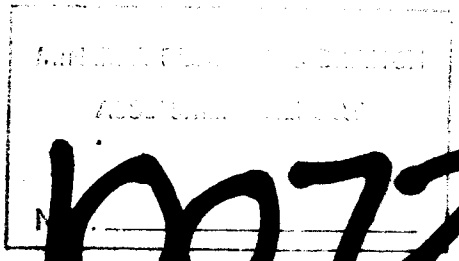
51-1254

# YMIR PROJECT

## 3191K

## 1981 FINAL REPORT



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G. W. TURNER

DECEMBER, 1981

GEOLOGICAL, GEOPHYSICAL, DRILLING

ASSESSMENT REPORT 1981
STEWART CLAIMS
NTS 82F6, 3
NELSON MINING DIVISION

$49^{o}15$ $117^{o}15$

OWNER: ERIC & JACK DENNY
OPERATOR: SHELL CANADA RESOURCES LTD.

G.W. TURNER

DECEMBER, 1981

QUALIFICATIONS OF AUTHOR

I, Gordon W. Turner, hereby state that, at the time of writing;

1. I am a geologist with the Minerals Exploration Department of Shell Canada Resources Limited, P. O. Box 100, Calgary, Alberta T2P 2H5.

2. I obtained a H.B.Sc. degree in Geology from Lakehead University, Thunder Bay, Ontario in 1978.

3. I have been employed in the field of minerals exploration since graduation.

4. I did personally supervise the work submitted in this report.

Gordon W. Turner
Minerals Exploration
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TABLE OF CONTENTS

TABLE OF CONTENTS
(Cont'd)

LIST OF FIGURES
(Cont'd)

## LIST OF FIGURES

# LIST OF APPENDICES

# LIST OF TABLES

# 1. INTRODUCTION

The Ymir property (Stewart Claims) was initially examined by J. M. Brander and P. S. Orgryzlo of Calgary Minerals Department, and subsequently optioned December 11, 1978 from E. W. and J. N. Denny of R.R. #1, Nelson, British Columbia. During the 1979, 1980 and 1981 field seasons an exploration program for a molybdenum bearing porphyry system was conducted the results of which are presented in the 1979, 1980 and 1981 Final Reports.

The 1979 program centered on known molybdenum occurrences/ showings, and on known molybdenum/tungsten soil geochemical anomalies. Work included geological mapping on a reconnaissance and detailed (1:5,000) scale, stream silt sampling, prospecting and a grid controlled soil geochemical, EM, and magnetometer surveys, the results of which are presented in the 1979 Final Report (Turner, 1980).

During the 1980 field program, the open ended soil geochemical anomalies detected in the 1979 field program were closed by sampling over extensions of the existing grids. A detailed structural and petro-geological survey utilizing a 50 m station interval (bedrock exposure permitting) was also completed over these grids.

A total of 282 m of BQ diamond core drilling was completed in three vertical holes and assay results of samples taken from the core indicate anomalous values of molybdenite in each hole, one which yielded 57 m of 0.465% molybdenite (Turner, 1981).

During the 1981 field season, a four wheel drive access road following the Quartz Creek drainage was completed allowing direct access to the property from the Town of Ymir.

The 1981 grid was established with the origin located at 960S 700W co-ordinate of the 1979 survey grid. A surveyed north-south base-line was established with 800 and 1200 metre tie lines to the west and east respectively at 100 m line separations. The lines were tight chained to 25 metre intervals and 4 and 6 lines established north and south of the origin respectively.

An induced polarization survey utilizing a 100 metre dipole-dipole spacing was completed over the new grid.

Detailed mapping was completed over the new grid lines in order to determine the location of the quartz stockwork zones, and establish if any associated alteration patterns were present. This survey was completed by B. Gaboury and J. Learn.

A total of 1623.5 m of BQ diamond core drilling was completed in 16 holes and indicates the presence of 204,000 tonnes at 0.370% $MoS_2$.

## 2. CONCLUSIONS

From the data presented herein it may be concluded that:

a) There is a molybdenum bearing porphyry system present on the property.

b) The Phase II Breccia represents either a deeply derived highly differentiated phase of the quartz monzonite porphyry or is an apophysis of the Phase I Breccia.

c) The intrusion of the Phase II Breccia was likely controlled by both the sediment/intrusive contact and a west-south-west fault structure.

d) The Phase II Breccia contains 204,000 tonnes at a grade of 0.370% $MoS_2$.

e) The area about the Phase I Breccia and the intervening contact between the quartz monzonite porphyry and hosting sediments has potential for a similar style of mineralization as is seen in the Phase II Breccia.

f) There remains a possibility that economic $MoS_2$ mineralization of the classical 'hood' type (Climax, Henderson) exists within the Phase I Breccia.

Respectfully submitted,

Gordon W. Turner
Geologist
Minerals Exploration
Shell Canada Resources Limited

## 3. PROPERTY

The Stewart claims were optioned from Eric and Jack Denny of R.R. #1, Nelson, British Columbia on November 8, 1978, according to Table 1.

Table 1
Schedule of Option Payments (Denny)

| Anniversary | Payment ($) | Remainder ($) |
|---|---|---|
| November 8, 1978 | $ 15,000.00 | $ 735,000.00 |
| November 8, 1979 | 25,000.00 | 710.000.00 |
| November 8, 1980 | 35,000.00 | 675,000.00 |
| March 1, 1982 | 45,000.00 | 630,000.00 |
| November 8, 1982 | 55,000.00 | 575,000.00 |
| November 8, 1983 | 575,000.00 | - |

Subsequent to findings on the Denny ground, a second option agreement was entered into on July 28, 1981 with S. Barclay of Balfour, British Columbia and involves lands directly to the northeast of the Stewart property. Details of this agreement are covered in Table 2.

Table 2
Schedule of Option Payments (Barclay)

| Anniversary | Payment ($) | Remainder ($) |
|---|---|---|
| July 28, 1981 | $ 5,000.00 | $ 190,000.00 |
| June 1, 1982 | 20,000.00 | 170,000.00 |
| June 1, 1983 | 20,000.00 | 150,000.00 |
| June 1, 1984 | 150,000.00 | - |

All lands covered under these two agreements appear in Table 3 and Figure 1a.

Table 3
Schedule of Lands

Denny

| Claim Name | Record Number | No. of Units | Hectares (Acres) | Record Date | Anniversary |
|---|---|---|---|---|---|
| Stewart 1 | 596 | 20 | 500 (1235.60) | 28/04/78 | 1982 |
| Stewart 2 | 597 | 20 | 500 (1235.60) | 28/04/78 | 1982 |
| Stewart 3 | 599 | 20 | 500 (1235.60) | 28/05/78 | 1982 |
| Stewart 4 | 702 | 6 | 150 ( 370.68) | 14/07/78 | 1982 |
| Stewart 5 | 888 | 20 | 500 (1235.60) | 28/11/78 | 1981 |
| Stewart 6 | 889 | 16 | 400 ( 988.48) | 28/11/78 | 1982 |
| Stewart 7 | 890 | 12 | 300 ( 741.36) | 28/11/78 | 1982 |
| Stewart 8 | 891 | 20 | 500 (1235.60) | 28/11/78 | 1982 |
| Stewart 9 | 892 | 20 | 500 (1235.60) | 28/11/78 | 1982 |
| Stewart 10 | 893 | 20 | 500 (1235.60) | 28/11/78 | 1982 |
| Stewart 11 | 894 | 20 | 500 (1235.60) | 28/11/78 | 1982 |

Table 3
Schedule of Lands (Cont'd)

Denny (Cont'd)

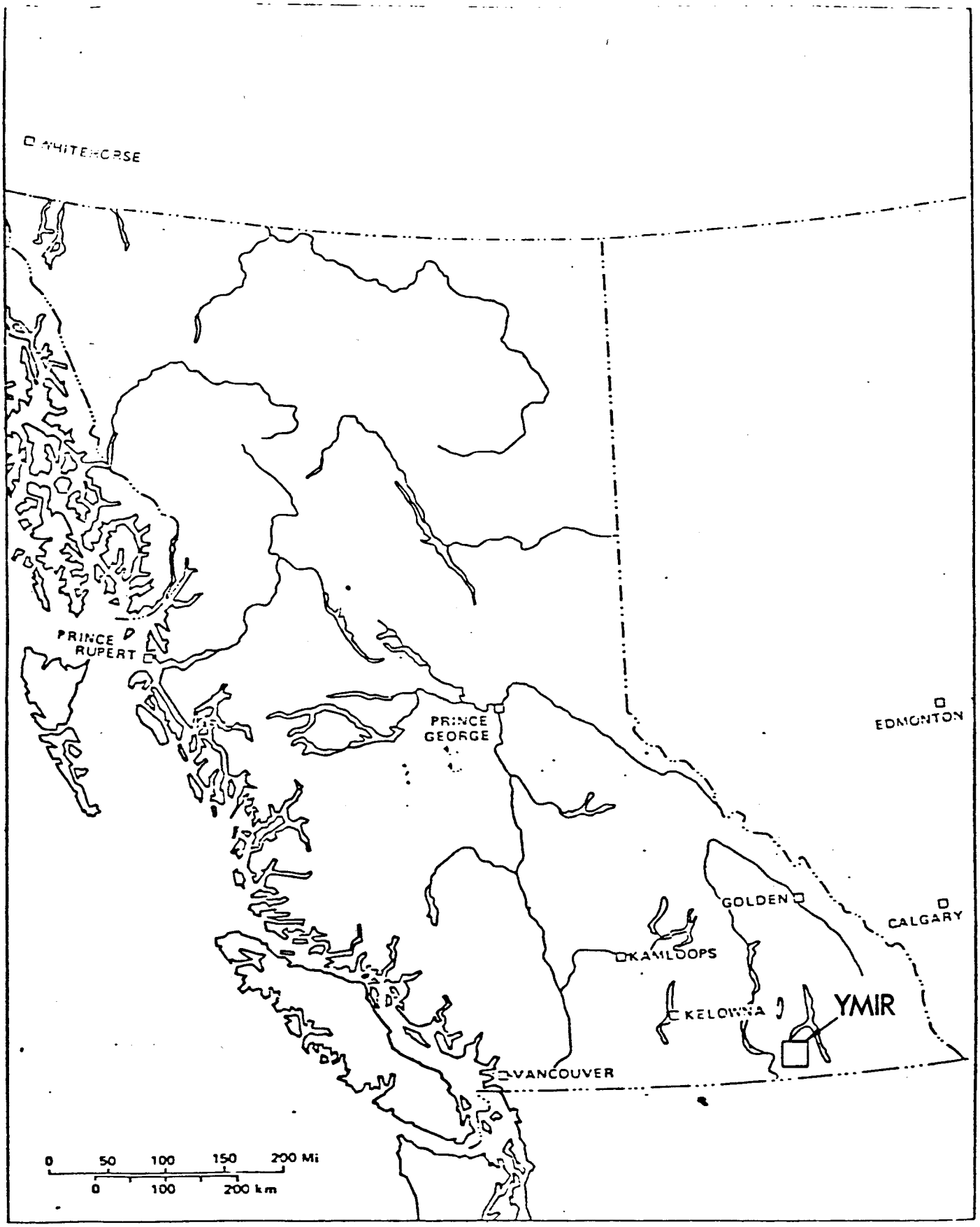
| Claim Name | Record Number | No. of Units | Hectares (Acres) | Record Date | Anniversary |
|---|---|---|---|---|---|
| Stewart 12 | 895 | 8 | 200 ( 494.24) | 28/11/78 | 1982 |
| Stewart 13 | - | 4 | 100 ( 247.12) | 24/04/79 | 1982 |
| Jock 1 - 2 | - | 2 | 50 ( 123.56) | 11/04/80 | 1981 |
| **Reverted Crown Grants** | | | | | |
| Houlton | L4626 | 1 | 18.61 (46.00) | 28/11/78 | 1982 |
| Princess No.1 | L4627 | 1 | 20.90 (51.64) | 28/11/78 | 1982 |
| Maggie | L5144 | 1 | 12.54 (31.00) | 28/11/78 | 1981 |
| Royal | L5322 | 1 | 20.90 (51.65) | 18/04/78 | 1982 |
| Free Silver | L2902 | 1 | 22.65 (27.89) | 18/04/78 | 1982 |
| Ruby | L2904 | 1 | 22.65 (28.07) | 18/04/78 | 1982 |
| | | 215 | 5295.00 (13428.27) | | |
| **Barclay** | | | | | |
| Bobbi | 662 | 6 | 150 ( 370.68) | 08/06/78 | 1986 |
| Mary | 663 | 2 | 50 ( 123.56) | 08/06/78 | 1986 |
| Kim 1 | 853 | 1 | 25 ( 61.78) | 22/11/78 | 1986 |
| Kim 2 | 854 | 1 | 25 ( 61.78) | 22/11/78 | 1986 |
| Kim 3 | 855 | 1 | 25 ( 61.78) | 22/11/78 | 1986 |
| Kim 4 | 856 | 1 | 25 ( 61.78) | 22/11/78 | 1986 |
| Kim 5 | 857 | 1 | 25 ( 61.78) | 22/11/78 | 1986 |
| Kim 6 | 858 | 1 | 25 ( 61.78) | 22/11/78 | 1986 |
| Muriel 1 | 872 | 1 | 25 ( 61.78) | 23/11/78 | 1986 |
| Muriel 2 | 873 | 1 | 25 ( 61.78) | 23/11/78 | 1986 |
| Muriel 3 | 874 | 1 | 25 ( 61.78) | 23/11/78 | 1986 |
| Muriel 4 | 875 | 1 | 25 ( 61.78) | 23/11/78 | 1986 |
| Betty 2 | 876 | 1 | 25 ( 61.78) | 23/11/78 | 1986 |
| Betty 3 | 877 | 1 | 25 ( 61.78) | 24/11/78 | 1986 |
| Betty 4 | 878 | 1 | 25 ( 61.78) | 24/11/78 | 1986 |
| Elenor 1 | 1,035 | 1 | 25 ( 61.78) | 04/05/79 | 1986 |
| Elenor 2 | 1,036 | 1 | 25 ( 61.78) | 04/05/79 | 1986 |
| Elenor 3 | 1,037 | 1 | 25 ( 61.78) | 04/05/79 | 1986 |
| Elenor 4 | 1,038 | 1 | 25 ( 61.78) | 04/05/79 | 1986 |
| Elenor 5 | 1,039 | 1 | 25 ( 61.78) | 04/05/79 | 1986 |
| Elenor 6 | 1,040 | 1 | 25 ( 61.78) | 04/05/79 | 1986 |
| Elenor 7 | 1,041 | 1 | 25 ( 61.78) | 04/05/79 | 1986 |
| Elenor 8 | 1,042 | 1 | 25 ( 61.78) | 04/05/79 | 1986 |
| Kim Fr | 1,303 | 1 | 25 ( 61.78) | 12/10/79 | 1986 |
| Bobbi 3 | 1,720 | 2 | 50 ( 123.56) | 06/06/79 | 1987 |
| Bobbi 4 | 1,721 | 4 | 100 ( 247.12) | 06/06/79 | 1987 |
| Bobbi 5 | 1,722 | 2 | 50 ( 123.56) | 06/06/79 | 1987 |
| Bobbi 2 Fr | 1,727 | 1 | 25 ( 61.78) | 16/06/79 | 1987 |
| Totals | | 39 | 975 (2409.42) | | |

Total lands to date includes 254 units covering a total area of 6270.00 hectares (15,837.69 acres).

## 4. LOCATION AND ACCESS

The Stewart Claims are located 29.5 km south of Nelson, B.C. at Latitude 49°15' and Longitude 117°15' (Figure 1b). Direct access to the property is provided by existing logging roads and by the Stewart Creek fire access road from the Trail - Salmo highway (No. 3) and the Nelson - Salmo highway (No. 6) respectively. During the 1981 field season 7.3 km of primary four wheel drive access road was completed accessing the property from the Town of Ymir, along the Quartz Creek drainage (Figure 2). All drill sites were accessed by four wheel drive road.

Base camp for the 1981 program was located immediately west of the Salmo - Nelson (No. 6) highway 19.0 km south of the Town of Nelson on lands leased from the Department of Transportation and Highways. The camp consisted of accomodations for up to 17 men, full kitchen and wash-room facilities and approximately 300 sq. m of warehouse spacing.




INDEX MAP: FIGURE 1

## 5. PHYSIOGRAPHY

The property is located in the Bonnington Range of the southern Selkirk Mountains and has a maximum elevation of 1925 m (Stewart Peak).

Five major drainages originate on the property, draining it to the east and west to the Salmo and Erie Rivers respectively. Quartz Creek and Boulder Mill Creek are believed to follow major east-west structural breaks, however the remaining drainages crosscut the regional stratigraphy at random.

All streams are characterized by steep gradients giving rise to coarse, heavy sediment loads thus making stream sediment sampling impossible until after spring run-off.

The highest elevation affected by glaciation in the area was reported by Daly (1912) at 2070 m and confirmed by Park and Cannon (1943, p. 35). It is therefore assumed that the property has been completly glaciated and this would account for the rounded appearance of the peaks and the presence of float on some portions of the property.

The dominant cover is hemlock, cedar, and spruce with heavy secondary growth of willow and devils club below 1500 m thus limiting bedrock exposure to 5% or less. Above 1500 m the cover thins to subalpine scrub spruce and open meadow yielding bedrock exposure from 30 to 50%.

## 6. WORK COMPLETED

Work on the Stewart Claims has been completed over a period encompassing three field seasons from 1979 to 1981 inclusive. A summary of the work to date including all surveys etc., appears in Table 4.

Table 4
Work Completed on the Stewart Property

| Date (Yr.) | Survey Type | Duration/Purpose |
|---|---|---|
| 1979 | Linecutting | 97.3 km chained to 25 m intervals. Completed to provide grid control for geologic, geochemical and geophysical surveys. |
| | Reconnaissance Mapping | 1:5000 scale. Completed to provide overview of entire property and to define any areas of interest warranting extra work. |
| | Detailed Mapping (Grid controlled) | 1:5000 scale. Completed to establish presence or absence of a favourable environment for porphyry molybdenum deposition. |
| | Soil Geochemistry (Grid controlled) | 1009 samples analyzed for Pb, Cu, Mo, W, Ag. Completed in order to establish any geochemical targets that warrant further work (ie. drill testing). |
| | Magnetometer Survey (Grid controlled) | 97.3 km at 12.5 m intervals. Aid in defining geologic contacts. |
| | Crone EM Shootback | 5.0 km, 25 m spacing. Test Pb-Zn-Ag showings for depth and continuity. |
| 1980 | Fracture density/ orientation (Grid controlled) | 97.5 km @ 25 m spacing. Determine if doming feature is present on the property. |
| | Systematic Bedrock Sampling (Grid controlled) | 97.5 km @ 25 m interval outcrop permitting. To establish a reference suite of hand specimens and to complete a petrographic study of areas of interest. |
| | Diamond Drilling | 263 m of BQ diamond drilling in three holes. To test three targets outlined by previous surveys. |

Table 4
Work Completed on the Stewart Property
(Cont'd)

| Date (Yr.) | Survey Type | Duration/Purpose |
|---|---|---|
| 1981 | Road Construction | 7.3 km primary access road. 4.6 km upgrading skid trails. To provide access to the property from Ymir and the Stewart Creek fire access road. |
| | Linecutting | 60.0 km IP Standard. To re-establish grid control for IP and geologic surveys. |
| | IP Survey | 54.0 km @ 100 m dipole-dipole spacing. 5.0 km 2 50 m dipole-dipole spacing. To delineate extensions of known mineralization and delineate any other possible targets. |
| | Geological | 1:2500 scale over an area of 1.43 $km^2$. To investigate possible IP targets, and define areas of intense stockwork/ alteration. |
| | Diamond Drilling | 1623.5 m of BQ diamond drilling in 16 holes. To delineate known mineralization and test targets detected in the IP and geological surveys. |

The claims were worked continuously from May 29, 1979 to September 13, 1979, from May 3, 1980 to July 30, 1980, from September 3, 1980 to November 5, 1980 and from May 3, 1981 to September 13, 1981. Including option payments, Shell has expended a total of $640,000 on the property to date.

# 7. GEOLOGY

## 7.1 General Statement

The geological summaries presented herein are based on field observations made by Shell personnel during the 1979 to 1981 field seasons. These summaries have been complimented by data from various government reports and maps (see references) and also comments from F. E. Mutschler, consultant to Shell Canada Resources Limited.

Contained within the Stewart property are members of the Rossland (Elise) volcanic formation, Hall sedimentary formation and localized intrusives of Nelson, Coryell, and post-Coryell formations. The volcanic and sedimentary sequences form conformable north-south linear 'belts' and occupy a regional synclinal trough, the axis of which bisects the Hall formation and has a gently plunging axis to the south (Little, 1960). North-south, east-west trending fault structures have transected the volcanic and sedimentary sequences and have apparently controlled the intrusion of the various stocks and pipes located within the property. All of the units represented on the property along with their respective ages are listed in Table 5. Only the quartz monzonite porphyry and breccia units will be dealt with in detail in this report as they are believed to have a direct relationship with mineralization found on the property. If more detailed information on the geology is required, the reader is referred to the 1979 and 1980 final reports (Turner, 1979, 1980).

## 7.2 Local Geology

In August, 1981, detailed geologic mapping at a 1:2,500 scale was completed over the re-established IP survey grid (Figures 4 to 7). For the purposes of this report, the classification of the various breccia phases will be the same as that used in the 1980 final report (Turner, 1980), ie. the larger elliptical mass to the southwest of the main quartz monzonite porphyry (qmp) stock is termed the Phase I breccia and the smaller mineralized body to the north termed the Phase II breccia.

### 7.2.1 Quartz Monzonite Porphyry (qmp)

Two expressions of this unit outcrop on the property, a small plug situated on the western portion of the property (Figure 3) at the contact of the Hall sedimentary formation with the Rossland (Elise) volcanic formation and a second larger stock situated in the east central portion of the property. The latter represents the focus of the 1981 program and will be dealt with in detail here.

The stock is roughly elliptical in plan and outcrops over an area of approximately $6.0 \times 10^6$ $m^2$ and grades from a coarse porphyritic phase to a fine to medium equigranular phase. Feldspar pheno-

TABLE 5

TABLE OF FORMATIONS: STEWART CLAIMS

| ERA | PERIOD | FORMATION | LITHOLOGY |
|---|---|---|---|
| Cenozoic | Tertiary (Eocene or later) | Coryell-Nelson | - Andesite dyking<br>- Feldspar, Quartz Porphyry<br>- Phase two breccia<br>- Phase one breccia<br>- Rhyolite porphyry |
| | | Intrusive Contact | |
| | | Coryell | - Quartz monzonite porphyry<br>- Biotite augite monzonite |
| | | Intrusive Contact | |
| Mesozoic | Cretaceous | Nelson | - Feldspar porphyry |
| | | Intrusive Contact | |
| | Jurassic (Middle & Upper) | Hall | - Argillite<br>- Sandstone<br>- Quartzite<br>- Pebble conglomerate<br>- Skarn |
| | | Conformable Contact | |
| | (Lower) | Elise (Rossland) | - Basalt/andesite flow<br>- Tuff<br>- Lapilli Tuff<br>- Agglomerate<br>- Local Skarn |

crysts are often incompletely developed containing fine feldspar and quartz. Many of the phenocrysts display a distinct zoning (normal) from $An_{12}$ to $An_{24}$ (Turner, 1979) and is emphasized where the sericitic alteration of the phenocrysts is intense imparting various shades of green to the individual zones.

The groundmass is comprised of fine grained potassic feldspar, plagioclase and quartz with minor magnetite, sphene, augite, secondary biotite and pyrite. In places, concentrations of myriolitic cavities were documented, however there appeared to be no spatial relationship to either the quartz stockwork or mineralization. Quartz phenocrysts between 0.5 to 2.0 cm in diameter were found at certain localities and a rough correspondance with the areas of intense stockwork was noted indicating that they could have been introduced at the same time of emplacement as the quartz stockwork.

#### 7.2.1.1 Quartz Stockwork Zones

During the 1981 geological survey (B. Gaboury, J. Learn), two distinct areas of developed quartz stockwork were delineated and one was tested to a depth of 95.4 m in diamond drill hole 81-16 (Figure 5). These two zones appear to represent a random crackle stockwork emplaced after the quartz monzonite porphyry had partially crystallized as in some localities the veinlets appear to diffuse into the hosting quartz monzonite porphyry.

The veinlets may be traced over a few centimetres or several meters and consist of a fine white to clear quartz which in places is molybdenite-pyrite bearing (Figures 4 and 5). The stockwork is abruptly terminated by the Phase II Breccia indicating a later genesis for this intrusive, however the presence of a weakly developed quartz stockwork (DDH 80-2, 81-14) which transects this breccia suggests that it was emplaced soon after the areas of the developed quartz stockwork, perhaps even as the final intrusive stage associated with the stockwork emplacement.

### 7.2.2 Breccia Phases

Two intrusive breccia types are represented on the property, a large elliptical mass which forms a topographic high in the centre of the property and a second smaller elongate body, which has formed sub-parallel to the northwest qmp/sedimentary hornfels contact. It is not known whether these phases represent separate entities or if the latter is an apophysis of the larger breccia body.

In order to remain consistant with the 1980 classification, the terms Phase I and Phase II Breccia will be incorporated within this report.

7.2.2.1 Phase I Breccia

This classification refers to the larger of the two breccia phases which outcrops in the east central portion of the property over an area of approximately 7.5 x $10^5$ $m^2$.

This unit appears to represent a single phase intrusive event as evidenced by its apparent uniform fragment composistion and distribution. The fragments are angular to sub-rounded and consist of (in decreasing order of abundance) argillite, hornfels, skarn, quartz monzonite porphyry and rhyolite, however the latter is believed to represent an altered equivalent of the argillite fragments. Size varies anywhere from less than one mm to several tens of metres in diametre. Truncated molybdenite pyrite bearing quartz veinlets occur within some fragments and are abruptly terminated by the matrix material. Similar veinlets also transect both the fragments and the matrix forming a sporadic, weakly developed stockwork.

The matrix is inequigranular with pyroxene amphibole epidote rich and garnet plagioclase rich domains. The pyroxene amphibole epidote rich domains are mildly foliated allitriomorphic granular with pervasive alteration as epidote growth and sericitization of plagioclase. The silicified zones are of recrystallized micromosaic quartz and also contain interstitial cavities filled with a fluorite precipitate.

The entire unit has been recrystallized and contains up to 5% pyrite in places.

7.2.2.2 Phase II Breccia

This zone was first detected in the 1980 diamond drill hole 80-3 and subsequent to this further delineated in 13 additional diamond drill holes totalling 1359.5 m. These holes outlined a linear and essentially vertically dipping body 515 m in length by approximately 20 m in thickness and of an undetermined depth. The structure appears to be compositionally gradational between three distinct breccia phases, a unit similar, if not identical, to the Phase I breccia, a second coarser, blocky non-rotated breccia, and a final highly fragmented, well mineralized almost vein type breccia. The second and third breccia phases appear to be gradational into one another and may in fact represent a single event.

Overall, the unit contains angular to subrounded fragments of (in decreasing order of abundance) quartz monzonite porphyry, hornfels, skarn, aplite, and pyrite-molybdenite and vary in size from one metre to less than one millimetre in diameter. Both fragments and fragments plus matrix are cross-cut by sporadic quartz molybdenite pyrite veinlets and some fragments (particularly the sedimentary fragments) are

transected by $MoS_2$ bearing fractures and also carry pyrite-pyrrhotite and molybdenite as disseminations.

From thin section work completed by Rob Raeside, it was found that the potassium feldspar phenocrysts consisted of dominantly perthite indicating a region of crystallization where the confining pressure ($P_1$) exceeded five kilobars (kb). The matrix however consists of potassium feldspar as microcline and thus indicates a subvolcanic environment of crystallization. Also the presence of significant quantities of sericite indicate the presence of quantities of water during crystallization and so indicates a subvolcanic environment of formation.

7.2.2.3 Late Dyking

Lamprophyre dyking was intersected in several of the holes and its description is presented in Appendix II, TS-135.

## 7.3 Alteration

For the purposes of this report, the alteration assemblages will be dealt with according to their association with either the breccia phases and/or the quartz stockwork zones.

The alteration assemblages although widespread, are subtle and so remained undetected until a large scale petrographic study (Turner, 1980) was undertaken and the total distribution of these assemblages realized.

### 7.3.1 Quartz Stockwork Zones

The major zones of quartz stockwork were discovered in the 1981 survey jointly covering an area of approximately 90,000 $m^2$. The zone represents a major crackle stockwork south of the Phase II Breccia and occurs immediately east of the large Phase I breccia (Figure 5).

The most intense alteration is a potassium metasomatism as either a pervasive flooding or as restrictive envelopes (Figure 6). Closely associated with this alteration type is an (argillic) sericitic replacement of feldspar which imparts a deep to light green color to the rock and accentuating the normal zoning within the phenocrysts. Carbonate occurs as a vein selvages associated with sections of the stockwork and as actual 'ribbon' structures within some of the veinlets themselves. Pyrite was found as disseminations proximal to and intimately associated with the veinlets but rarely exceeds 0.5% of the total rock composition.

### 7.3.2 Phase I Breccia

This unit has been completely saussuritized and silic-

ified, the silicification occurs dominantly as a flooding of the matrix material and less as a sporadic quartz stockwork. Pyrite and trace amounts of molybdenite and scheelite are associated with the silicification as either disseminations within the matrix or vein selvages associated with the quartz stockwork. Where the molybdenite occurs as disseminations or 'wisps' within the matrix, it shows a distinct preference as 'rims' along the margins of the fragments. Carbonate was found to have healed some fractures and to associate with the quartz veining as ribbon structures within the veinlets.

### 7.3.3 Phase II Breccia

This unit is characterized by intense quartz-sericite-pyrite alteration in both the matrix and the fragments, the sericite imparting a light to dark green color to both as a replacement of original plagioclase and k-feldspar. Quartz occurs as a flooding of the matrix and pyrite occurs as fine disseminations and as pegmatitic segregations with quartz and feldspar. Secondary hydrothermal biotite occurs throughout both fragments and matrix as fine fetted masses.

Carbonate is present throughout the matrix material and in fractures similar to that observed in the Phase I Breccia.

## 7.4 Mineralization

The various types and styles of mineralization have been covered in detail in previous reports and so will not be dealt with in detail here (Turner, 1980). Only a brief outline of mineralization will be discussed with an emphasis placed on the molybdenite occurrences.

Pb-Zn-Ag occurrences were noted at several localities and occur as fault hosted fissure veins which effectively encircle the qmp stock (Figure 3). Extensive workings exist on the Free Silver, Ruby and Royal crown grants, as open cuts and adits. Other localities include the Trask workings (Quartz Creek), the north Phase I Breccia area, and the eastern qmp area.

Tungsten occurs primarily as scheelite in the Arrow Tungsten skarn located immediately north of the Phase II Breccia zone and as sparse disseminations in both breccia phases. DDH 80-3 was found to contain 57 m of 0.036% $WO_3$ as well.

Gold mineralization occurs in the Clubine Comstock workings in the southeast portion of the property which occurs as free gold associated with sulphides in broken quartz vein adjacent to an augite porphyry dyke. Values of up to 90 gms/tonne over 40 cm has been reported in old records (B.C.D.M. Annual Report, 1932) and the property has remained dormant since 1945 (Appendix I).

Molybdenite mineralization has been found in weak association

with the extensive quartz stockwork zones (described in section 7.3.1) as vein selvages and as disseminations within the qmp. It has also been located within the Phase I Breccia as wisps within the matrix, as selvages along terminated quartz veinlets within the fragments with quartz veinlets which transect both fragments and matrix, and as actual molybdenite-quartz fragments.

The most extensive zone of molybdenite mineralization found to date, is located in the Phase II Breccia, and forms a podiform, vertically dipping zone. The mineralization is expressed primarily as fine disseminations within the matrix but also occurs as selvages associated with quartz veinlets transecting fragments, transecting both fragments and matrix, as disseminations within fragments, and as fracture fillings within hornfelsic and skarnified fragments. It is not known if the mineralization located within the fragments has been introduced by the same fluids responsible for the matrix mineralization, or represent mineralizing events prior to the breccia emplacement. The molybdenite also displayed a preference for crystallizing about fragment margins and in places, a molybdenite 'rind' encompasses entire fragments. Finally, pure $MoS_2$-silica fragments were noted within the breccia at several localities.

In the 1980 report it was proposed that these mineralized fragments represented a transport from depth of highly mineralized material from a possible lower zone. From the drilling completed in 1981, it would appear that a transport of this type is unlikely and that the fragments are a result of either a collapse into the breccia or a reomorphic phenomena within the breccia itself, i.e. a continuous mineralizing and then auto brecciation of the host material as the breccia rose.

Pyrite and pyrrhotite occur with the molybdenite as disseminations within both breccia phases (concentrating to a higher degree in the Phase I body) and as both vein selvages and disseminations in weak association with the quartz stockwork within the qmp.

## 7.5 Discussion

The most important aspect of the Stewart property is the genetic implications for the mineralization found within the Phase II Breccia as this determines the exploration potential of the property as a whole.

From thin section work completed on core samples taken from diamond drill holes (Appendix II), certain pertinent facts were obtained and are included in this discussion.

The presence of microcline in the groundmass of both the Phase II Breccia and the qmp indicates a subvolcanic environment of crystallization for each. However, the presence of perthitic phenocrysts

indicates a deep source for their crystallization.

A section taken from diamond drill hole 81-13 indicates a hypersolvus genesis for the quartz monzonite however this hole is removed from the Phase II Breccia by approximately 500 m and is located directly within the main intrusive mass.

It would appear initially that a paradox exists within the intrusive itself, where the central zone contains direct evidence of a subvolcanic crystallization whereas the Phase II Breccia indicates a deep source for the phenocryst crystallization ($P_1 \geq 5$ kb or approximately 10 km of overlying strata) but a subvolcanic environment for the groundmass crystallization.

A possible explanation for this could be as follows. Consider an intrusive at approximately 10 km depth (Figure 8a) crystallizing phenocrysts of a perthitic composition. As crystallization progresses, the melt progresses upwards as a diaphir concentrating a volatile phase above it (Figure 8b). Once the rising melt reaches a subvolcanic environment, the volatile presence would exceed the load pressure and hydrofracturing event take place. This would allow the melt to contract, and effect an emplacment of a quartz stockwork zone and an immediate crystallization of the upper portion of the qmp melt (Figure 8c) and thus 'reseal' the system containing a lower crystal mush. The construction of the melt would effectively weaken the contact between the melt and the host material and perhaps allow a migration of a lower crystal mush upwards (Figure 8d). As this mush stopes its way upwards, it could incorporate fragments of the host material and also the recently crystallized upper portion of the qmp. Similarly, it could act as the parent melt, concentrating a volatile phase above it and eventually, upon reaching a subvolcanic environment, hydrofracture and emplace a high grade zone above it (Figure 8d).

This explanation is supported by the observations outlined in Table 6.

Table 6
Significant Genetic Observations

| Observation | Significance |
|---|---|
| Microcline in groundmass of Phase II Breccia & host qmp with perthitic phenocrysts | Indicates a hypersolvus crystallizing environment for the groundmass ($P_1 \leq 1$ kb) & a subsolvus crystallizing environment for the phenocrysts ($P_1 \geq 5$ kb) |
| Presence of k-feldspars of microcline & perthite | Indicates hypersolvus crystallization for melt away from the Phase II Breccia. |

Table 6
(Cont'd)

| Observation | Significance |
|---|---|
| Presence of large amounts of sericite within Phase II Breccia & q mp with associated quartz stockwork. | Indicates a secondary source of $H_2O$ for the production of sericite (i.e. requires collapse of groundwater cell into system) & so indicates a subvolcanic environment for final crystallization. |
| Presence of crackle quartz stockwork within qmp. | Indicates that a major hydrofracing event took place. |
| Termination of main quartz stockwork zones by both breccia phases. | Indicates emplacement of breccias was after emplacement of crackle stockwork zones. |
| Presence of molybdenite within stockwork zone & in both breccia phases. The presence of a weak mineralized stockwork within both breccia phases. | Indicates that the emplacement of the stockwork & the emplacement of the breccias are closely related in time. |
| The presence of highly mineralized breccia veins within the Phase II Breccia. | May indicate a second release of volatiles above a rising breccia phase. |
| The presence of slightly rotated fragments healed by pure $MoS_2$ within Phase II Breccia. | Indicates a rapid cooling of the breccia such as a rapid release of volatiles above a melt would produce |

This explanation is at best tenuous but it does explain certain observations made during the course of field work and the later petrographic study.

The linearity of the Phase II Breccia may be explained by the presence of an east-west fault providing a channel for the breccia solutions. The presence of a fault structure would also explain the granulation of the breccia due to post emplacement movement.

# 8. GEOPHYSICS (by Sacit Saydam)

## 8.1 Introduction

Approximately 47 line km of IP/resistivity survey was completed in the Ymir Project area during the latter part of June and in July, 1981.

The IP survey was conducted in conjunction with a diamond drill program and it was hoped that the survey results would be somewhat useful in guiding the drilling operation. The geophysical program was prompted mainly as a result of some IP/resistivity response measurements done by the author on some mineralized and barren samples obtained from the project area[1]. The results of the 1980 laboratory measurements have indicated high IP and low resistivity responses for molybdenite and pyrite bearing samples in comparison to barren intrusive samples. It was already known that the surrounding sedimentary rocks would be a good source IP/resistivity anomaly due to their graphitic nature and high pyrite content.

A three man crew from Phoenix Geophysics Limited of Vancouver, B.C., was contracted to do the survey. A Shell geophysicist participated full time in the survey to oversee the field operation and also help with various field duties.

## 8.2 Equipment and Field Procedure

Two Phoenix IPV-1 receivers and a Phoenix IPT-1 transmitter with a 2.5 kW power generator were used to do the survey. Dipole-dipole array with an electrode separation of a = 100 m and n values of 1 to 3 were normally used. Percent frequency effects (PFE) were measured at frequencies of .3 and 5 Hz. Lines were normally 100 m apart and 1.8 km long. For detailing purposes, 500 m long portions of the lines 2+00S, 1+50S, 1+00S, 0+50S and 0+00 were surveyed using an electrode separation of 50 m.

## 8.3 Results

For each line, apparent resistivities, percent frequency effects and metal factors are presented in the form of pseudosections in Figures 9 to 34.

Contour maps of the same area also made for all n separations (n = 1 to 3) as shown in Figures 35 to 43.

Apparent resistivities obtained over the quartz monzonite and the intrusive breccia are mostly above 3000 ohm-m indicating a relatively undisturbed (unaltered) nature for the intrusive rocks. The high resistivity pattern on the contour maps (Figures 35 to 43) follows closely

[1] Memo by S. Saydam dated December 1980.

the geologic outline of the intrusives obtained as a result of geologic mapping. The sedimentary rocks enveloping the intrusive rocks have resistivities generally less than 1600 ohm-m and the overall pattern indicated by the low resistivity agrees well with the geologic outline of the sediments.

Some linear low resistivity trends within the intrusive are believed to indicate shearing and possibly phase change along these trends. One such low resistivity trough extends across the whole length of the grid in a north-south direction approximately 300 m east of the baseline. However, no PFE or metal factor anomaly is associated with the mentioned resistivity trough to attract any kind of interest.

The breccia zone which hosts the molybdenite mineralization is located at an area where transition from high to low apparent resistivities take place. Therefore, the mineralized breccia zone stands as a contact feature on the apparent resistivity maps, and is not associated with a distinctive response which separates it from the unmineralized rocks.

Percent frequency effect responses (PFE's) observed over the quartz monzonite and the intrusive breccia are generally less than 4% and relatively quiet indicating that a minor amount of pyrite is distributed more or less uniformly throughout the intrusive rocks. As the intrusive sedimentary contact is approached, PFE's gradually increase to about twice the values obtained over the main body of the intrusive, and they are mostly above 8% over the sedimentary rocks (Figures 35 to 37).

Again, the mineralized breccia zone stands as a contact feature on the PFE contour maps and the overall PFE anomaly pattern imitates the geology in the area, even more closely than the apparent resistivities.

