3700

GEOLOGICAL REPORT

New Max 1-8, New Dam 1-6, Providence Crown Grant
Mineral Claims

(18 miles east of Cranbrook, B.C., lat. 49°30', long. 115°22')

82 G /6W, 11W

By John D. Jenks, B.Sc.

For Placid Oil Company

June 1, 1971 to May 10, 1972

June 19, 1972

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Introduction

The report covers fourteen claims and one crown grant located one to two miles east of Placid Oil Company's Bull River Mine, East Kootenay district, B.C.

The area is underlain by Precambrian strata of the upper portion of the Aldridge formation and intruded by a series of meta-diorite dykes. Associated mineralization, weak and discontinuous, consists of chalcopyrite and galena in quartz-siderite veins.

I Location and Access

The claims are located thirty-four road miles east of Cranbrook in the East Kootenay district of British Columbia. They lie immediately to the east of Placid Oil Company's Bull River Mine and may be reached from Cranbrook by highway 3-93 and ten miles of paved secondary and gravel road.

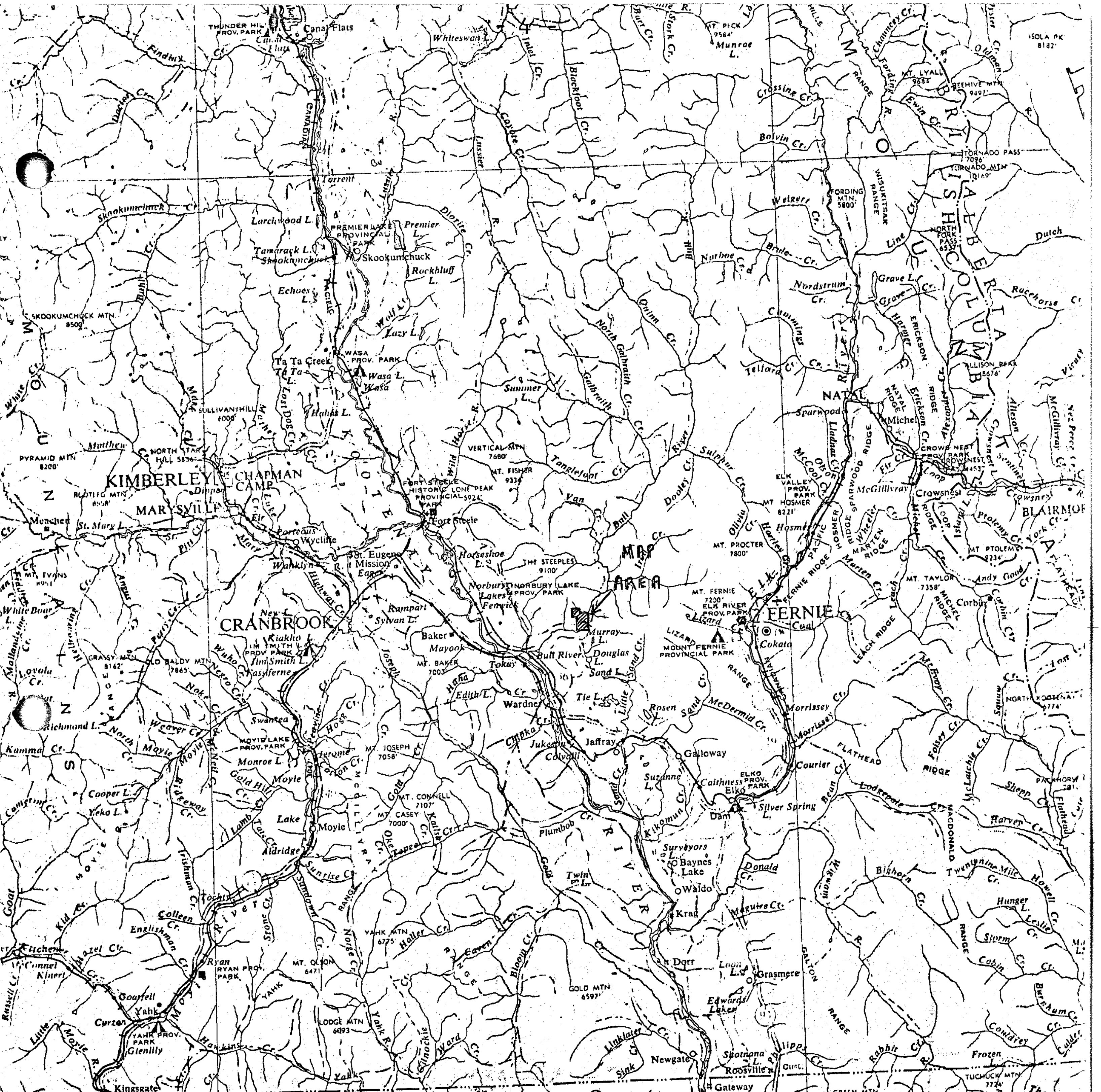
"act or art of expression by types or symbols."

