93L-15

FINAL REPORT

BIG ONION CU-MO PROSPECT

Smithers, B.C.

December 4, 1967 A. L'Orsa

FINAL REPORT

BIG ONION CU-MO PROSPECT

Smithers, B.C.

Texas Gulf Sulphur Co. Inc.

4 December 1967

A. L'Orsa

TABLE OF CONTENTS

	Page
SUMMARY	i
CONCLUSIONS AND RECOMMENDATIONS	i
INTRODUCTION	1
Area 1	1
Area 2	1
Other Areas	1
DIAMOND DRILLING, 1967	2
DDH BO67-1 (Area 1)	2
DDH BO67-2 (Area 2)	3
EXPLORATION ADJACENT TO BIG ONION PROSPECT	4
Exploration to Northeast	4
a. Anomaly 1	4
b. Anomaly 2	5
Exploration to Southeast	5
Exploration to Southwest	6
GEOLOGY (REVISIONS OF 1966 REPORT)	6
REFERENCES	
DIAMOND DRILL LOGS	in pocket

LIST OF ILLUSTRATIONS:

Location Map	Preceding page 1	Fig. 1
1967 Diamond drill hole locations	in pocket	Fig. 2
Big Onion Prospect and adjacent geochemistry	following Page 6	Fig. 3

SUMMARY

Two diamond drill holes were completed at the Big Onion Prospect during August 1967. BO67-1 was drilled under the upper adit for a total length of 764 feet and intersected quartz porphyry, quartz diorite and subsidiary andesite. BO67-2 was drilled 506 feet in quartz porphyry which lies beneath a gossan on the north-west side of upper Astlais Creek. Visual examination of the core indicated that neither hole would assay in excess of 0.02% Mo or 0.20% Cu. No core was assayed.

Exploration work was carried out during 1967 adjacent to the Big Onion prospect by Tro-Buttle Exploration Limited (northeast), Mr. Ralph Keefe (southeast) and Texas Gulf Sulphur Company (southwest). More than 700 soil samples were taken by Tro-Buttle Exploration Limited and two geochemical anomalies were outlined. The strongest of these anomalies measures 900 ft. x 800 ft., is open to the south and yielded Cu values ranging from 830 to 282 ppm. A small amount of disseminated chalcopyrite was discovered in a rather fresh diorite stock by Mr. Keefe. Silt sampling by Texas Gulf Sulphur Company along a stream cross-cutting a projection of Big Onion geology to the southwest produced background results for Cu until drainage from Astlais Creek was encountered.

