

GEOLOGICAL AND OTHER ASSESSMENT WORK

A REPORT  
ON THE  
JIG MINERAL CLAIMS  
QUESNEL, TWO MILES SW  
52° 122° NW

93B/15E

Prepared By:

Ian Bain, P. Eng.

Work Performed:

Aug. 16, Oct. 16-19, 1957

June 10-18, June 23-30, 1958

By Ian Bain P.Eng.

210

210

A REPORT

ON THE

JIG MINERAL CLAIMS

CARIBOO MINING DIVISION

Prepared By:

Ian Bain, P. Eng.

TABLE OF CONTENTS

	Page
INTRODUCTION	1
WORK PERFORMED	1
SUMMARY	1
GENERAL GEOLOGY OF THE JIG CLAIMS	3
GEOLOGICAL STRUCTURE	5
NATURE OF THE DIATOMITE DEPOSIT	5
NUMBER OF PAGES / 6	

ILLUSTRATIONS

#/ PLAN OF JIG CLAIMS, QUESNEL, B.C. SHOWING DIATOMITE DEPOSITS

In Pocket

A REPORT  
ON THE  
JIG MINERAL CLAIMS  
CARIBOO MINING DIVISION

INTRODUCTION:

The JIG mineral claims are situated 2 miles southwest of Quesnel, B.C., in the Cariboo Mining Division. A gravelled road to the A.L. Patchett and Sons sawmill from West Quesnel, crosses claim JIG 1. The JIG claims occupy chiefly the west half of Land Lot 906.

JIG claims number 1 to 4 were staked and recorded on August 5th, 1957. JIG claims number 5 to 8 were staked on October 15th, recorded on October 18th, 1957. These claims are held in trust in the name of Ian Bsin of Edmonton, Alberta.

WORK PERFORMED:

In 1957 Geological examination and sampling were performed on August 10, October 16-19, a total of 5 days. In 1958 geological examination and sampling using a hand auger were performed over 14 days in the periods June 10-18, June 23-30, 1

SUMMARY:

The JIG claims cover the crest and northeast slope of a flat-topped ridge, an eastward projecting part of the deeply dissected Fraser Plateau which here lies 700 to 800 feet above the Fraser river. The southwestern part is capped by late Tertiary lava up to about 30 feet thick which lies nearly flat. This appears to lie unconformably upon the Fraser River formation of middle Tertiary age, so named by Dr. L. Reinecke in 1920. Beneath this lava flow, a thick deposit of diatomaceous earth, in places

mantled by a few feet of cemented gravel lies at the top of the Fraser beds on these claims. This deposit is exposed around a slide area on claim JIG 1. On the cliff 34 feet thickness was measured, and an additional 15 feet indicated in auger drill hole at the base of the exposure, making 49 feet of diatomite in all. Most of it is creamy colored with clay intermixed and in thin parting planes. The purest, light grey to pale cream colored material occurs in a bed 8.5 feet thick 11 feet below the top. When dry this material is white. It contains 22 to 30% of bentonitic clay. Other beds contain more clay. These beds were traced by the auger as far as the south side of claim JIG 7. The more clayey diatomite was found, but the whole formation seems to be in place.

Sliding and slumping seems to have been restricted to the vicinity of the main exposure. The irregular terrain with basalt remnants capping small ridges to the west is a result of erosion accentuated by glaciation. To the south of these claims there is considerable boulder clay and gravel of glacial origin. Except for an esker ridge, there is little glacial material on the JIG claims, but continental glaciation coming from N 10 E has grooved the east face and lower ridges of diatomite and clay oblique to the N 15 W structural trend.

The Fraser beds below the diatomite are a series of clay and cemented gravels becoming chiefly sand and gravel at the base. This section becomes largely clay including some whitish material going east and south from the section 8 miles north of Quesnel.

On Baker creek north of the JIG claims, the canyon is formed of the underlying Cache Creek beds, which in a buried ridge form the western margin to the Fraser beds. Here the deeply weathered erosion surface of these beds is capped by the same flow of vesicular basalt at the same level. This formation of Permian age is highly folded, deformed, and metamorphosed.

The diatomite can be mined and transported economically. The chief problem in developing this material is marketing and suitable processing.

GENERAL GEOLOGY OF THE JIG CLAIMS:

Topography:

The eastward projection of the Fraser Plateau forms the flat-topped ridge occupying the west half of the JIG claims, which rises 700 to 800 feet above the Fraser river. Slopes are steep, but only precipitous where basalt caps the main exposure of diatomite, and where the main rim of the ridge is a 30 foot basalt cliff. The irregular glaciated depression to the east of this cliff is rimmed by a broken ridge or series of ridges trending N 15 W to rejoin the main ridge. Both depression and ridge are deeply and sharply grooved by the action of continental glacier from N 10 E.

Stratigraphic Succession:

Quaternary, Pleistocene: Glacial boulder clay, sand, gravel, of continental glacier origin.

Tertiary, Miocene? Fraser River formation; flat-lying beds of clay, cemented gravel, sand, lignitic beds, diatomaceous earth, capped by vesicular basaltic lava flows which probably overly it with unconformity.

