MAR 19900001: ATHABASCA GOLD

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A MEMORANDUM REPORT
ON THE
ATHABASCA GOLD PROJECT
OF
359341 ALBERTA LTD.
By Kenneth Richardson, Prospector
August, 1990
An exploratory drilling program was carried out by 359341 Alberta Ltd., to investigate the sources of gold reported on the east bank of the Athabasca River in northern Alberta. See Index Map. A brief report of the results secured and comments thereon are hereinafter set forth.

The project was started February 1989 and was completed approximately April 28, 1989. Extensive examination was made of the area and site was chosen for drilling of the old churn drill holes reportedly drilled in 1911.

The drill area is situated near a block of Metallic Mineral Claims in Township 95 and 96, Range 10 and 11, West 4th Meridian, approximately 48 miles north down the Athabasca River from Fort McMurray, in the Province of Alberta. The subject area is within the Athabasca Bituminous Sands area and the mining right were coexistent with previously granted lease permits for the development of the bituminous sands.

The drilling equipment, camp fixtures and supplies were trucked in by road to Fort Chipewyan and the west down seismic lines conveniently located to the drill site. Very little vegetation was disturbed at any time.

TOPOGRAPHY AND COVER

The surface of the area is peneplaned to fairly even level approximately 65 metres above the Athabasca River except where incised by numerous steep walled meandering tributary streams. The elevation of the river, (Low Level), is taken from Ell's map as being 231.64 metres, while the of the immediate drill area on the upper level surface is 295 metres above sea level.

The land area has a dense cover of brush and soft wood leaf trees, mostly birch and alder, with occasional stands of spruce trees that have escaped the periodic forest fires. In some places dandy ridges, remnants of glacial eskers have a park-like grassland vegetation. The road to Bitumint follows along remnants of an esker for about 3 of the 5 mile length.

GENERAL GEOLOGY

The Athabasca Oil Sands of Cretaceous Age occupy the entire surface of the region. The oil impregnated sands of the McMurray formation from spectacular outcrops along the Athabasca River and its tributaries. The sands have been estimated to contain more than 300 billion barrels of heavy oil, and are generally considered to be the largest known reservoir of oil. There are 2 bituminous sand formations in the region but the upper, the Clearwater, has been removed by erosion from the drill area, which is actually near the northeastern boundary.

The oil sands are underlain by 800 ft. of limestone, shaley limestones, limy shales and limy muds, and a succession of gypsum and anhydrite beds, with some bituminous shales, to the Precambrian basement rocks.
Diamond Drill Hole No. 1 was drilled with a 41 inch Tri-cone bit down to 218’. Casing was set and cemented in accordance to ERCB requirements. B.Q. core was taken from 218’ to a final depth of 998’. The rig was closed down several days for Easter and then stuck in hole for about 10 days at which time Baroid of Canada Ltd. was called in to give chemical and technical service for 2 days. Completion of coring and logging was April 28, 1989.

SUMMARY OF DRILLING RESULTS

The purpose of the drill program was to locate, test and develop the source of gold purportedly found in the area. The location was chosen as being the most likely spot. From the data secured the following deductions seem to be logical:

1. No evidence of gold mineralization was found to be present other than what may be normal concentrations.

2. No evidence of any quartz veins was found in the sedimentary formations.

3. No evidence was found of any structural breaks, faults, brecciated zones, silicified zones, or zones showing effects of hydrothermal alteration.

4. The work done so far in the confined area does not conclusively prove that there is not gold present in the vicinity.

SEDIMENTARY ROCKS

Approximately 1,000’ of sedimentary rock is reported by other holes drilled in the area to lie on the Precambrian granite basement rocks in this area. At the surface is found the oil impregnated sands of the McMurray Formation, Lower Cretaceous in age, which is about 205’ thick in the drill area.

The McMurray is described as being arenaceous and of rather a coarse grain and varies from massive to thick bedded. The lower part is in many places cross-bedded, with beds dripping 5 to 40 degrees. There is no system to the succession of rich and lean bituminous sand beds in the sections through the sand formation which may contain from 0 to 305 by volume of heavy oil. Apparently the sand particles are surrounded by a film of water and the oil does not wet the sand, fortunately, making it possible to obtain a fairly high percentage of recovery of oil in the processing operations.
The sand formation contains irregular concentrations of marcasite (iron-sulphide), and where these concentrations have oxidized at the surface, stones and slabs of "ironstone" are found.