Metal factor is not an entirely new parameter in that it is calculated from apparent resistivity ( a) and PFE using:

$$M.F. = \frac{PFE\ (\%)}{a} \times 1000.$$

Metal factor is a version of PFE normalized to apparent resistivity in order to eliminate the bias imposed by resistivity on polarizablity measurements of the ground. Therefore, metal factors reflect more closely the amount of polarizable material present in the ground than PFE's do.

Metal factors between 1 to 10 are contoured in Figures 38 to 40. Contour values greater than 10 are not included in order not to crowd the maps with extreme highs obtained over the sedimentary rocks. Metal factor response observed over the intrusive rocks is less than 2 and exceptionally quiet as can be seen from the contour maps, indicating the

lack of any appreciable amount of metallic mineral concentration within the main body of the intrusive. Again, the mineralized breccia zone is located where transition from low to high metal factors take place.

### 8.4 Conclusions

1. The IP/resistivity results closely imitate the geology in the area.

2. The intrusive breccia which hosts the molybdenite mineralization does not show up as a distinct IP anomaly. The IP results alone would not draw any attention to the mineralized area.

3. The apparent resistivity data delineated an extensive north-south trending linear feature, possibly a shear zone. No IP anomaly which could be attributed to metallic mineralization was associated with the mentioned feature.

4. Lack of an extensive conductivity anomaly over the intrusive suggests that there is no apparent evidence of large scale alteration or concentration of clay minerals within the intrusive.

## 9. DIAMOND DRILLING

A scheduled program of 1840.0 m of BQ diamond core drilling was completed to 1646.1 m in 16 test holes (Table 7, Figure 45). The initial purpose of the program was to test the genetic comparison of the mineralization detected in diamond drill hole 80-3, to the Boss Mountain type breccia pipe molybdenum system (Soregorelli, 1975). The results of this were negative. Thirteen holes were expended in delineating a breccia structure approximately 515 m in strike length, 20 m in width and 60 m in depth of which only an area of 60 m by 20 m by 60 m contained any significant molybdenite mineralization (Table 8).

All diamond drill hole cross-sections appear as Figures 46 to 51 and 52 to 57.

The remaining holes were completed in order to test two IP responses and a geological target indicated in the 1981 surveys (Sections 9.2 and 9.3 respectively). A complete photographic record of all core is included in Appendix IV.

### 9.1 Phase II Breccia

An initial fence of four holes (81-1 to 81-4) was completed in order to determine the strike and attitude of the breccia detected in diamond drill hole 80-3 and the surface trenching. These were determined to be 257° and vertical respectively. The remaining holes (81-5 to 81-12, 81-15) were drilled along strike and all, with the exception of holes 81-8, 10 and 12, intersected the breccia structure. The drilling outlined 204,000 tonnes of continuous molybdenite mineralization grading 0.370% $MoS_2$ in a small podiform body (Figures 58 and 59).

In diamond drill hole 81-7, a sharp contact between the Phase II Breccia and a breccia similar to the Phase I Breccia was noted at a depth of 62.5 m @ 45° to the core axis. An intersection of similar material was recorded in hole 81-8 between 62.3 m and 83.4 m depth. These intersections would appear to represent an apophesis of the large Phase II Breccia to the southwest. The sharp contact noted in hole 81-7 may represent either a phase contact, in which case the Phase II Breccia to the southwest would be a prime exploration target, or represent a contact between two separate events.

In hole 81-4, 30 m of mineralized quartz stockwork @ 0.11% $MoS_2$ was intersected in the footwall of the Phase II Breccia. However, check samples assayed by Chemex Labs (Alberta) Ltd. indicated only slightly anomalous $MoS_2$ through this section (38.2 m - 68.2 m, Appendix III). Due to previous analytical errors made by Geo Analytical Services, the Chemex results are likely more representative of the true $MoS_2$ content

of this core. However, $MoS_2$ values above 0.1% do exist within the stockwork zone and are contained in the breccia hangingwall over three to nine metre intervals, but as such represent small sporadic sections with little or no continuity.

Table 7
Summary of Diamond Drill Core Holes

| Hole ID | Azimuth | Dip | Total Depth | Location* | Target |
|---|---|---|---|---|---|
| 81-1 | 140° | -45° | 115.0 m | 0+21N 0+20W | Breccia:Attitude, extent |
| 81-2 | 140° | -45° | 92.3 | 0+6N 0+34W | Breccia:Attitude, extent |
| 81-3 | 140° | -45° | 92.3 | 0+7S 0+53W | Breccia:Attitude, extent |
| 81-4 | 140° | -45° | 78.0 | 0+25S 0+63W | Breccia:Attitude, extent |
| 81-5 | 157° | -45° | 113.7 | 0+05N 0+39W | Breccia:Attitude, extent |
| 81-6 | 157° | -45° | 126.2 (12.8) | 0+11S 1+24S | Breccia:Attitude, extent |
| 81-7 | 157° | -45° | 93.3 | 0+25S 1+59W | Breccia:Attitude, extent |
| 81-8 | 157° | -45° | 91.7 | 1+67S 4+11W | Breccia:Attitude, extent |
| 81-9 | 157° | -45° | 128.0 | 0+57N 0+05W | Breccia:Attitude, extent |
| 81-10 | 157° | -45° | 121.5 | 0+62N 0+37E | Breccia:Attitude, extent |
| 81-11 | 157° | -45° | 115.2 | 0+57N 0+05W | Breccia:Attitude, extent |
| 81-12 | 157° | -45° | 67.0 | 0+71N 0+55E | Breccia:eastern extent |
| 81-13 | 0° | -90° | 93.0 | 3+40S 3+00E | Quartz Creek anomaly & $MoS_2$ min. |
| 81-14 | 0° | -90° | 81.3 | 9+00S 4+25W | IP anomaly breccia/ sediment contact |
| 81-15 | 0° | -90° | 129.4 | 0+00 0+27W | Breccia: depth extent |
| 81-16 | 0° | -90° | 95.4 | 5+70S 1+90W | Quartz stockwork, alteration, $MoS_2$ min. |
| | | | 1,646.1 | | |

* Locations are given with reference to the IP grid co-ordinates.

All drill core is in storage at the home of Eric Denny
RR#1, Nelson, British Columbia, V1L 5P4

Table 8
Diamond Drill Holes, Summary of Mineralized Intersections

| Diamond Drill Hole ID | Depth of Intersection (m) G.A.S.[1] | Chemex | Width (m) G.A.S. | Chemex | True Width[2] (m) G.A.S. | Chemex | % $MoS_2$ G.A.S. | Chemex |
|---|---|---|---|---|---|---|---|---|
| 81-1 | 29 - 49 | N/S | 20 | N/A | 14 | N/A | 0.281 | N/A |
| 81-2 | - | - | - | - | - | - | - | - |
| 81-3 | 1 - 21 | 1 - 19 | 20 | 18 | 14 | 13 | 0.244 | 0.173 |
| 81-4 | 11 - 18 | - | 7 | - | 5 | - | 0.140 | - |
| | 41 - 68 | - | 27 | - | 19 | - | 0.112 | - |
| 81-5 | - | N/S | - | N/A | - | N/A | - | N/A |
| 81-6 | - | N/S | - | N/A | - | N/A | - | N/A |
| 81-7 | - | N/S | - | N/A | - | N/A | - | N/A |
| 81-8 | 61 - 82 | - | 21 | - | 15 | - | 0.217 | - |
| 81-9 | 58 -128 | 58 - 89 | 70 | 37 | 49 | 26 | 0.461 | 0.337 |
| 81-10 | - | N/S | - | N/A | - | N/A | - | N/A |
| 81-11 | - | 68 - 86 | - | 18 | - | 13 | - | 0.176 |
| 81-12 | - | N/S | - | N/A | - | N/A | - | N/A |
| 81-13 | - | N/S | - | N/A | - | N/A | - | N/A |
| 81-14 | - | N/S | - | N/A | - | N/A | - | N/A |
| 81-15 | - | - | - | - | - | - | - | - |
| 81-16 | - | N/S | - | N/A | - | N/A | - | N/A |

-: No significant mineralized intersection
N/S: No check samples taken
N/A: Not applicable

1: Geo Analytical Services
2: Assuming a vertically dipping body

9.2 IP Responses

Diamond drill holes 81-13, 81-14 were completed in order to test two IP responses detected in the 1981 survey. Diamond drill hole 81-13 was completed over known $MoS_2$ mineralization located in a tributary of Quartz Creek (IP grid co-ordinates 3+40S, 3+00E). This hole intersected sheared but relatively fresh qmp, transected by a sporadic $MoS_2$-bearing quartz stockwork. The IP low resistivity trough was later explained by a north-south trending fault which forms the creek valley.

The second IP test hole (81-14) intersected the Phase I Breccia/ /qmp/hornfels contact (IP grid co-ordinates 9+00S 4+25W). The core was found to contain up to 3.0% pyrite-pyrrhotite as disseminations within the breccia matrix and as selvages associated with a sporadic quartz stockwork which transects the core. The pyrite-pyrrhotite content, coupled with the contact of the units is believed responsible for the IP response.

9.3 Geological

During the 1981 geologic survey, an extensive quartz stockwork zone with associated potassium feldspar alteration, weak sericitic alteration, and scattered molybdenite mineralization was detected. Diamond drill hole 81-16 was completed at a location where the quartz stockwork is intense, the potassium feldspar alteration severe, and where molybdenite had been found at surface (Figure 45, IP grid co-ordinates 5+70S 1+90W). The purpose of the hole was to determine if a low grade $MoS_2$ ore shell existed beneath the essentially barren quartz stockwork zone. The hole did intersect mineralized stockwork for its entire length, however the $MoS_2$ values, although anomalous, are not of an economic grade (Appendix IV).

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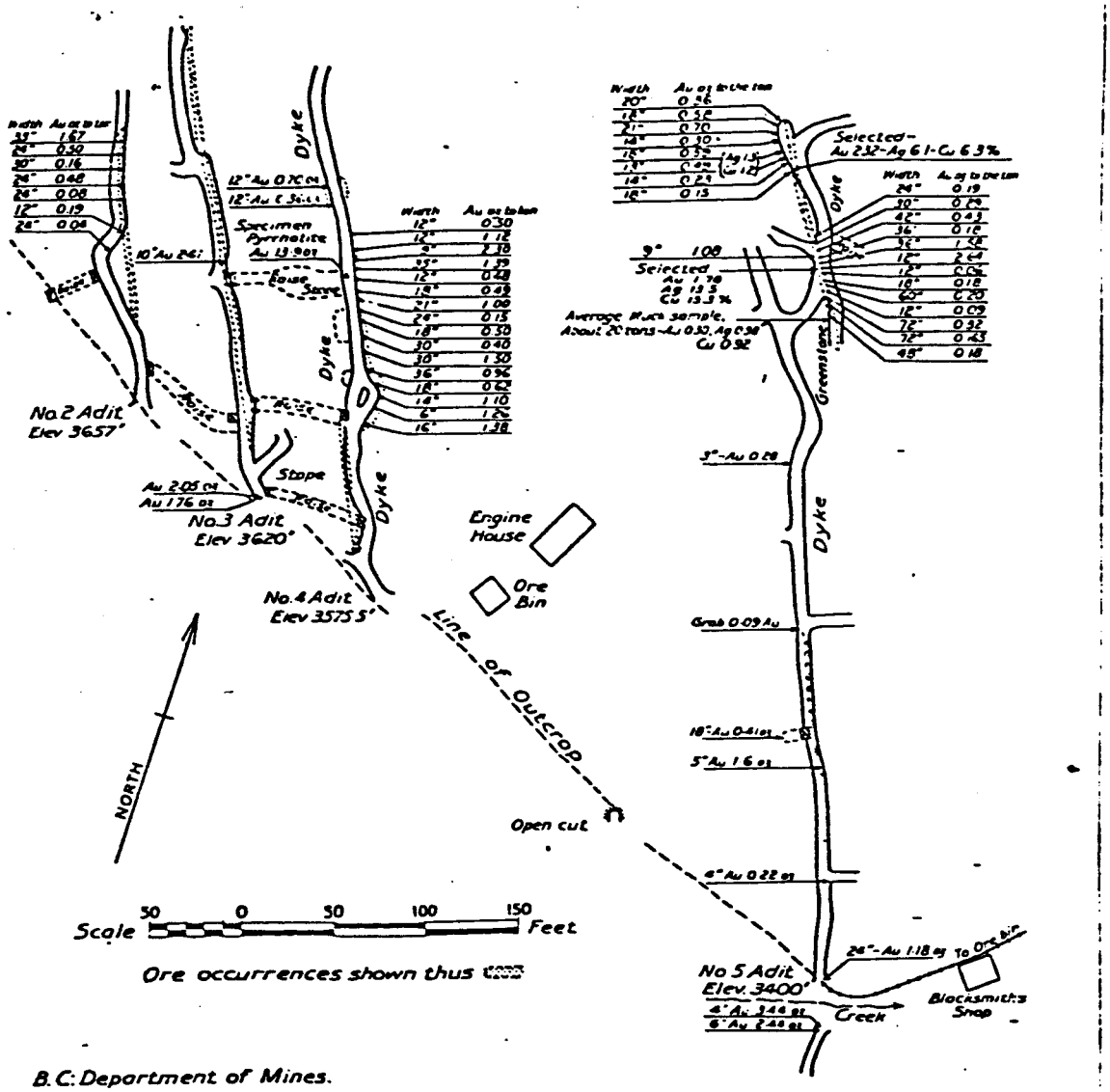
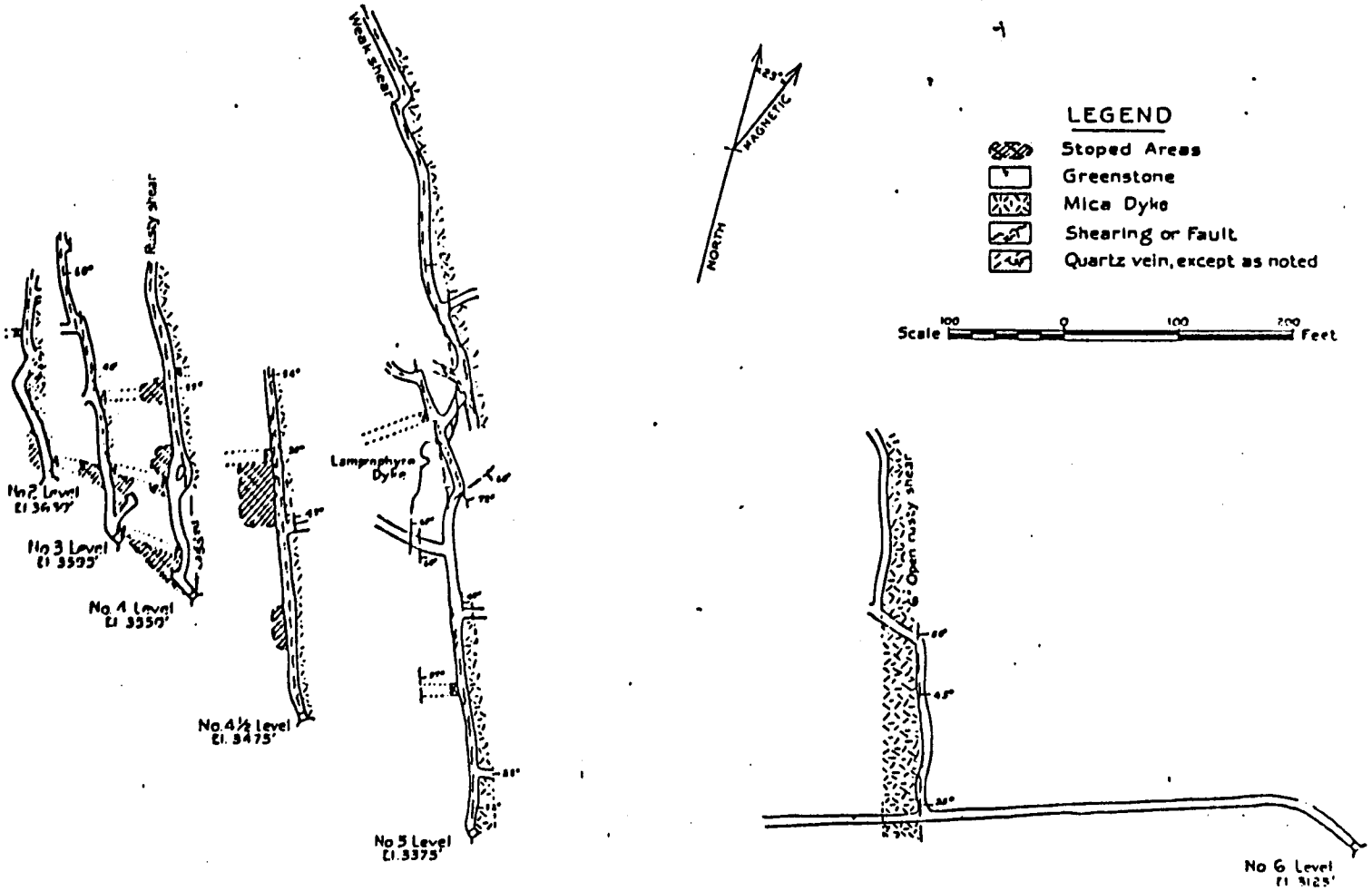
# APPENDIX I

## MINE PLANS
## CLUBINE - COMSTOCK Au

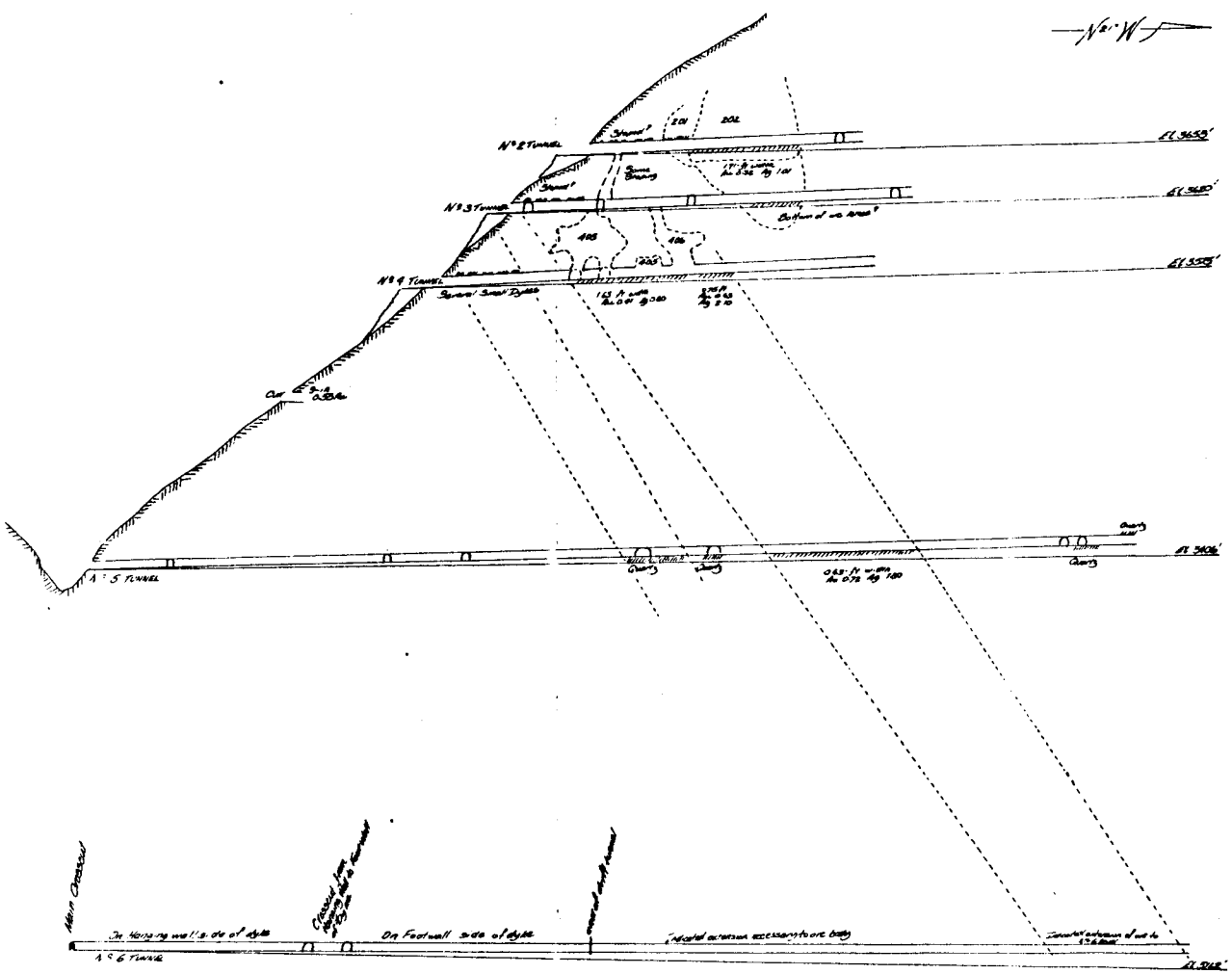



B.C. Department of Mines.

Plan View of (Boulder City) Clubine - Comstock Workings and Assay Values




Cluhine-Comstock Mines, Ltd. Plan of Underground Workings from Company's Plan.




Underground Plans for
Chibrai - Cosmos Gold
Mines Ltd

Scale 1in 40ft

Author and date
redacted

Your Project
letter dated [redacted] DF 1

# APPENDIX II

# THIN SECTION DESCRIPTIONS

Thin section descriptions were completed by Rob Raeside. All samples described are from diamond drill core recovered in the 1981 program and are listed in the following table.

Table
Thin Section Sample Locations

| Sample Number | Hole | Depth(m) | Description (Log) | Description (Thin Section) |
|---|---|---|---|---|
| TS-5 | 81-1 | 37.5 | breccia | granodiorite-porphyry |
| TS-35 | 81-3 | 46.6 | - | granodiorite-porphyry |
| TS-46 | 81-4 | 32.4 | - | qmp |
| TS-59 | 81-5 | 50.8 | - | qmp |
| TS-75 | 81-6(2) | 62.8 | breccia | quartz monzonite |
| TS-79 | 81-6(2) | 91.1 | qmp (k-spar) | syenite porphyry |
| TS-83 | 81-6(2) | 120.5 | qmp (vein) | veined qmp |
| TS-92 | 81-7 | 53.2 | breccia | quartz monzonite |
| TS-107 | 81-8 | 79.1 | breccia | microadamellite |
| TS-120 | 81-9 | 71.9 | breccia | quartz monzonite |
| TS-135 | 81-10 | 47.3 | andesite dyke | lamprophyre dyke |
| TS-148 | 81-11 | 20.4 | qmp | granite (quartz monz.) |
| TS-159 | 81-12 | 36.0 | qmp | diorite |
| TS-173 | 81-13 | 70.7 | qmp | microadamellite |
| TS-182 | 81-14 | 35.6 | breccia | calc-alkaline/silicate bx. |
| TS-197 | 81-15 | 66.1 | breccia | quartz monzonite |

3191K - Hole #81-1, TS-5 - 37.5 m Granodiorite-porphyry

| | | |
|---|---|---|
| Plag | 55% | $An_{33-36}$ 1 - 10 mm |
| K-spar | 15% | microcline & perthitic microcline 2 - 12 mm |
| qtz | 20% | poikilitic - interstitial < 3 mm |
| cpx | 2% | subhedral approx. 4 mm |
| alterations | 8% | calcite, sericite, muscovite |

Medium - coarse grained porphyritic rock with phenocrysts (> 6 mm diameter) in a groundmass (2 - 4 mm grain size). Phenocrysts are perthite and plagioclase, groundmass is quartz + microcline + plagioclase + augite. Groundmass is hypidiomorphic - interlocking.

Plagioclase (phenocrysts & groundmass) shows zoned growth but with minimal compositional variation (max. = 3 An %). Zoning is preserved by incorporated rim material and zones of preferential alteration.

K-feldspar - 2 feldspars - hypersolvus granodiorite (< approx. 4 kb $PH_2O$). Mild zonal structure (homogenized chemistry) preserved - subvolcanic, shallow level intrusion.

Quartz - interstitial, poikilitic material.

Augite - subhedral, severely altered to calcite, sericite, sphene.

Opaques - subhedral to euhedral, probably pyrite.

Accessories: sphene (strongly pelchroic - $Fe^{3+}$, REE enriched) apatite

Alteration: moderate sericitization of plagioclase, some patches recrystallized as muscovite. Calcite precipitation abundant. Augite - sericite + calcite + sphene

Deformation: fracturing with calcite precipitation. Granulation - pervasive but confined to patches.

3191K - Hole #81-3, TS-35 - 46.6 m Granodiorite-porphyry

| | | |
|---|---|---|
| Plag | 60% | $An_{36}$ 2 - 4 mm |
| K-fpr | 15% | perthite 5 - 10 mm +/microcline < 4 mm |
| qtz | 15% | interstitial 2 - 3 mm |
| augite | 2% | subhedral, 3 mm |
| alterations | 8% | sericite, calcite, hematite, muscovite |

Coarse-grained hypidiomorphic-granular to interlocking rock, with phenocrysts of perthite

Perthite - braided perthite, fine exsolution in orthoclase host.

Microcline - only in groundmass - indicates deep level phenocryst growth and shallower microcline groundmass growth.

Plagioclase - mildly zoned (now homogenized). Zoning identified by zones of preferred sericitization.

Quartz - interstitial, partly poikilitic

Augite - severely altered to sphene + calcite + sericite

Accessories: apatite, opaques (pyrite & hematite) zircon, sphene

Alteration: moderate sericitization of plagioclase and sericite re-crystallized as muscovite. Large patches of calcite precipitation. Augite almost completely altered. Veins of calcite, calcite+sericite, and sericite. Hematite? in calcite.

Deformation: fracturing, locallized severe granulation and re-crystal-lized.

3191K - Hole #81-4, TS-46 - 32.4 m Quartz Monzonite Porphyry

| | |
|---|---|
| K-pr | 45% perthite phenocrysts, some groundmass perthite & microcline |
| plag | 45% $An_{24}$, subhedral, groundmass |
| qtz | 10% interstitial |
| opaques | trace - dispersed |

Porphyritic rock with perthite orthoclase phenocrysts in a hypidiomorphic granular to granoblastic groundmass of microcline, perthitic orthoclase, quartz and plag. Perthitic phenocrysts and groundmass as well as non-perthitic groundmass microcline indicate crystallization in both subsolids (> $PH_2O$ = 4 kb) and hypersolvus conditions. Phenocrysts are probably deep level, groundmass crystallized at shallower levels. Plagioclase is unzoned - equilibrium crystallization. Mafic minerals - only opaques (pyrite), and a trace of severely altered and hematized augite.

Accessories: apatite, zircon, sphene

Alteration: extensive - sericitization of plag - much sericite altered to phengitic muscovite. Minor sericitization of perthite. Calcite precipitation in veins and patches.

Deformation: fracturing, with infill of calcite & sericite. Minor strain in quartz.

3191K - Hole #81-5, TS-59 - 50.8 m Quartz Monzonite Porphyry

| | |
|---|---|
| K-fpr | 55% perthite phenocrysts $\geq$ 8 mm groundmass microcline 1 - 8 mm |
| plag | 30% An $_{25 - 30}$? - badly altered 0.5 - 2 mm |
| qtz | 10% interstitial 1 - 2 mm |
| opaques, alterations | approx. 5% |

Porphyritic (2 phenocrysts > 8 mm) in a generally medium-grained groundmass 0.5 - 2 mm, some larger microcline and quartz phenocrysts. Perthite is the main phenocryst phase, braided, coarse exsolution. The remaining coarse grained microcline is not strictly porphyritic as it continued to grow during "quench" crystallization of medium-grained groundmass. Small quartz patches ("phenocrysts") incorporate plag and opaques. Groundmass of quartz + microcline + plag is granoblastic, shows good equilibrium crystallization texture, with quartz & tendency to be later. No mafic minerals, except opaques. These range from euhedral, surrounded by calcite rims to clumps of euhedral grains (rhombic & triangular) in calcite patches.

Accessories: very rare - apatite and sphene

Alteration: moderate to severe pervasive sericitization of both feldspars. More severe on plagioclase. Considerable muscovite (phengite) crystallization in radiating aggregates. Approximately 5% calcite precipitation.

Deformation: fractures with quartz infill but by fractures with calcite infill.

3191K - Hole #81-6(2), TS-75 - 62.8 m  Quartz Monzonite

| | | |
|---|---|---|
| K-pr | 40% | microcline |
| plag | 20% | $An_{25-30?}$ (altered, poorly twinned) |
| qtz | 35% | poikilitic & coarse grained |
| opaque, alteration | 5% | calcite, sericite, on pyroxene(?) |

Severely granulated inhomogeneous rock. Most of the section is composed of fine-grained plag, microcline and quartz, displaying well developed equilibrium fabric. Some areas consist of rhombic fine grained plagioclase grains (R1 >, & < quartz) poikilitically (poikiloplastically) enclosed by quartz - sieve structure (incomplete granulations). Other areas are medium - coarse grained, non-granulated, but with ragged grain boundaries and strained fabric.

K-feldspar = microcline, no perthite.

Plagioclase = oligoclase, but poorly twinned because of granulation.

Opaques = probably late - entirely surrounded by calcite. No mafic silicates.

Accessories: apatite (trace)

Alteration: extensive - calcite precipitation, pervasive sericitization, with recrystallized muscovite (phengite).

Possible paragenesis:

1. Coarse grained quartz-monzonite.
2. Granulation.
3. Sericitization, growth of secondary phengite.
4. Carbonate precipitation - often pseudomorphing phengite.
5. Fracturing and calcite veining.

Opaques probably almost simultaneous with #3 or #4, since not granulated, but mantled by calcite.

3191K - Hole #81-6(2), TS-79 - 91.1 m *Syenite Porphyry (possibly monzonite)

| | |
|---|---|
| K-pr | 80% phenocrysts of perthite, 5 - 8 mm Groundmass of microcline, 1 - 3 mm |
| plag* | 10% An approx. 25%, 1 - 3 mm |
| qtz | 3% interstitial, < 0.2 mm |
| opaques | 2% filamentous-acicular, skeletal, scattered < 1 mm |
| alteration | 5% calcite & sericite |

Porphyritic (approx. 15% perthite phenocrysts) with medium - coarse grained groundmass. Phenocrysts may be compound with plag inclusions (too severely altered to be definitive). Groundmass is uniform, allotriomorphic - granular, dominantly non-perthitic microcline, some plagioclase. Quartz is sparse and interstitial. Many grains are ragged, with incipient granulation (mortar texture).

Opaques: sparse, possibly rutile in many cases. No mafic silicates.

Accessories: apatite

Alteration: extreme, pervasive saussuritization of feldspars. Minor phengitic muscovite growth. Moderate (approx. 5%) calcite precipitation.

Deformation: granulation incipient. Minor quartz veining.

* estimate of plag is really difficult in this rock.

3191K - Hole #81-6(2), TS-83 - 120.5 m  Veined Quartz Monzonite Porphyry

| | Vein | Host Rock |
|---|---|---|
| K-fldspr | trace | 30% - perthite phenocrysts<br>- microcline groundmass |
| plag | trace | 35% |
| qtz | 98% | 35% |
| calcite | 2% | trace |

Two large (> 8 mm) phenocrysts of subsolidus perthite in a plag-qtz-microcline groundmass. Perthite phenocrysts incorporate* plagioclase grains which are corroded and zoned. Groundmass plagioclase is unzoned, groundmass k-spar is microcline, with tendancy to be interstitial to plag. Quartz is equally interstitial. Zoning in deep-level plag is $An_{37-40}$ cores to $An_{25-28}$ rims. Shallow level plag is $An_{24-26}$. Vein predominantly quartz, some strongly sheared. Small amounts of both feldspars also may be broken blocks. Includes opaques.

Accessories: sphene, apatite, zircon

Alteration: sericite and phengite on plag. Minor sericite on k-spars. Calcite precipitation - dispersed, minor.

Deformation: shearing of vein quartz. Fracture and infilling by calcite.

* Interpretative note: Since zoned plag is associated with perthite - zoned plag is also < 5 kb in origin. Could be the case in other rocks with coarse zoned plag also.

3191K - Hole #81-7, TS-92 - 53.2 m  Quartz Monzonite

| | |
|---|---|
| K-spar | 55% microcline-perthite |
| plag | 30% $An_{25 - 28?}$ (altered) |
| qtz | 10% interstitial |
| opaques | 3% vein |
| calcite | 2% alteration |

Granoblastic (allotriomorphic-granular) rock, medium grained, equigranular. Poor textural equilibrium indicates continuing recrystallization.

K-spar = microcline microperthite (only one generation) - hypersolvus

Plag = poorly polished slab & saussuritization virtually obliterate twinning structure. Probably oligoclase

Quartz = smaller grain size that feldspars, interstitial. No mafic silicates.

Opaques = confined to a vein, a few scattered clumps.

Accessories: sphene and apatite

Alteration: severe pervasive saussarite. Phengitic muscovite aggregates. Calcite precipitation.

Deformation: veining by calcite in fractures.

3191K - Hole #81-8, TS-107 - 71.9 m  Microadamellite?

| | | | |
|---|---|---|---|
| qtz | 20 - 60% | | |
| k-fpr | 5 - 40% | totalling | may be replaced |
| plag | 5 - 40% | between | by up to 70% |
| augite | 8% | 80 - 90% | calcite, musco- |
| opaques | 2%(approx) | | vite, sericite |
| biotite | trace | | |

Fine grained (< 0.1 mm) granoblastic rock, with general quartz-monzonite composition. Small grain size makes estimation of feldspars impossible. Orthoclase and plag (an approx 30 - 35%) both present. Fine grained granoblastic texture is probably metamorphic. There is a general alignment in some areas, by the parallel orientation of elongate grains. Texture is almost hornfelsic. Augite is a major phase, coarse grained (to 1 mm), poikilitic and/or corroded. It tends to be concentrated in coarse grained "veins". Opaque minerals (pyrite) may be primary).

Accessories: biotite, sphene, apatite

Alteration: severe, with large patches extensively sericitized, some parts recrystallized to muscovite. Calcite precipitation. Opaque precipitation, especially around augite.

Deformation: fine grain size is probably a result of extensive granulation.

3191K - Hole #81-9, TS-120 - 71.9 m  Quartz Monzonite(?)

| | |
|---|---|
| feldspars | 90% microcline, plag ($an_{30}$) in equal quantities? |
| qtz | 6% interstitial |
| calcite & muscovite | 4% |

Very extensively altered medium grained allotriomorphic-granular rock.

Feldspars: microcline and approx. $An_{30}$ plag both recognized. Microcline may be perthitic. They appear to be co-precipitant.

Quartz is interstitial, partly poikilitic.

Accessories: include sphene and apatite. No mafic minerals recognized.

Alteration: Extensive. Feldspars are almost completely sericitized/ saussuritized. Large patches are altered to muscovite and calcite. Fractures are filled with quartz, muscovite, trace of calcite. Opaque minerals are commonly filamentous, dispersed, although some more euhedral clumps may be primary.

Deformation: only fracturing.

3191K - Hole #81-10, TS-135 - 47.3 m Lamprophyre (vogesite?)

| | | |
|---|---|---|
| sanidine | 75% | groundmass |
| biotite | 15% | lath-shaped, euhedral |
| magnetite | 3% | euhedral cubes |
| quartz | 2% | interstitial |
| pseudomorphed phenocrysts | 5% | replaced by calcite. Originall diopside? |

Plagioclase absent, fine grained dyke rock. Biotite is the dominant mafic mineral and is extensively altered to Fe-chlorite. Larger platy phenocrysts are preserved - strong pleochroism indicates $Fe^{2+}$ rich (annite) biotites. Many rutile inclusions. Opaques are scattered, < 0.2 mm in diameter. Large phenocrysts (probably euhedral diopside or augite) are completely replaced by mosaic calcite and rare epidote. Groundmass is a feathery intergrowth of sanidine, with a trace of interstitial quartz. Sanidine = $2V_2$= -10°. Mild pervasive sericitization.

Alteration: biotite - chlorite, pervasive, moderate. Sanidine - sericite - pervasive, minor. Pyroxene - calcite + epidote, complete.

Accessories: trace of sphene, apatite, possibly allanite.

Deformation: none.

3191K - Hole #81-11, TS-148 - 70.4 m Granite (possibly quartz monzonite)

| | | |
|---|---|---|
| k-fpr | 60% microcline | estimates may be |
| plag | 20% (estimate) $An_{25 - 30}$ | out by $\pm$ 40% |
| qtz | 15% interstitial | |
| pyrite | 5% euhedral, radiating aggregates | |

Very coarse grained hypidiomorphic-interlocking fabric with generally subhedral microcline and plagioclase. K-feldspar shows general microcline twinning, not well developed. No perthite. Plag is probably mildly zoned, although severe saussuritization has obliterated primary textures. Quartz is only interstitial, sometimes approaching poikilitic. Opaques (pyrite?) occurs as ?primary euhedral cubes, and as small filamentous radiating aggregates. (This may be 2 opaque minerals.) The cubes are enclosed in feldpsar only - pre-quartz crystallization. The radiating aggregates are scattered throughout the rock.

Accessories: some sphene, > zircon, = apatite. Some ?biotite (now chlorite).

Alteration: pervasive moderate severe sericite and saussurite on the feldspars. (Some recrystallized as muscovite.) Complete chloritization of biotites.

Deformation: minor strain, giving quartz undulatory extinction. Fractures filled with sericite-muscovite-carbonate.

3191K - Hole #81-12, TS-159 - 36.0 m Diorite

| | | |
|---|---|---|
| plag | 65% | strong zonal structures 2 - 8 mm $An_{24}$ - $An_{33}$ |
| k-fpr | 27% | perthite 5 - 10 mm |
| quartz | 5% | interstitial < 1.5 mm |
| augite | 2% | 1 - 2 mm |

Coarse grained hypidiomorphic-granular rock. Plagioclase shows strong zonal structures, although small composistional variation. Normal, normal-oscillatory and irregular zoning. Grains are subhedral. K-feldspar is a braid perthite. No microcline. Contains inclusions of plag, augite, therefore is not a phenocryst despite large size. Homogenized relict zonal structure preserved. Quartz is interstitial, unstrained. Augite is subhedral, pale green (?salite or ?aegirine-augite-probably aegirine-augite).

Accessories: sphene - rounded, euhedral, 1 mm. Zircon - euhedral, square. ? - cubic, yellow-brown to colorless. (?garnet) - associated with fractured plagioclase grains.

Alteration: augite - mildly epidotized, chloritized. Plag - mild sericitization.

Deformation: none.

3191K - Hole #81-13, TS-173 - 70.7 m  Quartz Monzonite to Microadamellite

| | | |
|---|---|---|
| qtz | approx. 30% | |
| plag | approx. 28% | $An_{28}$ |
| k-fpr | approx. 40% | moderate microcline & perthite |
| chlorite (after biotite) | approx. 2% | |

Equigranular, non-porphyritic leucocratic quartz monzonite, with allotriomorphic-granular texture. Medium - fine grained. Simultaneous crystallization of k-feldpsar and plagioclase, with later crystallization of k-feldspar and quartz. K-feldpsars are microcline and perthite - hypersolvus quartz monzonite. Moderate amounts of mymekite developed on k-feldspar plagioclase boundaries destroys much of the original textural relationships.

Accessories: biotite (now chloritized) - Fe-chlorite, opaques (magnetite?), sphene, apatite, zircon.

Alteration: alteration of k-feldspars to sericite is mild, but pervasive. Biotite complete chloritized.

Deformation: minor comb-style albite twinning in plagioclase

3191K - Hole #81-14, TS-182 - 35.6 m  Calc-alkaline + calcite-silicate breccia

| | | | |
|---|---|---|---|
| Na-hornblende | 0 - 20% | bladed crystals | up to 2 mm |
| aegirine-augite | 0 - 20% | blocky grains | |
| epidote | 2 - 20% | alteration of pyroxene? | |
| garnet(?) | 0 - 40% | poikiloplastic, amorphous, 10 mm | |
| plagioclase | 10 - 25% | subhedral, $An_{30-45}$ | |
| quartz | 30 - 60% | granular, mosaic, < 0.2 mm | |
| opaques, fluorite? | 2% (approx.) | scattered, anhedral | |

A very inhomogeneous, inequigranular rock, with pyroxene, amphibole and epidote-rich and garnet, plagioclase-rich domains. Amphibole-rich areas are mildly foliated, allotriomorphic-granular. Pyroxene-rich areas are blocky, allotriomorphic, with much alteration, epidote growth, sericitization of plagioclase. Quartz-rich areas are of recrystallized micromosaic quartz.