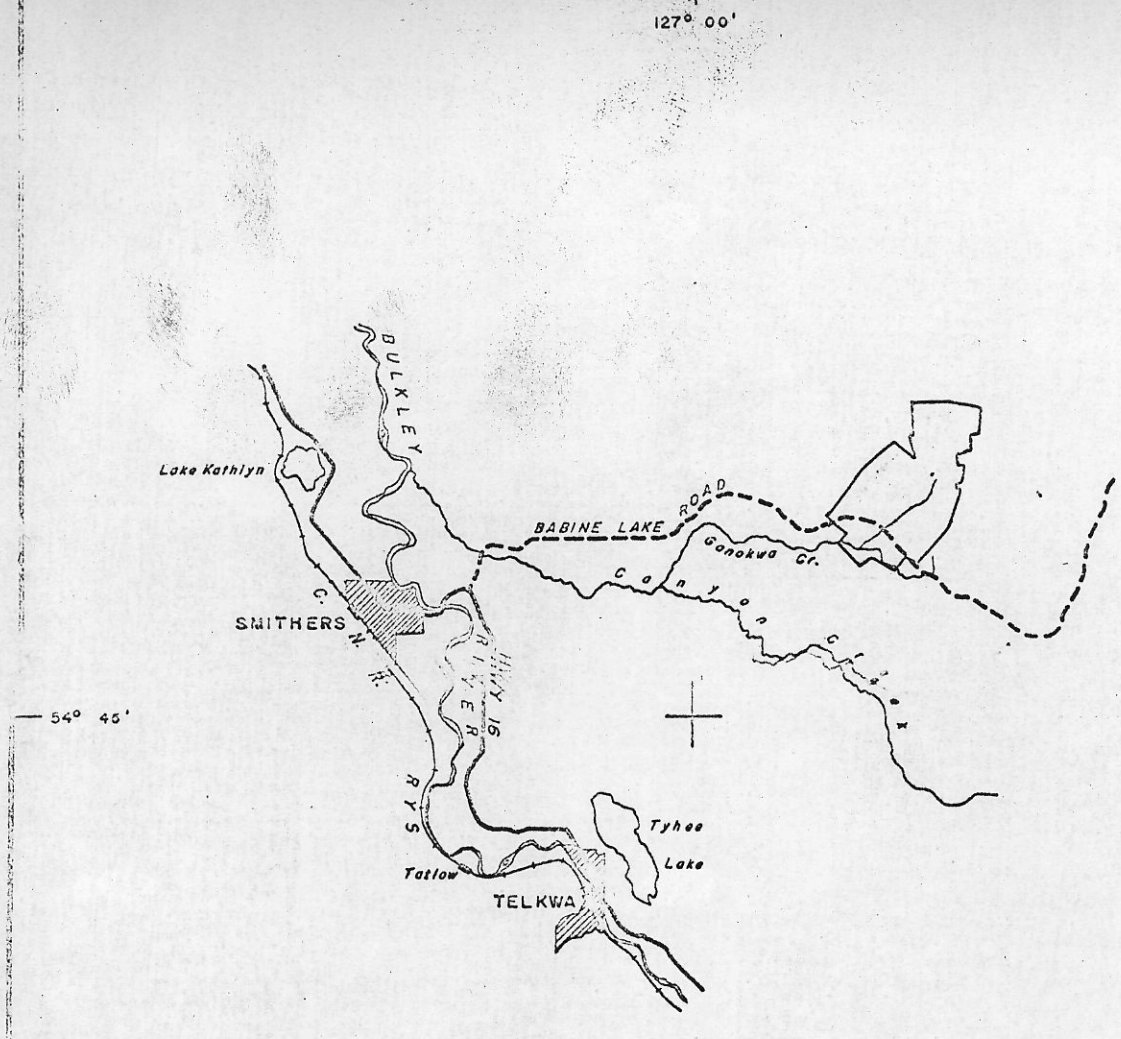
The rock described as a porphyritic diorite dyke in my 1966 report is really a quartz monzonite and my "quartz porphyry" is better described as a quartz-feldspar-porphyry.

CONCLUSIONS AND RECOMMENDATIONS

Diamond drilling during 1967 produced negative results and it appears the Big Onion programme has reached a point beyond which more work cannot be reasonably justified. Although a few possibilities

do remain at the prospect (e.g. along the lower south-eastern contact of the intrusive complex) there is so little evidence pointing to possible significant concentrations of economic minerals that it is recommended all work on the prospect be terminated.

The work being done by Tro-Buttle Exploration Limited on adjacent claims should be watched because some interesting geochemical anomalies are being outlined there. However, this is not considered a reason to hold the Big Onion claims as the mineralization on the two properties does not appear to be closely related.



SCALE : 1 : 250,000

4 2 0 4

MILES

TEXAS GULF SULPHUR CO.

BIG ONION PROSPECT

OMINECA M. D. — B. C.

LOCATION MAP

WORK BY	DRAWN BY	DATE
A. L'ORSA	H. G. PIRES	NOV. 25, 1966

FIG. 1

INTRODUCTION

This is the final report on the Big Onion Prospect at Smithers, British Columbia. For geological details and previous work see my "Report on Big Onion Cu-Mo Prospect, 1966".

At the conclusion of the Texas Gulf Sulphur Company work programme in 1966, it was decided that several areas remained at the Big Onion prospect which might profitably be further explored. These areas were as follows:

Area 1

The zone in the vicinity of the upper adit from which some of the better surface and underground (adit) assay results were obtained. This zone was not tested by diamond drilling as we were concentrating more upon IP and geochemical anomalies, neither of which is strong in this particular location.

