Visited prospect with Mel & Joe. Mel has done considerable cut trenching & has exposed another (?) sedimentary horizon (micaceous) 500' (?) W. of pit. Also during 1968 Horanda ran a few traverses across the main sed. horizon with a JEM & got good x-overs. Horanda did not come back. Noted some graphite today. In 1968 Mel made an agreement with Dr. Boulie who financed drilling of a Bx DDH in direction of main trench from a position downhill approx. 100' E. Hole at 65° drilled 140', did not reach under "ore" zone which is at W. end of trench. End of hole very roughly 45' E of "ore" assuming vertical dip. In fact, "ore" may dip up to 70° in direction of steep. Hole not mineralized. Poor luck in trenches. Everything pretty discouraging except geological setting, which is analogous to New Brunswick massive sulphide.

Aug 69 Prospect optioned to Falconbridge 22 July. \$10.00 down payment. \$1490.00 30 Sept '69.  
 \$5500 (not paid) 30 Sept, '70. 14.4 miles of good grid certain Aug. by Audit.  
 Total price \$600,000 was to be paid by 30 Sept. '79.

Harper, G, 1970, Final Report, 1970 Del Sante Property ...: Falconbridge Nickel Mines Ltd.

- Thinner subs. & vol. older than those exposed on Dome Mt.
- section across mineralized area & adjacent ground would intersect, from E. to W:  
 f.g. gn A with interfingered lentic (f.g. light gn) overlain by (contradicting? map) argillite with interbedded chert ( $\pm 100'$  thick), f.g. gn A fragmental in part followed by gn argillites & f.g. gn A to west. The gn argillite may be a repetition of the first. A gn A, with  $\text{CaCO}_3$  amygdala overlies the woods.

• Rutilite-feldspar porphyry dykes in argillite & former stock. Min. dimensions stock:  $1100 \times 250'$   
 stock may actually be a dyke.

• Mineralization in argillite & chert, near contact with overlying andesite: py, Ag, cp,  $\text{Fe}_2\text{O}_3$  & ZnS.  
 $40' \times 250'$  along strike. cut off by fault in dk. to W; sulphide content gradually decreases to S. Some remobilization in breccia & quartz.

assays

tranche	15'	2.5% Cu	0.78 g Ag(?)	9.2% Zn(?)	- mislabeled? on map as 9.2 Ag!
DDH #3	-5'	0.24	0.4	0.66	f Au
	5'	0.09	0.1	1.24	"
	5'	0.18	0.3	0.63	f
	3'	0.0		0.99	

} DDH #3 in new north tranche.

- DDH 1 72.5' - on road: 45" toward south tranche. 278°, 34945 & 0472 E
  - 2 40.0' - vertical in tranche 24815, 0474 W
  - 3 51.0' - 70" in north tranche (Falconbridge tranche) 238°, 24505 & 0470 W
- 129.5

• Geophysics Mag, EM-16 & Ronba Mark IV. No strong anomalies. EM-16 did not pick up mineralization (although the short frequency scan in 1970 with Mark EM-16  $\rightarrow$  noise)

• Geochem. more than 3600 samples. Cu, Zn, Ag. A few Cu's ran over mappers & scattered anomalies of a few hundred ft<sup>2</sup> + 50 ppm Cu were recorded. No well-defined pattern & no real encouragement.  
 - In trench area anomaly follows sed. outcrop pattern.