Alteration: variable from domain to domain, but generally pervasive. Interstitial cavities contain ?fluorite? preciptate.

Accessories: include sphene, apatite, zircon, allanite, fluorite.

Deformation: rock is probably a breccia with components of several igneous and/or metamorphic rocks. No present evidence of deformation - complete recrystallization. Individual fragments are surrounded by heavily epidotized and altered material.

3191K - Hole #81-15, TS-197 - 66.1 m Quartz Monzonite

| | |
|---|---|
| qtz | 5% |
| plag | 35% $An_{36}$ |
| k-fpr | 55% moderate microcline, perthite |

K-feldspar phenocrysts up to 7 mm, mild oscillatory zoning, subhedral plag multiple (amellar twinning, subhedral, unzoned quartz interstitial.

Rock texture is hypidiomorphic granular to interlocking. Zoned k-feldspar phenocrysts with rings of oriented plag inclusions indicate sub-volcanic environment. Presence of microcline and perthite indicates a hypersolvus quartz monzonite (i.e. < 4 kb $PH_2O$).

Other minerals: opaque (probably magnetite) - 5%. Phlogopite (or very pale biotite) - 5%.

Accessories: apatite, strongly pleochroic sphene, trace zircon.

Alteration: moderate - sericitization of plagioclase. Sericite has locally recrystallized as muscovite. Precipitation of calcite, especially around magnetite.

Deformation: not obvious. Quartz is unstrained, feldspars are not broken and show no deformation twinning.

# APPENDIX III

SECTION I: ASSAY PROCEDURE
SECTION II: SAMPLE INDENTIFICATION
SECTION III: ASSAY RESULTS

# SECTION I: ASSAY PROCEDURES

ASSAY PROCEDURES

Initial assaying was completed by Geo Analytical Services Ltd. of Calgary, but because of the erratic nature of the results and the apparent discrepancies between visual estimates and actual $MoS_2$ values, a series of check assays were completed by Chemex Labs (Alberta) Ltd. Because the Chemex results correspond most closely with the visual estimates of the $MoS_2$ content, and that all $MoS_2$ assays performed by Chemex for Shell in the past have been accurate, all calculations for tonnage and grade are based on the Chemex results. Also, a series of ten umpire assays were completed by Barringer Magenta and closely correspond to the results given by Chemex.

All assay results appear on the accompanying cross-sections (Figures 52 to 57).

Geo Analytical Services Ltd. (G.A.S.)

G.A.S. used a colormetric means of determining the $MoS_2$ content of the samples provided. Frank Lanza of G.A.S. has requested that the actual method of analysis be kept in confidence as it is a new method devised by him for $MoS_2$ analysis. Therefore, only a brief outline of procedure is given here.

The sample is weighed out to one gram and double digested in an acid solution containing $HNO_3$, $HIO_4$ and $H_2SO_4$. Five solutions are prepared and added systematically to the prepared sample solution with the resultant solution placed in a spectrophotometer at 470 nanometers and the Mo content determined.

Chemex Labs (Alberta) Ltd.

Chemex uses a standard perchloric acid digestion where approximately one gram of sample is digested in 30 ml of 70% $HCLO_4$ and baked at approximately 200° C. This is then transferred to a 250 ml flask and $ALCL_3$ is added as an ion suppressor. This solution is then asperated through nitrous oxy-acetylene flame and the Mo content determined through atomic absorption.

# SECTION II: SAMPLE IDENTIFICATION

SAMPLE LENGTHS
DDH 81-1

| | |
|---|---|
| DDH 81-1-1 | 4.1 m - 7.1 m |
| -2 | - 10.1 m |
| -3 | - 13.1 m |
| -4 | - 16.1 m |
| -5 | - 19.1 m |
| -6 | - 22.1 m |
| -7 | - 25.1 m |
| -8 | - 26.1 m |
| -9 | - 27.1 m |
| -10 | - 28.1 m |
| -11 | - 29.1 m |
| -12 | - 30.1 m |
| -13 | - 31.1 m |
| -14 | - 32.1 m |
| -15 | - 33.1 m |
| -16 | - 34.1 m |
| -17 | - 35.1 m |
| -18 | - 36.1 m |
| -19 | - 37.1 m |
| -20 | - 38.1 m |
| -21 | - 39.1 m |
| -22 | - 40.1 m |
| -23 | - 41.1 m |
| -24 | - 42.1 m |
| -25 | - 43.1 m |
| -26 | - 44.1 m |
| -27 | - 45.1 m |
| -28 | - 46.1 m |
| -29 | - 47.1 m |
| -30 | - 48.1 m |
| -31 | - 49.1 m |
| -32 | - 50.1 m |
| -33 | - 51.1 m |
| -34 | - 52.1 m |
| -35 | - 53.1 m |
| -36 | - 54.1 m |
| -37 | - 57.1 m |
| -38 | - 60.1 m |
| -39 | - 63.1 m |
| -40 | - 66.1 m |
| -41 | - 69.1 m |
| -42 | - 72.1 m |
| -43 | - 75.1 m |
| -44 | - 78.1 m |
| -45 | - 81.1 m |
| -46 | - 84.1 m |
| -47 | - 87.1 m |

| | |
|---|---|
| DDH 81-1-48 | 87.1 m - 90.1 m |
| -49 | - 93.1 m |
| -50 | - 96.1 m |
| -51 | - 99.1 m |
| -52 | -102.1 m |
| -53 | -105.1 m |
| -54 | -108.1 m |
| -55 | -111.1 m |
| -56 | -114.6 m |

SAMPLE LENGTHS
DDH 81-2

| | |
|---|---|
| DDH 81-2-57 | 1.83 - 2.83 m |
| -58 | - 3.83 m |
| -59 | - 4.83 m |
| -60 | - 5.83 m |
| -61 | - 6.83 m |
| -62 | - 7.83 m |
| -63 | - 8.83 m |
| -64 | - 9.83 m |
| -65 | - 10.83 m |
| -66 | - 11.83 m |
| -67 | - 12.83 m |
| -68 | - 13.83 m |
| -69 | - 14.83 m |
| -70 | - 15.83 m |
| -71 | - 16.83 m |
| -72 | - 17.83 m |
| -73 | - 18.83 m |
| -74 | - 19.83 m |
| -75 | - 20.83 m |
| -76 | - 21.83 m |
| -77 | - 22.83 m |
| -78 | - 23.83 m |
| -79 | - 24.83 m |
| -80 | - 25.83 m |
| -81 | - 26.83 m |
| -82 | - 27.83 m |
| -83 | - 28.83 m |
| -84 | - 29.83 m |
| -85 | - 30.83 m |
| -86 | - 31.83 m |
| -87 | - 32.83 m |
| -88 | - 33.83 m |
| -89 | - 34.83 m |
| -90 | - 35.83 m |
| -91 | - 36.83 m |
| -92 | - 37.83 m |
| -93 | - 38.83 m |
| -94 | - 39.83 m |
| -95 | - 40.83 m |
| -96 | - 41.83 m |
| -97 | - 42.83 m |

| | |
|---|---|
| DDH 81-2-98 | 42.83 m - 43.83 m |
| -99 | - 44.83 m |
| -100 | - 47.83 m |
| -101 | - 50.83 m |
| -102 | - 53.83 m |
| -103 | - 56.83 m |
| -104 | - 59.83 m |
| -105 | - 62.83 m |
| -106 | - 65.83 m |
| -107 | - 68.83 m |
| -108 | - 71.83 m |
| -109 | - 74.83 m |
| -110 | - 77.83 m |
| -111 | - 80.83 m |
| -112 | - 83.83 m |
| -113 | - 86.83 m |
| -114 | - 89.83 m |
| -115 | - 92.35 m |

SAMPLE LENGTHS
DDH 81-3

| | |
|---|---|
| DDH 81-3-116 | 0.61 - 1.60 m |
| -117 | - 2.60 m |
| -118 | - 3.60 m |
| -119 | - 4.60 m |
| -120 | - 5.60 m |
| -121 | - 6.60 m |
| -122 | - 7.60 m |
| -123 | - 8.60 m |
| -124 | - 9.60 m |
| -125 | - 10.60 m |
| -126 | - 11.60 m |
| -127 | - 12.60 m |
| -128 | - 13.60 m |
| -129 | - 14.60 m |
| -130 | - 15.60 m |
| -131 | - 16.60 m |
| -132 | - 17.60 m |
| -133 | - 18.60 m |
| -134 | - 19.60 m |
| -135 | - 20.60 m |
| -136 | - 21.60 m |
| -137 | - 22.60 m |
| -138 | - 23.60 m |
| -139 | - 24.60 m |
| -140 | - 25.60 m |
| -141 | - 26.60 m |
| -142 | - 27.60 m |
| -143 | - 28.60 m |
| -144 | - 29.60 m |
| -145 | - 30.60 m |
| -146 | - 31.60 m |
| -147 | - 32.60 m |
| -148 | - 33.60 m |
| -149 | - 34.60 m |
| -150 | - 35.60 m |
| -151 | - 36.60 m |
| -152 | - 37.60 m |
| -153 | - 38.60 m |
| -154 | - 39.60 m |
| -155 | - 40.60 m |
| -156 | - 41.60 m |
| -157 | - 42.60 m |
| -158 | - 43.60 m |
| -159 | - 44.60 m |

| | | | |
|---|---|---|---|
| -160 | 44.60 | - | 45.60 |
| -161 | | - | 46.60 |
| -162 | | - | 49.60 |
| -163 | | - | 10.60 |
| -164 | | - | 53.60 |
| -165 | | - | 56.60 |
| -166 | | - | 59.60 |
| -167 | | - | 62.60 |
| -168 | | - | 65.60 |
| -169 | | - | 68.60 |
| -170 | | - | 71.60 |
| -171 | | - | 74.60 |
| -172 | | - | 77.60 |
| -173 | | - | 80.60 |
| -174 | | - | 83.60 |
| -175 | | - | 86.60 |
| -176 | | - | 89.60 |
| -177 | | - | 92.35 |

SAMPLE LENGTHS
DDH 81-4

| | | |
|---|---|---|
| DDH 81-4-178 | 1.22 - | 2.20 m |
| -179 | - | 3.20 m |
| -180 | - | 4.20 m |
| -181 | - | 5.20 m |
| -182 | - | 6.20 m |
| -183 | - | 7.20 m |
| -184 | - | 8.20 m |
| -185 | - | 9.20 m |
| -186 | - | 10.20 m |
| -187 | - | 11.20 m |
| -188 | - | 12.20 m |
| -189 | - | 13.20 m |
| -190 | - | 14.20 m |
| -191 | - | 15.20 m |
| -192 | - | 16.20 m |
| -193 | - | 17.20 m |
| -194 | - | 18.20 m |
| -195 | - | 19.20 m |
| -196 | - | 20.20 m |
| -197 | - | 21.20 m |
| -198 | - | 22.20 m |
| -199 | - | 23.20 m |
| -200 | - | 24.20 m |
| -201 | - | 25.20 m |
| -202 | - | 26.20 m |
| -203 | - | 27.20 m |
| -204 | - | 28.20 m |
| -205 | - | 29.20 m |
| -206 | - | 30.20 m |
| -207 | - | 31.20 m |
| -208 | - | 32.20 m |
| -209 | - | 33.20 m |
| -210 | - | 34.20 m |
| -211 | - | 35.20 m |
| -212 | - | 36.20 m |
| -213 | - | 37.20 m |
| -214 | - | 38.20 m |
| -215 | - | 41.20 m |
| -216 | - | 44.20 m |
| -217 | - | 47.20 m |
| -218 | - | 50.20 m |
| -219 | - | 53.20 m |
| -220 | - | 56.20 m |
| -221 | - | 59.20 m |
| -222 | - | 62.20 m |
| -223 | - | 65.20 m |
| -224 | - | 68.20 m |
| -225 | - | 71.20 m |
| -226 | - | 74.20 m |
| -227 | - | 78.03 m |

SAMPLE LENGTHS
DDH 81-5

| | |
|---|---|
| DDH 81-5-228 | 26.00 - 27.00 m |
| -229 | - 28.00 m |
| -230 | - 29.00 m |
| -231 | - 30.00 m |
| -232 | - 31.00 m |
| -233 | - 32.00 m |
| -234 | - 33.00 m |
| -235 | - 34.00 m |
| -236 | - 35.00 m |
| -237 | - 36.00 m |
| -238 | - 37.00 m |
| -239 | - 38.00 m |
| -240 | - 39.00 m |
| -241 | - 40.00 m |
| -242 | - 41.00 m |
| -243 | - 42.00 m |
| -244 | - 43.00 m |
| -245 | - 44.00 m |
| -246 | - 45.00 m |
| -247 | - 46.00 m |
| -248 | - 47.00 m |
| -249 | - 48.00 m |
| -250 | - 49.00 m |
| -251 | - 50.00 m |
| -252 | - 51.00 m |
| -253 | - 52.00 m |
| -254 | - 53.00 m |
| -255 | - 54.00 m |
| -256 | - 55.00 m |
| -257 | - 56.00 m |
| -258 | - 57.00 m |
| -259 | - 58.00 m |
| -260 | - 59.00 m |
| -261 | - 60.00 m |
| -262 | - 61.00 m |
| -263 | - 62.00 m |
| -264 | - 63.00 m |
| -265 | - 64.00 m |
| -266 | - 65.00 m |
| -267 | - 66.00 m |
| -268 | - 67.00 m |
| -269 | - 68.00 m |
| -270 | - 69.00 m |
| -271 | - 70.00 m |

| | |
|---|---|
| DDH 81-5-272 | 70.00 - 71.00 m |
| -273 | - 72.00 m |
| -274 | - 73.00 m |
| -275 | - 74.00 m |
| -276 | - 75.00 m |
| -277 | - 76.00 m |
| -278 | - 77.00 m |
| -279 | - 78.00 m |
| -280 | - 79.00 m |
| -281 | - 80.00 m |
| -282 | - 81.00 m |
| -283 | - 82.00 m |
| -284 | - 83.00 m |
| -285 | - 84.00 m |
| -286 | - 85.00 m |
| -287 | - 86.00 m |
| -288 | - 87.00 m |
| -289 | - 88.00 m |
| -290 | - 89.00 m |
| -291 | - 90.00 m |
| -292 | - 91.00 m |
| -293 | - 92.00 m |
| -294 | - 93.00 m |
| -295 | - 94.00 m |
| -296 | - 95.00 m |
| -297 | - 96.00 m |
| -298 | - 97.00 m |
| -299 | - 98.00 m |
| -300 | - 99.00 m |
| -301 | -100.00 m |
| -302 | -101.00 m |
| -303 | -104.00 m |
| -304 | -107.00 m |
| -305 | -110.00 m |
| -306 | -113.69 m |

SAMPLE LENGTHS
DDH 81-6/2

| | | | |
|---|---|---|---|
| DDH 81-6/2-307 | 35.00 | - | 36.00 m |
| -308 | | - | 37.00 m |
| -309 | | - | 38.00 m |
| -310 | | - | 39.00 m |
| -311 | | - | 40.00 m |
| -312 | | - | 41.00 m |
| -313 | | - | 42.00 m |
| -314 | | - | 43.00 m |
| -315 | | - | 44.00 m |
| -316 | | - | 45.00 m |
| -317 | | - | 46.00 m |
| -318 | | - | 47.00 m |
| -319 | | - | 48.00 m |
| -320 | | - | 49.00 m |
| -321 | | - | 50.00 m |
| -322 | | - | 51.00 m |
| -323 | | - | 52.00 m |
| -324 | | - | 53.00 m |
| -325 | | - | 54.00 m |
| -326 | | - | 55.00 m |
| -327 | | - | 56.00 m |
| -328 | | - | 57.00 m |
| -329 | | - | 58.00 m |
| -330 | | - | 59.00 m |
| -331 | | - | 60.00 m |
| -332 | | - | 61.00 m |
| -333 | | - | 62.00 m |
| -334 | | - | 63.00 m |
| -335 | | - | 64.00 m |
| -336 | | - | 65.00 m |
| -337 | | - | 66.00 m |
| -338 | | - | 67.00 m |
| -339 | | - | 68.00 m |
| -340 | | - | 69.00 m |
| -341 | | - | 70.00 m |
| -342 | | - | 71.00 m |
| -343 | | - | 72.00 m |
| -344 | | - | 73.00 m |
| -345 | | - | 74.00 m |
| -346 | | - | 75.00 m |
| -347 | | - | 76.00 m |
| -348 | | - | 77.00 m |
| -349 | | - | 78.00 m |
| -350 | | - | 79.00 m |
| -351 | | - | 80.00 m |

| | |
|---|---|
| DDH 81-6/2-352 | 80.00 - 81.00 m |
| -353 | - 82.00 m |
| -354 | - 83.00 m |
| -355 | - 84.00 m |
| -356 | - 85.00 m |
| -357 | - 86.00 m |
| -358 | - 87.00 m |
| -359 | - 88.00 m |
| -360 | - 89.00 m |
| -361 | - 90.00 m |
| -362 | - 91.00 m |
| -363 | - 92.00 m |
| -364 | - 93.00 m |
| -365 | - 94.00 m |
| -366 | - 97.00 m |
| -367 | -100.00 m |
| -368 | -103.00 m |
| -369 | -106.00 m |
| -370 | -109.00 m |
| -371 | -112.00 m |
| -372 | -115.00 m |
| -373 | -118.00 m |
| -374 | -121.00 m |
| -375 | -124.00 m |
| -376 | -126.19 m |

SAMPLE LENGTHS
DDH 81-7

| | |
|---|---|
| DDH 81-7-377 | 42.00 - 45.00 m |
| -378 | - 48.00 m |
| -379 | - 51.00 m |
| -380 | - 54.00 m |
| -381 | - 57.00 m |
| -382 | - 60.00 m |
| -383 | - 63.00 m |
| -384 | - 66.00 m |
| -385 | - 69.00 m |
| -386 | - 72.00 m |
| -387 | - 75.00 m |
| -388 | 91.00 - 93.88 m |

SAMPLE LENGTHS
DDH 81-8

| | | |
|---|---|---|
| DDH 81-8-389 | 8.00 m - 11.00 m | ASSAY FOR Au, $MoS_2$, |
| -390 | 32.00 m - 35.00 m | $WO_3$, - Thirty |
| -391 | 45.00 m - 48.00 m | Element Spectrograph |
| -392 | 52.00 m - 55.00 m | $MoS_2$, $WO_3$ |
| -393 | 61.00 m - 64.00 m | |
| -394 | - 67.00 m | |
| -395 | - 70.00 m | |
| -396 | - 73.00 m | |
| -397 | - 76.00 m | |
| -398 | - 79.00 m | |
| -399 | - 82.00 m | |
| -400 | - 85.00 m | |
| -401 | - 88.00 m | |
| -402 | - 91.74 m | |

SAMPLE LENGTHS
DDH 81-9

| | | |
|---|---|---|
| DDH 81-9-403 | 2.74 m - | 6.00 m |
| -404 | - | 9.00 m |
| -405 | - | 12.00 m |
| -406 | - | 15.00 m |
| -407 | - | 18.00 m |
| -408 | - | 21.00 m |
| -409 | - | 24.00 m |
| -410 | - | 27.00 m |
| -411 | - | 30.00 m |
| -412 | - | 33.00 m |
| -413 | - | 36.00 m |
| -414 | - | 39.00 m |
| -415 | - | 42.00 m |
| -416 | - | 45.00 m |
| -417 | - | 48.00 m |
| -418 | - | 51.00 m |
| -419 | - | 54.00 m |
| -420 | - | 55.00 m |
| -421 | - | 58.00 m |
| -422 | - | 59.00 m |
| -423 | - | 60.00 m |
| -424 | - | 61.00 m |
| -425 | - | 62.00 m |
| -426 | - | 63.00 m |
| -427 | - | 64.00 m |
| -428 | - | 65.00 m |
| -429 | - | 66.00 m |
| -430 | - | 67.00 m |
| -431 | - | 68.00 m |
| -432 | - | 69.00 m |
| -433 | - | 70.00 m |
| -434 | - | 71.00 m |
| -435 | - | 72.00 m |
| -436 | - | 73.00 m |
| -437 | - | 74.00 m |
| -438 | - | 75.00 m |
| -439 | - | 76.00 m |
| -440 | - | 77.00 m |
| -441 | - | 78.00 m |
| -442 | - | 79.00 m |
| -443 | - | 80.00 m |
| -444 | - | 81.00 m |
| -445 | - | 82.00 m |
| -446 | - | 83.00 m |
| -447 | - | 84.00 m |
| -448 | - | 85.00 m |

| | |
|---|---|
| DDH 81-9-449 | 85.00 - 86.00 m |
| -450 | - 87.00 m |
| -451 | - 88.00 m |
| -452 | - 89.00 m |
| -453 | - 90.00 m |
| -454 | - 91.00 m |
| -455 | - 92.00 m |
| -456 | - 95.00 m |
| -457 | - 98.00 m |
| -458 | -101.00 m |
| -459 | -104.00 m |
| -460 | -107.00 m |
| -461 | -110.00 m |
| -462 | -113.00 m |
| -463 | -116.00 m |
| -464 | -119.00 m |
| -465 | -122.00 m |
| -466 | -125.00 m |
| -467 | -128.02 m |

SAMPLE LENGTHS
DDH 81-10

| | | |
|---|---|---|
| DDH 81-10-468 | 1.22 m - | 4.00 m |
| -469 | - | 7.00 m |
| -470 | - | 10.00 m |
| -471 | - | 13.00 m |
| -472 | - | 16.00 m |
| -473 | - | 19.00 m |
| -474 | - | 22.00 m |
| -475 | - | 25.00 m |
| -476 | - | 28.00 m |
| -477 | - | 31.00 m |
| -478 | - | 34.00 m |
| -479 | - | 37.00 m |
| -480 | - | 40.00 m |
| -481 | - | 43.00 m |
| -482 | - | 46.00 m |
| -483 | 93.00 m - | 96.00 m |
| -484 | - | 99.00 m |
| -485 | - | 102.00 m |
| -486 | - | 105.00 m |
| -487 | - | 108.00 m |
| -488 | - | 112.47 m |

SAMPLE LENGTHS
DDH 81-11

| | | |
|---|---|---|
| DDH 81-11-489 | 1.83 m - | 5.00 m |
| -490 | - | 8.00 m |
| -491 | - | 11.00 m |
| -492 | - | 14.00 m |
| -493 | - | 17.00 m |
| -494 | - | 20.00 m |
| -495 | - | 23.00 m |
| -496 | - | 26.00 m |
| -497 | - | 29.00 m |
| -498 | - | 32.00 m |
| -499 | - | 35.00 m |
| -500 | - | 38.00 m |
| -501 | - | 41.00 m |
| -502 | - | 44.00 m |
| -503 | - | 47.00 m |
| -504 | - | 50.00 m |
| -505 | - | 53.00 m |
| -506 | - | 56.00 m |
| -507 | - | 59.00 m |
| -508 | - | 62.00 m |
| -509 | - | 65.00 m |
| -510 | - | 68.00 m |
| -511 | - | 71.00 m |
| -512 | - | 74.00 m |
| -513 | - | 77.00 m |
| -514 | - | 80.00 m |
| -515 | - | 83.00 m |
| -516 | - | 86.00 m |
| -517 | - | 89.00 m |
| -518 | - | 92.00 m |
| -519 | 92.00 m - | 95.00 m |
| -520 | - | 98.00 m |
| -521 | - | 101.00 m |
| -522 | - | 104.00 m |
| -523 | - | 107.00 m |
| -524 | - | 110.00 m |
| -525 | - | 113.00 m |
| -526 | - | 115.21 m |

SAMPLE LENGTHS
DDH 81-12

| | | |
|---|---|---|
| DDH 81-12-527 | 5.49 m - | 8.00 m |
| -528 | | - 11.00 m |
| -529 | | - 14.00 m |
| -530 | | - 17.00 m |
| -531 | | - 20.00 m |
| -532 | | - 23.00 m |
| -533 | | - 26.00 m |
| -534 | | - 29.00 m |
| -535 | | - 32.00 m |
| -536 | | - 35.00 m |
| -537 | | - 38.00 m |
| -538 | | - 41.00 m |
| -539 | | - 44.00 m |
| -540 | | - 47.00 m |
| -541 | | - 50.00 m |
| -542 | | - 53.80 m |
| -543 | 55.85 m - | 59.00 m |
| -544 | | - 62.00 m |
| -545 | | - 65.00 m |
| -546 | | - 67.06 m |

SAMPLE LENGTHS
DDH 81-13

| | | |
|---|---|---|
| DDH 81-13-547 | 1.83 m - | 5.00 m |
| -548 | - | 8.00 m |
| -549 | - | 11.00 m |
| -550 | - | 14.00 m |
| -551 | - | 17.00 m |
| -552 | - | 20.00 m |
| -553 | - | 23.00 m |
| -554 | - | 26.00 m |
| -555 | - | 29.00 m |
| -556 | - | 32.00 m |
| -557 | - | 35.00 m |
| -558 | - | 38.00 m |
| -559 | - | 41.00 m |
| -560 | - | 44.00 m |
| -561 | - | 47.00 m |
| -562 | - | 50.00 m |
| -563 | - | 53.00 m |
| -564 | - | 56.00 m |
| -565 | - | 59.00 m |
| -566 | - | 62.00 m |
| -567 | - | 65.00 m |
| -568 | - | 68.00 m |
| -569 | - | 71.00 m |
| -570 | - | 74.00 m |
| -571 | - | 77.00 m |
| -572 | - | 80.00 m |
| -573 | - | 83.00 m |
| -574 | - | 86.00 m |
| -575 | - | 89.00 m |
| -576 | - | 82.96 m |

SAMPLE LENGTHS
DDH 81-14

| | | |
|---|---|---|
| DDH 81-14-577 | 0.00 m | - 3.00 m |
| -578 | | - 6.00 m |
| -579 | | - 9.00 m |
| -580 | | - 12.00 m |
| -581 | | - 15.00 m |
| -582 | | - 18.00 m |
| -583 | | - 21.00 m |
| -584 | | - 24.00 m |
| -585 | | - 27.00 m |
| -586 | | - 30.00 m |
| -587 | | - 33.00 m |
| -588 | | - 36.00 m |
| -589 | | - 39.00 m |
| -590 | | - 42.00 m |
| -591 | | - 45.00 m |
| -592 | | - 48.00 m |
| -593 | | - 51.00 m |
| -594 | | - 54.00 m |
| -595 | | - 57.00 m |
| -596 | | - 60.00 m |
| -597 | | - 63.00 m |
| -598 | | - 66.00 m |
| -599 | | - 69.00 m |
| -600 | | - 72.00 m |
| -601 | | - 75.00 m |
| -602 | | - 78.00 m |
| -603 | | - 81.38 m |

SAMPLE LENGTHS
DDH 81-15

| | | |
|---|---|---|
| DDH 81-15-604 | 1.83 m - 5.00 m | |
| -605 | - 8.00 m | |
| -606 | - 11.00 m | |
| -607 | - 14.00 m | |
| -608 | - 17.00 m | |
| -609 | - 20.00 m | |
| -610 | - 23.00 m | |
| -611 | - 26.00 m | |
| -612 | - 29.00 m | |
| -613 | - 32.00 m | |
| -614 | - 35.00 m | |
| -615 | - 38.00 m | |
| -616 | - 41.00 m | |
| -617 | - 44.00 m | |
| -618 | - 47.00 m | |
| -619 | - 50.00 m | |
| -620 | - 53.00 m | |
| -621 | - 56.00 m | |
| -622 | - 59.00 m | |
| -623 | - 62.00 m | |
| -624 | - 65.00 m | |
| -625 | - 68.00 m | |
| -626 | - 71.00 m | |
| -627 | - 74.00 m | |
| -628 | - 77.00 m | |
| -629 | - 80.00 m | |
| -630 | - 83.00 m | |
| -631 | - 86.00 m | |
| -632 | - 89.00 m | |
| -633 | - 92.00 m | |
| -634 | - 95.00 m | |
| -635 | - 98.00 m | |
| -636 | -101.00 m | |
| -637 | -104.00 m | |
| -638 | -107.00 m | |
| -639 | -110.00 m | |
| -640 | -113.00 m | |
| -641 | -116.00 m | |
| -642 | -119.00 m | |
| -643 | -122.00 m | |
| -644 | -125.00 m | $MoS_2$, Sn |
| -645 | -129.24 m | |

SAMPLE LENGTHS
DDH 81-16

| | | |
|---|---|---|
| DDH 81-16-646 | 1.52 m - | 5.00 m |
| -647 | - | 8.00 m |
| -648 | - | 11.00 m |
| -649 | - | 14.00 m |
| -650 | - | 17.00 m |
| -651 | - | 20.00 m |
| -652 | - | 23.00 m |
| -653 | - | 26.00 m |
| -654 | - | 29.00 m |
| -655 | - | 32.00 m |
| -656 | - | 35.00 m |
| -657 | - | 38.00 m |
| -658 | - | 41.00 m |
| -659 | - | 44.00 m |
| -660 | - | 47.00 m |
| -661 | - | 50.00 m |
| -662 | - | 53.00 m |
| -663 | - | 56.00 m |
| -664 | - | 59.00 m |
| -665 | - | 62.00 m |
| -666 | - | 65.00 m |
| -667 | - | 68.00 m |
| -668 | - | 71.00 m |
| -669 | - | 74.00 m |
| -670 | - | 77.00 m |
| -671 | - | 80.00 m |
| -672 | - | 83.00 m |
| -673 | - | 86.00 m |
| -674 | - | 89.00 m |
| -675 | - | 92.00 m |
| -676 | - | 95.40 m |

# SECTION III: ASSAY RESULTS

**BARRINGER MAGENTA LIMITED**
*OFFICES & MINERALS*
*LABORATORY*
3750 - 19th ST. N.E. SUITE 105
CALGARY, ALBERTA T2E 6V2
PHONE (403) 276-9701
TELEX 03-827584

BARRINGER MAGENTA

07/DEC/81
PAGE 1 OF 1
WORK ORDER # A030-81
PROJ. # 3191-K

AUTHORITY: G. TURNER

SHELL CANADA RESOURCES LTD.,
P.O. BOX 100, STN."M",
CALGARY, ALBERTA.
T2P 2H5

***FINAL REPORT***

# G E O C H E M I C A L  L A B O R A T O R Y  R E P O R T

SAMPLE TYPE: ABBAY
PULP

| SAMPLE # | MOS2 % |
|---|---|
| 81-16-661 | .006 |
| 81-16-664 | .006 |
| 81-16-667 | .003 |
| 81-16-670 | .004 |
| 81-16-673 | .005 |
| 81-16-676 | .004 |

**BARRINGER MAGENTA LIMITED**
*OFFICES & MINERALS*
*LABORATORY*
3750 - 19th ST. N.E. SUITE 105
CALGARY, ALBERTA T2E 6V2
PHONE (403) 276-9701
TELEX 03-827584

BARRINGER MAGENTA

ATTENTION: G. TURNER

07/DEC/81
PAGE 1 OF 1
WORK ORDER # 4000-81
PROJ. # 81P1-K

SHELL CANADA RESOURCES LTD.,
P.O. BOX 100, STN."M",
CALGARY, ALBERTA.
T2P 2H5

***FINAL REPORT***

# G E O C H E M I C A L  L A B O R A T O R Y  R E P O R T

SAMPLE TYPE: ASSAY
PULP

| SAMPLE # | MOS2 % |
|---|---|
| B1-16-661 | .006 |
| B1-16-664 | .006 |
| B1-16-667 | .003 |
| B1-16-670 | .004 |
| B1-16-673 | .005 |
| B1-16-676 | .004 |

CHEMEX

CALGARY 2021 - 41 AVE. N.E. CALGARY, CANADA T2E 6P2
TELEPHONE (403) 276-9627 TELEX 038-25541
EDMONTON 6112 DAVIES ROAD, EDMONTON, CANADA T6E 4M9
TELEPHONE (403) 465-9877 TELEX 037-41596

# CERTIFICATE OF ANALYSIS

• MINERAL • GAS • WATER • OIL • SOILS • VEGETATION • ENVIRONMENTAL ANALYSIS

SHELL CANADA RESOURCES LTD.

DATE NOVEMBER 13, 1

3191K MOLYBDENUM ASSAYS

PROJECT NO. 016-1-582

| LOCATION | $MoS_2$ % |
|---|---|
| 81-2-57 | 0.038 |
| -58 | 0.045 |
| -59 | 0.025 |
| -60 | 0.017 |
| -61 | 0.030 |
| -62 | 0.035 |
| -63 | 0.042 |
| -64 | 0.037 |
| -65 | 0.033 |
| -66 | 0.012 |
| -67 | <0.01 |
| -68 | 0.012 |
| -69 | 0.017 |
| -70 | 0.015 |
| -71 | 0.020 |
| -72 | 0.012 |
| -73 | 0.015 |
| -74 | 0.027 |
| -75 | 0.025 |
| -76 | 0.038 |
| -77 | 0.110 |
| 81-2-78 | 0.042 |
| 81-3-116 | 0.083 |
| -117 | 0.277 |
| -118 | 0.080 |
| -120 | 0.219 |
| -121 | 0.250 |
| -122 | 0.669 |
| -123 | 0.262 |
| -124 | 0.117 |
| -125 | 0.110 |
| -126 | <0.01 |
| -127 | 0.077 |
| -128 | 0.092 |
| -129 | 0.158 |
| -132 | 0.077 |
| -133 | 0.127 |
| -134 | 0.038 |
| -135 | 0.058 |
| 81-3-136 | 0.018 |

CTA MEMBER CANADIAN TESTING ASSOCIATION

Certified by .....

CHEMEX

CALGARY 2021 - 41 AVE. N.E. CALGARY, CANADA T2E 6P2
TELEPHONE (403) 276-9627 TELEX 038-25541
EDMONTON 6112 DAVIES ROAD, EDMONTON, CANADA T6E 4M9
TELEPHONE (403) 465-9877 TELEX 037-41596

# CERTIFICATE OF ANALYSIS

• MINERAL • GAS • WATER • OIL • SOILS • VEGETATION • ENVIRONMENTAL ANALYSIS

SHELL CANADA RESOURCES LTD.

DATE NOVEMBER 13,

3191K Molybdenum Assay

PROJECT NO. 016-1-582

| LOCATION | $MoS_2$ % |
|---|---|
| 81-3-137 | 0.020 |
| -138 | 0.056 |
| -139 | 0.025 |
| -140 | 0.027 |
| -141 | 0.035 |
| -142 | 0.043 |
| -143 | 0.078 |
| -144 | 0.030 |
| -145 | 0.037 |
| 81-3-146 | 0.028 |
| 81-4-178 | 0.058 |
| -179 | 0.033 |
| -181 | 0.020 |
| -182 | 0.048 |
| -183 | 0.018 |
| -184 | 0.013 |
| -185 | 0.040 |
| -186 | <0.01 |
| -187 | 0.010 |
| -188 | 0.030 |
| -189 | 0.015 |
| -190 | 0.017 |
| -191 | 0.023 |
| -192 | 0.052 |
| -193 | 0.052 |
| -194 | 0.025 |
| -195 | <0.01 |
| -215 | <0.01 |
| -216 | <0.01 |
| -219 | 0.090 |
| -220 | <0.01 |
| -221 | 0.018 |
| -222 | 0.013 |
| -223 | 0.012 |
| 81-4-224 | 0.028 |

CTA MEMBER CANADIAN TESTING ASSOCIATION

Certified by .....

# GEO ANALYTICAL SERVICES (WESTERN) LTD.

To: GORDON TURNER.

JOB #: 8000

SHELL CANADA RESOURCES LTD.