The McMurray oil sand formation lies unconformably on an old erosion surface of Upper Devonian limestones, shales, limy shales, shaly limestones and limy muds. Devonian time was marked by a submergence that spread the Appalachian seaway westward to the Mississippi Valley, and soon brought another vast Arctic flood creeping southward across western Canada by way of the Mackenzie Valley region in a seaway nearly 1,000 miles wide. The seaway, were barely awash, however, and at various times great arms of the sea were cut off and long periods of evaporation of the sea waters took place, laying down alternate layers of evaporites of gypsum, salt and potash brines. The Bitumont area was near the high water mark, however, and received only gypsum evaporites. McMurray has 230' of salt in salt wells but the bed thins out 26 miles north of McMurray. Further east in Saskatchewan over 1200' of salt was deposited as well as potash brines.

In such arms of the sea brackish water favored the growth of low forms of marine organic life which became buried in the marine muds and formed the bituminous (petroliferous) shales that are found in the zone from 767 to 928 ft. Such periods were interrupted frequently by the periods of evaporation as shown by the frequent bands of gypsum. Oil and gas were formed in the bituminous shales and have mostly migrated elsewhere. It seems possible that the oil now found in the Athabasca Tar Sands has migrated from its sources of formation at least partly from the underlying Devonian shales from dip down slopes many miles to the east southeast and south, for these formations thicken and deepen in those directions.

There is some question of the age of the lower part of the sedimentary formations for during the Middle Devonian and Upper Silurian apparently the same conditions prevailed and with no apparent unconformity of physical expression. Possibly a careful study of the fossil remains would settle this question.

PRECAMBRIAN BASEMENT ROCKS

The Precambrian rocks that make up the Canadian Shield from the bed rock for a land area of about 1,864,000 sq. mi. in Canada. The western edge of it surface outcrop is about 40 to 70 miles northeast of the property and here it is covered with about 1,000 ft. of sediments. Where it is exposed to the northeast it is a nearly flat, featureless plain with gentle undulations. While the topography is somewhat featureless, the composition is a complex aggregation of highly metamorphosed and deformed group of igneous intrusions, stock, dikes, sills, flows, and remnants of altered sedimentary formations.

STRUCTURAL GEOLOGY

No evidence of any structure was noted in this area by the writer. It was stated that a fault displacement was visible along the river bank a few miles north of the property (M.P. McIvorall). According to Contribution 118, Kidd, 1951; and Carightly, 1951, state that the eastern margin of oil impregnation coincides with a major depression on the pre-Cretaceous erosion surface, which trends in a northwesterly direction. Also that at the northern end of this depression in the vicinity of Bitumont Township 96, Range 10, the Clearwater and McMurray formations have been folded into a basin formed by post-Cretaceous collapse of the limestone. This suggests that a major depression
 existed before the oil sands were deposited and that they collapsed later, folding the oil sands. More discussion of this subject will be given under the subject GEOPHYSICAL PHENOMENA below.

Geologic history of the Precambrian Shield indicated that most of the orogeny structural dislocations also took place during Precambrian time, some down-folding of blocks took place here and there during submergences during Devonian, Silurian and Cretaceous time, but other than the depression mentioned in the above paragraph, none is known in this area. It is probable, however, that some fracturing took place. Presumably the land remained stable following the Post-Cretaceous uplift and it is believed that the even skylines represent the tertiary peneplain that followed this uplift. The great glacial period with its advances and retreats of enormous thickness of ice may have caused some buckling for it is known that elastic rebound is still continuing in some areas.

The presence of some fractures in the area can be surmised from the presence of the water holes discharging hydrogen sulphide gas. Surface waters percolating downward carrying organic acids and bacteria reduce the sulphates in the gypsum layers. There is no evidence that any of such fractures might have been subjected to the presence of any mineralizing solutions. On the other hand, if they should have been, the surface cover of Cretaceous oil sands would not be conducive to making them evident at the surface.

GEOPHYSICAL PHENOMENA

A copy of Sheet 74 1/4 of Geophysics Paper 440, being an Aero-Magnetic Survey, June to September 1952, by the Geophysics Division, Geological Survey of Canada, was obtained.

The expressions of magnetism are shown by contours on the map as recorded at flight altitude of 1,000 ft. above the surface. These variations are for the most part due to changes in the magnetic content of the rocks making up the basement, but may also be due to the distance to the basement and its altitude. Strong anomalies are probably due to an increased magnetic content, but small anomalies may be due to either or all of the above causes.