II Typography, Climate, and Vegetation

The terrain in question occupies part of the southeastern-most slope of the Steeples Range near the eastern boundary of the Rocky Mountain Trench. Elevations range from 2900 to 4700 feet. Typography varies from flat alluvial terrace to upland plateau to 20° to 30° sloped hillside, to steep, near-vertical cliff-faces. Overburden depth above the alluvial terraces appears in the order of ten feet while depths in the terraced areas could reach 600 feet.

Temperatures are moderate and characterized by early spring run-off during March. July and August are hot, dry months with 80° to 90°F temperatures prevailing. Annual precipitation averages between 12 and 25 inches. Winters vary tremendously in temperature and snowfall from year to year.

The claim area has been previously logged and burned over by forest fire. Vegetation cover ranges from heavily treed patches of jackpine, douglas fir, ponderosa pine, and larch to sparsely treed zones of grass, miscellaneous shrubs, saskatoon bushes and poplar.



LOCATION MAP

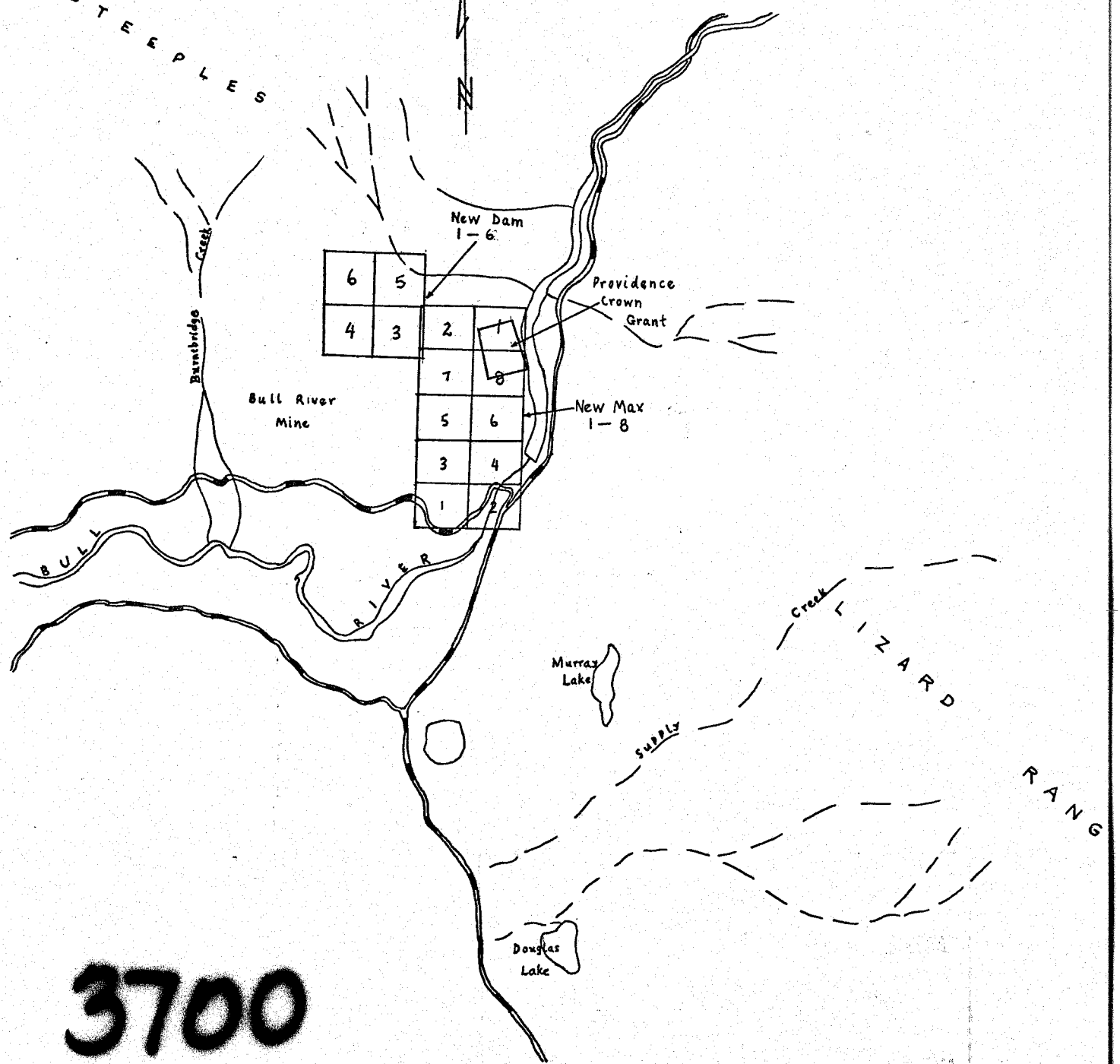
New Max 1-8, New Dam 1-6, Providence Crown Grant