Area 2

The overburden-covered slope on the northwest side of upper Astlais Creek between lines 56N and 72N. Of particular interest here was the projected intersection of a northwest-trending synclinal structure with the intrusive complex. A gossan occurs on the lower reaches of the slope; the two other major gossans on the property are very closely associated with weak copper mineralization in nearby rocks. The IP readings over approximately half of the area are low to moderate and the remainder are high.

Other Areas

Other areas of interest were along the eastern contact between the quartz diorite and quartz porphyry. Weak copper and molybdenum

mineralization was found in and near faults associated with that contact and Noranda Exploration Company's best diamond drill hole (up to 0.50% Cu along 10 ft.) was in this environment.

There is a substantial IP anomaly (15 millisec +) over the southwestern portion of the eastern contact zone, but there is no reason to believe the IP response was generated by anything other than pyrite as was encountered during 1966 diamond drilling.

Diamond drilling in 1967 tested both Areas 1 and 2 with negative results as far as Cu and Mo are concerned and with no real encouragement geologically. Intense alteration in both diamond drill holes was accompanied by only a very little mineralization.

DIAMOND DRILLING, 1967

Canadian Longyear Limited drilled 1270 feet of BQ-WL core in 2 holes using a Longyear 38 machine. A D-7 bulldozer was hired to prepare drill sites, repair the roads and assist in moving drilling equipment. See figure 2 for diamond drill hole locations.

DDH BO67-1 (Area 1)

This hole was located at 45+50N, 4+00W and was drilled at -45° for 764 ft. on a bearing of 348° (i.e. under the upper adit, Ast. 7).

The hole collared in quartz porphyry, entered quartz diorite at approximately 270 ft. and remained in quartz diorite except for a section of andesite between 718-746 feet. All rocks intersected exhibit variable amounts of alteration. Sericite is locally common in quartz porphyry and bleaching is very pronounced in quartz diorite near contacts.

The andesite, generally a fine-grained dark green rock, is bleached at contacts with quartz diorite and contains numerous selenite veinlets. Calcite veinlets are common in both quartz diorite and andesite.

Small amounts of molybdenite occur on widely spaced shear planes in both quartz diorite and quartz porphyry. Minor chalcopyrite and pyrite are also present. In no sections of core could assays in excess of 0.02% Mo or 0.20% Cu be obtained along 10 ft. No core was assayed.

DDH B067-2 (Area 2)

This hole was located at 59+60N, 3+50E and was drilled 506 ft. on a 340° bearing at -45° (Tie 1 and Ast. 5).

The hole was drilled entirely in quartz porphyry with varying amounts of sericitization and silicification. However, minor chlorite in places suggests that some of the rock may be altered quartz diorite. A few kaolinized feldspars are present and quartz and calcite veinlets are fairly numerous in some sections. The rock is badly sheared and broken; core recovery was poor.

A little molybdenite occurs on shear plains, and pyrite and very little chalcopyrite are present in fracture fillings and disseminations. Minor disseminated specularite is also found.

Mineralization is even weaker than that in B067-1. No core was sent for assay.

EXPLORATION ADJACENT TO BIG ONION PROSPECT

Exploration work has been carried out this year adjacent to the Big Onion prospect by Tro-Buttle Exploration Limited (northeast), Mr. Ralph Keefe (southeast) and Texas Gulf Sulphur Company (southwest).

Exploration to Northeast

Tro-Buttle Exploration Limited hold approximately 60 mineral claims adjoining the Big Onion prospect on the northeast. During the summer of 1967 a grid-controlled soil sampling programme was carried out on these claims in areas close to the Big Onion claims and some 6 miles of access roads were constructed.

Two geochemical anomalies were discovered and their approximate positions are shown in figure 3.