A considerable number of writers, Vacquier and others, have noted that when considerable geologic knowledge of a region is available, if applied correctly, interpretations of magnetic anomalies may yield information on maximum depth of sedimentary cover, location of rock contact including faults, and location of probable areas of differentiation and of mineralization when a locality is underlain by igneous rocks. They further reflect that an isoa-normal map indicates the structural history of the region.

The Aero-magnetic Map indicates that the center of a synclinal trough of low magnetic intensity (1200 gammas), lies exactly 1 mile west of the drill site. It strikes North 22 West and slopes upward slowly for 10 miles to the northwest, then steeply upward between magnetic highs of 3300 on the east and 2000 on the west. In the southwest its slope is gradual to 1560 at the bottom of the map area 4 miles south of Mildred Lake.

The property itself is on a gentle undulating magnetic ridge, 2200 to 2400, about 2 miles in width and trending northerly. To the east there are
several scattered oval shaped domes and depressions of small relief, 300 to 600 gammas.

It is thought by the writer that the major depression of the Pre-Cretaceous erosion surface, followed by Post-Cretaceous collapse during which the oil sands were folded, as set forth in Contribution 118, was probably diagnosed from the interpretation of the Aeromagnetic map. Nothing was mentioned however, about the structure which must have been necessary to have caused the Post-Cretaceous collapse of the limestone.

It is the writer's opinion that collapse could have taken place only from the leaching away of the limestones by solutions circulating through fractures, faults or shear zones, or from the leaching away of the gypsum by solutions circulating through the same structures. The simple truth is that if one takes place the other does also. It is clear that some fractures penetrate the gypsum layers reducing hydrogen-sulphide gas which bubbles to the surface from 3 wells known to the writer, all of which are within the depression zone.

It is known that there are no dislocations of such magnitude as to cause interruption of the oil sands, so that the structure deduced to be present is probably no more that a series of fractures. Neither do the contours show steep variations necessary to indicate faults of magnitude.

GENERAL COMMENTS

The possibility of finding gold in the limestones above the Precambrian surface has been an unexplainable enigma to the writer since the first examination of the property. This is not considered any unsurmountable obstacle from finding ore, however, since ore has been found many times in places that have been "firsts" either in types or locations.

All of the well-known gold camps of Canada are found in a metallogenic province of the Precambrian Canadian Shield extending more than 2,000 miles from Great Slave Lake to eastern Quebec. It was thought by the writer that the best chance of gold occurrence would be from gold veins within the Precambrian rocks themselves or from placer deposits accumulated on top of them. To find placer gold on such surfaces, it would have been necessary to find some type of channels of accumulation.

The only evidence here of any metallization is the presence of marcasite in the tar and its mode of origin is rather vague. It may or may not have had any direct connection with mineralizing solutions of hydrothermal origin. The fracture system indicated to be occupying the zone marked by the magnetic movements of late Cretaceous and Tertiary Epochs could have furnished the tectonic and magnetic sources for miners, though there is little surface evidence that this has happened.
In some notable instances slumps in limestone areas have been the loci where important ore bodies have been formed, i.e., the great zinc-lead deposits of the Mississippi Valley region, Pine Point, and others. Such ores frequently have marcasite and pyrite as gangue minerals. The hidden slumps are now traced out by geophysical methods, followed by geological study and exploration drilling. These methods have located important new lead and iron ore deposits in southeastern Missouri within recent years.

In this case there are present two possible indicators of favorable conditions of ore deposition, with several unfavorable. In the weight of geological evidence it is a bet, but not a very good one. Possibly it might warrant a thorough surface examination in the region from the mouth of the Illinois River Westward for 3 miles in search for further indications of mineralization.

PREVIOUS AND CONTEMPORARY DRILLING

By far the greatest amount of drilling in the area has been to test the oil sands, a subject beyond the scope of this report. A few wells were drilled to explore for oil in the underlying Paleozoic formations with a few reaching the Precambrian; most of these wells are also beyond the scope of this report. However, one such well was drilled on the east side of the Athabasca River at a surface elevation of 816 feet (248.7m) in Loc. R. Sec. 2, Tp. 96, R. 11 W4. It is designated Athabasca Oil Ltd. No. 1. Certain details concerning it in a report by Allan (1920) differ from those in a report by Eills (1926).