Mineral Claims

BULL RIVER AREA

Scale: 1" = 10 mi.

Figure 1



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M-1

LOCATION MAP

New Max 1-8, New Dam 1-6, PROVIDENCE C.G.

Mineral Claims

BULL RIVER AREA

Scale: 1:50,000

Figure 2

III History

Initial mining activity in the Bull River area commenced with the search for placer gold on the river in the 1860's and 1880's. By 1898 a number of mineral claims had been staked on ground now held by Placid Oil Company. Two of these; the Mabel and the Chickamon Stone appear to have occupied portions of the area covered in this report. The early work consisted entirely of digging a few short tunnels and a number of shallow pits and trenches into portions of the dykes occupied by quartz-siderite veins containing small, sporadic quantities of galena and chalcopyrite.

Between 1924 and 1926, under the ownership of W.S. Santo of Cranbrook, three adits totalling roughly 800' were tunnelled into the dykes at various elevations. Even though two trial shipments of ore were made to the Trail smelter, the claims, now named Copper King and Copper Queen, proved to be uneconomical. A number of individuals subsequently tried their hand at unearthing economic mineralization from 1926 to 1970 through bulldozer trenching. All were unsuccessful.

Placid Oil Company acquired the ground in 1971.

IV Land Status

The ground covered by this report includes the following claims wholly owned by Placid Oil Company.

New Max Nos. 1-8	recorded May 26, 1971	413.20 acres
Providence Crown Grant, Lot 6670	July 5, 1971	35.58
New Dam Nos. 1-6	Sept. 16, 1971	309.90
TOTAL: 14 cls., 1 crown grant		758.68 acres

V Mapping Control

Mapping control was effected by the use of 1) pre-cut, surveyed and chained baselines, 2) pre-cut, compassed and chained crosslines 400 feet apart marked with 100 foot stations, 3) B.C. Government air-photography flown July 1962, scale: 1" = ¼ mile and, 4) private air photography flown by McElhenney Surveys Limited for Placid Oil Company during June, 1969.

Data was recorded in the field on 1" = 200' diline print blow-ups of the latter photos and transferred to 1" = 200' continuous tone print photo overlays.

By using a combination of air-photo and pre-cut lines it was possible to effectively map in places where substantial air photograph distortion hampered accurate portrayal and in other areas where severity of typography and lack of available time and manpower precluded line-cutting.

In total, 4,000 feet of base line and 24,600 feet of crossline covered all of New Max 3 and 5, most of New Max 1, 7, parts of New Max 4, 6, 8, New Dam 3 and 4, and none of New Max 2, New Dam 1, 2, 5, 6 and lot No. 6670.

Outcrop comprises about 15% of the total map area.