SAMPLE TYPE:



| LAB No. | CLIENT No. | | $MoS_2$ % | | $WO_3$ % | | Ag ppm | | Mo ppm | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | A | 1 | 0.11 | | 0.02 | | | | 1050 | | | | | | |
| 2 | B | 2 | 0.01 | | 0.02 | | 1.00 | | 160 | | | | | | |
| 3 | | 3 | 0.04 | | 0.02 | | | | 500 | | | | | | |
| 4 | | 4 | 0.04 | | 0.04 | | | | 305 | | | | | | |
| 5 | | 5 | 0.10 | | 0.02 | | 0.75 | | 1100 | | | | | | |
| 6 | | 6 | 1.52 | | 0.04 | | 1.75 | | 11000 | | | | | | |
| 7 | | 7 | 0.58 | | 0.01 | | 1.00 | | 4225 | | | | | | |
| 8 | C | 8 | 0.05 | | 0.01 | | | | 405 | | | | | | |
| 9 | | 9 | 0.18 | | 0.01 | | | | 1375 | | | | | | |
| 0 | | 10 | 0.40 | | 0.01 | | | | 2425 | | | | | | |
| 1 | D | 11 | 0.12 | | 0.03 | | | | 760 | | | | | | |
| 2 | | 12 | 0.02 | | 0.02 | | | | 285 | | | | | | |
| 3 | | 13 | 0.31 | | 0.01 | | 0.75 | | 2275 | | | | | | |
| 4 | | 14 | 0.06 | | 0.02 | | | | 450 | | | | | | |
| 5 | | 15 | 0.25 | | 0.03 | | | | 1915 | | | | | | |
| 6 | | 16 | 1.00 | | 0.04 | | 2.75 | | 6100 | | | | | | |
| 7 | F | 22 | 0.09 | | 0.04 | | 0.75 | | 850 | | | | | | |
| 8 | | 23 | 0.11 | | 0.01 | | | | 1055 | | | | | | |
| 9 | | | | | | | | | | | | | | | |

# GEO ANALYTICAL SERVICES (WESTERN) LTD.

JOB #: 8[illegible]0

SAMPLE TYPE:



| LAB No. | CLIENT No. | | MoS2 % | | WO3 % | | Ag ppm | | Mo ppm | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | F | 24 | 0.16 | | 0.01 | | | | 1370 | | | | | | |
| 2 | | 25 | 0.04 | | 0.01 | | 1.75 | | 665 | | | | | | |
| 3 | | 26 | 0.05 | | 0.02 | | | | 615 | | | | | | |
| 4 | | 27 | 0.12 | | 0.02 | | | | 1750 | | | | | | |
| 5 | | 28 | 0.24 | | 0.04 | | 3.75 | | 2840 | | | | | | |
| 6 | | 29 | 0.04 | | 0.01 | | | | 960 | | | | | | |
| 7 | | 30 | 0.06 | | 0.01 | | | | 1825 | | | | | | |
| 8 | | 31 | 0.13 | | 0.01 | | | | 2375 | | | | | | |
| 9 | | 32 | 0.09 | | <0.01 | | | | 1040 | | | | | | |
| 0 | | 33 | 0.10 | | 0.01 | | 2.00 | | 1450 | | | | | | |
| 1 | | 35 | 0.14 | | 0.01 | | 4.50 | | 3700 | | | | | | |
| 2 | G | 34 | 0.10 | | 0.02 | | | | 1800 | | | | | | |
| 3 | | 35 | 0.23 | | 0.01 | | 3.50 | | 3950 | | | | | | |
| 4 | | 36 | 0.06 | | 0.01 | | | | 1625 | | | | | | |
| 5 | H | 37 | 0.63 | | 0.02 | | 4.75 | | 5900 | | | | | | |
| 6 | | 38 | 0.56 | | 0.02 | | 15.00 | | 4850 | | | | | | |
| 7 | | 39 | 0.06 | | 0.01 | | | | 1010 | | | | | | |
| 8 | | 40 | 0.06 | | 0.01 | | 6.00 | | 2690 | | | | | | |
| 9 | | | | | | | | | | | | | | | |
| 0 | | | | | | | | | | | | | | | |

# GEO ANALYTICAL SERVICES (WESTERN) LTD.

JOB #: 8[illegible]100

SAMPLE TYPE:



| LAB No. | CLIENT No. | | $MoS_2$ % | | $WO_3$ % | | Ag ppm | | Mo ppm | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | I 41 | | 0.03 | | 0.01 | | | | 290 | | | | | | |
| 2 | 42 | | 0.10 | | 0.01 | | | | 1385 | | | | | | |
| 3 | 43 | | < 0.01 | | 0.01 | | | | 260 | | | | | | |
| 4 | 44 | | 0.01 | | 0.01 | | | | 290 | | | | | | |
| 5 | J 45 | | 0.01 | | 0.01 | | | | 175 | | | | | | |
| 6 | 46 | | 0.01 | | 0.01 | | | | 165 | | | | | | |
| 7 | 47 | | 0.01 | | 0.02 | | | | 170 | | | | | | |
| 8 | 48 | | 0.04 | | 0.01 | | | | 775 | | | | | | |
| 9 | 49 | | 0.32 | | 0.02 | | | | 3620 | | | | | | |
| 0 | 50 | | 0.01 | | 0.01 | | | | 375 | | | | | | |
| 1 | K 51 | | 0.01 | | 0.02 | | | | 2190 | | | | | | |
| 2 | 52 | | 0.02 | | 0.01 | | | | 1550 | | | | | | |
| 3 | 53 | | 0.03 | | 0.01 | | | | 575 | | | | | | |
| 4 | 54 | | <0.01 | | 0.01 | | | | 365 | | | | | | |
| 5 | 55 | | 0.02 | | 0.01 | | | | 655 | | | | | | |
| 6 | 56 | | 0.16 | | 0.03 | | | | 1585 | | | | | | |
| 7 | 57 | | 0.01 | | 0.01 | | | | 145 | | | | | | |
| 8 | 58 | | 0.01 | | <0.01 | | 1.75 | | 145 | | | | | | |
| 9 | | | | | | | | | | | | | | | |

# GEO ANALYTICAL SERVICES (WE[illegible]ERN) LTD.

JOB #: [illegible].00

SAMPLE TYPE:



| LAB No. | CLIENT No. | | $MoS_2$ % | | $WO_3$ % | | Ag ppm | | Mo ppm | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | K | 59 | <0.01 | | <0.01 | | 0.50 | | 65 | | | | | | |
| 2 | | 60 | <0.01 | | 0.01 | | | | 65 | | | | | | |
| 3 | | 61 | <0.01 | | <0.01 | | | | 140 | | | | | | |
| 4 | | 62 | 0.01 | | <0.01 | | | | 65 | | | | | | |
| 5 | | 63 | <0.01 | | 0.01 | | | | 70 | | | | | | |
| 6 | | 64 | <0.01 | | 0.01 | | | | 50 | | | | | | |
| 7 | L | 65 | <0.01 | | <0.01 | | | | 100 | | | | | | |
| 8 | M | 66 | <0.01 | | <0.01 | | | | 60 | | | | | | |
| 9 | | 67 | <0.01 | | <0.01 | | | | 100 | | | | | | |
| 0 | | 68 | <0.01 | | <0.01 | | | | 95 | | | | | | |
| 1 | | 69 | <0.01 | | <0.01 | | | | 50 | | | | | | |
| 2 | | 70 | <0.01 | | <0.01 | | | | 5 | | | | | | |
| 3 | Q | 72 | <0.01 | | <0.01 | | | | 105 | | | | | | |
| 4 | R | 73 | 0.08 | | 0.01 | | | | 1185 | | | | | | |
| 5 | S | 74 | 0.05 | | 0.01 | | | | 700 | | | | | | |
| 6 | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | |
| 0 | | | | | | | | | | | | | | | |

# GEO ANALYTICAL SERVICES (WESTERN) LTD.

JOB #: [illegible]00

SAMPLE TYPE: SCRATCH REPEATS..



| LAB No. | CLIENT No. | | $MoS_2$ % | | $WO_3$ % | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | F | 32 | 0.06 | | 0.01 | | | | | | | | | | |
| 2 | F | 33 | 0.10 | | <0.01 | | | | | | | | | | |
| 3 | G | 34 | 0.10 | | 0.01 | | | | | | | | | | |
| 4 | H | 38 | 0.70 | | 0.01 | | | | | | | | | | |
| 5 | J | 48 | 0.05 | | 0.01 | | | | | | | | | | |
| 6 | J | 49 | 0.28 | | 0.02 | | | | | | | | | | |
| 7 | K | 51 | 0.02 | | 0.03 | | | | | | | | | | |
| 8 | | 57 | <0.01 | | 0.01 | | | | | | | | | | |
| 9 | | 58 | <0.01 | | <0.01 | | | | | | | | | | |
| 0 | | | | | | | | | | | | | | | |
| 1 | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | |
| 0 | | | | | | | | | | | | | | | |

# GEO ANALYTICAL SERVICES (WESTERN) LTD.

JOB #: 81-



SAMPLE TYPE:

| LAB No. | CLIENT No. | | $MoS_2$ % | | $WO_3$ % | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3191 K 81-1-55 | | 0.002 | | 0.022 | | | | | | | | | | | |
| 2 | 56 | | 0.012 | | 0.019 | | | | | | | | | | | |
| 3 | 81-2-57 | | 0.027 | | 0.022 | | | | | | | | | | | |
| 4 | 58 | | 0.158 | | 0.024 | | | | | | | | | | | |
| 5 | 59 | | 0.002 | | 0.022 | | | | | | | | | | | |
| 6 | 60 | | <0.001 | | 0.022 | | | | | | | | | | | |
| 7 | 61 | | 0.021 | | 0.020 | | | | | | | | | | | |
| 8 | 62 | | 0.058 | | 0.022 | | | | | | | | | | | |
| 9 | 63 | | 0.046 | | 0.015 | | | | | | | | | | | |
| 0 | 64 | | 0.037 | | 0.020 | | | | | | | | | | | |
| 1 | 65 | | 0.040 | | 0.013 | | | | | | | | | | | |
| 2 | 66 | | <0.001 | | 0.011 | | | | | | | | | | | |
| 3 | 67 | | <0.001 | | 0.008 | | | | | | | | | | | |
| 4 | 68 | | 0.007 | | 0.010 | | | | | | | | | | | |
| 5 | 69 | | 0.021 | | 0.009 | | | | | | | | | | | |
| 6 | 70 | | 0.016 | | 0.008 | | | | | | | | | | | |
| 7 | 71 | | 0.025 | | 0.008 | | | | | | | | | | | |
| 8 | 72 | | 0.008 | | 0.009 | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | |
| 0 | | | | | | | | | | | | | | | | |

# GEO ANALYTICAL SERVICES (WEST [illegible]N) LTD.

JOB #: 81-[illegible]

SAMPLE TYPE: _____



| LAB No. | CLIENT No. | | $MoS_2$ % | | $WO_3$ % | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 81-2-73 | | 0.012 | | 0.008 | | | | | | | | | | |
| 2 | 74 | | 0.029 | | 0.013 | | | | | | | | | | |
| 3 | 75 | | 0.025 | | 0.028 | | | | | | | | | | |
| 4 | 76 | | 0.037 | | 0.009 | | | | | | | | | | |
| 5 | 77 | | 0.104 | | 0.030 | | | | | | | | | | |
| 6 | 78 | | 0.067 | | 0.011 | | | | | | | | | | |
| 7 | 79 | | 0.037 | | 0.013 | | | | | | | | | | |
| 8 | 80 | | 0.042 | | 0.030 | | | | | | | | | | |
| 9 | 81 | | 0.025 | | 0.030 | | | | | | | | | | |
| 0 | 82 | | 0.012 | | 0.009 | | | | | | | | | | |
| 1 | 83 | | 0.017 | | 0.039 | | | | | | | | | | |
| 2 | 84 | | 0.050 | | 0.011 | | | | | | | | | | |
| 3 | 85 | | 0.079 | | 0.013 | | | | | | | | | | |
| 4 | 86 | | 0.088 | | 0.060 | | | | | | | | | | |
| 5 | 87 | | 0.083 | | 0.011 | | | | | | | | | | |
| 6 | 88 | | 0.058 | | 0.008 | | | | | | | | | | |
| 7 | 89 | | 0.104 | | 0.006 | | | | | | | | | | |
| 8 | 90 | | <0.001 | | 0.031 | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

# GEO ANALYTICAL SERVICES (WEST [illegible]) LTD.

JOB #: 81 [illegible]3



SAMPLE TYPE:

| LAB No. | CLIENT No. | | $MoS_2$ % | | $WO_3$ % | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3191 K 81-2-91 | | 0.017 | | 0.022 | | | | | | | | | | |
| 2 | 92 | | 0,042 | | 0.027 | | | | | | | | | | |
| 3 | 93 | | 0.033 | | 0.016 | | | | | | | | | | |
| 4 | 94 | | 0.050 | | 0.016 | | | | | | | | | | |
| 5 | 95 | | 0.027 | | 0.014 | | | | | | | | | | |
| 6 | 96 | | 0.092 | | 0.030 | | | | | | | | | | |
| 7 | 97 | | 0.135 | | 0.016 | | | | | | | | | | |
| 8 | 98 | | 0.050 | | 0.028 | | | | | | | | | | |
| 9 | 99 | | 0.027 | | 0.024 | | | | | | | | | | |
| 0 | 100 | | 0.012 | | 0.030 | | | | | | | | | | |
| 1 | 101 | | 0.027 | | 0.013 | | | | | | | | | | |
| 2 | 102 | | 0.067 | | 0.019 | | | | | | | | | | |
| 3 | 103 | | 0.015 | | 0.016 | | | | | | | | | | |
| 4 | 104 | | 0.015 | | 0.024 | | | | | | | | | | |
| 5 | 105 | | 0.025 | | 0.016 | | | | | | | | | | |
| 6 | 106 | | 0.050 | | 0.038 | | | | | | | | | | |
| 7 | 107 | | 0.015 | | 0.014 | | | | | | | | | | |
| 8 | 108 | | 0.167 | | 0.019 | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | |

# GEO ANALYTICAL SERVICES (WEST[illegible]RN) LTD.

JOB #: 81-[illegible]



SAMPLE TYPE:

| LAB No. | CLIENT No. | | $MoS_2$ % | | $WO_3$ % | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3191 K 81-2-109 | | 0.001 | | 0.006 | | | | | | | | | | | |
| 2 | 110 | | 0.015 | | 0.009 | | | | | | | | | | | |
| 3 | 111 | | 0.001 | | 0.008 | | | | | | | | | | | |
| 4 | 112 | | 0.037 | | 0.009 | | | | | | | | | | | |
| 5 | 113 | | 0.001 | | 0.008 | | | | | | | | | | | |
| 6 | 114 | | 0.012 | | 0.011 | | | | | | | | | | | |
| 7 | 115 | | 0.004 | | 0.030 | | | | | | | | | | | |
| 8 | 81-3-116 | | 0.096 | | 0.020 | | | | | | | | | | | |
| 9 | 117 | | 0.496 | | 0.036 | | | | | | | | | | | |
| 0 | 118 | | 0.054 | | 0.011 | | | | | | | | | | | |
| 1 | 119 | | 0.001 | | 0.030 | | | | | | | | | | | |
| 2 | 120 | | 0.355 | | 0.013 | | | | | | | | | | | |
| 3 | 121 | | 0.576 | | 0.009 | | | | | | | | | | | |
| 4 | 122 | | 1.064 | | 0.011 | | | | | | | | | | | |
| 5 | 123 | | 0.276 | | 0.013 | | | | | | | | | | | |
| 6 | 124 | | 0.229 | | 0.011 | | | | | | | | | | | |
| 7 | 125 | | 0.083 | | 0.013 | | | | | | | | | | | |
| 8 | 126 | | 0.012 | | 0.009 | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | |
| 0 | | | | | | | | | | | | | | | | |

GEO ANALYTICAL SERVICES (WESTERN) LTD.

JOB #: 81

SAMPLE TYPE:



| LAB No. | CLIENT No. | | $MoS_2$ % | | $WO_3$ % | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3191 K 81-3-127 | | 0.196 | | 0.014 | | | | | | | | | | |
| 2 | 128 | | 0.204 | | 0.009 | | | | | | | | | | |
| 3 | 129 | | 0.192 | | 0.013 | | | | | | | | | | |
| 4 | 130 | | 0.121 | | 0.011 | | | | | | | | | | |
| 5 | 131 | | 0.037 | | 0.035 | | | | | | | | | | |
| 6 | 132 | | 0.104 | | 0.014 | | | | | | | | | | |
| 7 | 133 | | 0.200 | | 0.009 | | | | | | | | | | |
| 8 | 134 | | 0.092 | | 0.028 | | | | | | | | | | |
| 9 | 135 | | 0.083 | | 0.011 | | | | | | | | | | |
| 0 | 136 | | 0.040 | | 0.009 | | | | | | | | | | |
| 1 | 137 | | 0.025 | | 0.008 | | | | | | | | | | |
| 2 | 138 | | 0.088 | | 0.008 | | | | | | | | | | |
| 3 | 139 | | 0.037 | | 0.027 | | | | | | | | | | |
| 4 | 140 | | 0.033 | | 0.019 | | | | | | | | | | |
| 5 | 141 | | 0.042 | | 0.041 | | | | | | | | | | |
| 6 | 142 | | 0.062 | | 0.016 | | | | | | | | | | |
| 7 | 143 | | 0.163 | | 0.026 | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | |
| 0 | | | | | | | | | | | | | | | |

# GEO ANALYTICAL SERVICES (WESTERN) LTD.

JOB #: 81-

SAMPLE TYPE:



| LAB No. | CLIENT No. | | $MoS_2$ % | | $WO_3$ % | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3191 K 81-3-144 | | 0.063 | | 0.025 | | | | | | | | | | |
| 2 | 145 | | 0.063 | | 0.043 | | | | | | | | | | |
| 3 | 146 | | 0.037 | | 0.017 | | | | | | | | | | |
| 4 | 147 | | 0.012 | | 0.024 | | | | | | | | | | |
| 5 | 148 | | 0.063 | | 0.038 | | | | | | | | | | |
| 6 | 149 | | 0.025 | | 0.027 | | | | | | | | | | |
| 7 | 150 | | 0.004 | | 0.017 | | | | | | | | | | |
| 8 | 151 | | 0.054 | | 0.016 | | | | | | | | | | |
| 9 | 152 | | 0.008 | | 0.017 | | | | | | | | | | |
| 0 | 153 | | 0.015 | | 0.017 | | | | | | | | | | |
| 1 | 154 | | 0.028 | | 0.016 | | | | | | | | | | |
| 2 | 155 | | 0.058 | | 0.020 | | | | | | | | | | |
| 3 | 156 | | 0.125 | | 0.019 | | | | | | | | | | |
| 4 | 157 | | 0.011 | | 0.026 | | | | | | | | | | |
| 5 | 158 | | 0.037 | | 0.011 | | | | | | | | | | |
| 6 | 159 | | 0.015 | | 0.019 | | | | | | | | | | |
| 7 | 160 | | 0.035 | | 0.008 | | | | | | | | | | |
| 8 | 161 | | 0.054 | | 0.011 | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | |
| 0 | | | | | | | | | | | | | | | |

# GEO ANALYTICAL SERVICES (WESTERN) LTD.

JOB #: 8[illegible]13

SAMPLE TYPE: _____



| LAB No. | CLIENT No. | | $MoS_2$ % | | $WO_3$ % | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3191 K 81-3-162 | | 0.012 | | 0.009 | | | | | | | | | | |
| 2 | 163 | | 0.004 | | 0.008 | | | | | | | | | | |
| 3 | 164 | | 0.002 | | 0.019 | | | | | | | | | | |
| 4 | 165 | | 0.012 | | 0.008 | | | | | | | | | | |
| 5 | 166 | | 0.004 | | 0.011 | | | | | | | | | | |
| 6 | 167 | | 0.014 | | 0.008 | | | | | | | | | | |
| 7 | 168 | | 0.010 | | 0.017 | | | | | | | | | | |
| 8 | 169 | \ | 0.121 | | 0.017 | | | | | | | | | | |
| 9 | 170 | \ | 0.083 | | 0.011 | | | | | | | | | | |
| 0 | 171 | | 0.018 | | 0.014 | | | | | | | | | | |
| 1 | 172 | | 0.012 | | 0.016 | | | | | | | | | | |
| 2 | 173 | | 0.033 | | 0.024 | | | | | | | | | | |
| 3 | 174 | | 0.010 | | 0.014 | | | | | | | | | | |
| 4 | 175 | | 0.012 | | 0.011 | | | | | | | | | | |
| 5 | 176 | | 0.008 | | 0.009 | | | | | | | | | | |
| 6 | 177 | | 0.004 | | 0.001 | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | |
| 0 | | | | | | | | | | | | | | | |

# GEO ANALYTICAL SERVICES (WESTERN) LTD.

JOB #: 81-116

Mineral Exploration-Shell Canada Resources

SAMPLE TYPE:



| LAB No. | CLIENT No. | | % $MOS_2$ | | % $WO_3$ | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 81-4-178 | \ | 0.23 | 0.058 | 0.06 | | | | | | | | | | |
| 2 | 81-4-179 | \ | 0.07 | 0.033 | 0.01 | | | | | | | | | | |
| 3 | 81-4-180 | \ | 0.09 | — | 0.03 | | | | | | | | | | |
| 4 | 81-4-181 | | 0.04 | 0.020 | 0.02 | | | | | | | | | | |
| 5 | 81-4-182 | | 0.07 | 0.048 | <0.01 | | | | | | | | | | |
| 6 | 81-4-183 | | 0.04 | 0.018 | <0.01 | | | | | | | | | | |
| 7 | 81-4-184 | | <0.01 | 0.013 | 0.01 | | | | | | | | | | |
| 8 | 81-4-185 | \ | 0.13 | 0.040 | 0.01 | | | | | | | | | | |
| 9 | 81-4-186 | | 0.05 | <0.001 | <0.01 | | | | | | | | | | |
| 0 | 81-4-187 | | 0.03 | 0.010 | 0.02 | | | | | | | | | | |
| 1 | 81-4-188 | \ | 0.09 | 0.030 | 0.03 | | | | | | | | | | |
| 2 | 81-4-189 | \ | 0.05 | 0.015 | 0.04 | | | | | | | | | | |
| 3 | 81-4-190 | \ | 0.10 | 0.017 | 0.02 | | | | | | | | | | |
| 4 | 81-4-191 | \ | 0.26 | 0.023 | 0.02 | | | | | | | | | | |
| 5 | 81-4-192 | \ | 0.21 | 0.032 | 0.01 | | | | | | | | | | |
| 6 | 81-4-193 | \ | 0.20 | 0.051 | 0.02 | | | | | | | | | | |
| 7 | 81-4-194 | \ | 0.08 | 0.025 | 0.03 | | | | | | | | | | |
| 8 | 81-4-195 | | 0.01 | <0.001 | <0.01 | | | | | | | | | | |
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# GEO ANALYTICAL SERVICES (WESTERN) LTD.

JOB #: 8[illegible]6

SAMPLE TYPE: _____



| LAB No. | CLIENT No. | | $MOS_3$ | | $WO_3$ | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 81-4-196 | | 0.04 | | <0.01 | | | | | | | | | | |
| 2 | 81-4-197 | | 0.01 | | 0.01 | | | | | | | | | | |
| 3 | 81-4-198 | | 0.04 | | 0.02 | | | | | | | | | | |
| 4 | 81-4-199 | | 0.01 | | 0.06 | | | | | | | | | | |
| 5 | 81-4-200 | | <0.01 | | 0.01 | | | | | | | | | | |
| 6 | 81-4-201 | | 0.01 | | <0.01 | | | | | | | | | | |
| 7 | 81-4-202 | | 0.08 | | 0.05 | | | | | | | | | | |
| 8 | 81-4-203 | | 0.03 | | 0.07 | | | | | | | | | | |
| 9 | 81-4-204 | | 0.03 | | 0.03 | | | | | | | | | | |
| 0 | 81-4-205 | | 0.01 | | 0.01 | | | | | | | | | | |
| 1 | 81-4-206 | | <0.01 | | <0.01 | | | | | | | | | | |
| 2 | 81-4-207 | | 0.04 | | 0.01 | | | | | | | | | | |
| 3 | 81-4-208 | | 0.06 | | 0.01 | | | | | | | | | | |
| 4 | 81-4-209 | | 0.12 | | 0.02 | | | | | | | | | | |
| 5 | 81-4-210 | | 0.06 | | <0.01 | | | | | | | | | | |
| 6 | 81-4-211 | | 0.03 | | <0.01 | | | | | | | | | | |
| 7 | 81-4-212 | | 0.04 | | <0.01 | | | | | | | | | | |
| 8 | 81-4-213 | | 0.03 | | <0.01 | | | | | | | | | | |
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# GEO ANALYTICAL SERVICES (WESTERN) LTD.

JOB #: J116



SAMPLE TYPE:

| LAB No. | CLIENT No. | | $MOS_2$ | | $WO_3$ | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 81-4-214 | | 0.02 | | 0.01 | | | | | | | | | | |
| 2 | 81-4-215 | | 0.03 | <0.001 | <0.01 | | | | | | | | | | |
| 3 | 81-4-216 | | 0.09 | <0.001 | <0.01 | | | | | | | | | | |
| 4 | 81-4-217 | / | 0.09 | - | <0.01 | | | | | | | | | | |
| 5 | 81-4-218 | | 0.02 | - | <0.01 | | | | | | | | | | |
| 6 | 81-4-219 | / | 0.22 | 0.090 | <0.01 | | | | | | | | | | |
| 7 | 81-4-220 | | 0.03 | <0.001 | <0.01 | | | | | | | | | | |
| 8 | 81-4-221 | / | 0.21 | 0.018 | 0.01 | | | | | | | | | | |
| 9 | 81-4-222 | | 0.02 | 0.013 | <0.01 | | | | | | | | | | |
| 0 | 81-4-223 | / | 0.10 | 0.012 | <0.01 | | | | | | | | | | |
| 1 | 81-4-224 | / | 0.15 | 0.028 | <0.01 | | | | | | | | | | |
| 2 | 81-4-225 | / | 0.08 | | <0.01 | | | | | | | | | | |
| 3 | 81-4-226 | | 0.03 | | <0.01 | | | | | | | | | | |
| 4 | 81-4-227 | | 0.03 | | <0.01 | | | | | | | | | | |
| 5 | 81-5-228 | | 0.03 | | 0.01 | | | | | | | | | | |
| 6 | 81-5-229 | | 0.01 | | <0.01 | | | | | | | | | | |
| 7 | 81-5-230 | | 0.03 | | <0.01 | | | | | | | | | | |
| 8 | 81-5-231 | | 0.03 | | <0.01 | | | | | | | | | | |
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SAMPLE TYPE:

| LAB No. | CLIENT No. | | $MOS_2$ | | $WO_3$ | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 81-5-232 | | 0.01 | | 0.02 | | | | | | | | | | |
| 2 | 81-5-233 | | 0.02 | | <0.01 | | | | | | | | | | |
| 3 | 81-5-234 | | 0.20 | | <0.01 | | | | | | | | | | |
| 4 | 81-5-235 | | 0.02 | | 0.01 | | | | | | | | | | |
| 5 | 81-5-236 | | 0.02 | | <0.01 | | | | | | | | | | |
| 6 | 81-5-237 | | 0.02 | | <0.01 | | | | | | | | | | |
| 7 | 81-5-238 | | 0.04 | | <0.01 | | | | | | | | | | |
| 8 | 81-5-239 | | 0.02 | | <0.01 | | | | | | | | | | |
| 9 | 81-5-240 | | 0.16 | | <0.01 | | | | | | | | | | |
| 0 | 81-5-241 | | 0.12 | | <0.01 | | | | | | | | | | |
| 1 | 81-5-242 | | 0.08 | | <0.01 | | | | | | | | | | |
| 2 | 81-5-243 | | 0.05 | | <0.01 | | | | | | | | | | |
| 3 | 81-5-244 | | 0.03 | | 0.01 | | | | | | | | | | |
| 4 | 81-5-245 | | <0.01 | | <0.01 | | | | | | | | | | |
| 5 | 81-5-246 | | 0.05 | | <0.01 | | | | | | | | | | |
| 6 | 81-5-247 | | 0.06 | | <0.01 | | | | | | | | | | |
| 7 | 81-5-248 | | 0.04 | | <0.01 | | | | | | | | | | |
| 8 | 81-5-249 | | 0.04 | | 0.02 | | | | | | | | | | |
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SAMPLE TYPE:

| LAB No. | CLIENT No. | | $MOS_2$ | | $WO_3$ | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 81-5-250 | | 0.02 | | 0.01 | | | | | | | | | | |
| 2 | 81-5-251 | | 0.03 | | 0.02 | | | | | | | | | | |
| 3 | 81-5-252 | | 0.05 | | <0.01 | | | | | | | | | | |
| 4 | 81-5-253 | | 0.04 | | <0.01 | | | | | | | | | | |
| 5 | 81-5-254 | | 0.03 | | 0.01 | | | | | | | | | | |
| 6 | 81-5-255 | | 0.02 | | <0.01 | | | | | | | | | | |
| 7 | 81-5-256 | | 0.06 | | 0.01 | | | | | | | | | | |
| 8 | 81-5-257 | | 0.04 | | <0.01 | | | | | | | | | | |
| 9 | 81-5-258 | / | 0.10 | | <0.01 | | | | | | | | | | |
| 0 | 81-5-259 | | 0.04 | | 0.01 | | | | | | | | | | |
| 1 | 81-5-260 | | 0.04 | | 0.01 | | | | | | | | | | |
| 2 | 81-5-261 | / | 0.20 | | <0.01 | | | | | | | | | | |
| 3 | 81-5-262 | | 0.04 | | 0.01 | | | | | | | | | | |
| 4 | 81-5-263 | / | 0.11 | | <0.01 | | | | | | | | | | |
| 5 | 81-5-264 | | 0.07 | | <0.01 | | | | | | | | | | |
| 6 | 81-5-265 | | 0.03 | | 0.01 | | | | | | | | | | |
| 7 | 81-5-266 | | 0.07 | | 0.01 | | | | | | | | | | |
| 8 | 81-5-267 | | 0.03 | | <0.01 | | | | | | | | | | |
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SAMPLE TYPE:

| LAB No. | CLIENT No. | | $MOS_2$ | | $WO_3$ | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 81-5-268 | | 0.03 | | 0.01 | | | | | | | | | | |
| 2 | 81-5-269 | | 0.02 | | <0.01 | | | | | | | | | | |
| 3 | 81-5-270 | | 0.01 | | 0.01 | | | | | | | | | | |
| 4 | 81-5-271 | | 0.01 | | <0.01 | | | | | | | | | | |
| 5 | 81-5-272 | | 0.01 | | <0.01 | | | | | | | | | | |
| 6 | 81-5-273 | | 0.03 | | 0.01 | | | | | | | | | | |
| 7 | 81-5-274 | | 0.01 | | 0.01 | | | | | | | | | | |
| 8 | 81-5-275 | | 0.02 | | <0.01 | | | | | | | | | | |
| 9 | 81-5-276 | | <0.01 | | 0.01 | | | | | | | | | | |
| 0 | 81-5-277 | | 0.01 | | 0.01 | | | | | | | | | | |
| 1 | 81-5-278 | | 0.04 | | <0.01 | | | | | | | | | | |
| 2 | 81-5-279 | | 0.02 | | <0.01 | | | | | | | | | | |
| 3 | 81-5-280 | | 0.04 | | <0.01 | | | | | | | | | | |
| 4 | 81-5-281 | | 0.01 | | 0.01 | | | | | | | | | | |
| 5 | 81-5-282 | | 0.07 | | 0.02 | | | | | | | | | | |
| 6 | 81-5-283 | | <0.01 | | 0.01 | | | | | | | | | | |
| 7 | 81-5-284 | | 0.13 | | <0.01 | | | | | | | | | | |
| 8 | 81-5-285 | | 0.05 | | 0.02 | | | | | | | | | | |
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# GEO ANALYTICAL SERVICES (WESTERN) LTD.

JOB #: 116

SAMPLE TYPE:



| LAB No. | CLIENT No. | | $MOS_2$ | | $WO_3$ | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 81-5-286 | | 0.04 | | <0.01 | | | | | | | | | | |
| 2 | 81-5-287 | | 0.07 | | 0.02 | | | | | | | | | | |
| 3 | 81-5-288 | | 0.04 | | <0.01 | | | | | | | | | | |
| 4 | 81-5-289 | | 0.03 | | <0.01 | | | | | | | | | | |
| 5 | 81-5-290 | | 0.04 | | <0.01 | | | | | | | | | | |
| 6 | 81-5-291 | | <0.01 | | <0.01 | | | | | | | | | | |
| 7 | 81-5-292 | | <0.01 | | <0.01 | | | | | | | | | | |
| 8 | 81-5-293 | | <0.01 | | <0.01 | | | | | | | | | | |
| 9 | 81-5-294 | | 0.01 | | <0.01 | | | | | | | | | | |
| 0 | 81-5-295 | | 0.01 | | <0.01 | | | | | | | | | | |
| 1 | 81-5-296 | | .01 | | 0.01 | | | | | | | | | | |
| 2 | 81-5-297 | | 0.03 | | < 0.01 | | | | | | | | | | |
| 3 | 81-5-298 | | 0.02 | | 0.01 | | | | | | | | | | |
| 4 | 81-5-299 | | 0.07 | | 0.01 | | | | | | | | | | |
| 5 | 81-5-300 | | 0.07 | | 0.01 | | | | | | | | | | |
| 6 | 81-5-301 | | 0.31 | | 0.01 | | | | | | | | | | |
| 7 | 81-5-303 | | 0.07 | | <0.01 | | | | | | | | | | |
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# GEO ANALYTICAL SERVICES (WESTERN) LTD.

JOB #: 8[illegible]16

PAGE 8 OF 12

SAMPLE TYPE:

| LAB No. | CLIENT No. | | $MOS_2$ | | $WO_2$ | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 81-5-304 | | 0.04 | | 0.01 | | | | | | | | | | |
| 2 | 81-5-305 | | 0.05 | | <0.01 | | | | | | | | | | |
| 3 | 81-5-306 | | 0.05 | | <0.01 | | | | | | | | | | |
| 4 | 81-6-307 | | 0.11 | | 0.01 | | | | | | | | | | |
| 5 | 81-6-308 | | 0.18 | | 0.05 | | | | | | | | | | |
| 6 | 81-6-309 | | 0.02 | | 0.01 | | | | | | | | | | |
| 7 | 81-6-310 | | 0.03 | | 0.01 | | | | | | | | | | |
| 8 | 81-6-311 | | 0.02 | | 0.01 | | | | | | | | | | |
| 9 | 81-6-312 | | 0.03 | | 0.01 | | | | | | | | | | |
| 0 | 81-6-313 | | 0.01 | | 0.05 | | | | | | | | | | |
| 1 | 81-6-314 | | 0.01 | | 0.04 | | | | | | | | | | |
| 2 | 81-6-315 | | 0.01 | | 0.03 | | | | | | | | | | |
| 3 | 81-6-316 | | 0.01 | | 0.02 | | | | | | | | | | |
| 4 | 81-6-317 | | 0.02 | | <0.01 | | | | | | | | | | |
| 5 | 81-6-318 | | 0.04 | | 0.01 | | | | | | | | | | |
| 6 | 81-6-319 | | 0.06 | | 0.01 | | | | | | | | | | |
| 7 | 81-6-320 | | 0.04 | | 0.02 | | | | | | | | | | |
| 8 | 81-6-321 | | 0.09 | | 0.02 | | | | | | | | | | |
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# GEO ANALYTICAL SERVICES (WESTERN) LTD.

JOB #: 116



SAMPLE TYPE:

| LAB No. | CLIENT No. | | $MOS_2$ | | $WO_3$ | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 81-6-322 | | 0.16 | | 0.01 | | | | | | | | | | |
| 2 | 81-6-323 | | 0.09 | | 0.02 | | | | | | | | | | |
| 3 | 81-6-324 | | 0.08 | | 0.02 | | | | | | | | | | |
| 4 | 81-6-325 | | 0.90 | | 0.02 | | | | | | | | | | |
| 5 | 81-6-326 | | 0.23 | | 0.03 | | | | | | | | | | |
| 6 | 81-6-327 | | 0.13 | | 0.02 | | | | | | | | | | |
| 7 | 81-6-328 | | 0.15 | | 0.02 | | | | | | | | | | |
| 8 | 81-6-329 | | 0.05 | | 0.03 | | | | | | | | | | |
| 9 | 81-6-330 | | 0.09 | | 0.03 | | | | | | | | | | |
| 0 | 81-6-331 | | 0.07 | | 0.02 | | | | | | | | | | |
| 1 | * 81-6-333 | | 0.04 | | 0.01 | | | | | | | | | | |
| 2 | 81-6-334 | | 0.10 | | 0.02 | | | | | | | | | | |
| 3 | 81-6-335 | | 0.07 | | 0.03 | 0.13% | | | | | | | | | |
| 4 | 81-6-336 | | 0.04 | | 0.01 | | | | | | | | | | |
| 5 | 81-6-337 | | 0.16 | | 0.04 | | | | | | | | | | |
| 6 | 81-6-338 | | 0.03 | | 0.02 | | | | | | | | | | |
| 7 | 81-6-339 | | 0.01 | | 0.02 | | | | | | | | | | |
| 8 | * 81-6-332 | | 0.08 | | 0.02 | | | | | | | | | | |
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# GEO ANALYTICAL SERVICES (WES[illegible]ERN) LTD.

JOB #: [illegible]116

SAMPLE TYPE:



| LAB No. | CLIENT No. | | $MOS_2$ | | $WO_3$ | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 81-6-340 | | 0.02 | | 0.02 | | | | | | | | | | |
| 2 | 81-6-341 | | 0.02 | | 0.03 | | | | | | | | | | |
| 3 | 81-6-342 | | 0.02 | | 0.01 | | | | | | | | | | |
| 4 | 81-6-343 | | 0.02 | | 0.03 | | | | | | | | | | |
| 5 | 81-6-344 | | 0.03 | | 0.02 | | | | | | | | | | |
| 6 | 81-6-345 | | 0.05 | | 0.01 | | | | | | | | | | |
| 7 | 81-6-346 | | 0.03 | | 0.01 | | | | | | | | | | |
| 8 | 81-6-347 | | 0.03 | | 0.01 | | | | | | | | | | |
| 9 | 81-6-348 | | 0.05 | | 0.01 | | | | | | | | | | |
| 0 | 81-6-349 | | 0.03 | | 0.02 | | | | | | | | | | |
| 1 | 81-6-350 | | <0.01 | | 0.01 | | | | | | | | | | |
| 2 | 81-6-351 | | 0.02 | | 0.19 | | | | | | | | | | |
| 3 | 81-6-352 | | 0.02 | | 0.01 | | | | | | | | | | |
| 4 | 81-6-353 | | 0.03 | | 0.01 | | | | | | | | | | |
| 5 | 81-6-354 | | 0.03 | | 0.01 | | | | | | | | | | |
| 6 | 81-6-355 | | 0.06 | | 0.01 | | | | | | | | | | |
| 7 | 81-6-356 | | 0.03 | | 0.01 | | | | | | | | | | |
| 8 | 81-6-357 | | 0.03 | | 0.01 | | | | | | | | | | |
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# GEO ANALYTICAL SERVICES (W[redacted]TERN) LTD.

JOB #: [redacted]-116

SAMPLE TYPE:



| LAB No. | CLIENT No. | | $MoS_2$ | | $WO_3$ | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 81-6-358 | | 0.04 | | 0.01 | | | | | | | | | | |
| 2 | 81-6-359 | | 0.07 | | 0.01 | | | | | | | | | | |
| 3 | 81-6-360 | | 0.11 | | 0.01 | | | | | | | | | | |
| 4 | 81-6-361 | | 0.12 | | 0.01 | | | | | | | | | | |
| 5 | 81-6-362 | | 0.05 | | 0.01 | | | | | | | | | | |
| 6 | 81-6-363 | | 0.02 | | 0.01 | | | | | | | | | | |
| 7 | 81-6-364 | | 0.03 | | 0.01 | | | | | | | | | | |
| 8 | 81-6-365 | | 0.02 | | 0.01 | | | | | | | | | | |
| 9 | 81-6-366 | | 0.02 | | 0.01 | | | | | | | | | | |
| 0 | 81-6-367 | | 0.01 | | 0.01 | | | | | | | | | | |
| 1 | 81-6-368 | | 0.01 | | 0.02 | | | | | | | | | | |
| 2 | 81-6-369 | | 0.01 | | 0.02 | | | | | | | | | | |
| 3 | 81-6-370 | | 0.05 | | 0.01 | | | | | | | | | | |
| 4 | 81-6-371 | | 0.02 | | 0.01 | | | | | | | | | | |
| 5 | 81-6-372 | | 0.02 | | 0.01 | | | | | | | | | | |
| 6 | 81-6-373 | | 0.02 | | 0.01 | | | | | | | | | | |
| 7 | 81-6-374 | | 0.01 | | 0.01 | | | | | | | | | | |
| 8 | 81-6-375 | | 0.01 | | 0.02 | | | | | | | | | | |
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# GEO ANALYTICAL SERVICES (WESTERN) LTD.

JOB #: 116

SAMPLE TYPE: _____



| LAB No. | CLIENT No. | | $MOS_2$ | | $WO_3$ | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 81-6-376 | | 0.02 | | 0.02 | | | | | | | | | | |
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# GEO ANALYTICAL SERVICES (WESTERN) LTD.

JOB #: 81 19

Shell Canada Resources Ltd.

