

WILLIAM M. SHARP, P. ENG.
CONSULTING GEOLOGICAL ENGINEER

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not checked later by W.M.S.*

ROOM 1, 425 HOWE STREET
VANCOUVER 1, B.C.

October 8th, 1968.

REPORT: GEOLOGICAL-GEOCHEMICAL RECONNAISSANCE
of the
PACIFIC NORTHERN GAS PIPELINE,
TELKWA PASS INTERVAL, SMITHERS-TERRACE SECTION, B.C.

INTRODUCTION

PRELIMINARY:

With this the writer submits his report on the above reconnaissance examination, which has been performed as requested and authorized. Drawing no. 1 accompanies and supplements the following text.

GENERAL:

The writer, accompanied by Mr. Jack Lindsay, professional photographer, arrived at Terrace on the afternoon of September 17, 1968. Actual field work was accomplished during September 18th and 19th. On September 20th the writer prepared supplementary notes of his field observations and relevant details, and returned to Vancouver via the C.P. Airline's late afternoon flight.

The writer examined trench, and "cut-bank" rock exposures, and natural outcrops, within a 7-mile length of the Telkwa Pass interval of the pipeline; at the same time silt-sampling of the

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more significant drainages was carried out. As the majority of the rock exposures occur within a 2-mile interval eastward of the east end of "Granite" (writer's nomenclature) Lake, the major part of the writer's field time was committed to this section. The westerly 5-mile section, containing few rock exposures, was examined during the afternoon of the second field day.

Survey control was based on the official 1 inch= 4 mile location plan prepared by Pacific Northern Gas Ltd.; however, as field-stationing did not coincide with the designated map-stationing, the writer located his observations and samples by pacing between recognizable geographic features. For this reason map locations should be taken as only approximate.

The only available reference pertaining to the general geology of the region is G.S.C. Map 971A, "Smithers - Fort St. James" - at a scale of 1 inch = 8 miles; hence this only outlines the broader geological features of the area.

LOCATION AND ACCESSIBILITY:

Telkwa Pass is situated some 35 miles due east of Terrace, B.C.; locally, it forms the divide, or headwaters area of Telkwa River and Limonite Creek. At present it may be reached via some 35 miles of construction access-road from Smithers - in dry weather only and, preferably, via 4-wheel drive vehicles. Currently, helicopters provide the principal transportation to and from the construction project. For this reason, the writer's field time was largely governed by the local schedules followed by Okanagan Helicopters - operating from their Terrace base.

GENERAL GEOLOGY:

The Terrace-Smithers area is principally underlain by the region^s Hazelton Volcanic Group of Jurassic age. Within the Telkwa Pass area these are intruded by a large

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N-S. elongated stock of Coast Intrusive granite - granodiorite. At the contacts of this body the predominantly andesitic volcanics have been thermally and metasomatically altered, as well as being structurally deformed by consequent folding and fracturing.

The regional copper-molybdenum (locally gold-silver-lead-zinc) is spatially associated with the above-noted, or similar batholithic, to stock-sized intrusives, and occurs in both the "granitic" and volcanic rocks. Locally, it is more specifically controlled by zones of relatively more intense fracturing. Areas of mineralized volcanics normally exhibit a significant degree of propylitic (chlorite, epidote, calcite, quartz) alteration; the mineralized intrusive bodies normally contain significant zones of sericitic, kaolinitic, feldspathic, and chloritic alteration.

HISTORY:

For reasons of its general inaccessibility, the Telkwa Pass area has not been closely prospected or geologically explored. A few large groups of claims have been staked on former small prospects, or for other reasons, but there is no record of important amounts of exploration being accomplished within the actual Telkwa Pass area within recent years. However, significant exploration programs have been, or are being undertaken within the adjacent Serb Creek and Copper (Zymoetz) River areas.

PIPELINE ROUTE GEOLOGICAL-GEOCHEMICAL NOTES:

The following text summarizes the plotted geological-geochemical data on the accompanying map, and as shown within specific geographic intervals, and between "stations" A. East Starting Point - N.E. Granite Lake:

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Principally variably-fractured andesitic tuffs, breccias, (and flows). Between Station 800 - 19/0 + 00 these are locally well fractured and altered, and slightly mineralized by chalcopyrite and pyrite. Significant copper contents occur in silts taken at stations 793 (800 p.p.m.) and 19/0 + 00 *70 p.p.m.).

Between 19/0 + 00 and 19/0 + 725 rocks are mainly rather massive, very locally fractured and altered tuffs; however, significant amounts of copper show in silts taken from 19/0 + 250 (63 p.p.m.), 19/0 + 400 (118), 19/0 + 595 (270), and 19/0 + 725 (64).

Between 19/0 + 725 - 800 outcrop consists of medium-grained leuco granite, with no alteration-mineralization.

Between 19/0 + 800 - 19/1 + 00 rocks are moderately fractured and altered, flatly-dipping and andesitic tuffs, with traces of chalcopyrite in clearly-altered sections adjacent to a narrow granitic dyke.

Between 19/1 + 00 - 820 generally unaltered, flatly-dipping volcanics are intruded by two, or more granitic silts. No mineralization was noted. The one silt at 19/1 + 87 contained 137 p.p.m. copper. Towards the contact of the main Telkwa Pass granitic body, the volcanics are increasingly altered - locally to meta-diorites. The glacial silt ("rock flour") from 19/1 + 580 contains 81 p.p.m. copper - which may be significant in view of the "raw" nature of the silt containing it.

B. N.E. Granite Lake - Creek "A": All coarse talus from higher cliff exposures of massive, unaltered granitic rock.

C. Creek "A" - Creek "E": Occasional exposures of weakly (epidote - calcite) altered, flatly dipping, red and green volcanics, with no direct evidence of mineralization. However, significant copper contents are indicated for silts originating from Creeks "B" (1350 p.p.m.) and "D" (383 p.p.m.).

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SUMMARY AND RECOMMENDATIONS:

No direct evidence of significant copper-moly mineralization within the 7-mile pipeline route section examined accrued from this examination. However, on the basis of coincident ore-type alteration, actual occurrences of at least minor amounts of copper mineralization, and of a few fairly significant geochemical indications, the writer considers that further geological-geochemical prospecting should be done within route section "A" above. Also, on the basis of the indicated significant copper contents within two silts taken over the Creek "A" - Creek "E" interval, the writer particularly recommends that a moderate amount of follow-up silt (and soil) sampling at least should be done within this interval.

Respectfully submitted,

W. M. Sharp.

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