PREVIOUS AND CONTEMPORARY DRILLING

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<td>344.4 m (1130')</td>
<td>313.9 m (1030')</td>
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In addition Allan (1920) reported that the 25 feet of Precambrian granite carried $13.00 per ton in gold. At the then prevailing price for gold, this works out to 0.63 oz/ton. A statement (Appendix 4) sworn on January the 14th, 1945 at Fremont County, Courtland, Ohio apparently by one of the drillers of Athabasca Oil Ltd. No. 1 refers to two auriferous quartz veins five feet apart, three and one half feet thick, in limestone at a depth of 907 feet (276.5m). Recent examinations of the area at the reported site of Athabasca Oil Ltd. No. 1 revealed casing from two wells: One (CD-1) less than 30 m and a second (CD-2) about 210 m, east of the bank of Athabasca River. CD-1 fits the location of Athabasca Oil Ltd. No. 1 as reported by Allan (1920), Eills (1926), and a photostat of a Dominion well card. CD-2 appears to be Athabasca Oil Ltd. No. 2 according to a photostat of Dominion well cards, but some of the information given differs from that of Eills (1926). In all Athabasca Oil Ltd. drilled five wells in Tp. 96, R. 11 W4, but only No. 1 appears to have penetrated below the oil sands.

During the period of 1962 10 07 to 1963 01 09 four holes were drilled for Scurry-Rainbow Oil Limited (Elkstone, 1963) near CD-2 in order to check for the gold reported by Allan (1920) in Athabasca Oil Ltd. No. 1; only three holes reached the Precambrian.

In March 1966 Tanner Arctic Oil Ltd. drilled a hole about 1.3 metres.
south of Cb-1 to a depth of 296.3 metres. It bottomed in 1 metre of coarse-grained Precambrian granite. As far as is known the upper part of this hole was triconed with the core point not stated, but core recovery was good below 277.1 metres. Five samples from the cored interval are believed to have been submitted for assay with all gold concentrations in the low ppb range. No Analytical results of samples of cuttings from the known cored section have been reported; presumably none were sent analyses.

None of the depths to the Precambrian in the three 1962-63 holes and the one 1986 hole agrees with that reported by Allan (1920) for Athabasca Oils No.1, but are close to that reported by Ellis (1926). If Bradley’s sworn statement, apparently referring to Athabasca Oils Ltd. No. 1 is accurate, the gold appears to be in the methy formation, not in the Precambrian as reported by Allan (1920).

PROPERTY

The property consists of a Metallic Minerals Exploration Permit under agreement No. 688-060001 dated 1988 6 30 with a term of three years to 1991 7 9 and renewable for up to four additional years. This comprises the following area: Part of M Rg Twp Sec Part

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It totals 512 hectares according to the legislated conversion factor used by Alberta Energy and Resources. It is held in the name of Kenneth Richardson who was required to make a work refundable deposit of $10.00 per hectare or $5,120.00 for the first three years of the permit. If the renewal, assessment work at the rate of $20.00 per hectare is required in the first renewal period of two years and $15.00 per hectare in each of the second and third renewal periods of one year each.

Sufficient work has been done to keep all the property in good standing and cause the Alberta Energy and Natural Resources to make a refund of the $5,120.00 to the permit holder Mr. Kenneth Richardson.

The project has been a most interesting one, it is believed that the disclosures are sufficient to warrant the completion of the program of drilling further holes.

Respectfully submitted

Kenneth Richardson
Prospector
I, Kenneth Richardson, Prospector of the City of Edmonton in the Province of Alberta,

MAKE OATH AND SAY, THAT:

1. I have knowledge of the work done on Metallic Minerals Exploration Permit No. 6888060001 as described in the report of which this statement is part.

2. The expenses listed above were incurred in conducting work on Metallic Minerals Exploration Permit No. 6888060001.

Sworn before me at Edmonton, Alberta the 17 day of August 1990

[Signature]
A Commissioner for Oaths
[Signature] Kenneth Richardson
Exp. 7/9/92
Attn: Kenneth Richardson

43 Sample preparation  $ 3.00  $ 129.00
43 Gold geochem      6.75  290.25  OK

$ 419.25

A SERVICE CHARGE OF 3% ($1.00 min.) PER MONTH, 14% PER ANNUAL, WILL BE CHARGE CARRIED FORWARD FROM PREVIOUS MONTH.

THIS IS AN ACCOUNT FOR PROFESSIONAL SERVICES AND IS DUE ON PRESENTATION.
BARRINGER Laboratories (Alberta) Ltd.
SERVICES FOR THE EARTH AND ENVIRONMENTAL SCIENCES

359341 Alberta Ltd.
Box 11, Site 14
R.R. #4
Edmonton, AB
T5E 5S7

DATE: May 5, 1989

TERMS: NET 30 DAYS

AUTHORITY: K. Richardson

5 Au, Ag analysis FA AAA
5 Rock chip sample preparation

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**TOTAL AMOUNT DUE:** $757.62
BARRINGER
Laboratories (Alberta) Ltd.