PAGE 1

SAMPLE TYPE:

| LAB No. | CLIENT No. | | $MoS_2$ % | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 81-7-377.. | | < .001 | | | | | | | | | | | | |
| 2 | 378 | | .042 | | | | | | | | | | | | |
| 3 | 379 | | .058 | | | | | | | | | | | | |
| 4 | 380 | | .083 | | | | | | | | | | | | |
| 5 | 381 | | .259 | | | | | | | | | | | | |
| 6 | 382 | | < .001 | | | | | | | | | | | | |
| 7 | 383 | | .067 | | | | | | | | | | | | |
| 8 | 384 | | .042 | | | | | | | | | | | | |
| 9 | 385 | | .042 | 0.12% $MoS_2$ | | | | | | | | | | | |
| 0 | 386 | | .067 | | | | | | | | | | | | |
| 1 | 387 | | .342 | | | | | | | | | | | | |
| 2 | 388 | | .400 | | | | | | | | | | | | |
| 3 | 81-8 389 | | < .001 | | | | | | | | | | | | |
| 4 | 390 | | .083 | | | | | | | | | | | | |
| 5 | 391 | | .058 | | | | | | | | | | | | |
| 6 | 392 | | < .001 | | | | | | | | | | | | |
| 7 | 393 | | .542 | | | | | | | | | | | | |
| 8 | 394 | | < .001 | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | |
| 0 | | | | | | | | | | | | | | | |

# GEO ANALYTICAL SERVICES (WEST[illegible]N) LTD.

JOB #: 8 [illegible]9

PAGE 2

SAMPLE TYPE:

| LAB No. | CLIENT No. | | $MoS_2$ % | |
|---|---|---|---|---|
| 1 | 81-8-395 | | .341 | |
| 2 | 396 | | .083 | |
| 3 | 397 | | .042 | |
| 4 | 398 | | .400 | 0.14% |
| 5 | 399 | | .108 | |
| 6 | 400 | | .042 | |
| 7 | 401 | | .067 | |
| 8 | 402 | | .042 | |
| 9 | 81-9-403 | | <.001 | |
| 0 | 404 | | <.001 | |
| 1 | 405 | | .083 | |
| 2 | 406 | | .167 | |
| 3 | 407 | | <.001 | |
| 4 | 408 | | .284 | |
| 5 | 409 | | .042 | |
| 6 | 410 | | .059 | |
| 7 | 411 | | .108 | |
| 8 | 412 | | .025 | |
| 9 | | | | |
| 0 | | | | |

# GEO ANALYTICAL SERVICES (WESTERN) LTD.

JOB #: 81-[illegible]

PAGE 3

SAMPLE TYPE:

| LAB No. | CLIENT No. | | $MoS_2$ % | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 81-9-413 | | .017 | | | | | | | | | | | | |
| 2 | 414 | | .033 | | | | | | | | | | | | |
| 3 | 415 | | .042 | | | | | | | | | | | | |
| 4 | 416 | | .100 | | | | | | | | | | | | |
| 5 | 417 | | .125 | | | | | | | | | | | | |
| 6 | 418 | | .017 | | | | | | | | | | | | |
| 7 | 419 | | .025 | | | | | | | | | | | | |
| 8 | 420 | | .008 | | | | | | | | | | | | |
| 9 | 421 | | .025 | | | | | | | | | | | | |
| 0 | 422 | | .259 | | | | | | | | | | | | |
| 1 | 423 | | .474 | | | | | | | | | | | | |
| 2 | 424 | | .434 | | | | | | | | | | | | |
| 3 | 425 | | .741 | | | | | | | | | | | | |
| 4 | 426 | | .567 | | | | | | | | | | | | |
| 5 | 427 | | .050 | | | | | | | | | | | | |
| 6 | 428 | | .042 | | | | | | | | | | | | |
| 7 | 429 | | .417 | | | | | | | | | | | | |
| 8 | 430 | | .400 | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | |
| 0 | | | | | | | | | | | | | | | |

# GEO ANALYTICAL SERVICES (WEST[illegible]N) LTD.

JOB #: 8[illegible]19

PAGE 4

SAMPLE TYPE:

| LAB No. | CLIENT No. | | $MoS_2$ % | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 81-9-431 | | .492 | | | | | | | | | | | | |
| 2 | 432 | | .192 | | | | | | | | | | | | |
| 3 | 433 | | .617 | | | | | | | | | | | | |
| 4 | 434 | | .817 | | | | | | | | | | | | |
| 5 | 435 | | .250 | | | | | | | | | | | | |
| 6 | 436 | | .067 | | | | | | | | | | | | |
| 7 | 437 | | .300 | | | | | | | | | | | | |
| 8 | 438 | | .601 | | | | | | | | | | | | |
| 9 | 439 | | .459 | | | | | | | | | | | | |
| 0 | 440 | | .926 | | | | | | | | | | | | |
| 1 | 441 | | 1.034 | | | | | | | | | | | | |
| 2 | 442 | | .475 | | | | | | | | | | | | |
| 3 | 443 | | .417 | | | | | | | | | | | | |
| 4 | 444 | | .459 | | | | | | | | | | | | |
| 5 | 445 | | .475 | | | | | | | | | | | | |
| 6 | 446 | | .684 | | | | | | | | | | | | |
| 7 | 447 | | .075 | | | | | | | | | | | | |
| 8 | 448 | | .392 | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | |
| 0 | | | | | | | | | | | | | | | |

# GEO ANALYTICAL SERVICES (WEST[illegible]N) LTD.

JOB #: 8[illegible]19

SAMPLE TYPE: _____



| LAB No. | CLIENT No. | | $MoS_2$ % | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 81-9-449 | | 1.626 | | | | | | | | | | | | |
| 2 | 450 | | 1.093 | | | | | | | | | | | | |
| 3 | 451 | | .926 | | | | | | | | | | | | |
| 4 | 452 | | 1.251 | | | | | | | | | | | | |
| 5 | 453 | | .359 | | | | | | | | | | | | |
| 6 | 454 | | .926 | | | | | | | | | | | | |
| 7 | 455 | | .817 | | | | | | | | | | | | |
| 8 | 456 | | .292 | | | | | | | | | | | | |
| 9 | 457 | | .267 | | | | | | | | | | | | |
| 0 | 458 | | .367 | | | | | | | | | | | | |
| 1 | 459 | | .342 | | | | | | | | | | | | |
| 2 | 460 | | .125 | | | | | | | | | | | | |
| 3 | 461 | | .133 | | | | | | | | | | | | |
| 4 | 462 | | <.001 | | | | | | | | | | | | |
| 5 | 463 | | .542 | | | | | | | | | | | | |
| 6 | 464 | | .267 | | | | | | | | | | | | |
| 7 | 465 | | .167 | | | | | | | | | | | | |
| 8 | 466 | | .167 | | | | | | | | | | | | |
| 9 | 467 | | 1.710 | | | | | | | | | | | | |
| 0 | | | | | | | | | | | | | | | |

# GEO ANALYTICAL SERVICES (WEST[illegible]N) LTD.

JOB #: 8[illegible]20

SHELL CANADA RESOURCES.

SAMPLE TYPE:



| LAB No. | CLIENT No. | | $MoS_2$ % | | $WO_3$ % | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3191 K 81-10-468 | | 0.007 | | .009 | | | | | | | | | | |
| 2 | 469 | | 0.004 | | .011 | | | | | | | | | | |
| 3 | 470 | | .009 | | .008 | | | | | | | | | | |
| 4 | 471 | | .002 | | .009 | | | | | | | | | | |
| 5 | 472 | | .002 | | .008 | | | | | | | | | | |
| 6 | 473 | | .004 | | .009 | | | | | | | | | | |
| 7 | 474 | | .005 | | .016 | | | | | | | | | | |
| 8 | 475 | | <.001 | | .009 | | | | | | | | | | |
| 9 | 476 | | .001 | | .013 | | | | | | | | | | |
| 0 | 477 | | .001 | | .009 | | | | | | | | | | |
| 1 | 478 | | .001 | | .009 | | | | | | | | | | |
| 2 | 479 | | <.001 | | .008 | | | | | | | | | | |
| 3 | 480 | | <.001 | | .003 | | | | | | | | | | |
| 4 | 481 | | <.001 | | .008 | | | | | | | | | | |
| 5 | 482 | | .005 | | .011 | | | | | | | | | | |
| 6 | 483 | | .008 | | .019 | | | | | | | | | | |
| 7 | 484 | | .007 | | .017 | | | | | | | | | | |
| 8 | 485 | | .008 | | .011 | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | |
| 0 | | | | | | | | | | | | | | | |

# GEO ANALYTICAL SERVICES (WESTERN) LTD.

JOB #: 120

SAMPLE TYPE:



| LAB No. | CLIENT No. | | $MoS_2$ % | | $WO_3$ % | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 81-10-486 | | <.001 | | .006 | | | | | | | | | | | |
| 2 | 487 | | .006 | | .009 | | | | | | | | | | | |
| 3 | 488 | | .005 | | .014 | | | | | | | | | | | |
| 4 | 81-11-489 | | .001 | | .019 | | | | | | | | | | | |
| 5 | 490 | | .003 | | .013 | | | | | | | | | | | |
| 6 | 491 | | .003 | | .036 | | | | | | | | | | | |
| 7 | 492 | | .001 | | .013 | | | | | | | | | | | |
| 8 | 493 | | .001 | | .011 | | | | | | | | | | | |
| 9 | 494 | | <.001 | | .009 | | | | | | | | | | | |
| 0 | 495 | | .001 | | .009 | | | | | | | | | | | |
| 1 | 496 | | <.001 | | .008 | | | | | | | | | | | |
| 2 | 497 | | <.001 | | .009 | | | | | | | | | | | |
| 3 | 498 | | .002 | | .008 | | | | | | | | | | | |
| 4 | 499 | | <.001 | | .009 | | | | | | | | | | | |
| 5 | 500 | | <.001 | | .009 | | | | | | | | | | | |
| 6 | 501 | | .002 | | .009 | | | | | | | | | | | |
| 7 | 502 | | <.001 | | .013 | | | | | | | | | | | |
| 8 | 503 | | .007 | | .009 | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | |
| 0 | | | | | | | | | | | | | | | | |

# GEO ANALYTICAL SERVICES (WEST[illegible]N) LTD.

JOB #: 8[illegible]20

SAMPLE TYPE: _____



| LAB No. | CLIENT No. | | $MoS_2$ % | | $WO_3$ % | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 81-11-504 | | .003 | | .014 | | | | | | | | | | |
| 2 | 505 | | .001 | | .013 | | | | | | | | | | |
| 3 | 506 | | .003 | | .011 | | | | | | | | | | |
| 4 | 507 | | .002 | | .011 | | | | | | | | | | |
| 5 | 508 | | .001 | | .013 | | | | | | | | | | |
| 6 | 509 | | .002 | | .013 | | | | | | | | | | |
| 7 | 510 | | .011 | | .011 | | | | | | | | | | |
| 8 | 511 | | .022 | | .009 | | | | | | | | | | |
| 9 | 512 | | .037 | | .013 | | | | | | | | | | |
| 0 | 513 | | .014 | | .016 | | | | | | | | | | |
| 1 | 514 | | .033 | | .016 | | | | | | | | | | |
| 2 | 515 | | .032 | | .014 | | | | | | | | | | |
| 3 | 516 | | .019 | | .017 | | | | | | | | | | |
| 4 | 517 | | .009 | | .013 | | | | | | | | | | |
| 5 | 518 | | .004 | | .013 | | | | | | | | | | |
| 6 | 519 | | .013 | | .024 | | | | | | | | | | |
| 7 | 520 | | .007 | | .025 | | | | | | | | | | |
| 8 | 521 | | .006 | | .016 | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | |

# GEO ANALYTICAL SERVICES (WEST[illegible]N) LTD.

JOB #: 81[illegible]

SAMPLE TYPE: _____



| LAB No. | CLIENT No. | | $MoS_2$ % | | $WO_3$ % | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 81-11-522 | | .009 | | .014 | | | | | | | | | | |
| 2 | 523 | | .007 | | .027 | | | | | | | | | | |
| 3 | 524 | | .004 | | .014 | | | | | | | | | | |
| 4 | 525 | | .006 | | .017 | | | | | | | | | | |
| 5 | 526 | | .006 | | .014 | | | | | | | | | | |
| 6 | 81-12-527 | | <.001 | | .016 | | | | | | | | | | |
| 7 | 528 | | .005 | | .017 | | | | | | | | | | |
| 8 | 529 | | .005 | | .016 | | | | | | | | | | |
| 9 | 530 | | .006 | | .011 | | | | | | | | | | |
| 0 | 531 | | .003 | | .011 | | | | | | | | | | |
| 1 | 532 | | .004 | | .009 | | | | | | | | | | |
| 2 | 533 | | .003 | | .016 | | | | | | | | | | |
| 3 | 534 | | .001 | | .009 | | | | | | | | | | |
| 4 | 535 | | .003 | | .011 | | | | | | | | | | |
| 5 | 536 | | .002 | | .008 | | | | | | | | | | |
| 6 | 537 | | .001 | | .009 | | | | | | | | | | |
| 7 | 538 | | .001 | | .008 | | | | | | | | | | |
| 8 | 539 | | .005 | | .013 | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | |
| 0 | | | | | | | | | | | | | | | |

# GEO ANALYTICAL SERVICES (WESTERN) LTD.

JOB #: [illegible]20

SAMPLE TYPE:



| LAB No. | CLIENT No. | | $MoS_2$ % | | $WO_3$ % | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 81-11-522 | | .009 | | .014 | | | | | | | | | | |
| 2 | 523 | | .007 | | .027 | | | | | | | | | | |
| 3 | 524 | | .004 | | .014 | | | | | | | | | | |
| 4 | 525 | | .006 | | .017 | | | | | | | | | | |
| 5 | 526 | | .006 | | .014 | | | | | | | | | | |
| 6 | 81-12-527 | | <.001 | | .016 | | | | | | | | | | |
| 7 | 528 | | .005 | | .017 | | | | | | | | | | |
| 8 | 529 | | .005 | | .016 | | | | | | | | | | |
| 9 | 530 | | .006 | | .011 | | | | | | | | | | |
| 0 | 531 | | .003 | | .011 | | | | | | | | | | |
| 1 | 532 | | .004 | | .009 | | | | | | | | | | |
| 2 | 533 | | .003 | | .016 | | | | | | | | | | |
| 3 | 534 | | .001 | | .009 | | | | | | | | | | |
| 4 | 535 | | .003 | | .011 | | | | | | | | | | |
| 5 | 536 | | .002 | | .008 | | | | | | | | | | |
| 6 | 537 | | .001 | | .009 | | | | | | | | | | |
| 7 | 538 | | .001 | | .008 | | | | | | | | | | |
| 8 | 539 | | .005 | | .013 | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | |

# GEO ANALYTICAL SERVICES (WEST [illegible]N) LTD.

JOB #: 81[illegible]0



SAMPLE TYPE:

| LAB No. | CLIENT No. | | $MoS_2$ % | | $WO_3$ % | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 81-12-540 | | .005 | | .008 | | | | | | | | | | |
| 2 | 541 | | .002 | | .005 | | | | | | | | | | |
| 3 | 542 | | .005 | | .006 | | | | | | | | | | |
| 4 | 543 | | .007 | | .002 | | | | | | | | | | |
| 5 | 544 | | .008 | | .003 | | | | | | | | | | |
| 6 | 545 | | .002 | | .008 | | | | | | | | | | |
| 7 | 546 | | .001 | | .009 | | | | | | | | | | |
| 8 | 81-13-547 | | .006 | | .009 | | | | | | | | | | |
| 9 | 548 | | .011 | | .011 | | | | | | | | | | |
| 0 | 549 | | .002 | | .009 | | | | | | | | | | |
| 1 | 550 | | .007 | | .008 | | | | | | | | | | |
| 2 | 551 | | .003 | | .008 | | | | | | | | | | |
| 3 | 552 | | .004 | | .005 | | | | | | | | | | |
| 4 | 553 | | .006 | | .005 | | | | | | | | | | |
| 5 | 554 | | .006 | | .008 | | | | | | | | | | |
| 6 | 555 | | .006 | | .009 | | | | | | | | | | |
| 7 | 556 | | .006 | | .006 | | | | | | | | | | |
| 8 | 557 | | .007 | | .008 | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | |

# GEO ANALYTICAL SERVICES (WEST[illegible]N) LTD.

JOB #: 81-[illegible]

SAMPLE TYPE:



| LAB No. | CLIENT No. | | $MoS_2$ % | | $WO_3$ % | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 81-13-558 | | .005 | | .002 | | | | | | | | | | |
| 2 | 559 | | .002 | | .003 | | | | | | | | | | |
| 3 | 560 | | .005 | | .002 | | | | | | | | | | |
| 4 | 561 | | .007 | | .005 | | | | | | | | | | |
| 5 | 562 | | .008 | | .002 | | | | | | | | | | |
| 6 | 563 | | .002 | | .003 | | | | | | | | | | |
| 7 | 564 | | .001 | | .003 | | | | | | | | | | |
| 8 | 565 | | .006 | | .005 | | | | | | | | | | |
| 9 | 566 | | .011 | | .008 | | | | | | | | | | |
| 0 | 567 | | .002 | | .002 | | | | | | | | | | |
| 1 | 568 | | .007 | | <.001 | | | | | | | | | | |
| 2 | 569 | | .003 | | <.001 | | | | | | | | | | |
| 3 | 570 | | .004 | | .003 | | | | | | | | | | |
| 4 | 571 | | .006 | | .005 | | | | | | | | | | |
| 5 | 572 | | .006 | | .003 | | | | | | | | | | |
| 6 | 573 | | .006 | | .002 | | | | | | | | | | |
| 7 | 574 | | .006 | | .002 | | | | | | | | | | |
| 8 | 575 | | .007 | | .003 | | | | | | | | | | |
| 9 | 576 | | .003 | | .009 | | | | | | | | | | |
| 0 | | | | | | | | | | | | | | | |

# GEO ANALYTICAL SERVICES (WEST[illegible]N) LTD.

JOB #: 8[illegible]27

SAMPLE TYPE: SHELL CANADA (LTD)



| LAB No. | CLIENT No. | | $MoS_2$ % | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 81-14-580 | | <.001 | | | | | | | | | | | | |
| 2 | 583 | | <.001 | | | | | | | | | | | | |
| 3 | 586 | | <.001 | | | | | | | | | | | | |
| 4 | 589 | | <.001 | | | | | | | | | | | | |
| 5 | 592 | | <.001 | | | | | | | | | | | | |
| 6 | 595 | | .042 | | | | | | | | | | | | |
| 7 | 598 | | <.001 | | | | | | | | | | | | |
| 8 | 601 | | <.001 | | | | | | | | | | | | |
| 9 | 603 | | <.001 | | | | | | | | | | | | |
| 0 | 81-15-604 | | .167 | | | | | | | | | | | | |
| 1 | 607 | | <.001 | | | | | | | | | | | | |
| 2 | 610 | | <.001 | | | | | | | | | | | | |
| 3 | 613 | | <.001 | | | | | | | | | | | | |
| 4 | 616 | | <.001 | | | | | | | | | | | | |
| 5 | 619 | | .209 | | | | | | | | | | | | |
| 6 | 622 | | .042 | | | | | | | | | | | | |
| 7 | 625 | | <.001 | | | | | | | | | | | | |
| 8 | 628 | | .042 | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | |
| 0 | | | | | | | | | | | | | | | |

# GEO ANALYTICAL SERVICES (WESTERN) LTD.

JOB #: 8' '27

SHELL - CANADA (LT.D')

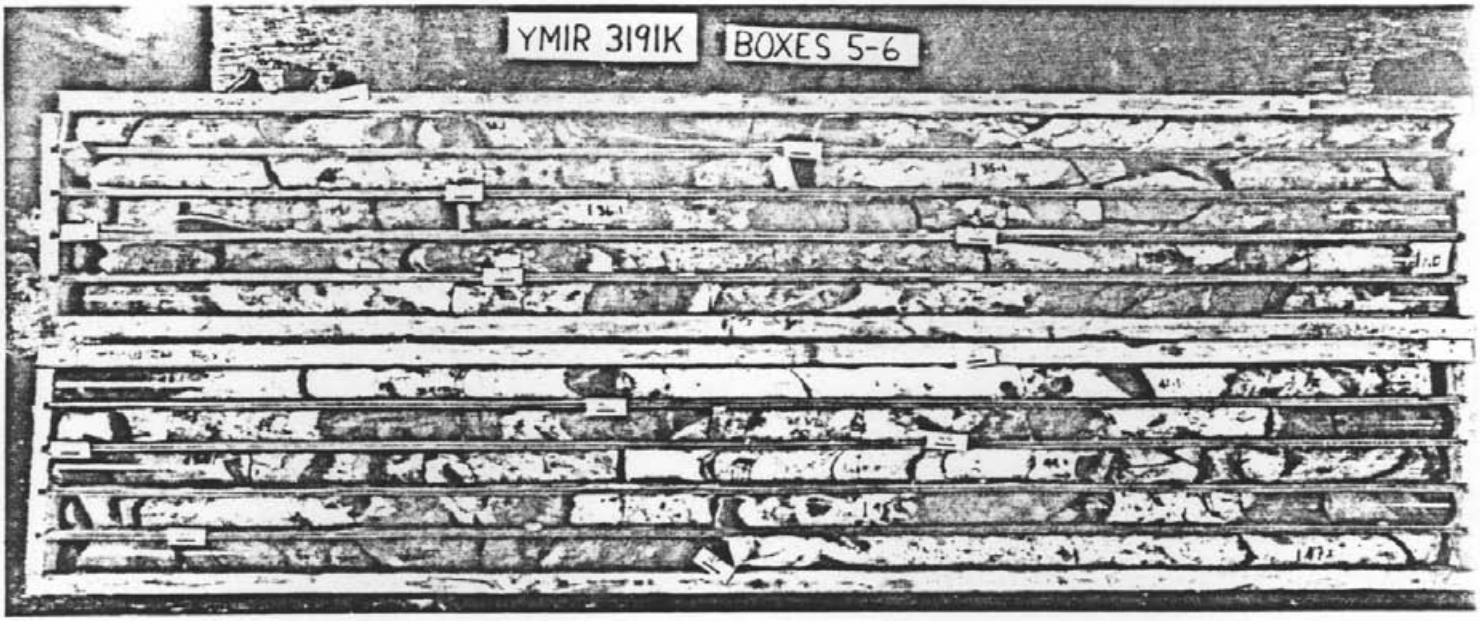
PAGE 2

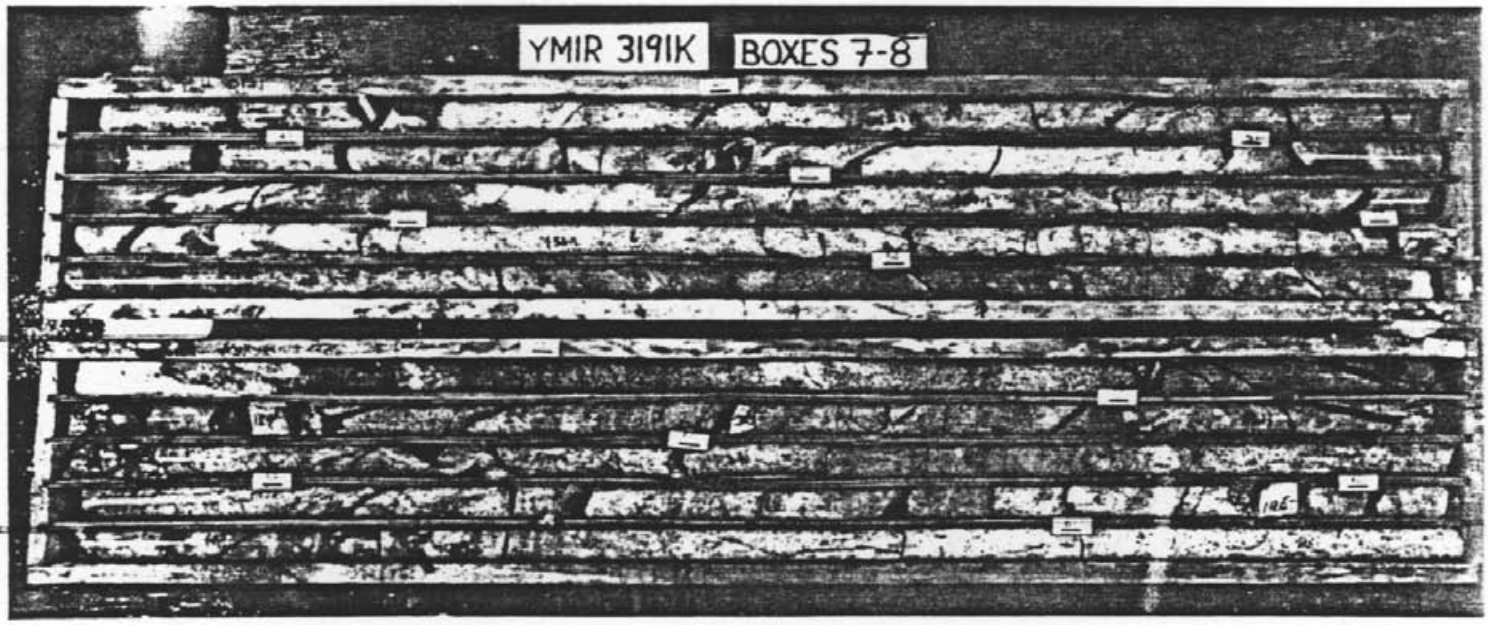
SAMPLE TYPE:

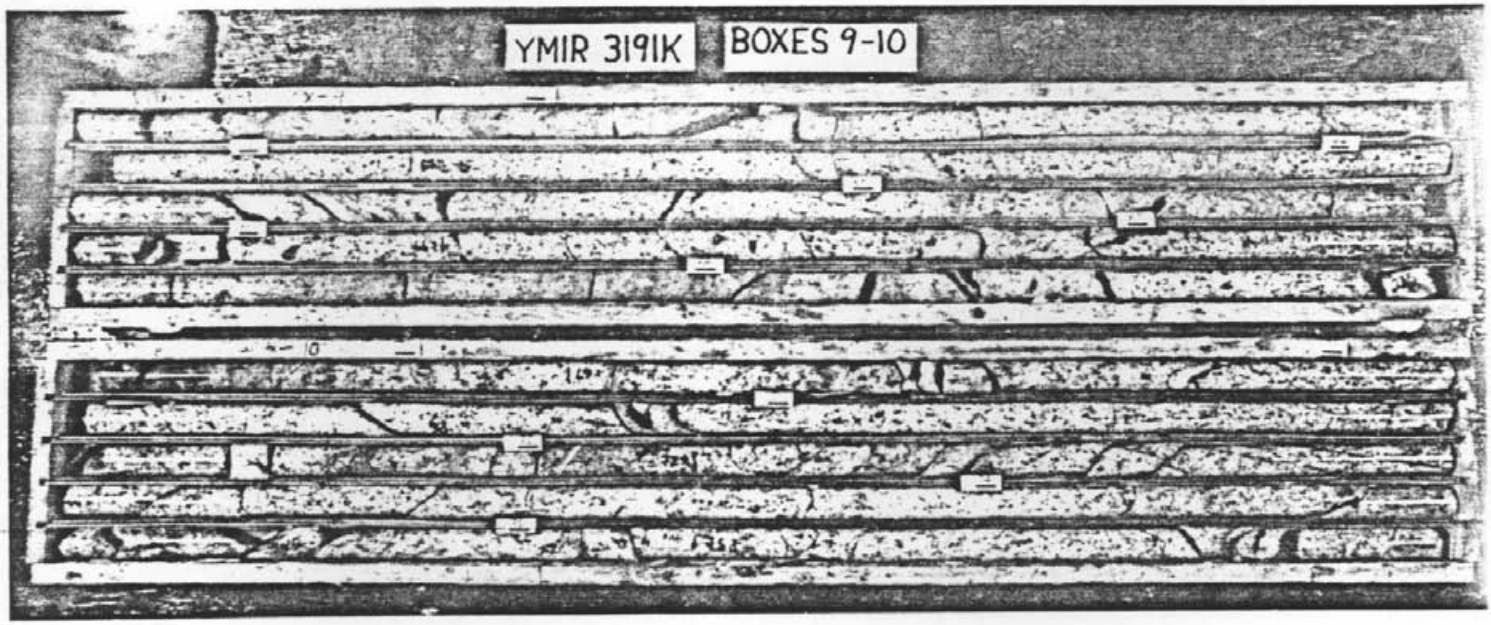
| LAB No. | CLIENT No. | | $MoS_2$ % | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 81-15-631 | | .083 | | | | | | | | | | | | |
| 2 | 634 | | .042 | | | | | | | | | | | | |
| 3 | 637 | | < .001 | | | | | | | | | | | | |
| 4 | 640 | | < .001 | | | | | | | | | | | | |
| 5 | 643 | | < .001 | | | | | | | | | | | | |
| 6 | 644 | | .042 | | | | | | | | | | | | |
| 7 | 645 | | .083 | | | | | | | | | | | | |
| 8 | 81-16-646 | | .042 | | | | | | | | | | | | |
| 9 | 649 | | .083 | | | | | | | | | | | | |
| 0 | 652 | | .025 | | | | | | | | | | | | |
| 1 | 655 | | .042 | | | | | | | | | | | | |
| 2 | 658 | | .067 | | | | | | | | | | | | |
| 3 | 81-14-585 | | .175 | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | |
| 0 | | | | | | | | | | | | | | | |