In excess of 700 soil samples were taken at 200 ft. intervals on west-trending lines 800 ft. apart and, in the north-western anomaly, at 100 ft. intervals, on north-trending lines 200 ft. apart. Analyses were made by Chemex Labs Ltd., North Vancouver, B.C. A plan of this work will probably be available from Tro-Buttle Explorations Limited later this winter.

a. Anomaly 1

Approximately 2000 ft. east of the central Big Onion claims lies a soil anomaly measuring approximately 900 ft. x 800 ft. and open to the south, in which Cu values range between 830 and 282 ppm and Mo values generally are between 2 and 10 ppm although a single sample returned 92 ppm Mo. As far as I know, there are no outcrops in or very close to the anomaly, but TGS mapping in 1966 indicates that underlying rocks probably belong to the middle division of the Hazelton Group

i.e. shale and arenaceous rocks. I have not been over this particular area on the ground. A single silt sample (Cu-Mo background) was taken on a creek draining this area by the Bulkley Babine Reconnaissance crew approximately 2 miles downstream.

b. Anomaly 2

In the meadows north of the David claims of the Big Onion property there is an erratic geochemical anomaly that might measure 1600 ft x 1300 ft., elongated in a northerly direction. Although Cu reaches 440 ppm, many samples within the anomalous zone drop well below 100 ppm. Most Mo samples are below 50 ppm, with a high of 158 ppm.

At least p rt of this area is underlain by northeast-striking, thin-bedded chert, calcareous in part, with minor disseminated pyrite (Cache Creek Group?). The Big Onion intrusive complex strikes in this general direction, but it is not known whether it extends so far to the northeast. Outcrops are rare in the meadows area.

An unsatisfactory attempt was made to trench this anomaly during the summer. In one instance a trench was put on the wrong grid line; the correct line remains untrenched. A limited amount of trenching elsewhere revealed no significant amounts of either Cu or Mo.

The above information was derived mainly from personal communications with Mr. George Burdette, Exploration Manager for Tro-Buttle Exploration Limited.

Exploration to Southeast

A considerable amount of road-building was done by the B.C. Forest Service while fighting a "controlled burn" on the south side of

Astlais Mt. last spring. At this time small amounts of chalcopyrite were found disseminated in a practically fresh diorite stock 1½ miles east of the Big Onion camp. This occurrence was subsequently staked by Mr. Ralph Keefe, Telkwa, B.C. of the B.C. Forest Service.

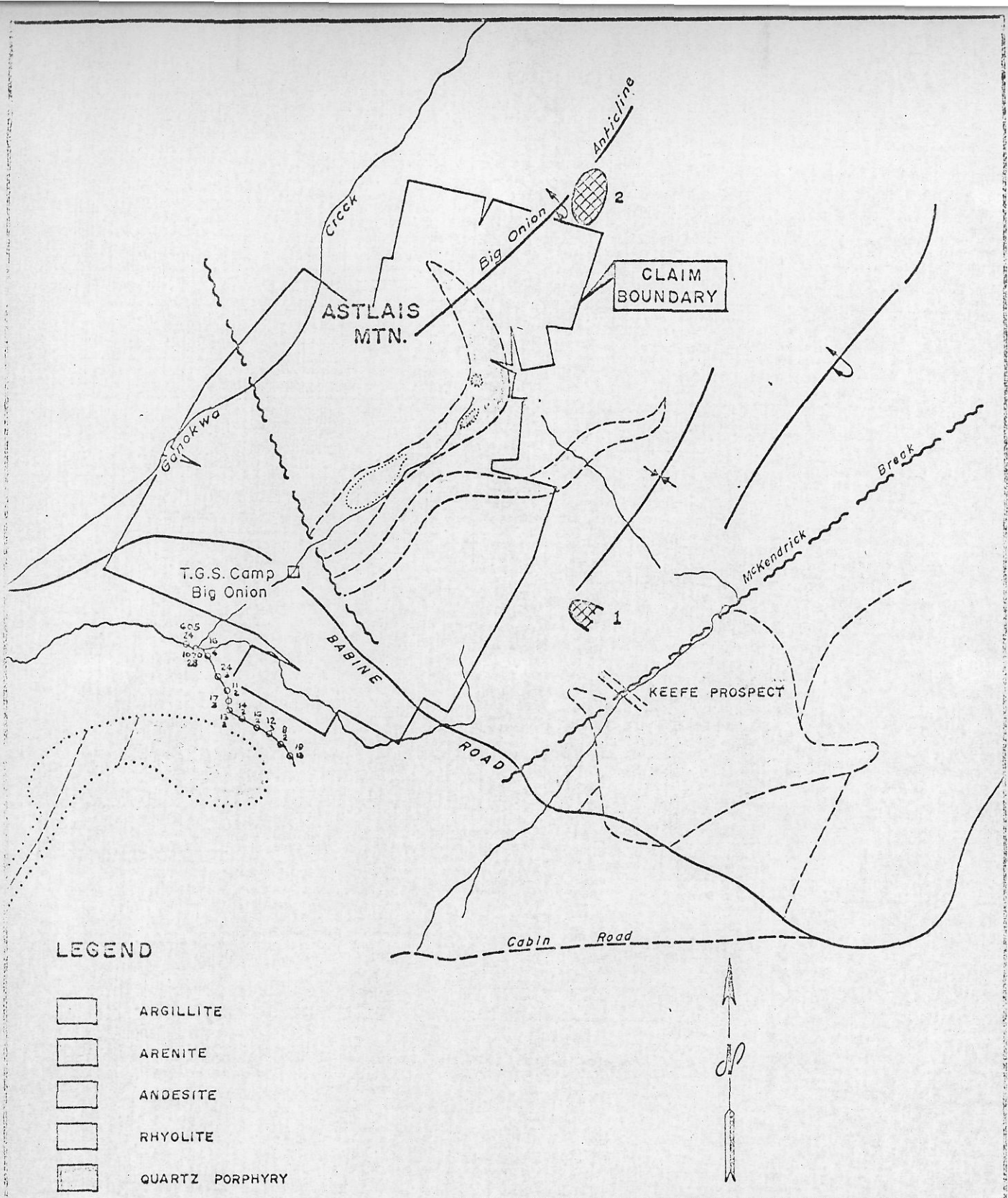
The existence of this stock was noted during the 1966 Bulkley Babine Reconnaissance programme and silt sampling in the area gave no encouraging results. Samples of mineralized diorite shown me by Mr. Keefe strongly resemble some of the chalcopyrite mineralization in the less altered quartz diorite on the Big Onion prospect.