SERVICES FOR THE EARTH AND ENVIRONMENTAL SCIENCES

359341 ALBERTA LTD.
Box 11, Site 14
R.R. 4
Edmonton, AB
T5E 5S7

DATE: April 24, 1989
PROJECT:

359341 ALBERTA LTD.
Box 11, Site 14
R.R. 4
Edmonton, AB
T5E 5S7

PERIOD COVERED:

SALES ORDER:

PROGRESS BILLING:

SHIPPING REPORT:

WORK REPORT:

5179-89

FED. SALES TAX:

Exempt

TERM: NET 30 DAYS

AUTHORITY: Ken Richardson

TO:

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TOTAL AMOUNT DUE: $993.60

INVOICE 3556
### BARRINGER Laboratories (Alberta) Ltd.

**Services for the Earth and Environmental Sciences**

- 359341 Alberta Ltd.
- Box 11, Site 14
- R.R.4
- Edmonton, AB
- T5E 5S7

**Terms:** Net 30 days

**Authority:** K. Richardson

**To:**

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**Date:** June 6, 1989

**Project:**

**Period Covered:**

**Sales Order:**

**Progress Billing:**

**Shipping Report:**

**Work Report:** 6203-89

**HST Sales Tax:** E. empt

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*INVOICE 3594*
**Delivery Ticket**

**No. DT 119749**

**Shipment - Invoice**

**Picked Up**

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**Customer Copy (Rig)***

**G. ROID OF CANADA**

**St. Albert, Alberta, TSN 273**

**Cal. y.**

**Alberta**

**(403) 263-8740**

**April 6/89**

**Sold to:**

359341 Alberta Ltd.

Kenneth Richardson

Box 39

St. Albert, Alberta, TSN 273

**April 6/89**

**Baroid**

23 Onoway, Alberta, 957-3398

**Signature:**

**Sub Total**

**Invoice Number**

**Invoice Tax**

**Total**

*NOTE: SCREENED AREA - OFFICIAL USE ONLY*
**Customer Copy (RIG)**

**Baroid of Canada, Ltd.**

Calga, Alberta

(403) 263-8740

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**Delivery Ticket**

No. DT 114969

**Shipment - Invoice**

**Date:** April 14/89

**Customer:** Leo Halonen Construction

Red Water, Alberta

**Shipped to:** Baroid

**Compl. Location:** Oil Field 3, Child 1

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<td>O. Bronin</td>
<td>50 lb</td>
<td></td>
</tr>
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**Remainder:**

**Sub Total:** 1186.32

**Notes:**

**Material received in good order signed by:**

[Signature]

**Date:** April 14/89
**SERVICE AGREEMENT**

**DATE:** April 14, 1989

**ACCOUNT NO:** SA 300841

**CUSTOMER:** Leo Hayoden Construction

**WEIIL LOCATION:** Rocky Area, AEA

<table>
<thead>
<tr>
<th>PRODUCT LINE</th>
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<tbody>
<tr>
<td>BAROID</td>
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<tr>
<td>OCF</td>
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<td>DOP 3 - GOL 0.1</td>
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<tr>
<th>DESCRIPTION</th>
<th>EQUIPMENT TYPE</th>
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<th>(%)</th>
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<tbody>
<tr>
<td>TECHNICAL SERVICE DAYS</td>
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<tr>
<td>RENTAL STANDBY</td>
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<tr>
<td>EQUIP INSTALLATION</td>
<td></td>
<td></td>
<td>100</td>
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<tr>
<td>EQUIP REMOVAL</td>
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**SUB TOTAL:** 750.00

**SIGNATURE:** [Redacted]

**DATE:** [Redacted]
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<th>Unit Price</th>
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<td>Cast iron fluid end complete with COPE DRILL BALL VALVES, VALVE COVERS, AND CYLINDER END GASKETS</td>
<td>1</td>
<td>1,240.00</td>
<td>1,240.00</td>
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<tr>
<td>PARTS ILLUSTRATION - H.C</td>
<td>1</td>
<td>.00</td>
<td>.00</td>
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<td>CHAMCO PRODUCT LIST - H.C</td>
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**INVOICE AMOUNT**