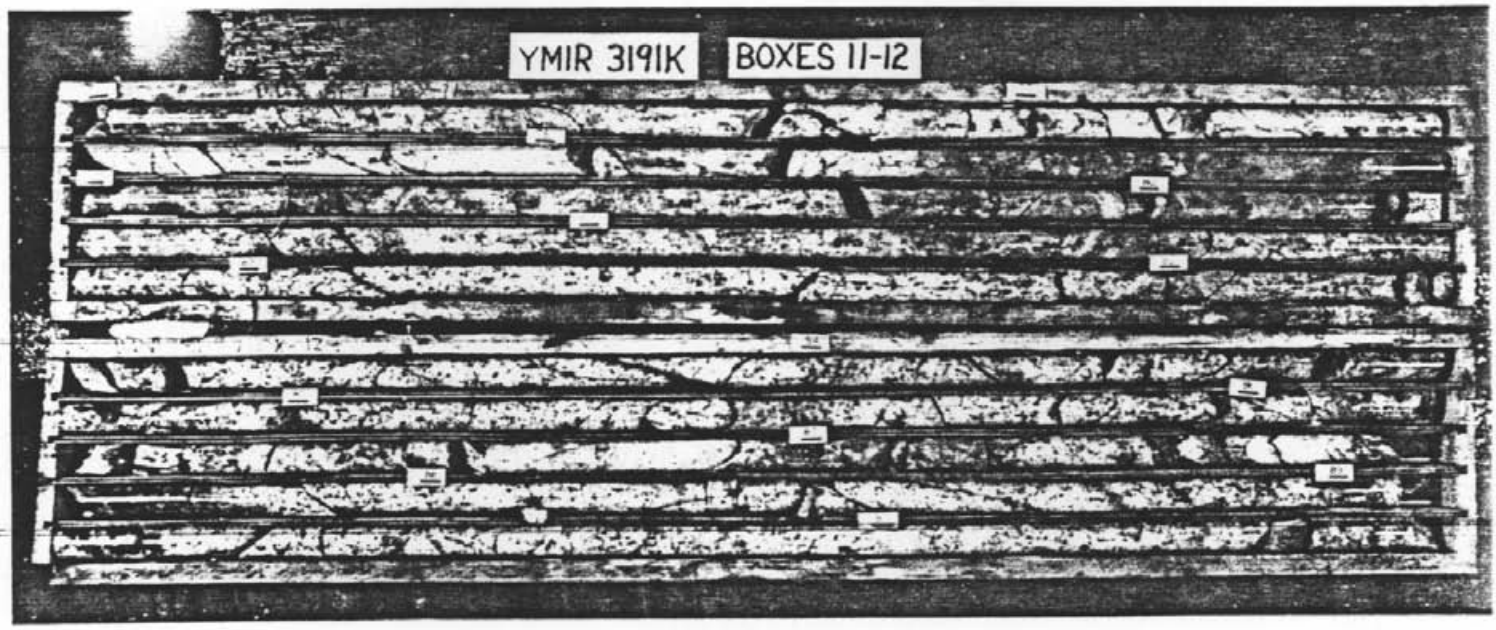
# APPENDIX IV

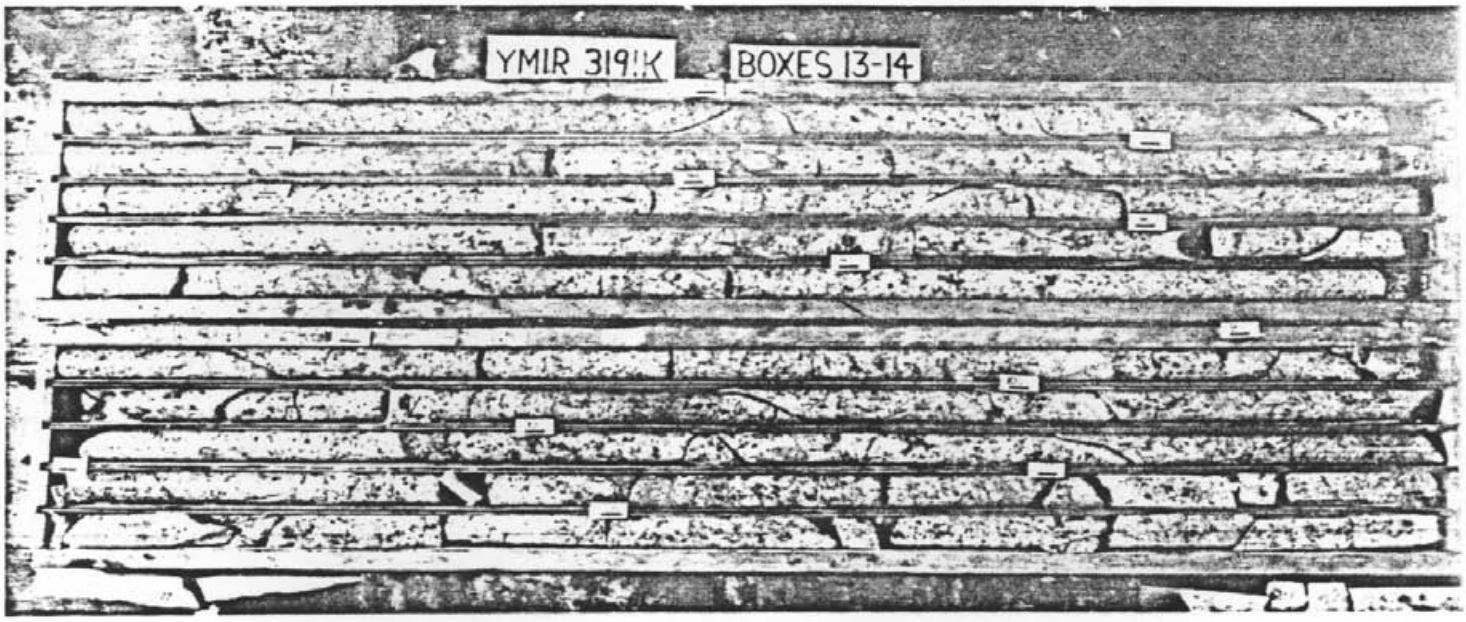
## DIAMOND DRILL HOLE PHOTOS

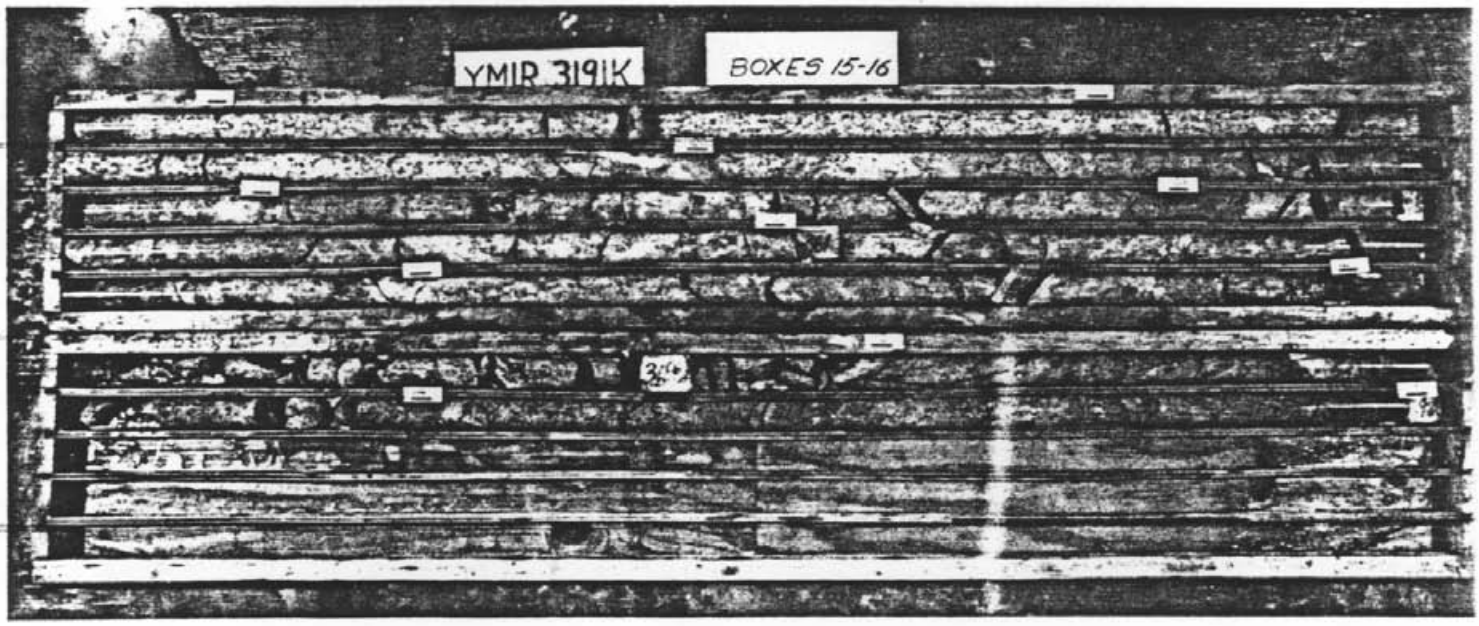

YMIR 3191K
BOXES 5-6

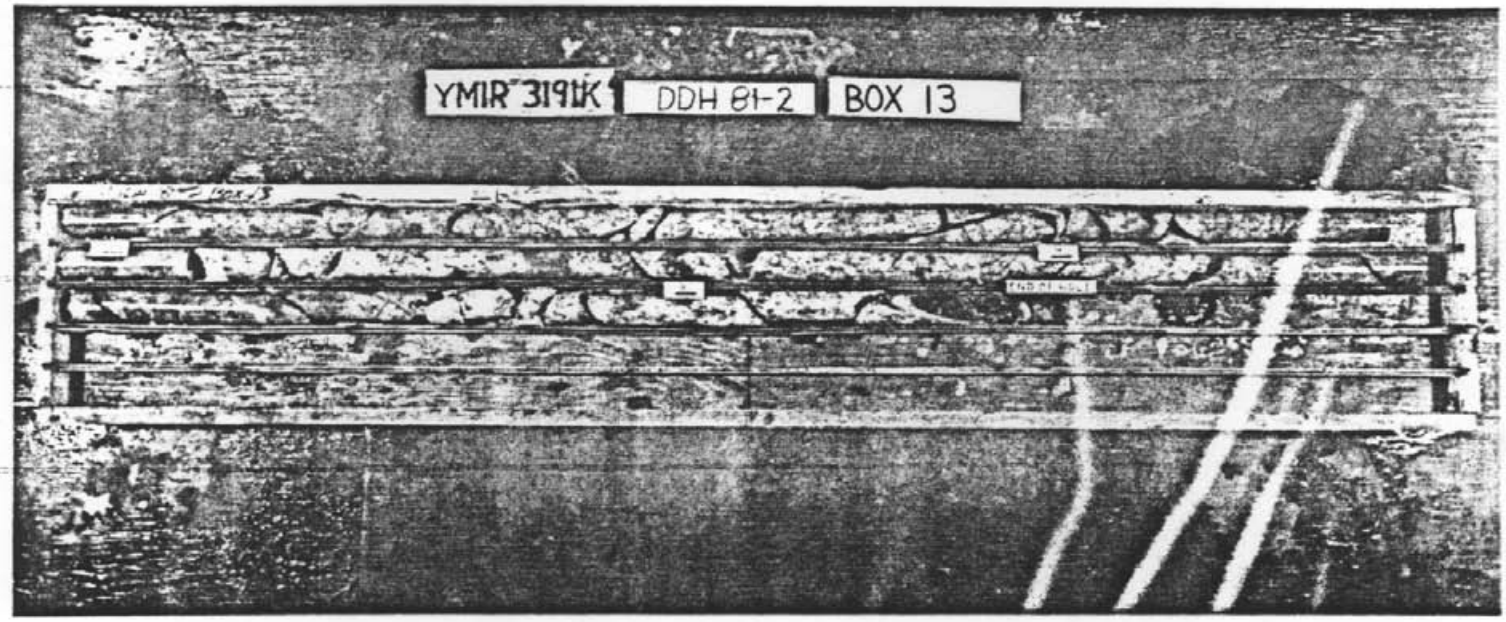

YMIR 3191K
BOXES 7-8

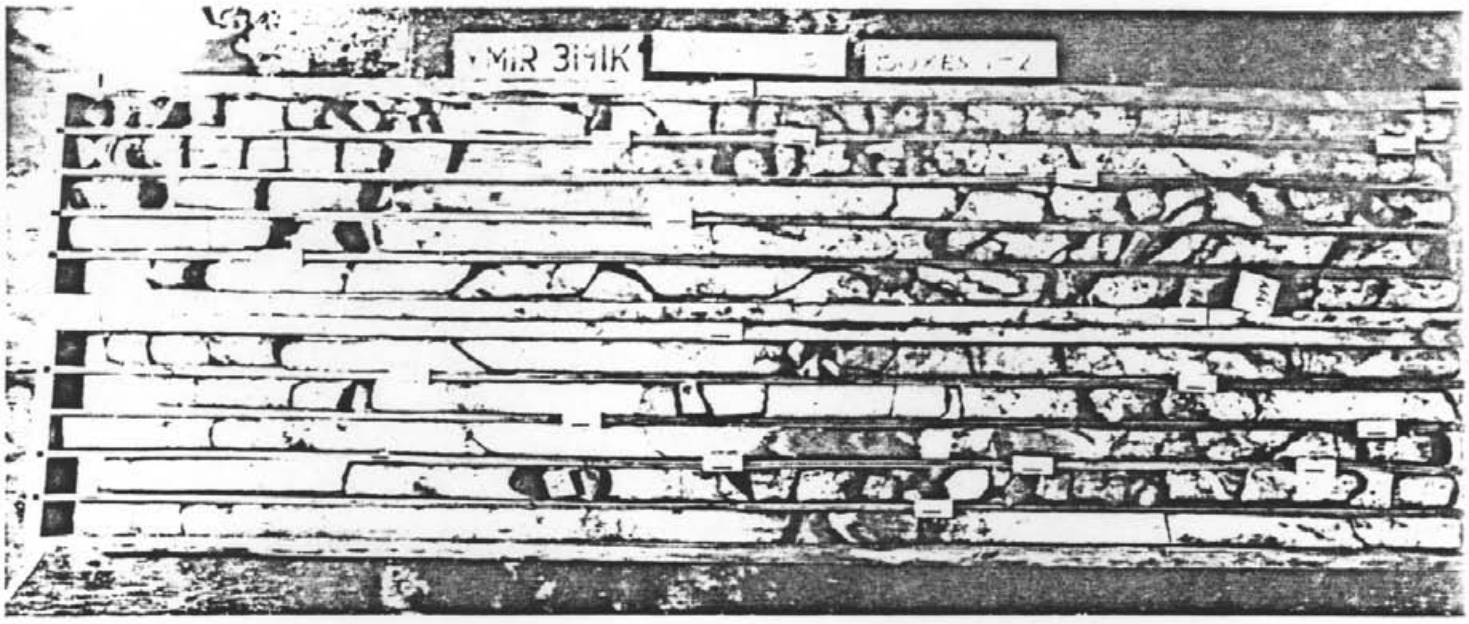

YMIR 3191K
BOXES 9-10

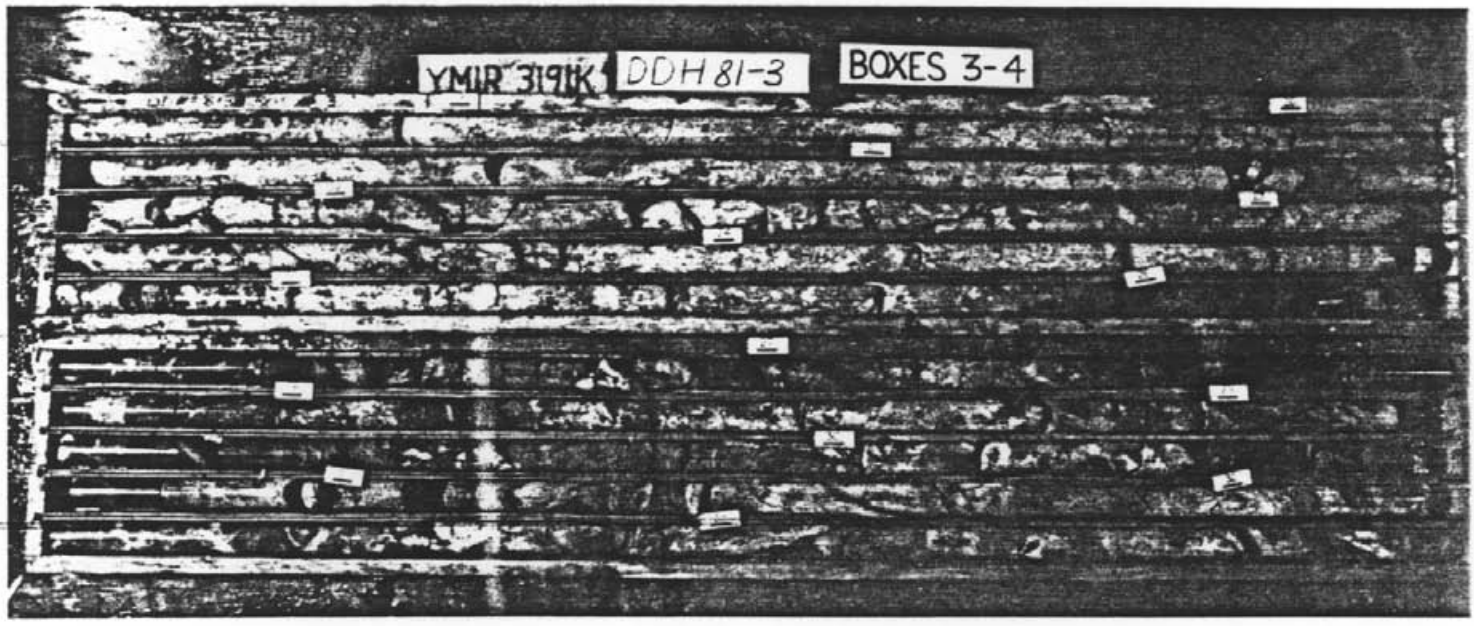

YMIR 3191K
BOXES 11-12

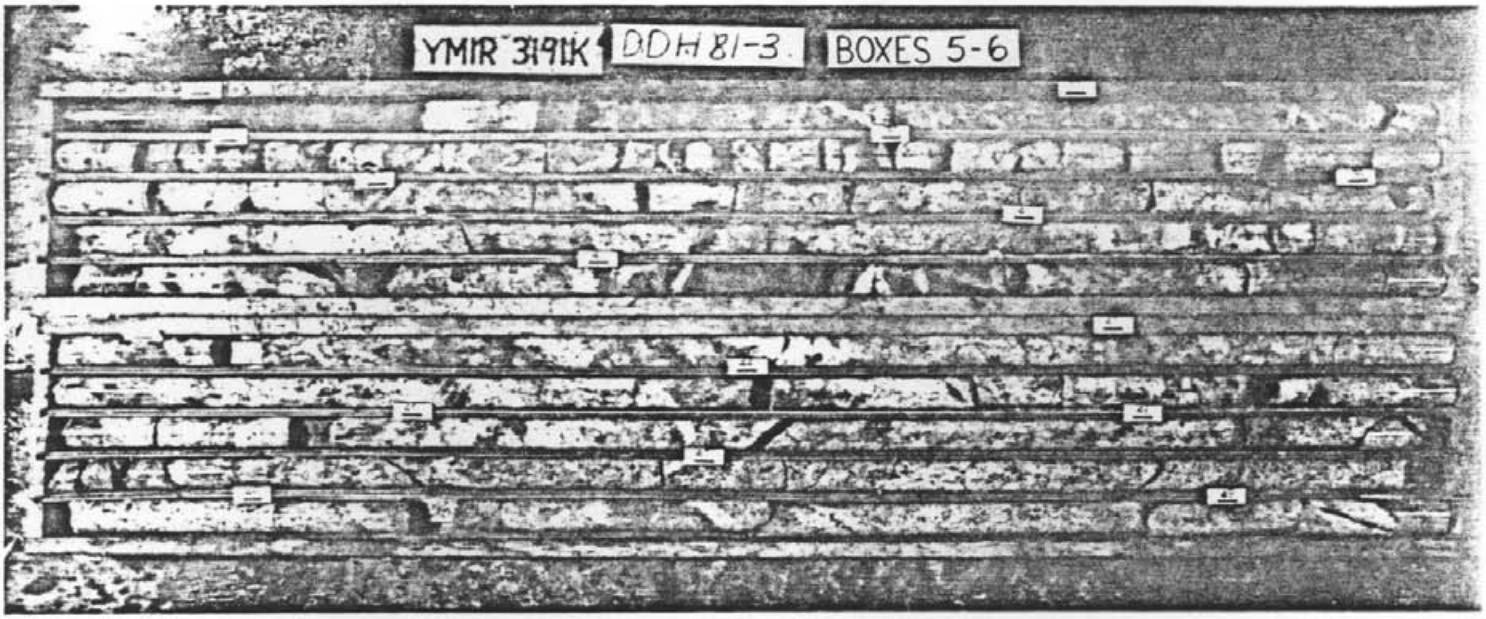

YMIR 319!K
BOXES 13-14

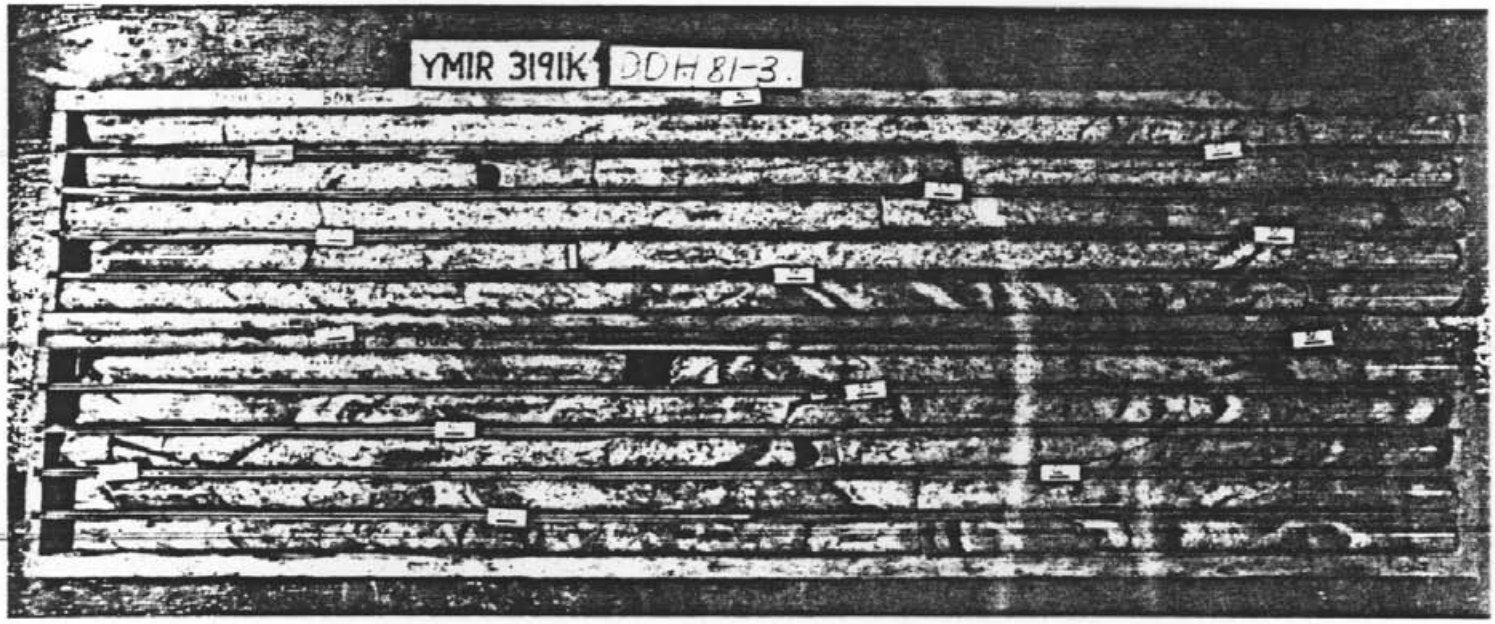

YMIR 319IK
BOXES 15-16


YMIR 3191K
DDH 81-2
BOX 13

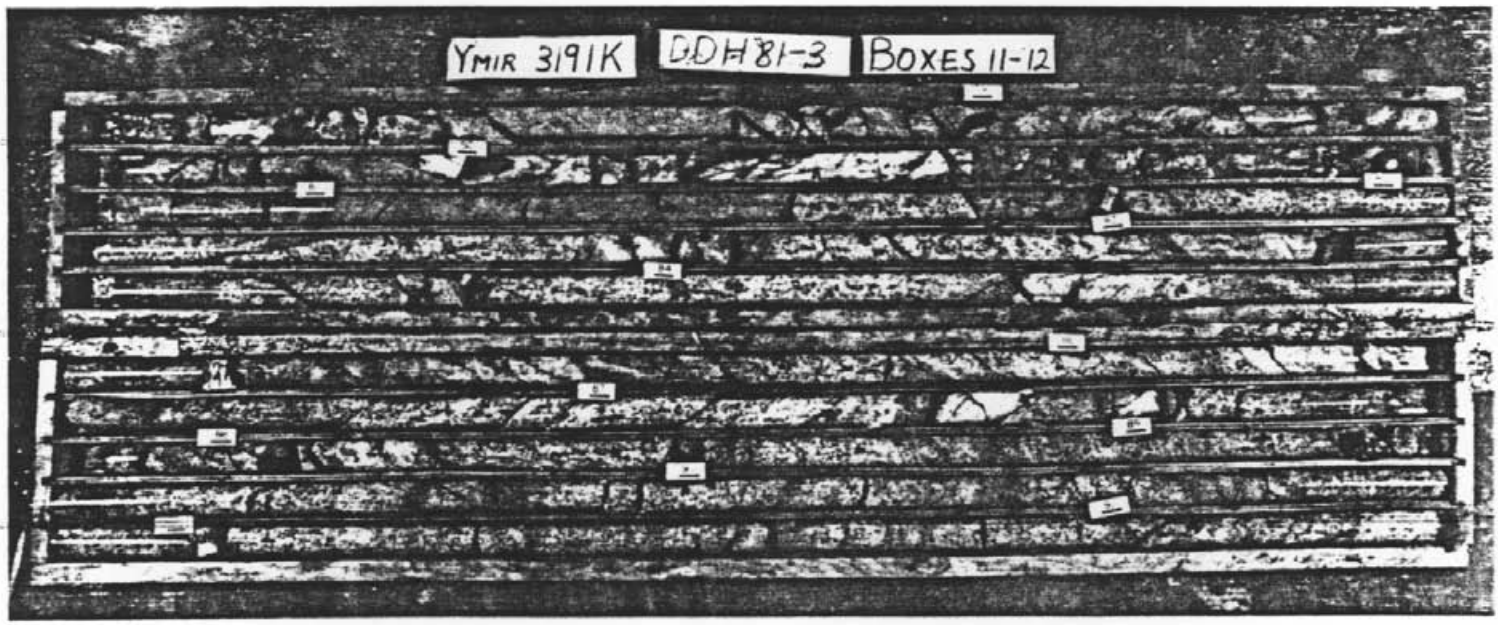

YMIR 3191K

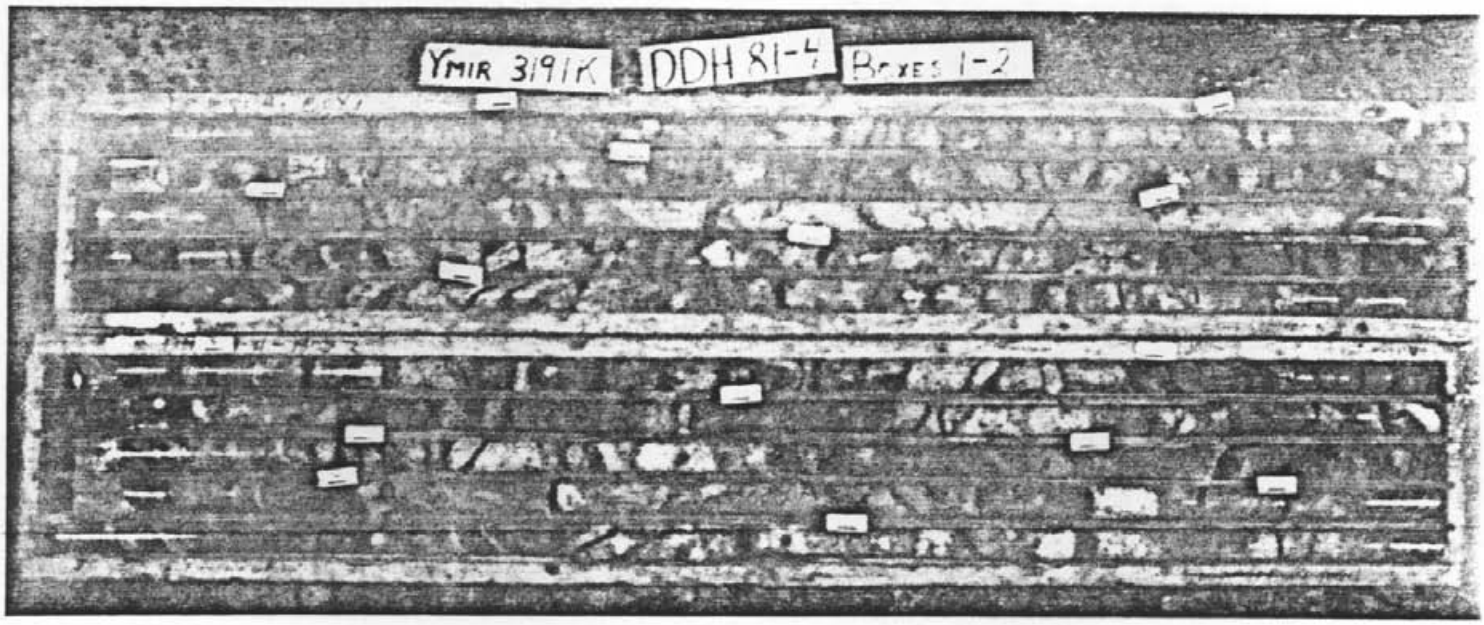

YMIR 3191K
DDH 81-3
BOXES 3-4


YMIR 3191K
DDH 81-3.
BOXES 5-6


YMIR 3191K
DDH 81-3.