Exploration to Southwest

I collected 12 silt samples at approximately 300 foot intervals along a creek draining the small unnamed lake 1½ miles south of the Big Onion camp (Fig. 3). The creek drains northwest and cuts the projected southwestern extension of the Big Onion intrusive complex. Copper results were generally in the 10-20 ppm range (i.e. background). Two samples were taken below the point where the creek is joined by Astlais Creek and they yielded 1070 ppm and 605 ppm Cu.

GEOLOGY (REVISIONS OF 1966 REPORT)

Some changes in rock names are in order. The intrusive rock called rhyolite by Noranda Exploration Company and quartz porphyry in my 1966 report is better described as a quartz-feldspar porphyry. Feldspar phenocrysts, generally highly sericitized, are clearly visible in several localities.



TEXAS GULF SULPHUR CO.

BIG ONION PROSPECT

SCALE: 1 = 50,000 | AFTER NEWELL, 1966

The rock referred to as a porphyritic diorite dyke by myself has been identified as a quartz monzonite dyke after petrographic work by Dr. A. Sutherland Brown, B.C.Department of Mines.

However, to avoid confusion the rock names used in 1966 are retained in this report.

A. L'Orsa

A. L'Orsa

AL'O/js

REFERENCES

Barringer Research Limited, 1966, Report of Induced Polarization and Resistivity Survey, Big Onion Property, Smithers, B.C.: Unpublished report for Texas Gulf Sulphur Company Incorporated