1,246.00
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<td>03/31/89</td>
<td>0.00</td>
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<table>
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<th>TRANSACTION DATE</th>
<th>PURCHASES/PAYMENTS/CREDITS</th>
<th>AMOUNT</th>
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<tbody>
<tr>
<td>03/30/89</td>
<td>INV#7856</td>
<td>816.00</td>
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<th>PREVIOUS BALANCE</th>
<th>PAYMENTS</th>
<th>PURCHASES</th>
<th>CREDITS</th>
<th>INTEREST</th>
<th>NEW BALANCE</th>
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<tr>
<td>0.00</td>
<td>0.00</td>
<td>816.00</td>
<td>0.00</td>
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<th>AGING</th>
<th>CURRENT</th>
<th>30 DAYS</th>
<th>60 DAYS</th>
<th>90 DAYS</th>
<th>OVER 90 DAYS</th>
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<tr>
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<td>816.00</td>
<td>0.00</td>
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## Statement

**Baroid of Canada**  
300, 840 - 7th Ave SW  
Calgary, Alberta T2P 3G2  
Telephone: 263-8740

---

### Reference Table

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<tr>
<th>Reference</th>
<th>Date</th>
<th>Gross Amount</th>
<th>Payments</th>
<th>Discounts &amp; Adjustments</th>
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<tr>
<td>2092.20</td>
<td>21</td>
<td>21st April 20</td>
<td></td>
<td>21st April 20</td>
<td>2092.20</td>
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</table>

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**Canadian Sales**

---

**AMOUNT DUE**

---

**Statement Date**

---

**Page**

---

**ACCOUNT**

---

**AMOUNT DUE**
SABINA AGENCIES LTD.
71-0796
71-0796
#200, 12-26 - 112 AVENUE
TELEPHONE:
ONTON, ALBERTA
(403) 454-0391

STATEMENT OF ACCOUNT:

359341 ALBERTA LTD.
C/O KEN RICHARDSON
BOX 11, SITE 14, R.R. 4
EDMONTON ALBERTA

DATE INVOICE NO. DESCRIPTION AMOUNT
02/27/89 COVERNOTE COMPOSIT MERC 675.00

Please return this portion with your payment

AMOUNT ENCLOSED $ ________________________

SABINA AGENCIES LTD.

AMOUNT PAST DUE PLEASE PAY
PAST DUE AMOUNT DUE

675.00

2.00% LATE CHARGE AFTER 30 DAYS SUBJECT TO .00 MINIMUM CHARGES

SAEINA AGENCIES LTD.

$75.00

Pwui w4urn mm peon vmthout paA.rmI

SAEINA AGENCIES LTD.

2.00% LATE CHARGE AFTER 30 DAYS SUBJECT TO .00 MINIMUM CHARGES

SAEINA AGENCIES LTD.

209, 12-26 - 112 AVENUE
ONTON, ALBERTA
(403) 454-0391
<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>PRICE</th>
<th>AMOUNT</th>
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<tbody>
<tr>
<td>Professional Service</td>
<td>400.00</td>
<td></td>
</tr>
<tr>
<td>Rent</td>
<td>10.00</td>
<td></td>
</tr>
<tr>
<td>Travel Expenses</td>
<td>30.00</td>
<td>440.00</td>
</tr>
</tbody>
</table>

SOLD TO: Mr. K. Richardson
SHIP TO: KAP - LAMAO, MIA

ADDRESS: 
VIA:

INVOICE 020556
MAY 17 89
Box 415, Redwater, Alberta, T0A 2W0

To: Mr. Kenneth Richardson

RR#4

Namao, Alberta

TO: Mr. Kenneth Richardson

stadia CONSTRUCTION LTD.

Construction & Maintenance of Oilfield Roads, Leases, Highways, Plantsites

Line Clearing & Brushing ——— Pipeline Surface Maintenance

December 13

Invoice No. 425-2

Purchase Order No.

Our W.C.B. No. 111802.

To backcharge for goods and services rendered on drilling program at Ft. McKay, Alberta.