Great Erosional Unconformity

Permian: Cache Creek Series, highly deformed and metamorphosed basalt, argillite, tuff, agglomerate.

Description of Formations:

Permian - Cache Creek Series:

These rocks have steep dips, and in places have been deformed to the extent of rock flowage in less competent beds. There is a considerable depth of weathered material, so much in fact, that fresh rock is hard to find. This weathered surface has a relief of over 600 feet, perhaps carved out by the ancestral river of the Fraser and its tributaries. South of Quesnel the Cache Creek shows just above the Fraser river, rising westerly in over 100 feet of clayey weathered greenish yellow colored basic agglomerate. Basalt is rusty red weathered. This series forms the walls of the Baker cr

canyon north of the JIG claims, where it is overlain by vesicular basalt in a flow over 20 feet thick. Here the rocks are predominantly black carbonaceous argillites or phyllites crumpled and ribboned with vein quartz. Some tuffaceous beds are present, also some that weather into impure firebrick or stoneware clay.

Tertiary - Fraser River formation:

This formation was named by Dr. L. Reinecke (Memoir 118, 1920) of the Geological Survey of Canada. He measured over 600 feet of beds down to river level at the west side of the Big Bend 8 miles north of Questel. They are capped by 30 feet of basalt which is covered with 48 feet of clay (glacial). At the top, clay and cemented gravels alternate, while clay diminishes downward until at the base sand and gravel alternate or are mixed together. Two miles to the east, there is clay throughout the section, with lignite and lignitic clays and silt in seams toward the base of the section. Diatomaceous earth is found toward the top of the Fraser River formation, also in thin beds 150 to 500 feet below the top. Thin beds of whitish clay are found at this level, also along Baker creek, where some is interbanded with fine chert pebbles and lignitic seams, also thin ash beds.

Quaternary - Pleistocene Continental Glaciation:

Pleistocene glacial boulder clays thick and widespread except on the JIG claims where it is almost non-existent. The latest movement of the ice was from N 10 E. It deepened or scooped narrow depressions between the knobs of basalt in a broad irregular lower area between the diatomite exposure and the basalt cliff on claims 1 and 2. These cut up the ridge rimming the east edge, in which diatomite lies near or at the surface. An esker follows the same trend. The ice seems to have picked up on the northeast and formed a moraine to the southwest where there is a considerable thickness of gravel.

GEOLOGICAL STRUCTURE:

The basalt capping is reported to strike N 30 E and dip 15° NW east of the Fraser river. It strikes west of north and appears to dip slightly to the west on the JIG claims, while north of Baker's creek, it strikes north and dips gently west. The diatomite beds dip 15° west and strike N 15 W in the large exposure. However this might be slumped enough to alter an originally flat dip. Other evidence suggests a nearly flat dip, viz: diatomite lies at similar elevations all along the east edge and face of the ridge. West of the main diatomite exposure, the basalt remnants capping narrow ridges, all have about the same elevation, all about 100 feet or more below the elevation of the solid basalt forming the east rim of the flat top. This rim may well be formed by a normal fault whose east side moved down.

Landsliding has occurred locally with small wedges of material a few to 15 feet thick including diatomite having slipped down about 100 feet from the level of the main exposure. This is the result of headward erosion of a small gully together with a general seepage of water along the base of the diatomite beds. There is no reason to suspect large scale landslides, but there may have been broad areas of gentle subsidence, due to creep of underlying saturated bentonitic clays. Springs issue from the base of the diatomite on claim JIG 5. This water would penetrate the underlying clays where fractures were developed parallel to the main normal fault.

NATURE OF THE DIATOMITE DEPOSIT:

Following is a section measured at the main exposure of the diatomite:

Vesicular basalt (locally)	7 feet
Cemented (clay) gravel	0-6 "
Diatomite(see next page)	49.5 "



Creamy grey clayey thinly bedded diatomite	11 feet
Blocky very light grey to pale cream	8.5 "
Grading to creamy grey with clay partings	5 "
Hard rusty band	0.5 "
Creamy grey with clay partings	6.5 "
Cream colored clayey, clay partings	2.5 "

Auger Drill Hole No. 1:

Creamy colored	5.9 "
Lighter colored creamy	3.9 "
Cream colored clayey	5.2. "

Ochre-clay mixed with diatomite at bottom of hole.

This exposure is in the northwest quarter of claim JIG 1.

The only other deep hole, No. 2, on claim 3, was stopped in diatomite after 21.5 feet from grass roots, all diatomite. The auger was unsuitable for deep drilling. Other holes were used to indicate the extent of the sub-outcrop of the diatomite, as indicated on the accompanying geological plan. Most of the drilling was sampled, and all logged.

Study under the microscope, analyses, and separation tests have been made on selected parts of this deposit, which indicate its commercial value as an industrial mineral. The exploration carried out to date suggests that there is a large tonnage of the mineral diatomite in prospect on the JIG claims.