British Columbia, 1927, Annual Report of the Minister of Mines, p.138

British Columbia, 1966, Annual Report of the Minister of Mines, p.83-86

Geological Survey of Canada, 1949, Smithers - Fort St. James, Map 971 A

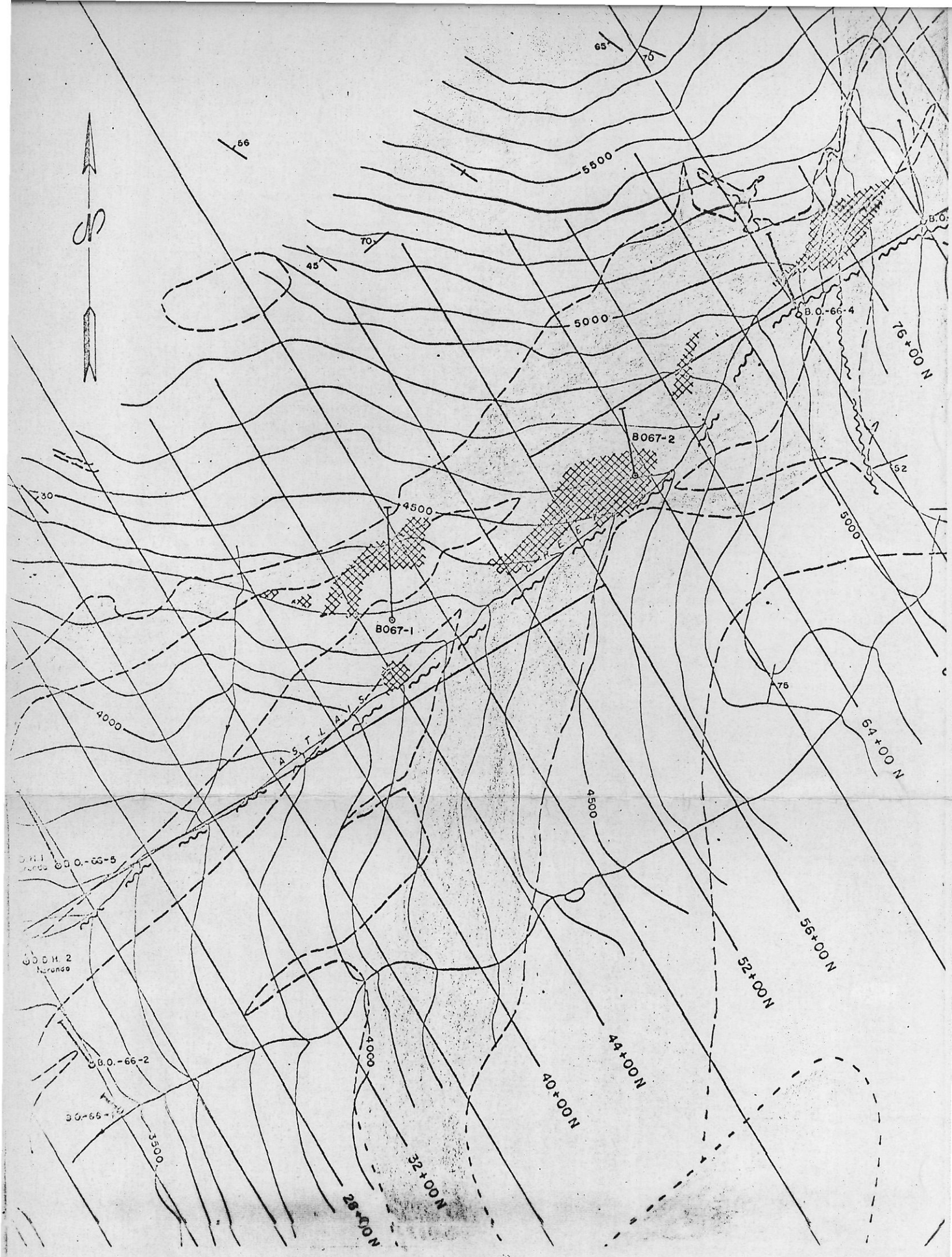
Hanson, G. 1924, Driftwood Creek Map-area, Babine Mountains: Geol. Survey Canada, Summary Report, pt. A, p.33

Lang, A.H. 1942, Houston Map-area: Geological Survey of Canada, Map 671 A.

L'Orsa, A. 1966, Report on Big Onion Cu-Mo Prospect, Smithers, B.C.: Unpublished Report, Texas Gulf Sulphur Company Incorporated

Loudon, J.R., 1965, Big Onion Cu-Mo Property, Smithers, B.C : Unpublished report, Texas Gulf Sulphur Company Incorporated

Newell, J.M., 1966, Final Report, 1966 Bulkley-Babine Reconnaissance Project, Omineca Mining Division, B.C.: Unpublished report, Texas Gulf Sulphur Company Incorporated.



SCALE: ONE INCH = 600'

B067-1 DDH

GOSSAN

ANDESITE

QUARTZ PORPHYRY

QUARTZ DIORITE

TEXAS GULF SULPHUR CO.