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
<th>Amount</th>
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</thead>
<tbody>
<tr>
<td>Dec 21/10040</td>
<td>Universal Exploration...rig(Partial)</td>
<td>$10,092.00</td>
</tr>
<tr>
<td>29/10049</td>
<td>Arnold Bros...transport pipe</td>
<td>391.00</td>
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<tr>
<td>10/9790</td>
<td>Globe Drilling...</td>
<td>50.00</td>
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<tr>
<td>10/9791</td>
<td>Globe Drilling...pipe</td>
<td>788.94</td>
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<tr>
<td>30/1401</td>
<td>George Failing Co.</td>
<td>1,207.34</td>
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<tr>
<td>27/10014</td>
<td>Budget Rental...truck to transport pipe</td>
<td>525.00</td>
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<tr>
<td>09/cash</td>
<td>SC Ferry Corp. Leo's truck to Island</td>
<td>47.00</td>
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<tr>
<td>10/cash</td>
<td>SC Ferry Corp...trucks to mainland</td>
<td>47.00</td>
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<tr>
<td>Jan 33/10052</td>
<td>Larry McGuigan</td>
<td>3,000.00</td>
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<tr>
<td>25/10115</td>
<td>Longyear...#3156477</td>
<td>1,855.00</td>
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<td>16/1450</td>
<td>Larry McGuigan</td>
<td>2,000.00</td>
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<tr>
<td>Feb 20/10127</td>
<td>W &amp; D Pipe Sales #33992</td>
<td>590.18</td>
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<tr>
<td>22/10973</td>
<td>W &amp; D Pipe Sales #33992</td>
<td>172.94</td>
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<td>Mar 10/10218</td>
<td>Longyear...#6156399, 6156617</td>
<td>1,054.00</td>
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<tr>
<td>23/4437</td>
<td>Al Auto...used deck</td>
<td>305.00</td>
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<tr>
<td>12/9445</td>
<td>Larry McGuigan</td>
<td>429.00</td>
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<td>27/9795</td>
<td>Munnay Plumbing...#1651</td>
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<td>07/10131</td>
<td>Dennis Gable...tank</td>
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<td>Rental of Light Plant...Ebo Rental</td>
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<td>$20,172.65</td>
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Funds Received for Above Statement

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<tr>
<th>Date</th>
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<tr>
<td>December 22/86</td>
<td>359341 Alta</td>
<td>$4,800.00</td>
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<tr>
<td>22/86</td>
<td>359341 Alta</td>
<td>10,000.00</td>
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<tr>
<td>January 11/89</td>
<td>K. Richardson</td>
<td>4,200.00</td>
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<tr>
<td>17/89</td>
<td>K. Richardson</td>
<td>2,000.00</td>
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<tr>
<td>May 5/99</td>
<td>K. Richardson</td>
<td>5,170.65</td>
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<tr>
<td></td>
<td></td>
<td>$10,470.65</td>
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</table>
## Budget One-Way Truck Rentals

### One-Way Reservations Number
- 1-800-683-9331
- B.C. 1-800-683-8417

### Rental Information
- **Truck No.**: 14/35
- **Licence No.**: 6970 R.P.
- **Make**: 1 Ton Min.

### Flat Rate Includes
- **Days**: 2
- **Total Charge**: $10.00 / day

### Additional Charges
- **Gasoline**: $4.75

### Deposit
- **Deposit**: $125.00

### Additional Information
- **Tow Charge**: $425.00

### Terms and Conditions
- **Inter-Branch Charge**: $150.00
- **Additional Mileage**: $0.50 per mile
- **Additional Mileage**: $0.50 per mile
- **Advisory**: Any additional licences or permits required by provincial or state authorities are the responsibility of the renter.
<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Unit Price</th>
<th>Extended Price</th>
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<tbody>
<tr>
<td>Packing Cups</td>
<td>2</td>
<td>22.36</td>
<td>44.72</td>
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<tr>
<td>Gaskets</td>
<td>6</td>
<td>2.42</td>
<td>14.52</td>
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<tr>
<td>Cylinder</td>
<td>1</td>
<td>158.04</td>
<td>158.04</td>
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<tr>
<td>Plunger Cups</td>
<td>3</td>
<td>50.38</td>
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<tr>
<td>Courier</td>
<td>1</td>
<td>5.00</td>
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**CONFIRMATION ONLY PAID BY CERTIFIED CHEQUE**

**INVOICE AMOUNT**

395.72

**FEDERAL SALES TAX**

33.69

**TOTAL INVOICE AMOUNT**

429.41
SCREEN ID: ENR-LSAS

MINERAL RESOURCES

LSEM2200

RETRIEVAL SUBSYSTEM

USER ID: LSDJ141

KEY ID: 668 688906000

QUARTZ/METALLIC MINERAL EXPLORATION PERMIT

SPECIFIC WELL ID (OPTIONAL): ---

--------------------------------------- CURRENT STATUS ---------------------------------------

STATUS: ACTIVE

LAST UPDATE DATE: 1988-10-03

AGREEMENT AREA: $1.200.000

TERM DATE: 1988-06-07

CURRENT EXPIRY DATE: 1970-06-07

CANCELLATION DATE:

SECURITY TYPE: METALLIC MINERAL

SECURITY DEPOSIT AMT: $5,129,000

ENCUMBRANCE COUNT: 0

DC914172 HERE IS THE DATA YOU HAVE REQUESTED
SPALTED: Thin sections cut parallel to hole axis. Laminated structure.