VI Detailed Statement of Work and Expenditures

DETAILED STATEMENT OF EXPENDITURES
NEW MAX CLAIMS 1 - 8 INCLUSIVE

(June 1 to June 29, 1971)

Line Cutting - 4000' of Base Line (Total for the two groups)
- 24,600' of Crossline

P. Kurceba	4 days @ $25.00 per day	$ 100.00
R.A. McKenzie	17 days @ $25.00 per day	425.00
Accommodation for Kurceba and McKenzie	21 man/days @ $5.00 per day	105.00
Food Allowance for Kurceba and McKenzie	21 man/days @ $6.00 per day	126.00
Vehicle Expense - 1500 miles @ 15¢ per mile		225.00
Field Supervision - John Jenks and geologic mapping	6 days @ $100.00 per day	600.00
		$1,581.00
	Plus Overhead Expense @ 10%	158.10
	TOTAL	$1,739.10

VI Detailed Statement of Work and Expenditures (cont'd)

DETAILED STATEMENT OF EXPENDITURES
NEW DAM 1 - 6, PROVIDENCE CROWN GRANT, LOT 6670

E.J. Frost -	Upgrading lines after winter damage 5½ days @ $30.00 per day April 19 to 26, 1972	$ 165.00
	Vehicle Expense 400 miles @ 15¢ per mile	60.00
J. Jenks -	Geological Field Mapping May 1 to 10, 1972 10 days @ $100.00 per day	1,000.00
	Report Writing 5 days @ $100.00 per day	500.00
	Air Photo Coverage	200.00
		$1,925.00
	Plus Overhead Expense @ 10%	192.50
	TOTAL	$2,117.50

VII Geology

(a) General

The map area is underlain by Precambrian strata of the Aldridge formation with the exception of the extreme southeast corner of New Dam #5 which overlies a portion of the Creston formation. The Aldridge in the area consists of a series of quartzites, argillaceous quartzites, and argillites, intruded by three meta-diorite Purcell dykes. Although no gradational sections between Aldridge and Creston strata are exposed, it is felt that Aldridge representation on the property lies within the upper three thousand feet of the section.

(b) Quartzites

Primarily composed of massive beds up to 2 feet in thickness, thinner bedded units of ½" to 8" are also present. The quartzites are seldom pure over any considerable thickness of section but are generally intercalated with thin-bedded argillites and argillaceous quartzites. Typically in thin-section they are made up of sub-angular to sub-rounded quartz grains cemented by a mixture of quartz and sericite. A considerable syngenetic pyrite content accounts for the rusty coloration on the weathered surface.

Typical structures include ripple marks and flute

casts. The latter indicates current directions of 325° suggesting a source area, locally at least, to the south-east. Ripple marks, together with the mud cracks commonly found in the argillites, imply shallow depths of deposition.

Presence of penecontemporaneous deformation particularly within sections of argillite and intercalated quantities are indicative of submarine slumping and turbidity currents.

(c) Argillites

Comprising approximately 20% of total outcrop, argillites typically occur in ¼" to 1" beds, frequently contain mud-cracks, disseminated pyrite, and are characterized by very rusty weathered surfaces. Crenulated bedding and paper-thin varves are common.

(d) Argillaceous Quartzites

Gradational in bedding thickness and appearance between the two previous types, argillaceous quartzites comprise about 30% of the section. A unique feature seen are vugs of sandy pseudomorphs of calcite crystals.

(e) Moyie Dykes

A most salient feature regarding the geology of the claim area, is the presence of three roughly east-west trending dykes dipping vertically to 70° north. In composition they range

from fine-grained metadiorite to metadiabase and are members of the Purcell intrusives.

In thin-sections it can be seen that 70% of the original ophitic-textured rock was composed of lathe-shaped plagioclase crystals. 90% of the original feldspar has been altered to a mixture of saussurite, sericite, and minor carbonite. The remaining feldspar is etched and pitted. The original dark minerals, 25% of the total volume, have been almost entirely chloritized. The remaining 5% of rock volume is made up of pyrite and iron oxide.