BIG ONION PROSPECT

SHOWING 1967 DDH

WORK BY	DRAWN BY	DATE
A. L'ORSA	C. DONDERS	DECEMBER 4, 1967

PROPERTY Big Onion
Smithers, B.C.

HOLE START 31/7/61
HOLE FINISH 3/8/'61
DEPTH 764

TEXAS GULF SULPHUR CO.
DIAMOND DRILL HOLE LOG

HOLE SURVEY (Method: Brunton)
DEPTH 0 BRG. 348° INCL. -45°

LATITUDE 451 S
DEPARTURE 110 W
ELEVATION 1275'
CORE SIZE BQ-WL

HOLE NO BOG 7-
LOGGED BY L' Orl
DATE 7/8/1961

FOOTAGE FROM	TO	Rx. TYPE	GEOLOGY NOTES	ALTERATION - STRUCTURE			fr./ft.	MINERALIZATION				EST. gr. % Cu	% Mo	CORE ASSAYS FROM/TO	REC.
				Silic.	Chl.	Arg.									
0	25		Casing												
25	270	QP	Quartz porphyry. A very fine-grained pale brown-grey to pale grey sugary-textured rock with scattered quartz phenocrysts & rarely, feldspar phenocrysts. Molybdenite is found in very small amounts on widely scattered shear planes & very minor disseminated chalcopyrite is present. Disseminated pyrite ≤ 2%.	wk/str.	–	–						tr.	tr.		
270	718	QD	Quartz diorite. Medium to dark grey porphyritic rock composed of plagioclase phenocrysts 1/8" & chlorite after hornblende & biotite. Rarely is hornblende found intact. quartz is present. Bleaching is intense at contacts & locally chloritic. As a result, contacts are hard to pick & footages given here are approximate only & may be out by 15 ft. or more. Minor chalcop. scattered quartz, calcite & pyrite veinlets are present	str/wk	mod/str	wk/str										
718	746	An	Andesite. Fine-grained, dark green rock, contacts obscured by bleaching. Numerous calcite veins ≤ 5mm Calcite disseminated & in veinlets. Pyrite ≤ 1%	wk	str.	–									
746	760.1	QD	Quartz diorite. Generally bleached, particularly at contacts	Mod	wk/str	str.									
760.1	760.5	An	Andesite. Medium green dyke (?).	–	Str	–									
760.5	764	QD.	Quartz diorite (?). Very strongly bleached. very little chlorite remaining. Disseminated pyrite ≤ 1	mod.	str.	wk									

PROPERTY Big Onion, Smithers, B.C.

HOLE START 8-8-67
HOLE FINISH 11-8-67
DEPTH 506'

TEXAS GULF SULPHUR CO.
DIAMOND DRILL HOLE LOG

HOLE SURVEY (Method: Brunton)
DEPTH 0 BRG. 340° INCL. -45

LATITUDE 5921.0 N
DEPARTURE 3150 E
ELEVATION 4400'
CORE SIZE BQ-WL

HOLE No. BO-67-2
LOGGED BY A.C.Lee
DATE 12-8-1967

FOOTAGE FROM	FOOTAGE TO	Rx. TYPE	GEOLOGY NOTES	ALTERATION-STRUCTURE Kfld	Chl.	Arg.	fr./ft.	MINERALIZATION	EST. gr. % Cu	% Mo	CORE ASSAYS FROM/TO	REC.
0	20		Casing	incr/ft	weak	-			20.03	20.01		
20	506	QP	Quartz porphyry. Sugary-textured, pale grey to almost white & pervasive. Scattered quartz phenocrysts to, locally, indistinct feldspar phenocrysts. Minor chlorite in places suggests the rock may be highly altered quartz eleonite in part. Scattered, small (≤ 3mm) quartz veins.									
			Small amounts of molybdenite occur, locally on slickensides. Very rarely, minor chalcopyrite is found in dissemminations. Pyrite averages less than 5% in top portions of the hole & approximately 1% below 300 ft.									
			Quartz increases in the core below 300 ft. Quartz eyes & quartz veinlets become more common & disseminated hematite is conspicuous. There is no increase in sulphides.									