YMIR 3191K
DDH 81-3
BOXES 9-10


YMIR 3191K
DDH 81-3
BOXES 11-12

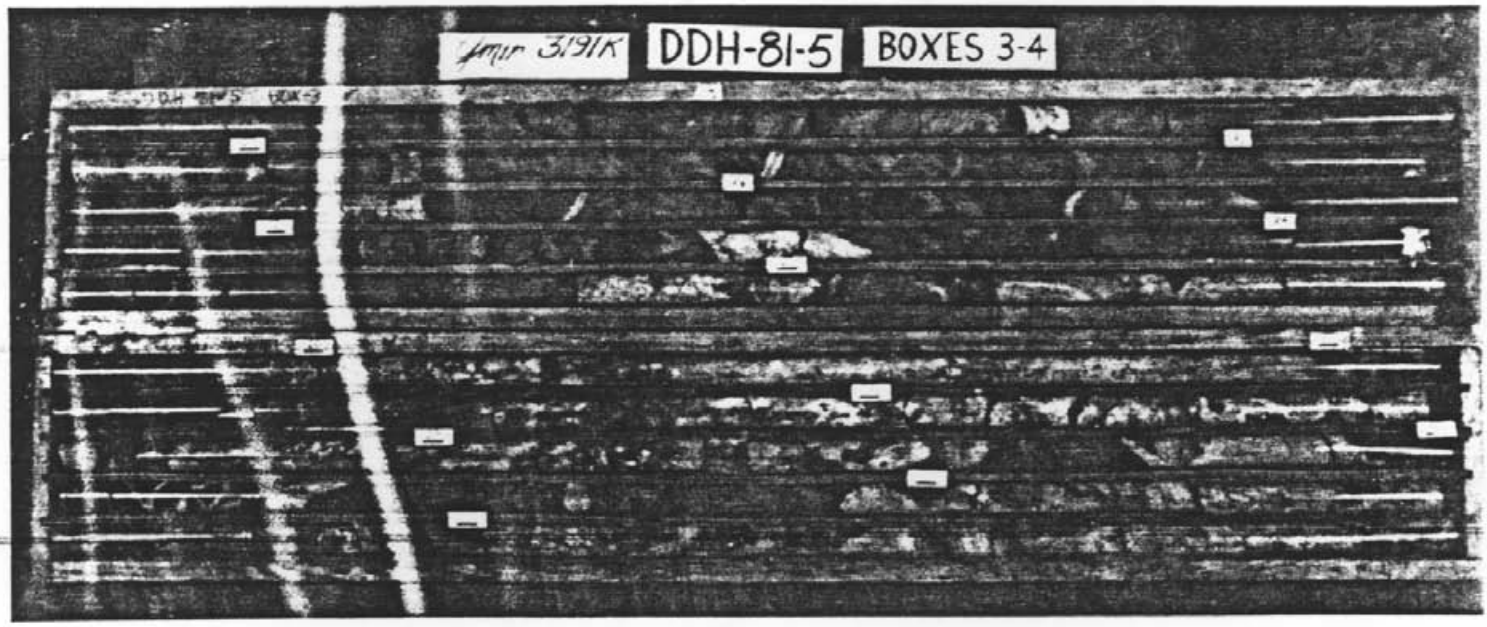

YMIR 3191K
DDH 81-4
BOXES 1-2


YMIR 3191K
DDH 81-4
BOXES 3-4

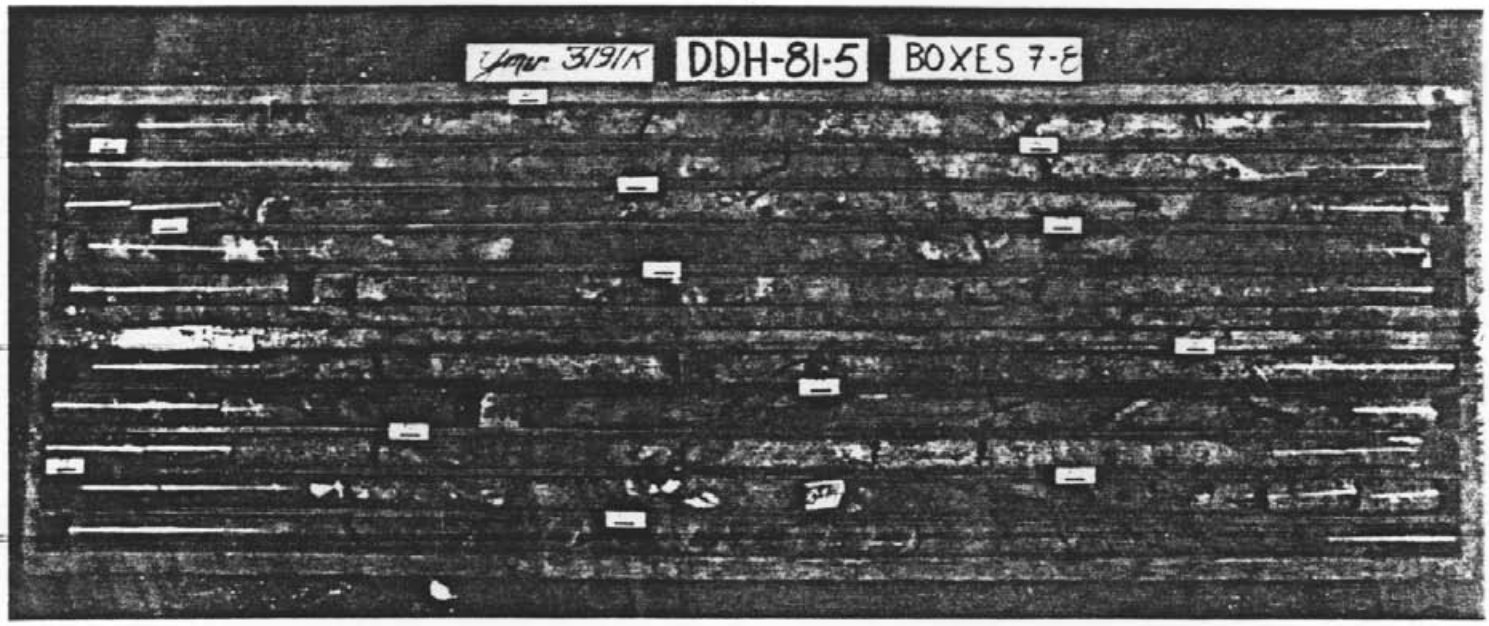

YMIR 318-1K
DDH 81-4
BOXES 9-10

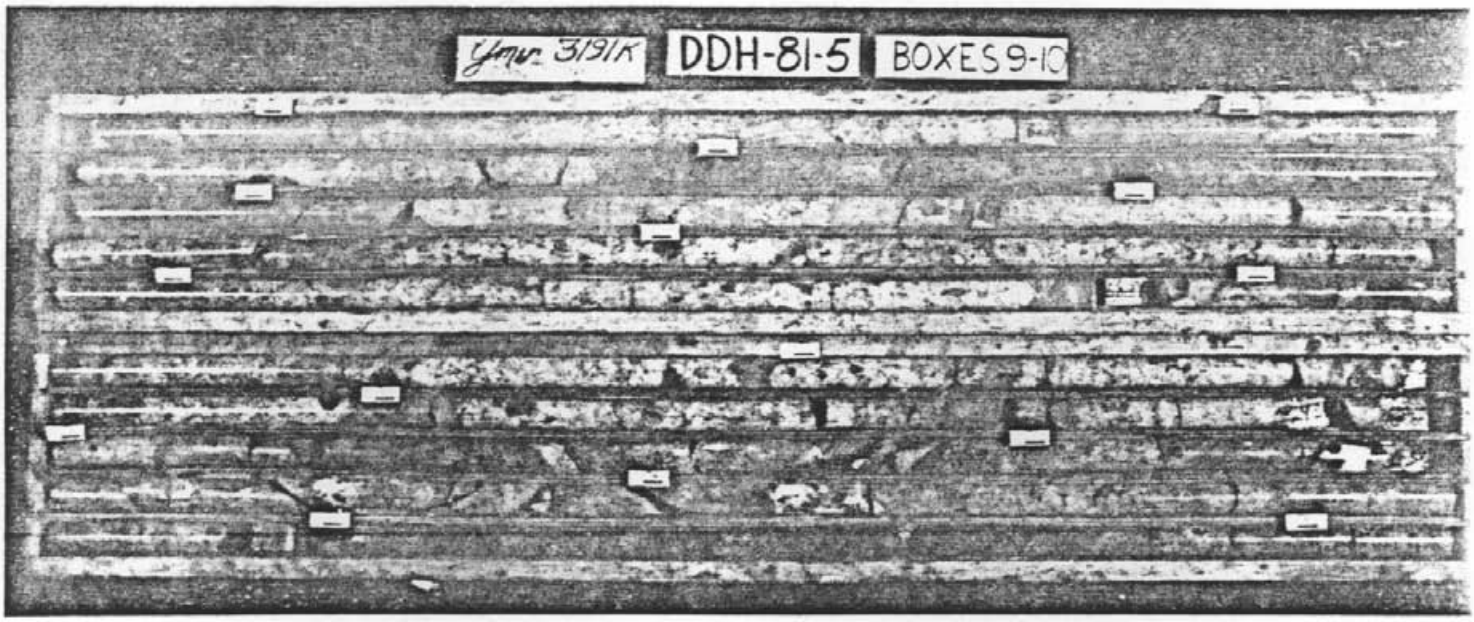

YMIR 318-1K
DDH 81-4
BOX 11

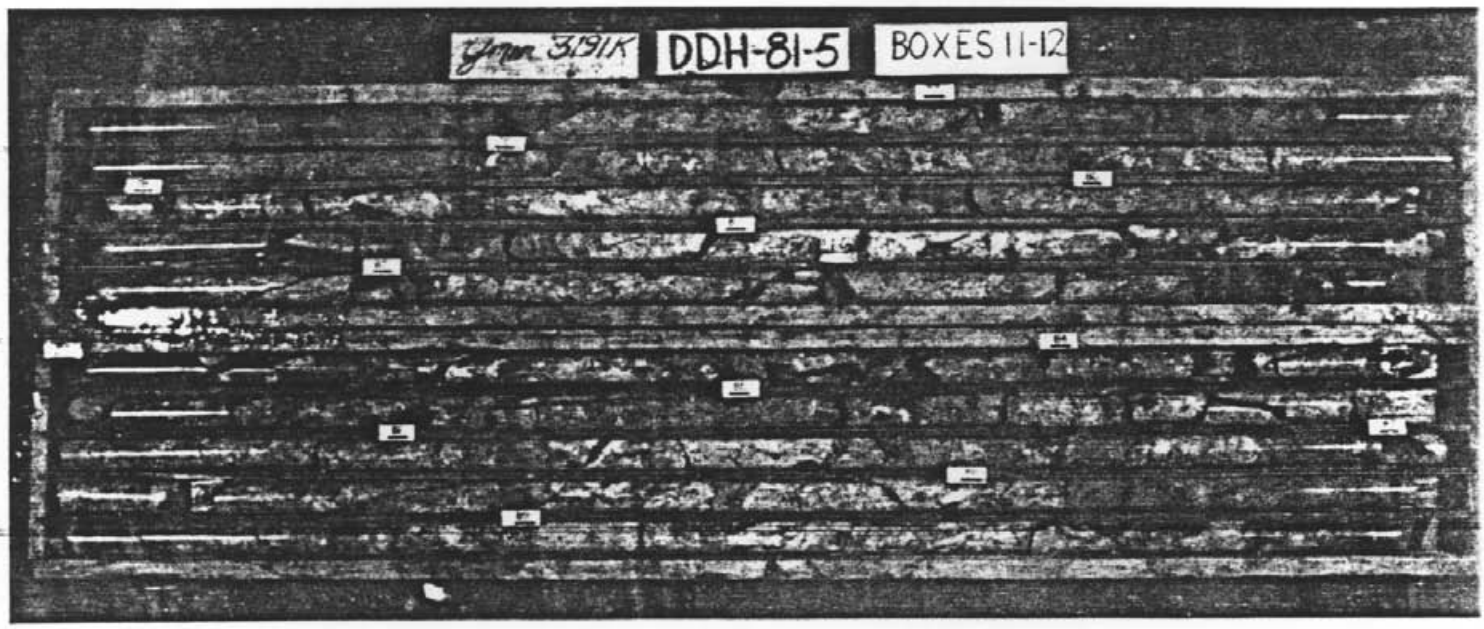

Amir 3191K
BOXES 1-2

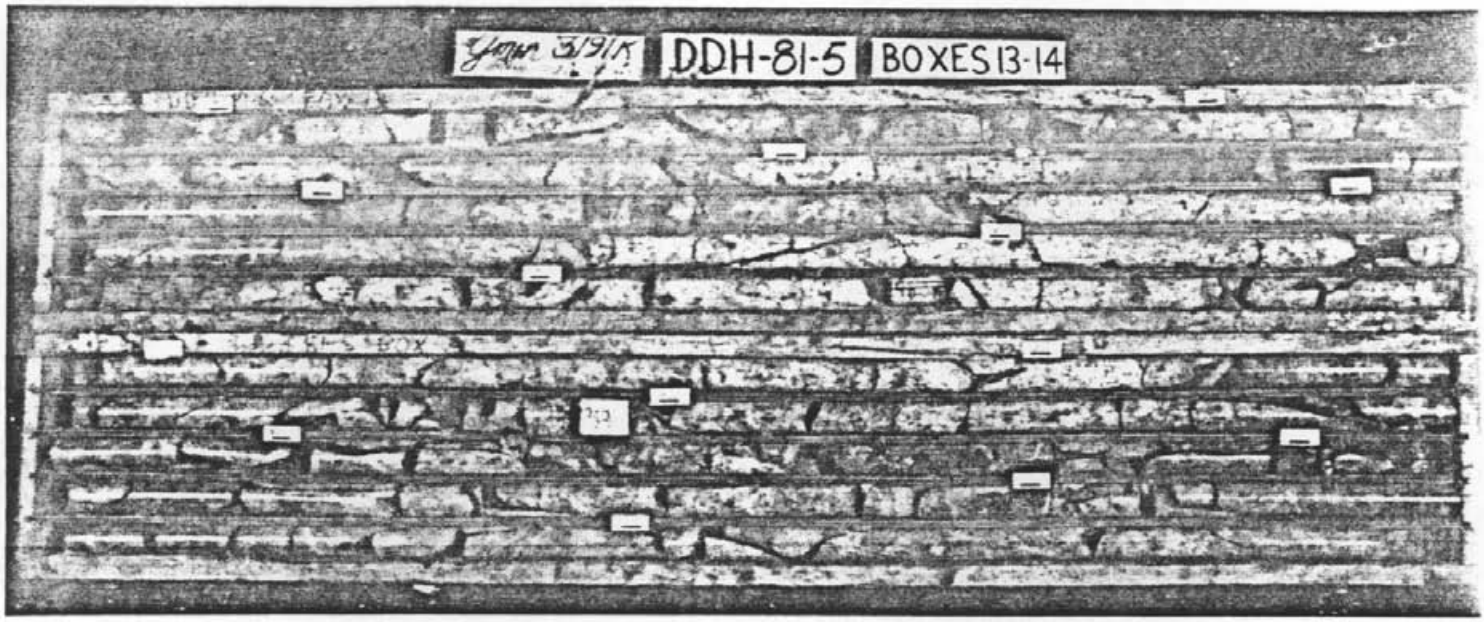

Amir 3191K
DDH-81-5
BOXES 3-4

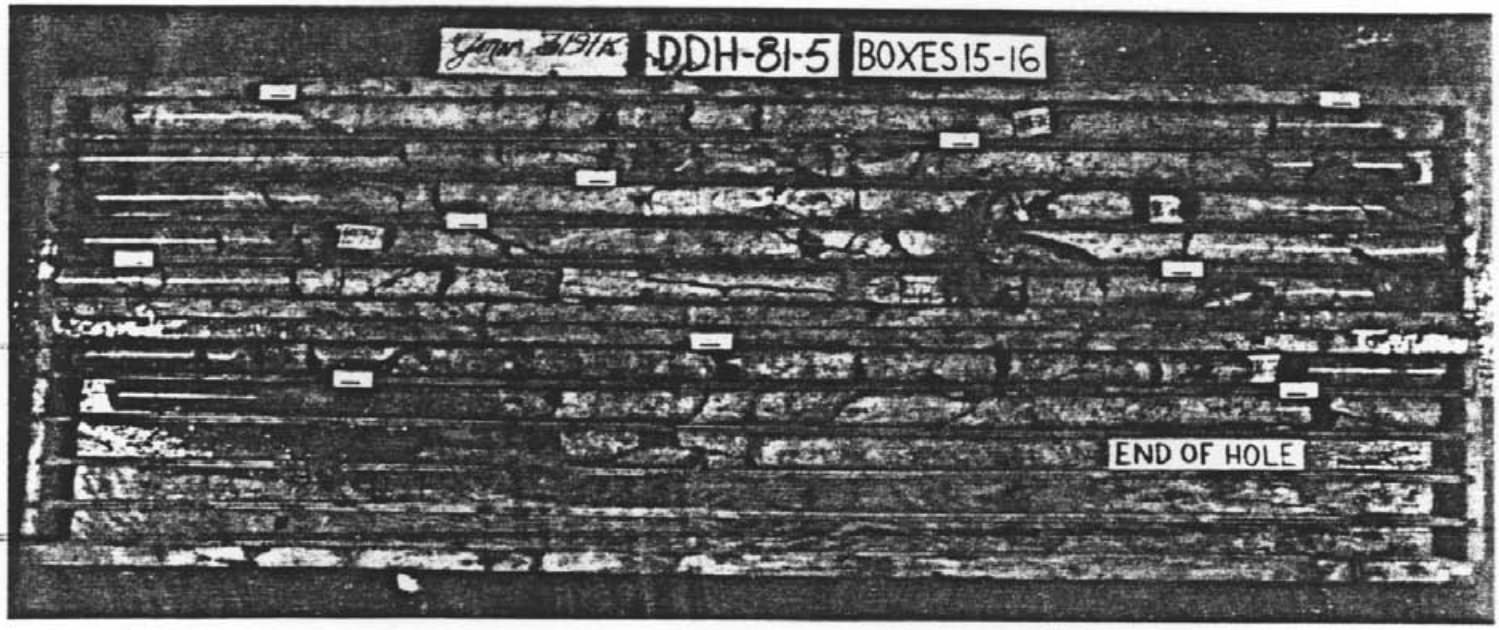

Your 3191K
DDH-81-5
BOXES 5-6

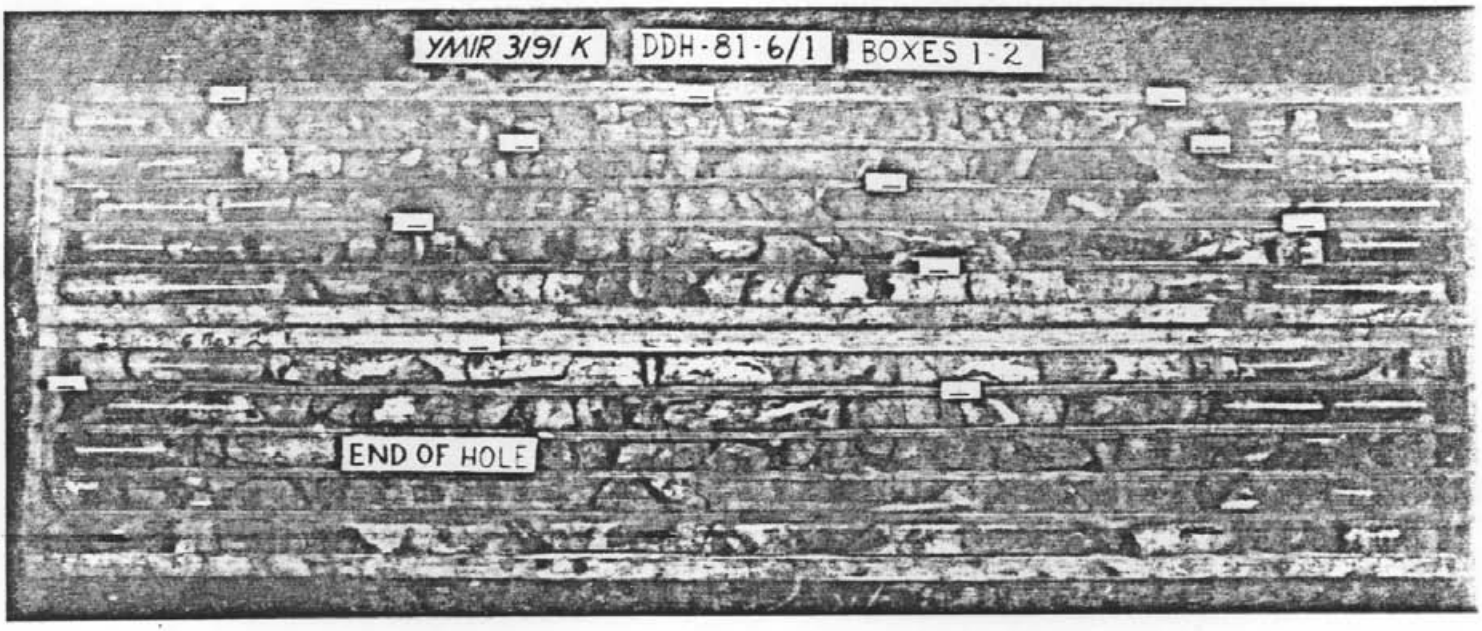

Your 3191K
DDH-81-5
BOXES 7-8

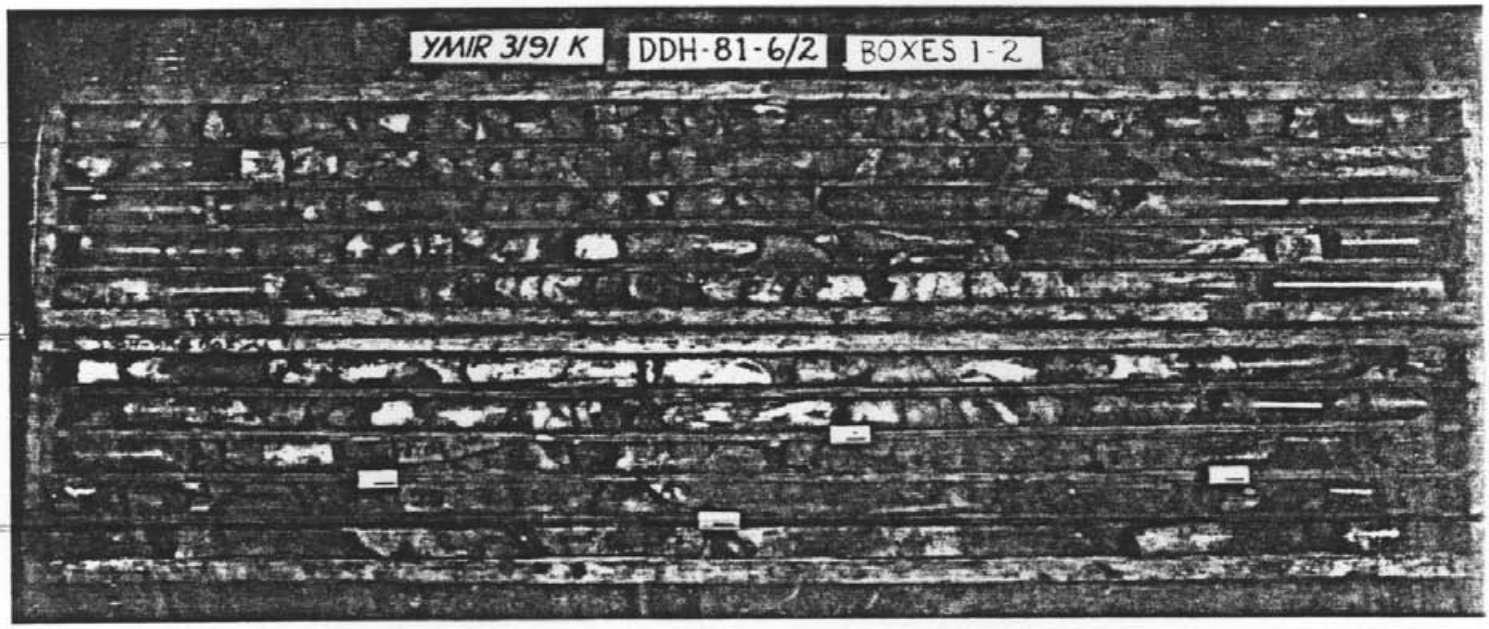

Ymir 3191K
DDH-81-5
BOXES 9-10


Ymir 3191K
DDH-81-5
BOXES 11-12


DDH-81-5
BOXES 13-14


DDH-81-5
BOXES 15-16
END OF HOLE


YMIR 3/91 K
DDH-81-6/1
BOXES 1-2
END OF HOLE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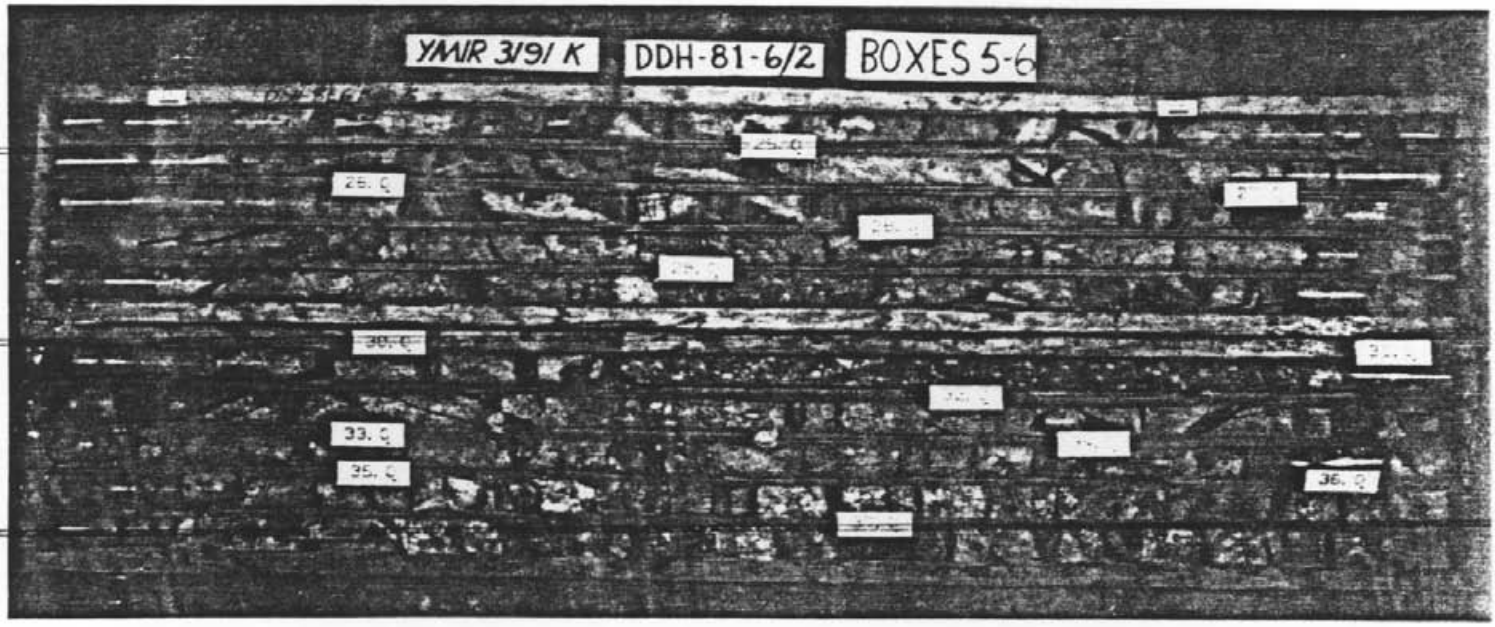
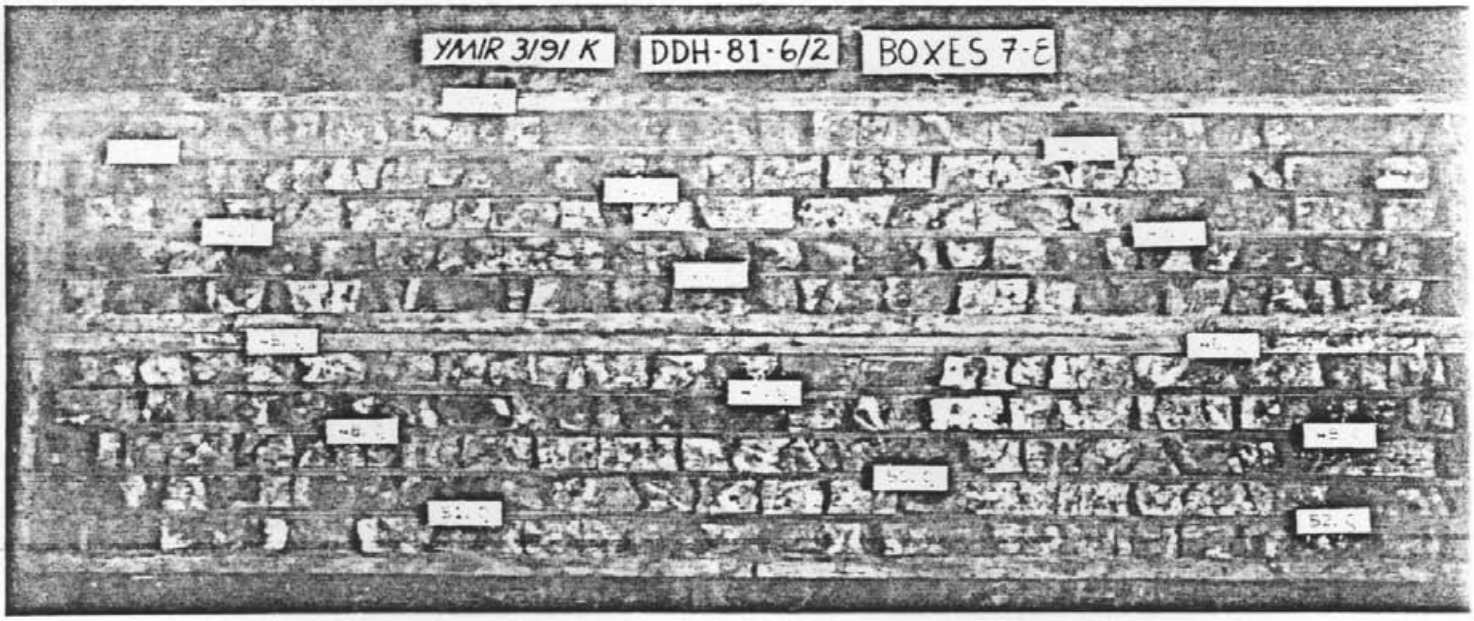
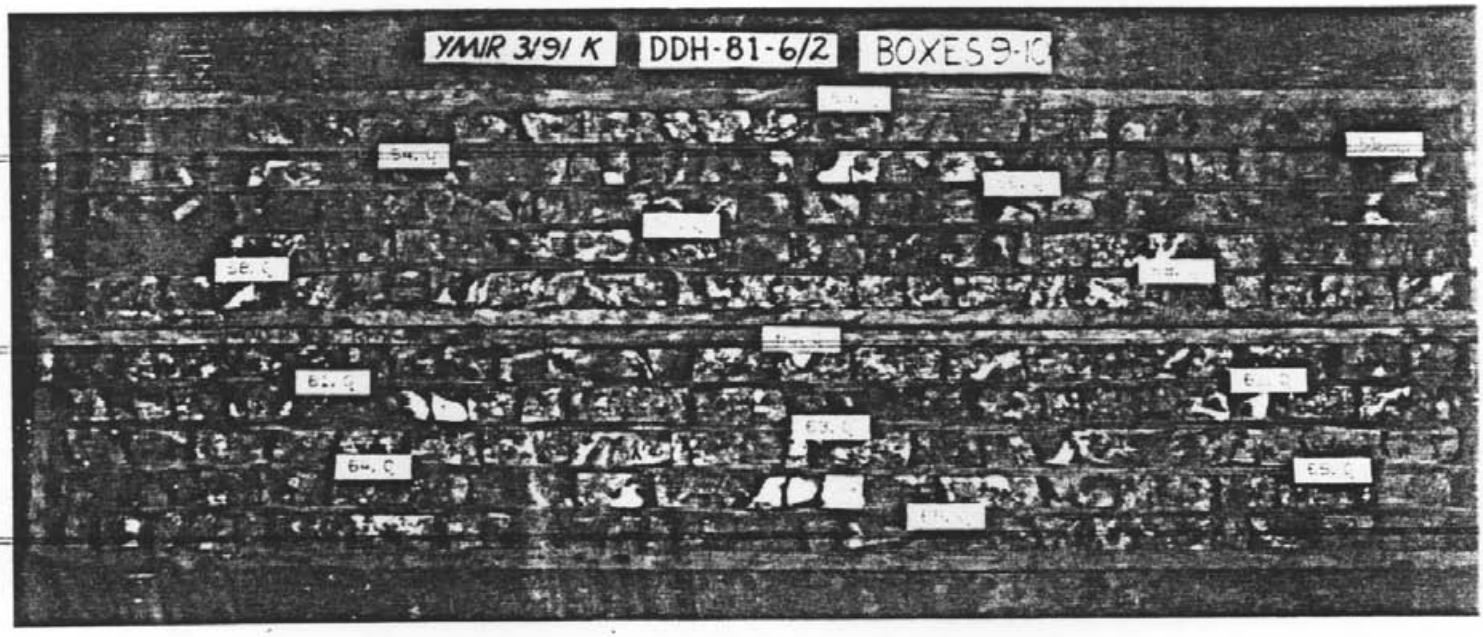
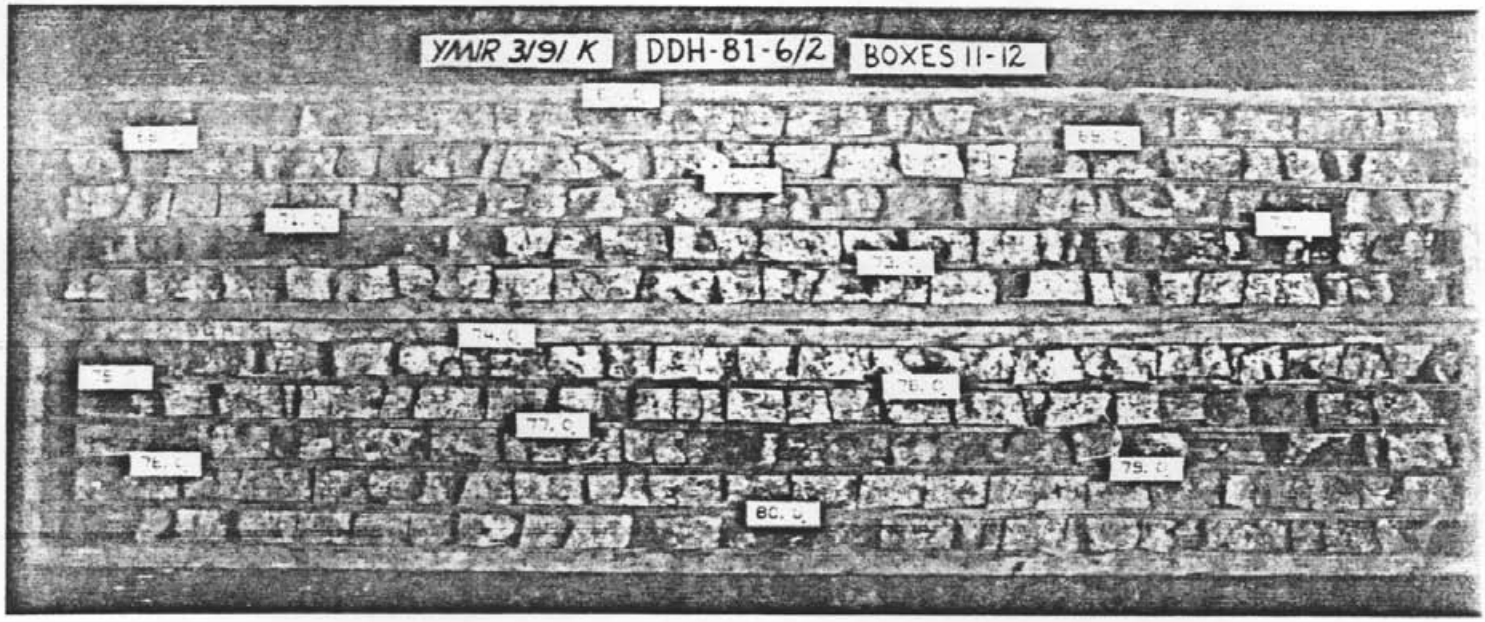
DDH-81-6/2
BOXES 1-2


YMIR 3/91 K
DDH-81-6/2
BOXES 3-4

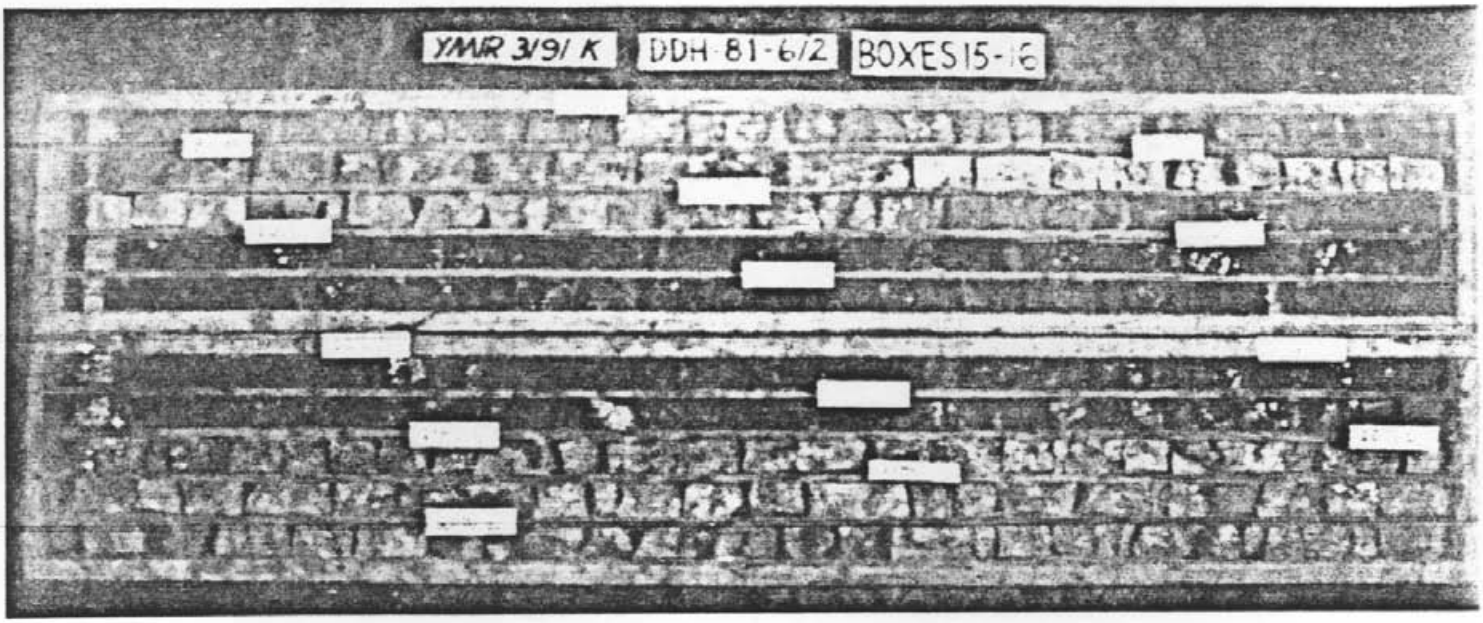

YMIR 3/91 K
DDH-81-6/2
BOXES 5-6

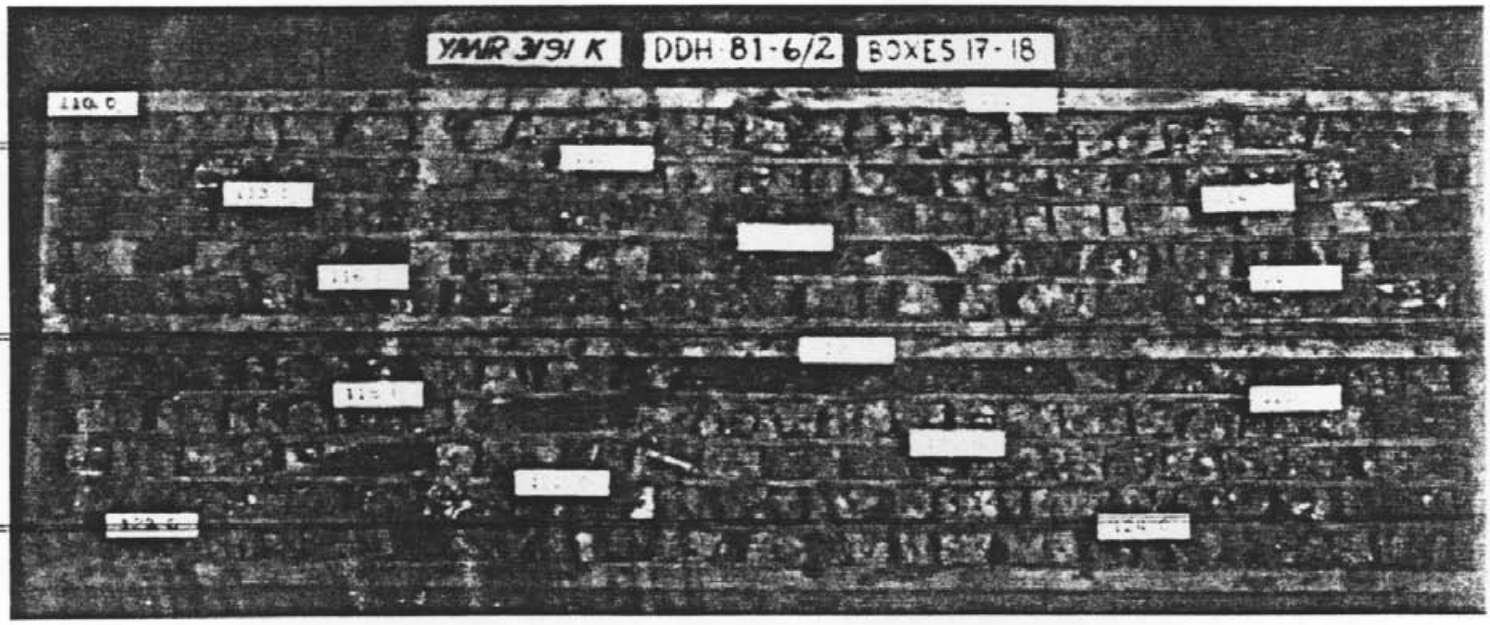

YMIR 3/91 K
DDH-81-6/2
BOXES 7-8

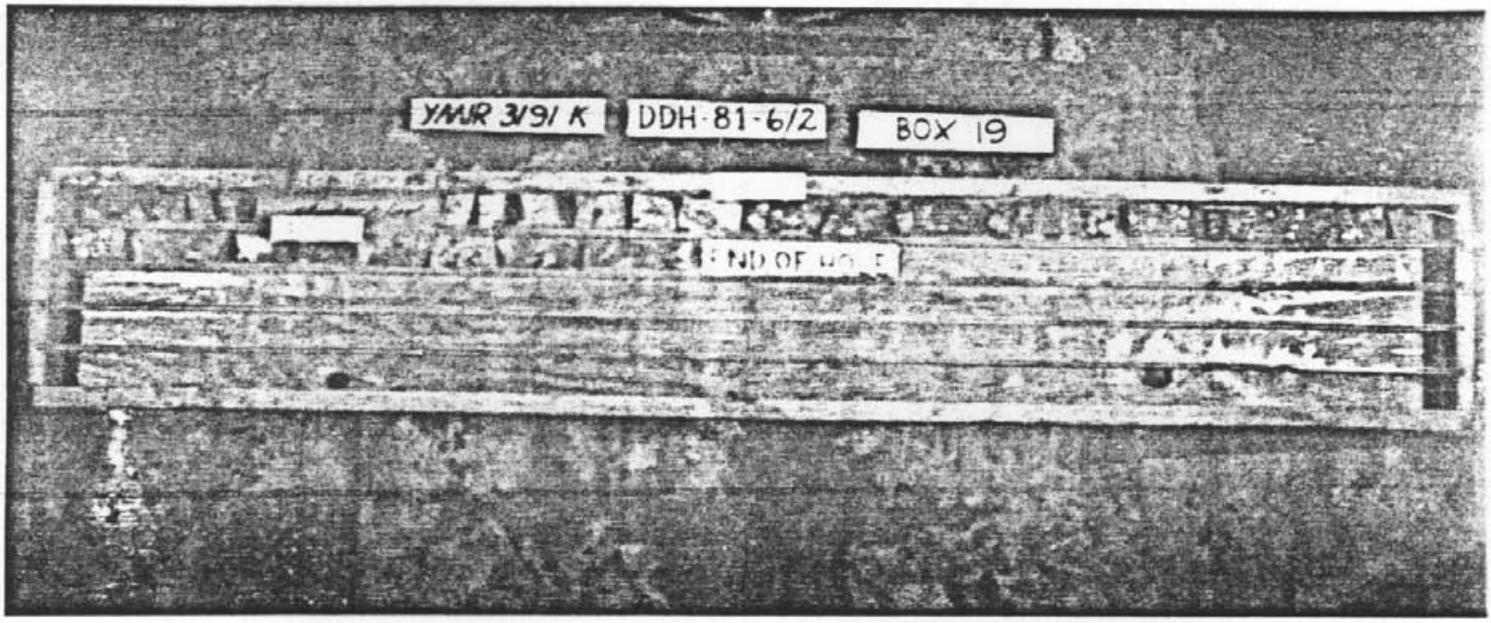

YMIR 3/91 K
DDH-81-6/2
BOXES 9-10

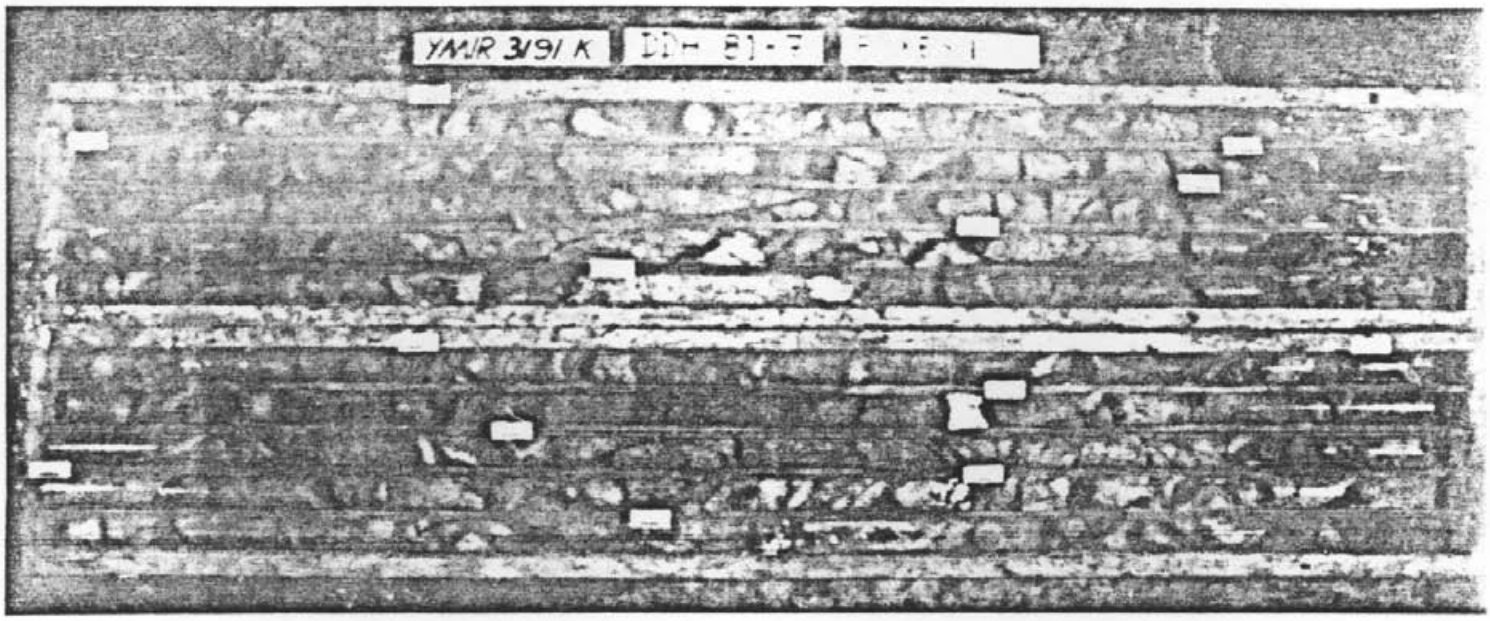

YMIR 3/91 K
DDH-81-6/2
BOXES 11-12

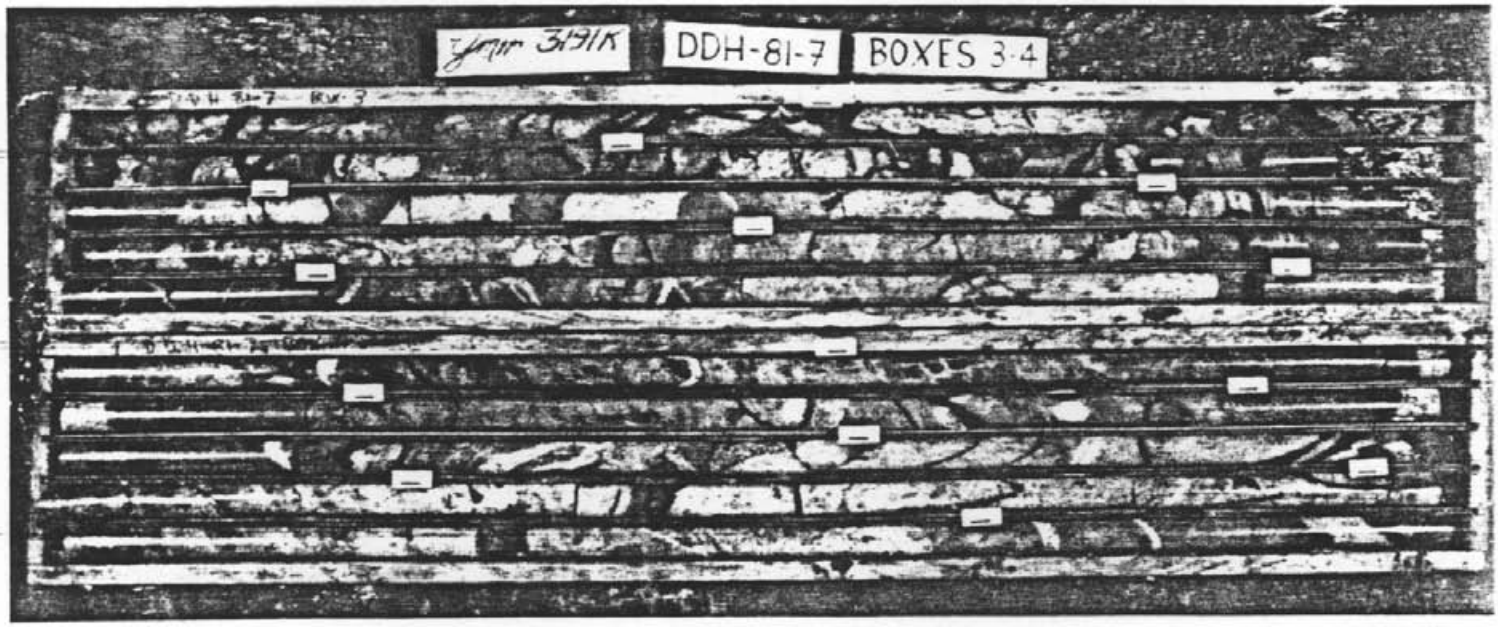

YMIR 3/91 K
DDH-81-6/2
BOXES 13-14
81. C.
82. C.
83. C.
84. C.
85. C.
86. C.
87. C.
88. C.
89. C.
90. C.
91. C.
92. C.
93. C.
94. C.
95. C.