Respectfully submitted,

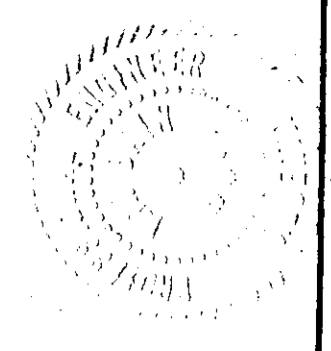
*Ian Bain P. Eng.*

Ian Bain, P. Eng.  
Geologist

Edmonton, Alberta,

July 21st, 1958

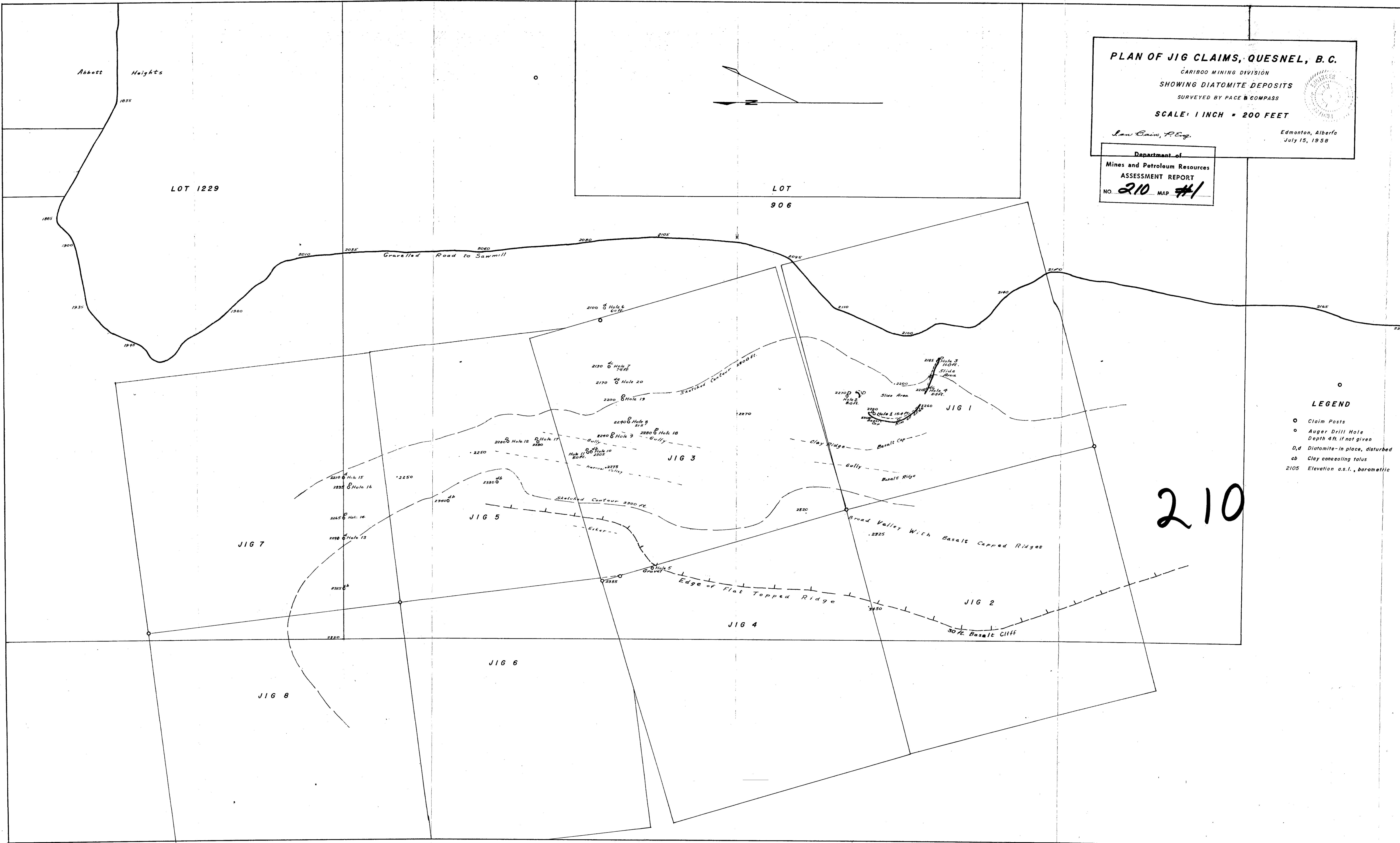
**PLAN OF JIG CLAIMS, QUESNEL, B.C.**  
 CARIBOO MINING DIVISION  
 SHOWING DIATOMITE DEPOSITS  
 SURVEYED BY PAGE & COMPASS  
 SCALE: 1 INCH = 200 FEET



Law Bain, P. Eng.

Edmonton, Alberta  
 July 15, 1958

Department of  
 Mines and Petroleum Resources  
 ASSESSMENT REPORT  
 NO. 210 MAP #1



**LEGEND**

- Claim Posts
- Auger Drill Hole  
Depth 4 ft. if not given
- d,d Diatomite - in place, disturbed
- cb Clay concealing talus
- 2105 Elevation a.s.l., barometric

210