SPALL: Thin sections cut normal to hole axis. Lamellar structure.

SEPARATION: Fine-grained, light to medium brown, with minor mica. Shaler appearance of the medium of spaced laminae through section. 367 - 388 ft. Banded, brownish gray, mottled, greenish-brown, interbedded with fractures.


DOLomite: Thin section stain with brown-brown or yellowish-brown, faintly birefringent. Light brown throughout section.

SPALTED: Massive, very fine-grained, light greenish-brown. Fracture in section at 445-450 and 451-454.

Dolomite: Plate-like or prismatic bands of buff color, ornamented flutes normal to hole axis.
DOLOMITE: Interbedded light grey and medium grey dolomite. Occasional narrow bands of silty dolomite. Widely spaced beds of gypsum at following locations: 498' - 503' and 578'. Locally there are narrow fracture-fillings of white fibrous gypsum.

578' - 602': Massive dolomite - light grey with buff tinge locally.

NATURAL CLEAR: Massive, crystal-clear salt, medium to coarsely grained.

DOLOMITE-LIMESTONE: Massive, dark and light grey dolomitic limestone with widely spaced narrow silty bands.

DOLOMITE: Interbedded light to dark buff colored dolomite and medium to light grey dolomitic limestone. Bedding normal to hole axis.

DOLOMITE: Thinly bedded (banded) light and dark buff colored massive fine grained dolomite. Brecciated over last 2 feet.

SILICIFIED LIMESTONE: Massive, very fine grained, light grey to white. Highly silicious. Widely spaced irregular fragments of light to medium brown, dolomitic limestone.

DOLOMITE & LIMESTONE: Silicified, narrow bands of medium grey and light to medium brown dolomite and limestone with bands of gypsum and shale.

GIPSYUM: Intermixture of brown, light and dark grey, fine to medium grained gypsum.

DOLOMITE: Interbedded massive and thinly bedded buff to medium and dark brown, fine grained dolomite. Bedding normal to hole axis.

612' - 833.5': Fragmental dolomite, various sized and shaped fragments ranging in size from 2 m.m. to 3 cm. across. Colors range from dark grey to buff to dark brown within a medium to dark brown dolomite groundmass. The fragments range from sharply angular to sub-rounded, elongate and rounded.
3.5' - 33.7':

**SHALE**: Dark brown to black, fine grained shale with narrow quartz bands and thin seams of pyrite. There is a ½" seam of very fine grained, massive pyrite at about 33.0'.

33.7' - 355.0':

**SHALE WITH LARGE FRAGMENTS OF LIMESTONE**: Dark brown to black shale with large (up to 3") rounded fragments of dark grey limestone.

355.0' - 686.0':

**INTERBEDDED SILEXICIOUS LIMESTONE, SHALE AND POTOMAC**. Mixture of medium brown, light red grey shale, limestone, and buff colored dolomite. Fine to very fine grained. Numerous narrow fracture fillings of white fibrous gypsum. Bedding normal to hole axis.

686.0' - 931.0':

**SHALE**: Medium to dark grey, fine grained, massive shale. Occasional 1/4" wide fracture filling of white fibrous gypsum.

931.0' - 966.0':

**SHALE**: Fine to medium sized with extensive dark reddish brown limonitic stained. Fine spaced zones up to 3" across which are not stained - here the shale is light greenish grey color. Numerous narrow fracture fillings of white fibrous gypsum, also bands up to 7" across, of fibrous gypsum. Section becomes sandy towards bottom.

966.0' - 983.5':

**ASSOCIATE**: Dark reddish brown, sandy groundmass with various sized angular fragments of feldspar. Zones of red hematitic staining. Locally vuggy.

983.5' - 998.0':

**PRE-CAMBRIAN BASEMENT**: Geosite red feldspar in dark green ferro-magnesian mineral intercalated. The feldspar is coarse grained, locally hematitic particularly along shear surfaces. The last 1 foot contains much white, milky quartz and is less geositic.

998.0':

**END OF HOLE.**

Allan H. Frew, P. Geol.