Megascopically, the intrusives are dark green in colour, weathering greenish-brown. Grain sizes range from fine-grained to fine-grained with 1-2 mm. brown carbonate crystals. Yet another variety is medium grained. A final variation, probably unique in the area, consists of a fine-grained matrix containing large white feldspar crystals comprising roughly 20% of the rock volume. These generally euhedral crystals, the largest of which measure up to 2" x 8", are in most instances, oriented with the long axes parallel to the intrusive walls.

On the west side of the Bull River reservoir, the porphyritic variety constitutes the northern-most dyke, with only the occasional patch of porphyry found in the two dykes

to the south. The porphyry is traceable to the west for a distance of 1½ miles.

On the east side of the reservoir, the picture changes slightly. Only two dykes are discernible probably due to coalescence. The porphyry seems to occur on the northern portion of the southern-most dyke although in one exposure occurs on the southern contact and in another is absent.

In thickness the three dykes average from 80 to 140 feet for an aggregate of approximately 300 feet. However, pinching and swelling is quite common and can alter the preceeding figure by as much as 50% either way.

The variations in textures and composition could suggest the intrusives were not emplaced simultaneously but rather by a series of pulses from a common magma chamber.

The dykes have been subjected to a late stage of deformation and are commonly foliated and sheared in the general regional northerly direction. Xenoliths are not commonly seen.

(f) Alteration Zones

Bordering the intrusives, in thicknesses up to 20 feet, alteration zones are generally observed. In these zones the altered sediments become light-green to buff in

colour, are sub-lithographic in texture and are composed entirely of clay minerals. On some portions, particularly in the argillite sections, remnant bedding is well preserved.

In certain other contact areas alteration zones may be completely absent, the contact being represented by a sheared interface between country rock and dyke.

(g) Veins and Mineralization

The bulk of veining on the map area occurs within and along the fine-grained margins of the intrusive dykes. To the north of the dykes, although the country rock is highly sheared in many places, veining is virtually absent.

To the south a number of small barren quartz and quartz siderite veins are present. Two predominent directions are evident; the first set strikes north-northwesterly, dipping steeply west and following a major regional shear plane direction. A second set striking northeasterly and dipping north occupies small tension fractures.

Within the dykes three different sets are observable:

i Northwesterly striking dipping vertically or steeply southwest;

ii A northeasterly set dipping southeast at moderate to steep angles;

iii A set of uncertain attitude (probably sub-vertically

dipping) striking east-west. Patchy and irregular in distribution and extent these veins are composed of quartz-siderite. They range in shape from pod to lens to chimney shaped. In two localities within the map area they are observed to contain small quantities of galena and chalcopyrite. Both showings appear associated with porphyritic portions of the dykes. Siderite commonly occurs along the borders of the veins.

In all cases, the observed veins were short and inconsistent. Those transecting the diorite do not appear to persevere for any significant distance into the country rock.

(h) Structure

The regional bedding attitude is in the order of 130° averaging 10° to 30° dip to the northeast. These attitudes are surprisingly consistent and are only altered locally by folds and faults.

Similarly two consistent sets of slatey cleavage prevail. A first set strikes due north dipping 30° to 60° west. A second set strikes north-northwest dipping generally 38° to 50° west. In proximity to faults and folds different shear attitudes are frequently observed.

A number of readily discernible faults are seen. To the north, a roughly east-west striking fault separates Aldridge from Creston strata. The north side has obviously moved down in relation to the south. Although no true sense of movement can be observed, nor the actual fault plane, I would guess the fault to be normal. Strata in the general vicinity is very highly sheared.

To the west a longitudinal fault trends north-easterly. Although lack of available markers are at hand, the position of dykes near the mine area suggests the west side to have moved northerly in relation to the east. The fault is of course post-dyke in age. Strata again is very highly sheared in the general vicinity.

The dykes themselves occupy a zone of east-west trending faults.

Less than half a mile south of the map area (not shown on map), a major normal fault separates Devonian strata from the Aldridge formation. This fault, trending northwesterly to northerly, marks the eastern boundary of the Rocky Mountain Trench.

Observable in the rock exposures along the Bull River canyon are a number of small faults and folds their formation no doubt related to that of the latter mentioned fault.

VIII Summary and Conclusions

The map area overlies gently northeasterly dipping Precambrian strata of the Aldridge formation intruded by a series of east-west trending dykes and transected by a number of east and northeast trending faults.

Mineralization was found to be patchy, sporadic and confined exclusively to the intrusives. Quartz-siderite veins are short, narrow, and irregular. On two different locations and associated with a porphyritic dyke they contain small amounts of chalcopyrite and galena.

In view of the small size and discontinuous nature of the mineralized showings, the area would not be considered prime exploration ground. The area north of the dykes is almost completely void of veining of any short, while south of the dykes veins are few, short, narrow and barren. Mineralization contained within diorites has the disconcerting habit of lacking consistancy generally in the East Kootenay district.

On the positive side the presence of the Bull River deposit one mile to the west can not be overlooked. Furthermore, potential mineralizing solutions could conceivably find a channel-way through which to migrate via the east-west trending fault zone occupied by the dykes. Finally the dykes themselves by providing a link with a

magma chamber at depth could imply a connection to a possible source-rock.

Therefore as a brief recommendation I feel a cursory examination of the claim area through a combination of soil geochemistry and electromagnetic geophysical methods would be warranted followed by detailed follow-up of potentially anomalous ground. Optimal techniques would best be determined by an orientation survey.

J. Jenks, B.Sc.

IX Statement of Qualifications

1. I, John Jenks, graduated in May 1968 from McGill University as a Bachelor of Science majoring in Geology.

2. Since graduation I have been employed by Inco and Placid Oil Company in mineral exploration.

3. I have been involved with the geology of the Bull River mine area from 1969 to the present.

4. I am a member of the Professional Geologists of Alberta.

5. I am currently planning to apply for membership to the Professional Engineers Assocation of British Columbia.

X References

Chiang, M.C. — Personal communication

Minister of Mines, B.C. — Annual Report 1898, 1924, 1925, 1926

Leech, G.B. — Fernie Map-Area, West Half, British Columbia. Paper 58-10, G.S.C., 1958

NEW DAM 6
NEW DAM 5
NEW DAM 4
NEW DAM 3
NEW DAM 2
NEW DAM 1
NEW MAX 7
NEW MAX 8
NEW MAX 5
NEW MAX 6
NEW MAX 3
NEW MAX 4
NEW MAX 1
NEW MAX 2

CRESTON FM.
ALDRIDGE FM.
DOWN
UP

Longitudinal movement

PROVIDENCE CROWN GRANT

TERRACE

ALLUVIAL

ALLUVIAL TERRACE

BULL RIVER

bedding plane slickensiding

bedding plane slickensiding

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3700 MAP #3

3700
M-3

PLACID OIL COMPANY

MAP A

GEOLOGY MAP

PROVIDENCE CRN. GNT., NEW MAX 1-8,
NEW DAM 1-6
MINERAL CLAIMS

Ft. Steele M.D. — Scale: 1" = 200' (approx.)

J. Jenks — June 19, 1972.

cliff
road
building
flume
dam
outcrop
stream – perenniel
– intermittant
railroad bed
adit
test pit
Claim post and boundary

Alteration Zone
Argillite
Argillaceous Quartzite
Quartzite
Diorite
Diorite – porphyritic
Syncline
Anticline
Fault (assumed)
Contact
Bedding attitude
Slatey cleavage
Jointing
Quartz vein

To accompany geological report by J. Jenks on the New Max, New Dam, and Providence Crn. Gnt. Mineral claims on Bull River, Ft. Steele Mining Division dated June 19, 1972.

John Jenks
June 19, 1972.

TO ACCOMPANY GEOLOGICAL REPORT BY J. JENKS ON THE NEW MAX, NEW DAM AND PROVIDENCE CROWN GRANT MINERAL CLAIMS ON BULL RIVER, FT. STEELE MINING DIVISION DATED JUNE 19, 1972

3700 M-5

PLACID OIL COMPANY

SCALE - 1 INCH TO 200 FEET

DATE - JUNE 19, 1972

PLACID OIL COMPANY

MAP B

GRID PLAN

PROVIDENCE CRN. GNT., NEW MAX 1-8,
NEW DAM 1-6
MINERAL CLAIMS

Ft. Steele M.D — Scale: 1" = 200' (approx)

J. Jenks — June 19, 1972

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