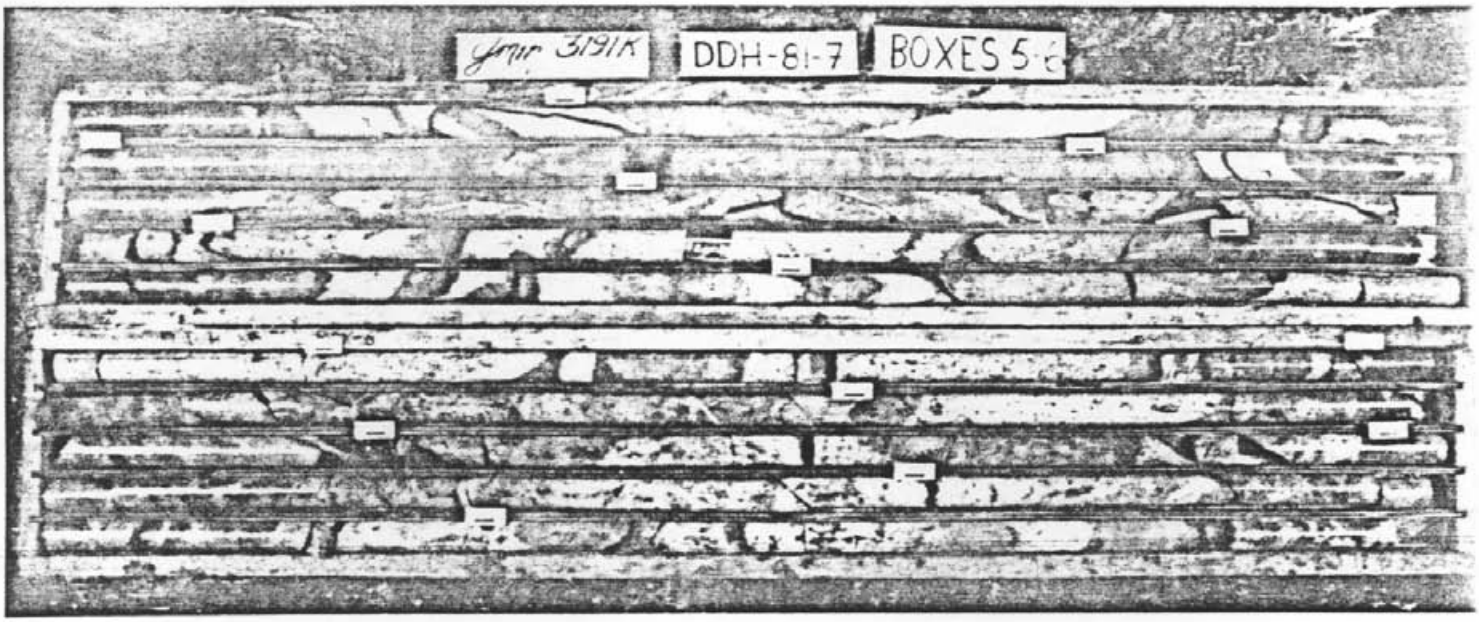

YMIR 3/91 K
DDH 81-6/2
BOXES 15-16


YMIR 3/91 K
DDH 81-6/2
BOXES 17-18

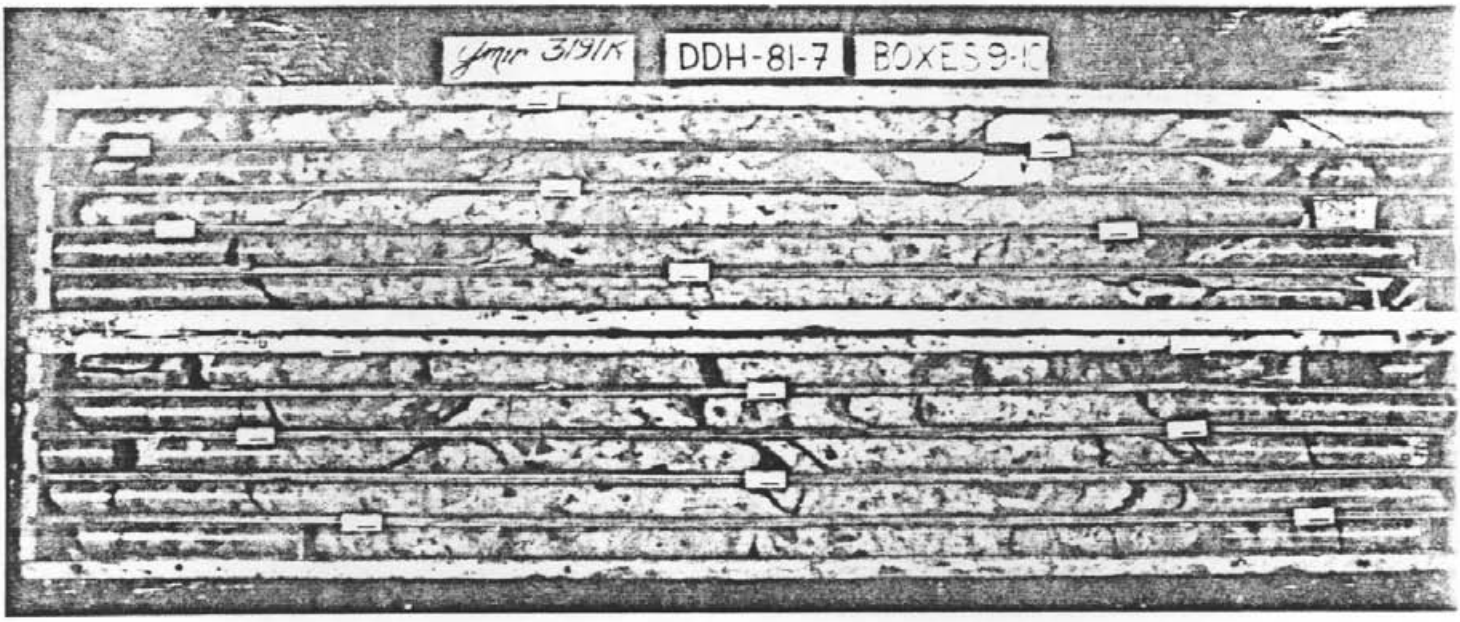

YMJR 3/91 K
DDH-81-6/2
BOX 19


YMJR 3191 K
DDH 81-7

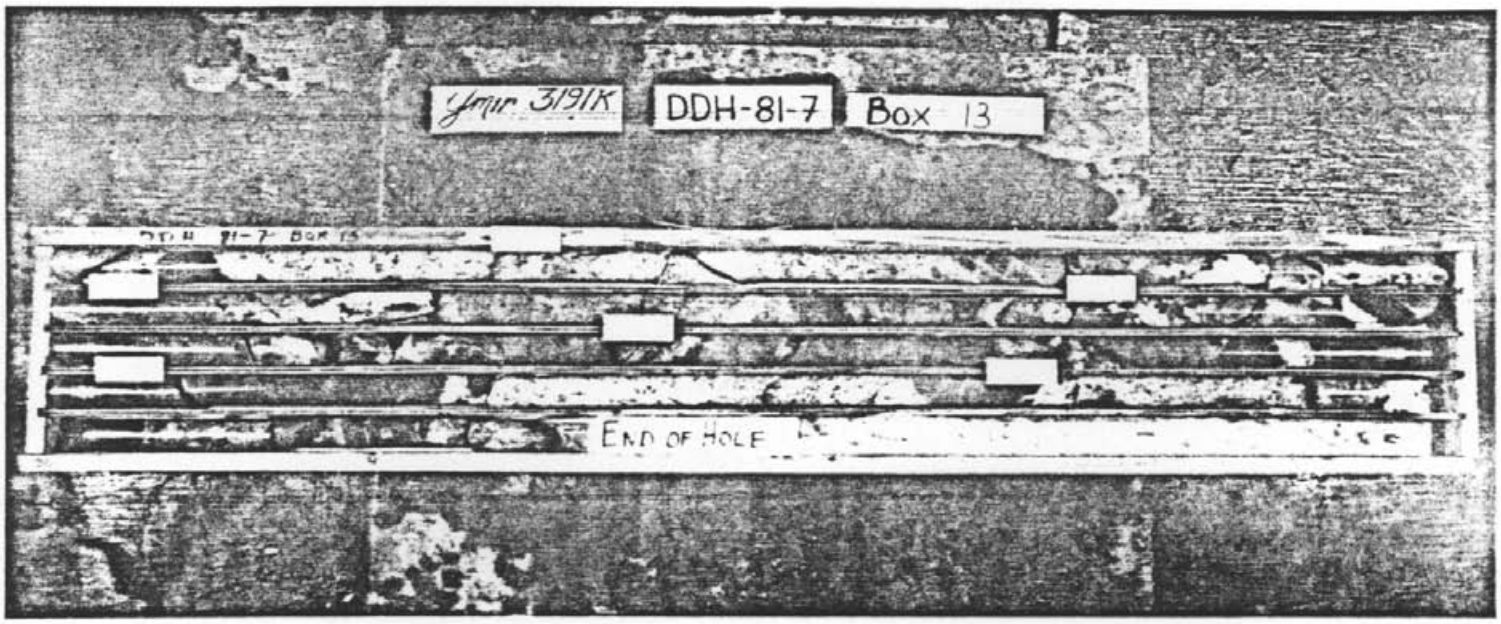

YMJR 3191K
DDH-81-7
BOXES 3-4

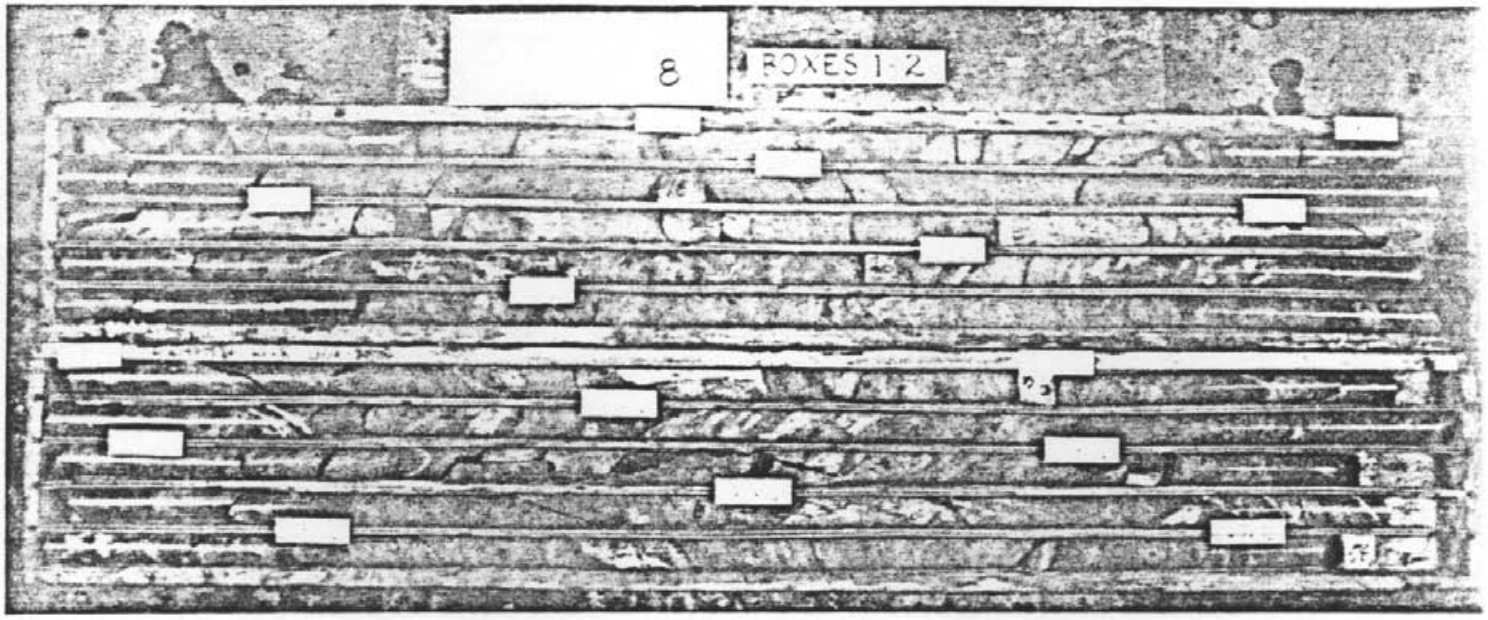

Yonir 3191K
DDH-81-7
BOXES 5-6

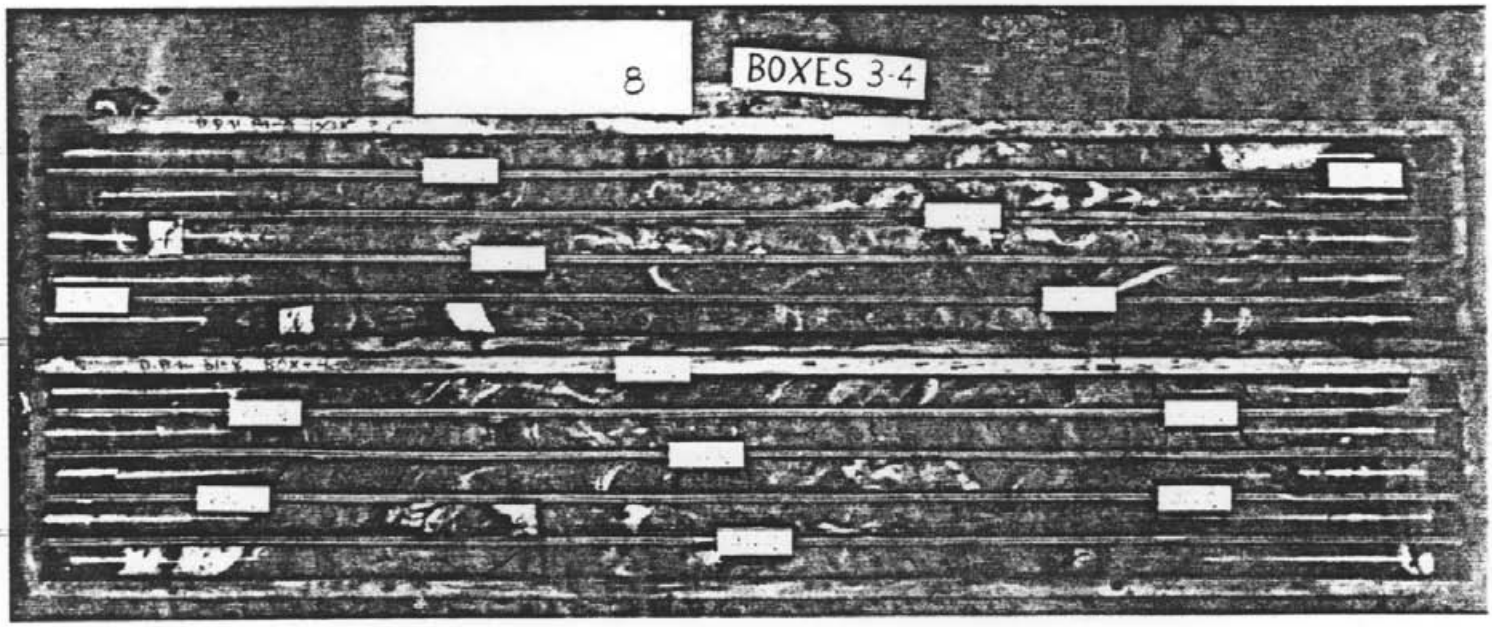

Yonir 3191K
DDH-81-7
BOXES 7-8


Ymir 3191K
DDH-81-7
BOXES 9-10


Ymir 3191K
DDH-81-7
BOXES 11-12


Yukon 3191K
DDH-81-7
Box 13
END OF HOLE


8
BOXES 1-2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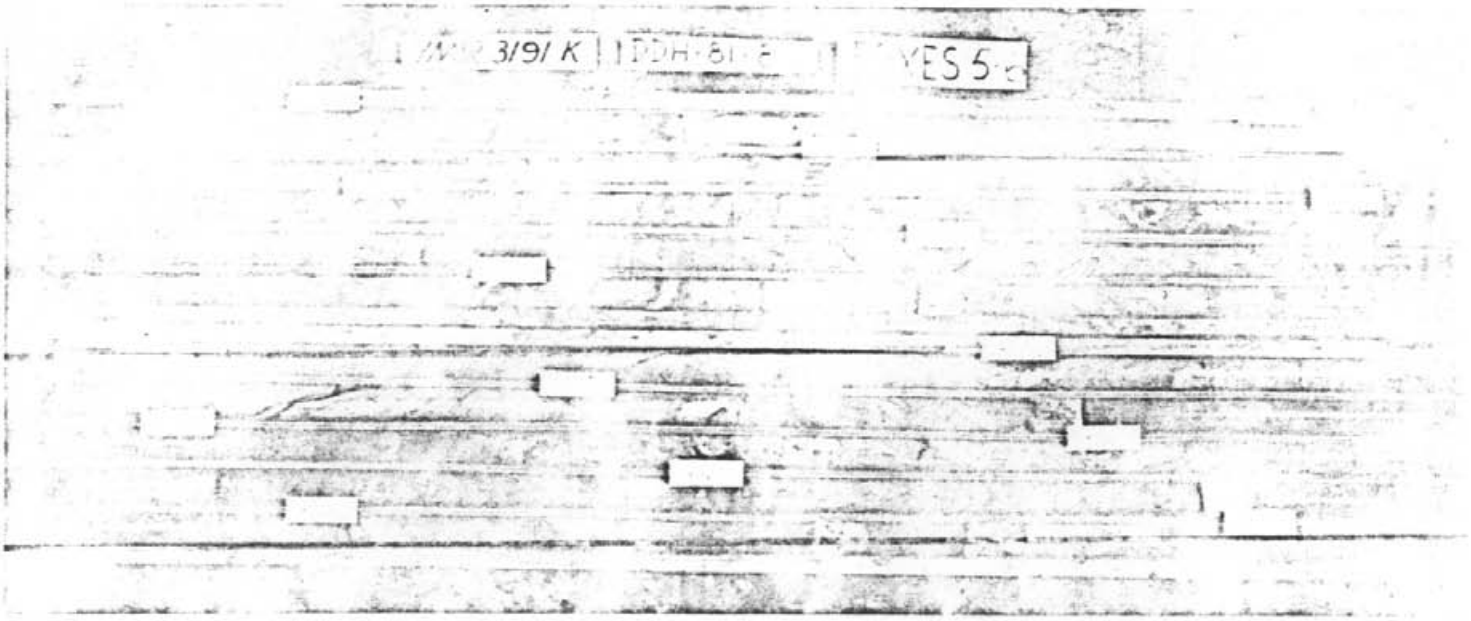
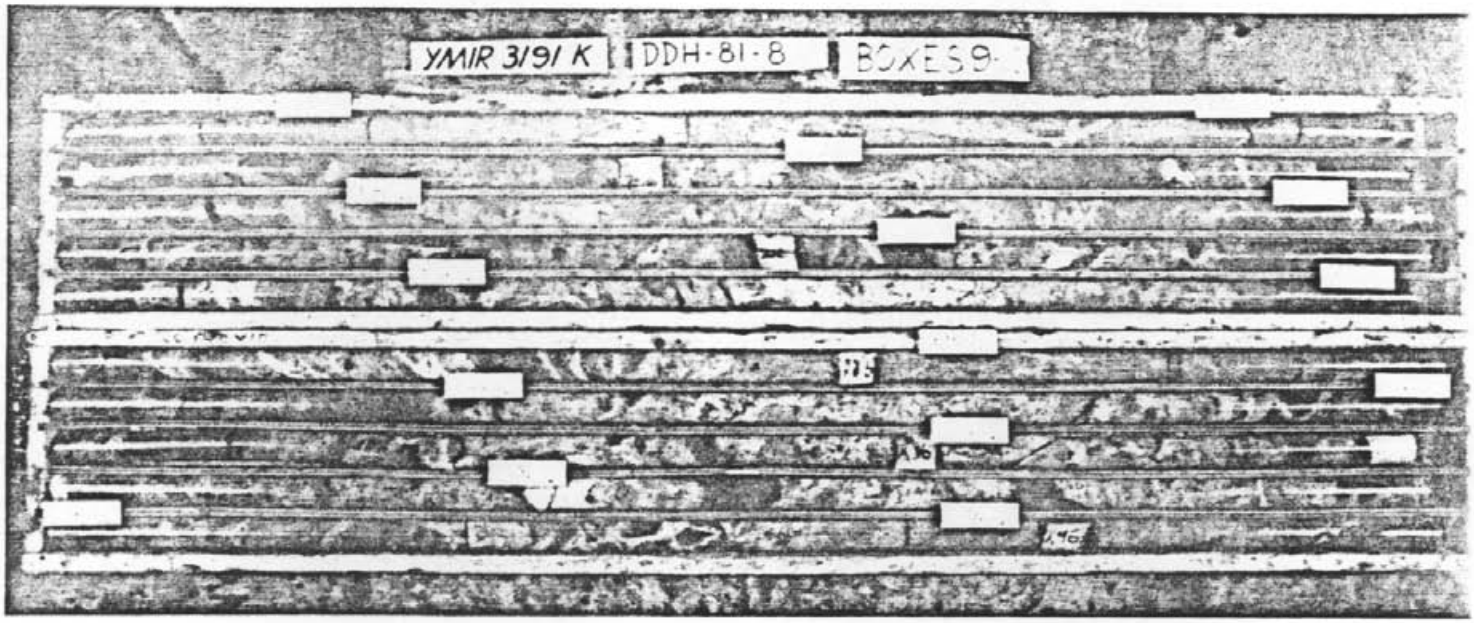
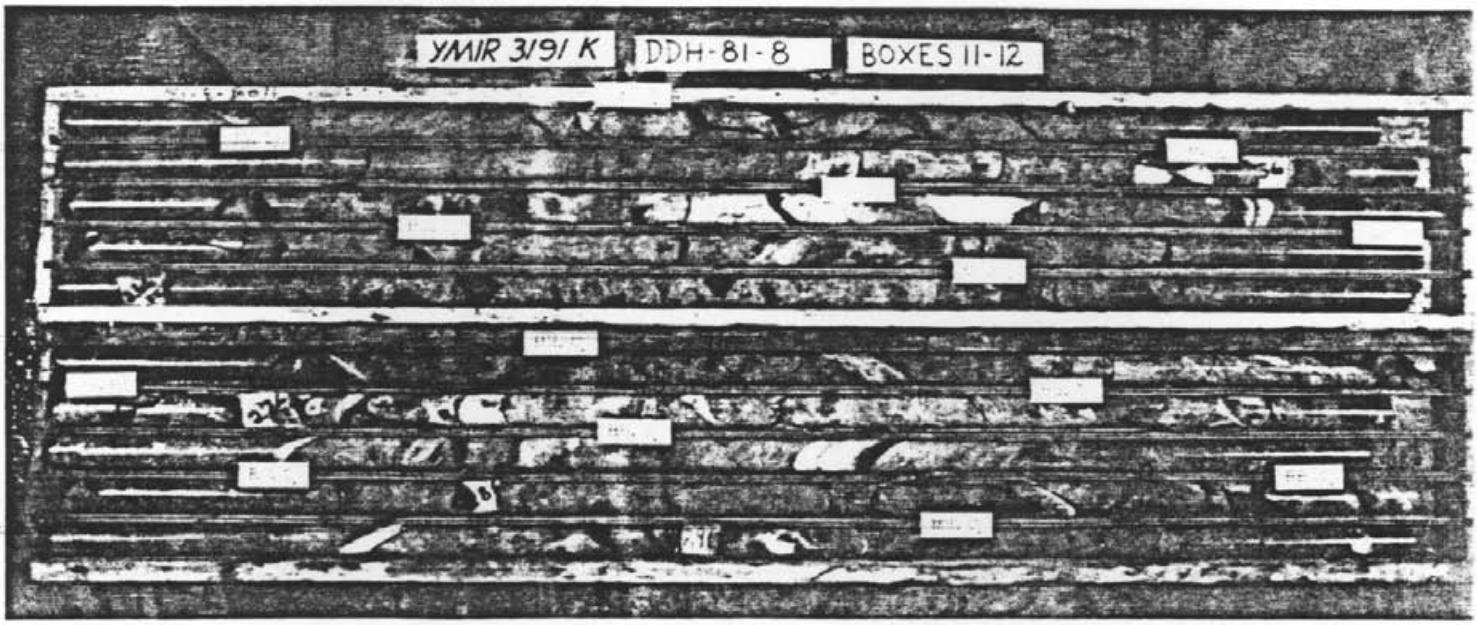
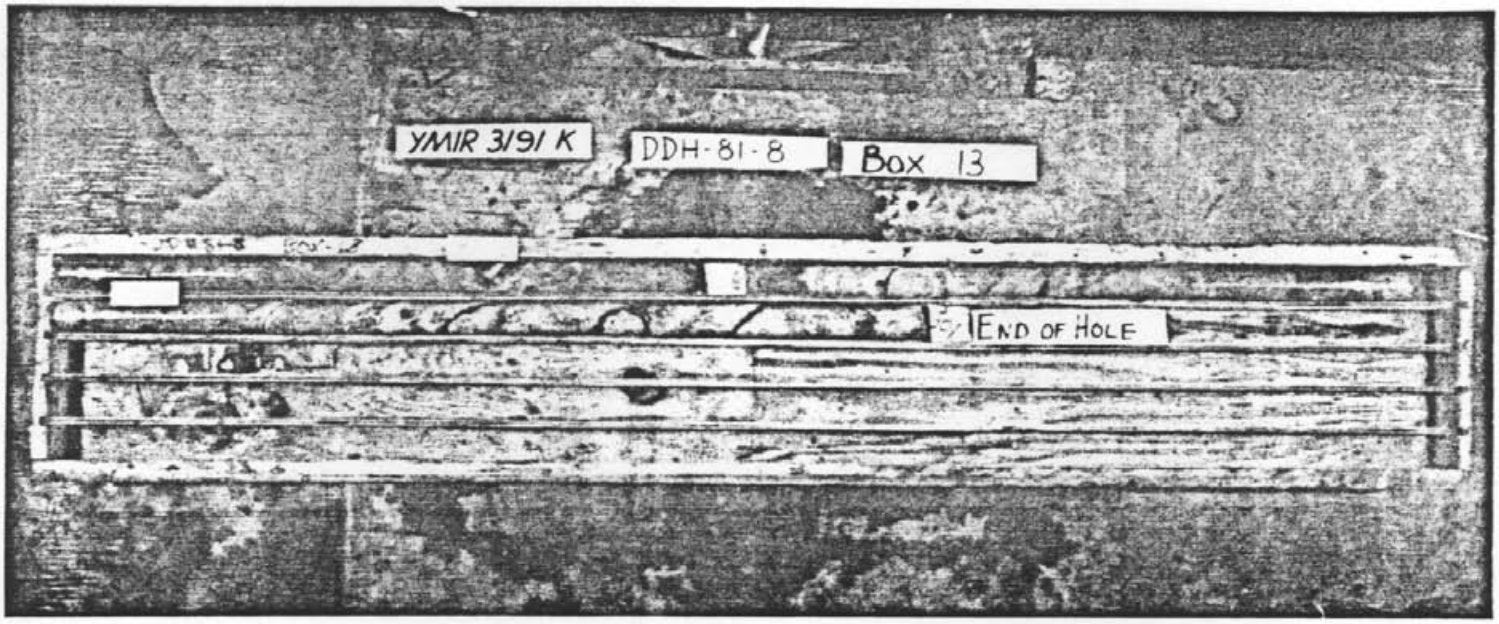
BOXES 3-4

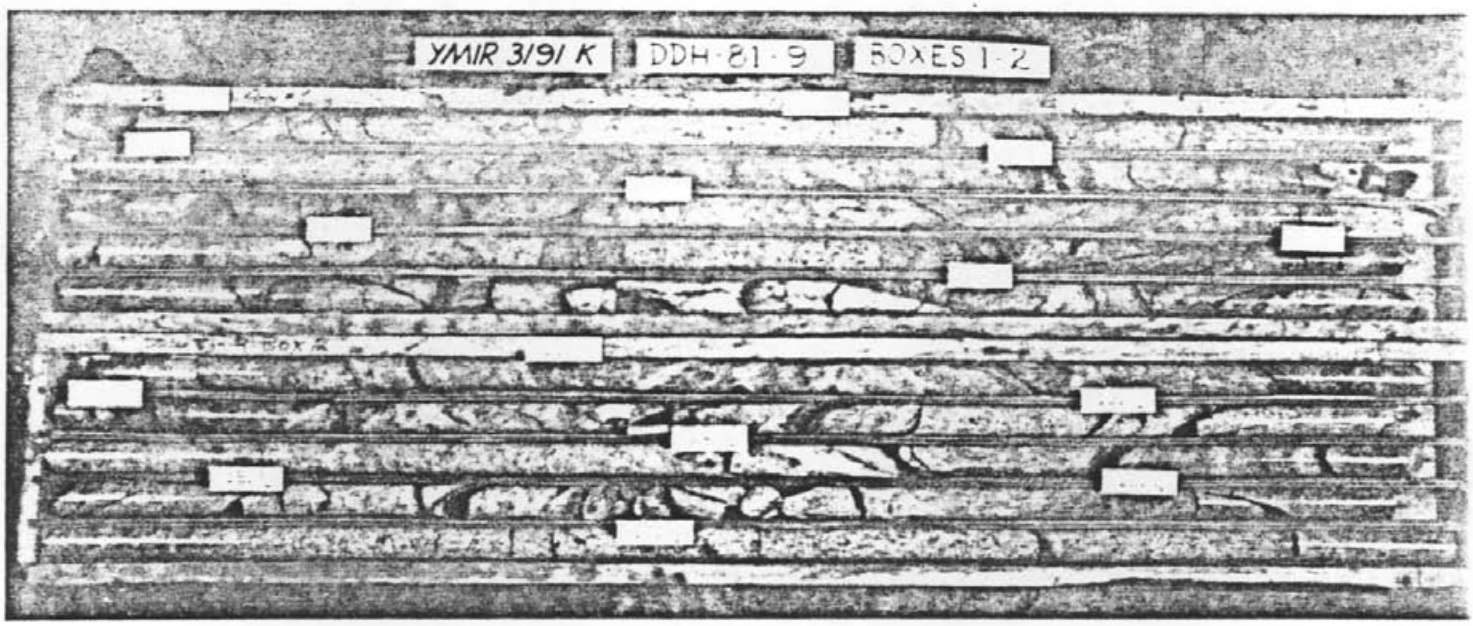

3191 K
DDH-81-
BOXES 5-

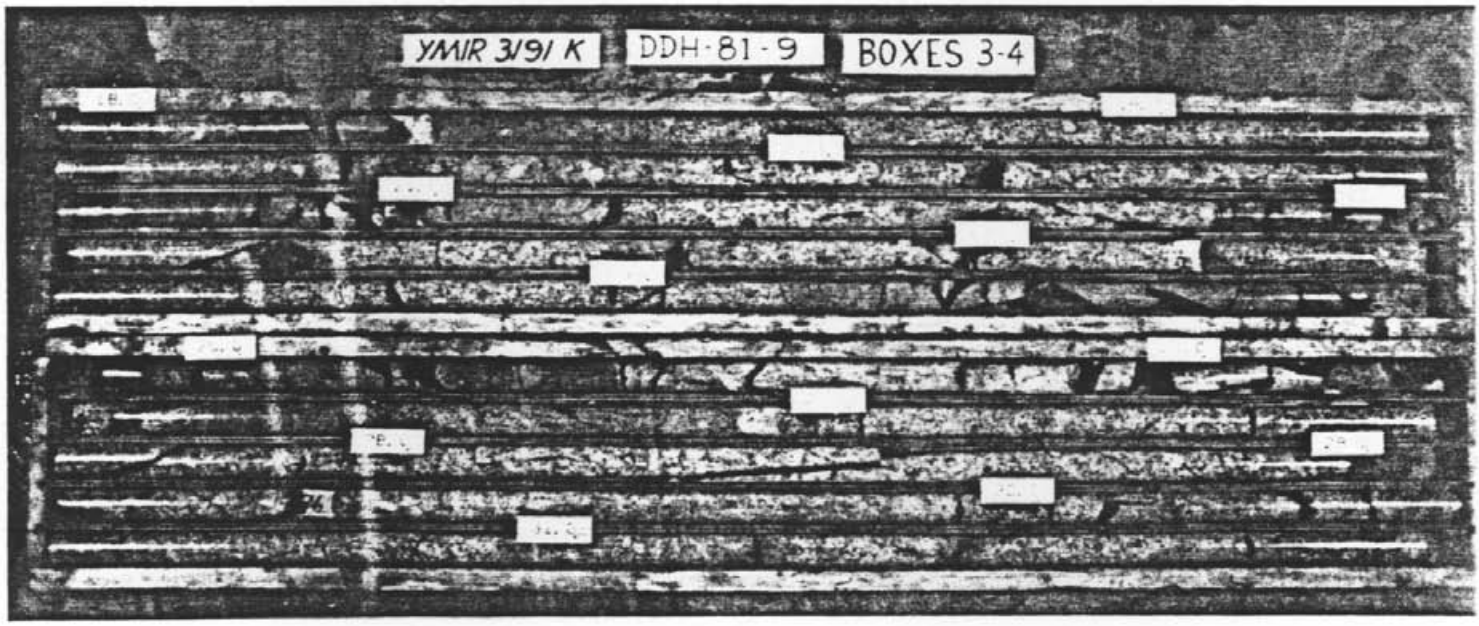

YMIR 3191 K
DDH-81-8
BOXES 7-

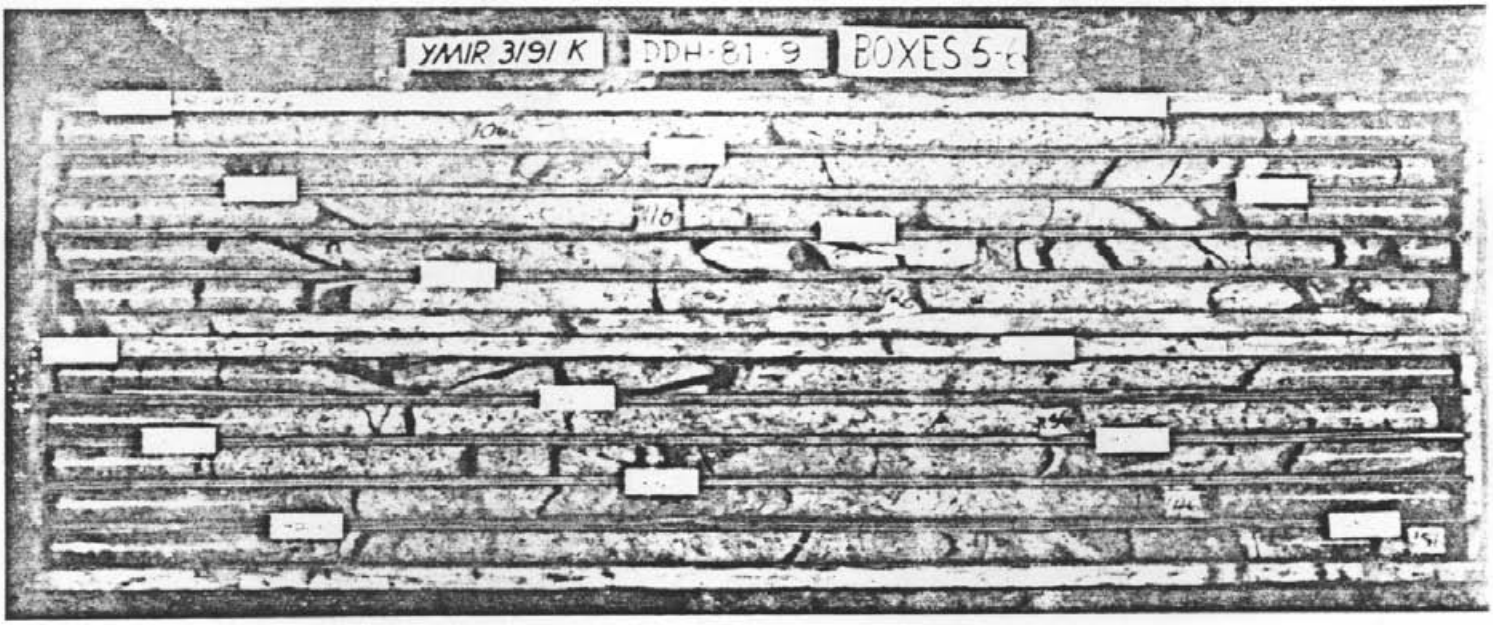

YMIR 3191 K
DDH-81-8
BOXES 9-

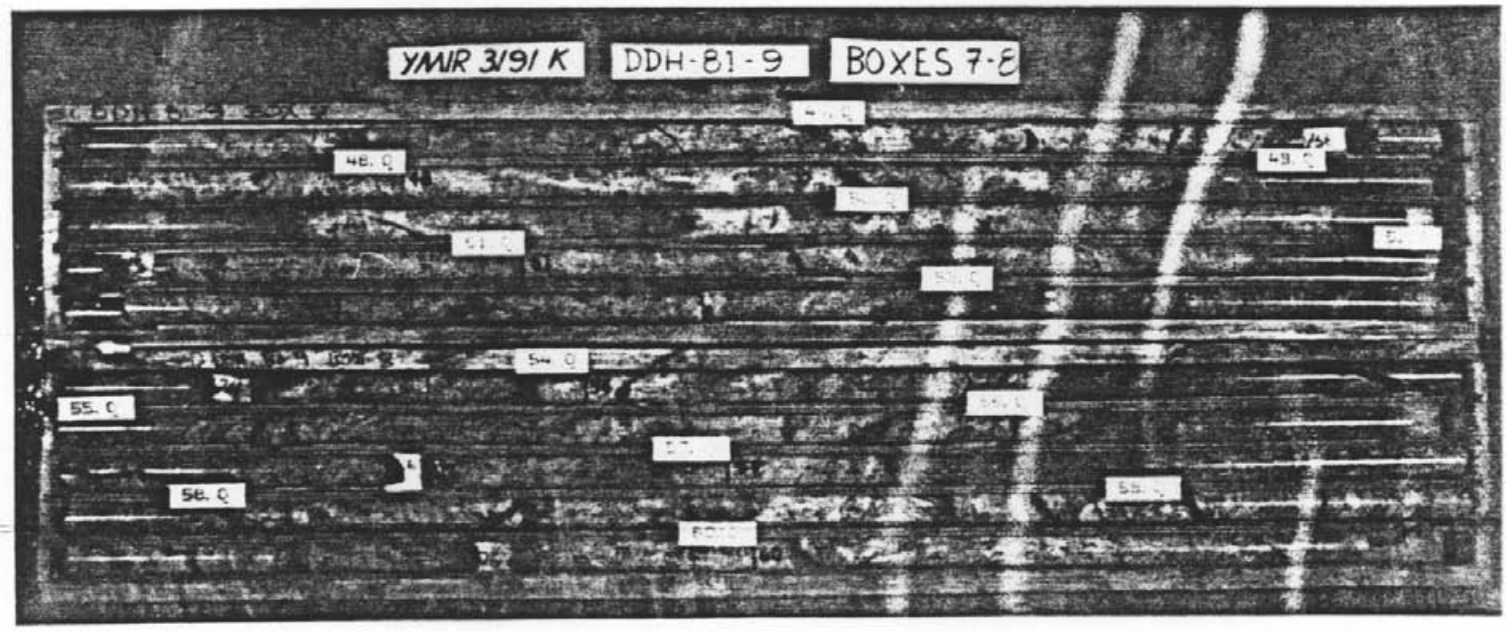

YMIR 3191 K
DDH-81-8
BOXES 11-12

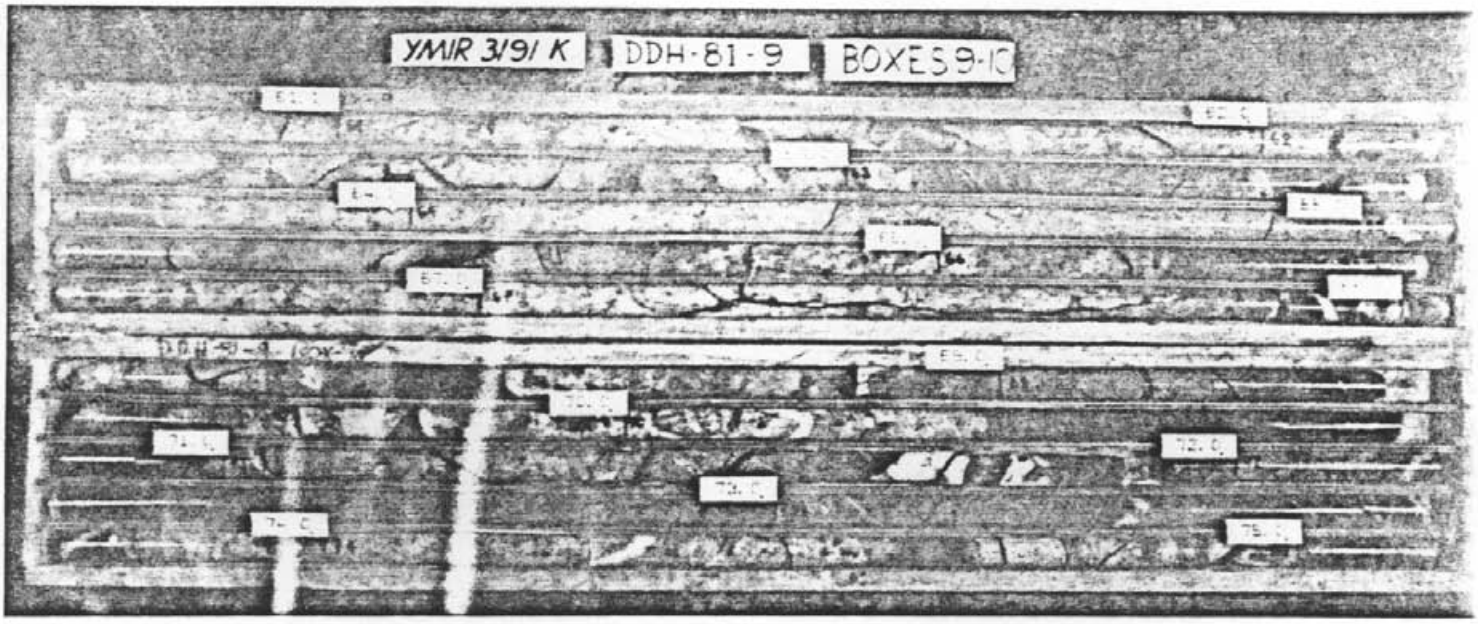

YMIR 3/91 K
DDH-81-8
Box 13
End of Hole

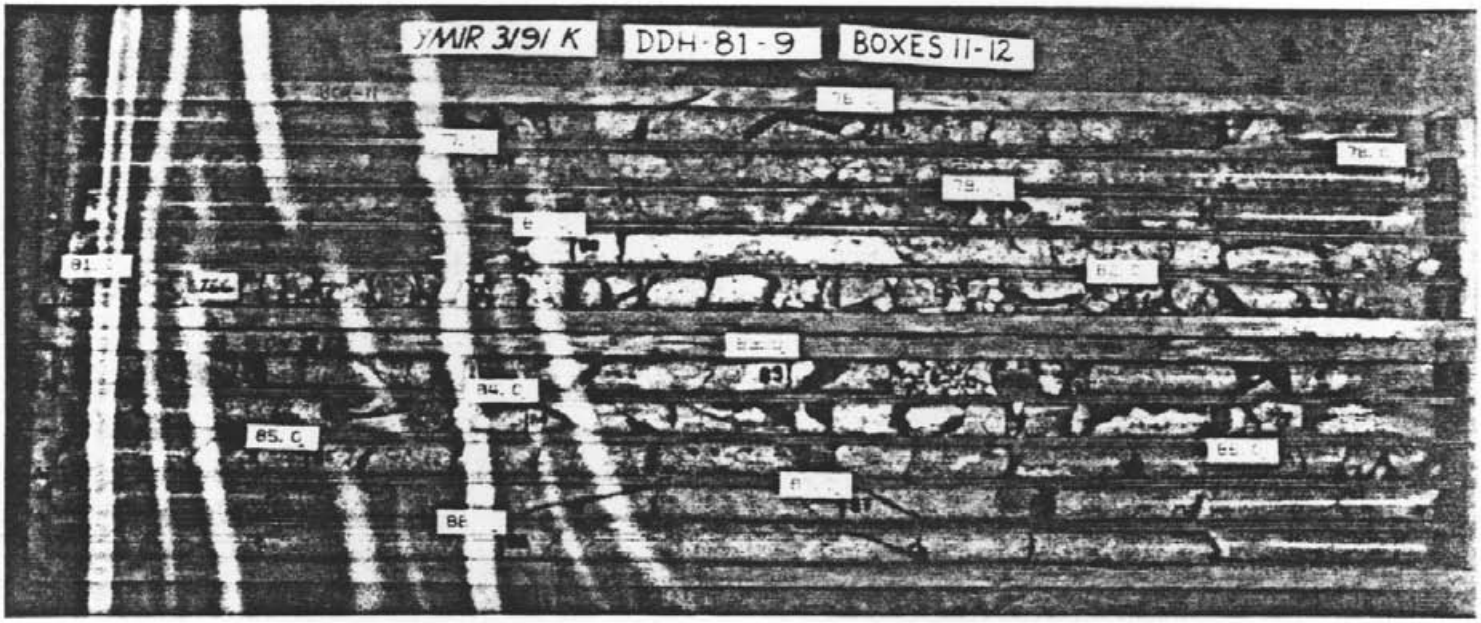

YMIR 3/91 K
DDH-81-9
BOXES 1-2

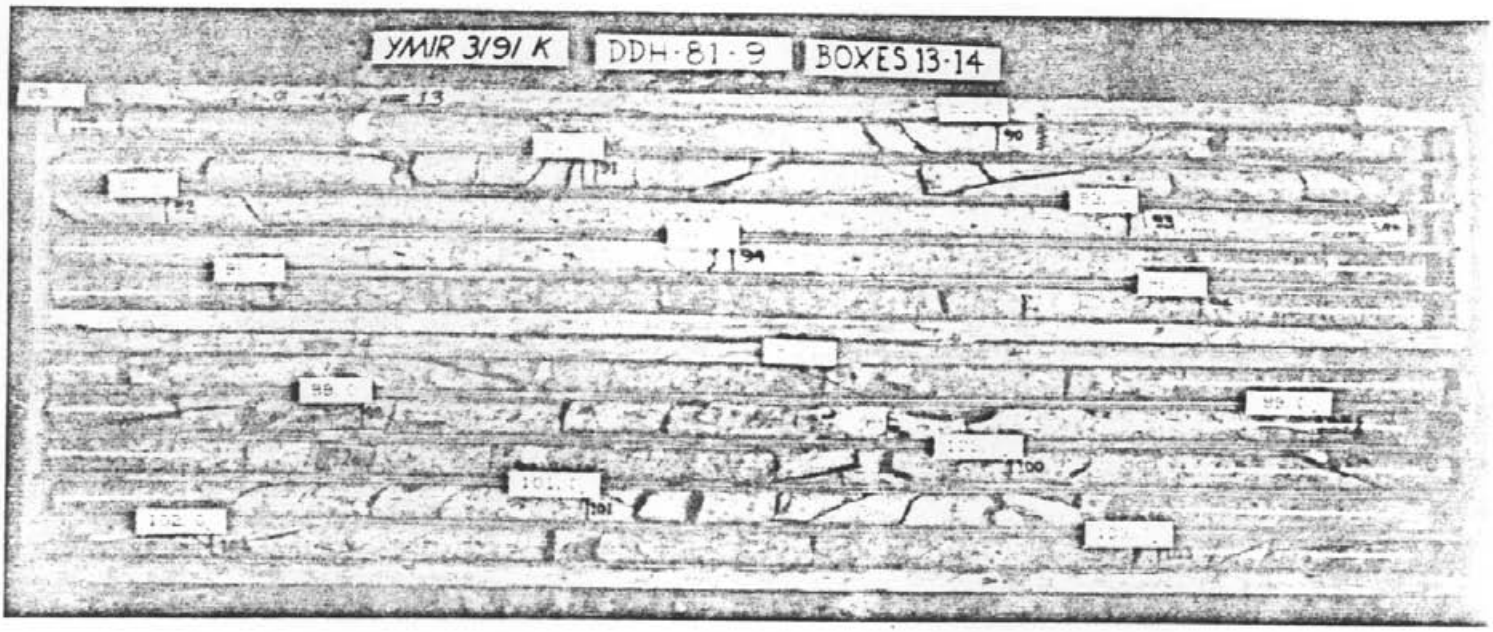

YMIR 3/91 K
DDH-81-9
BOXES 3-4


YMIR 3191 K
DDH-81-9
BOXES 5-6

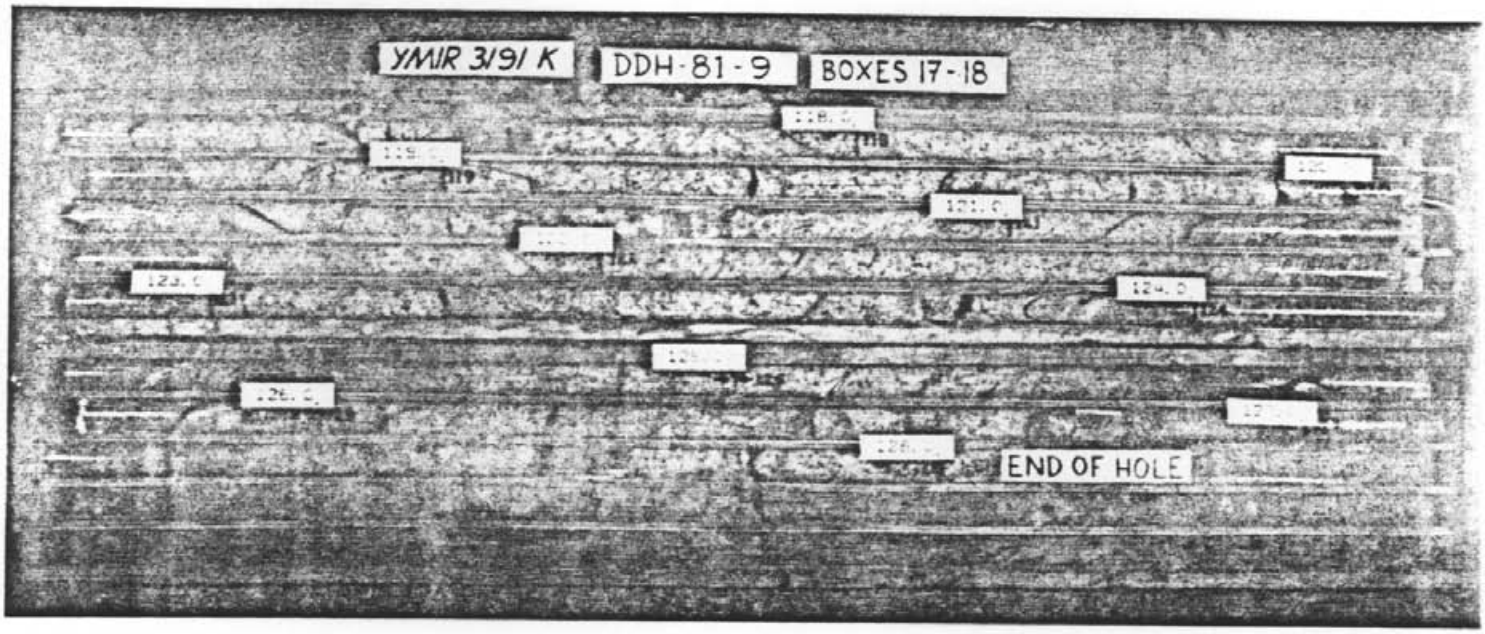

YMIR 3191 K
DDH-81-9
BOXES 7-8
48.
49.
55.
56.

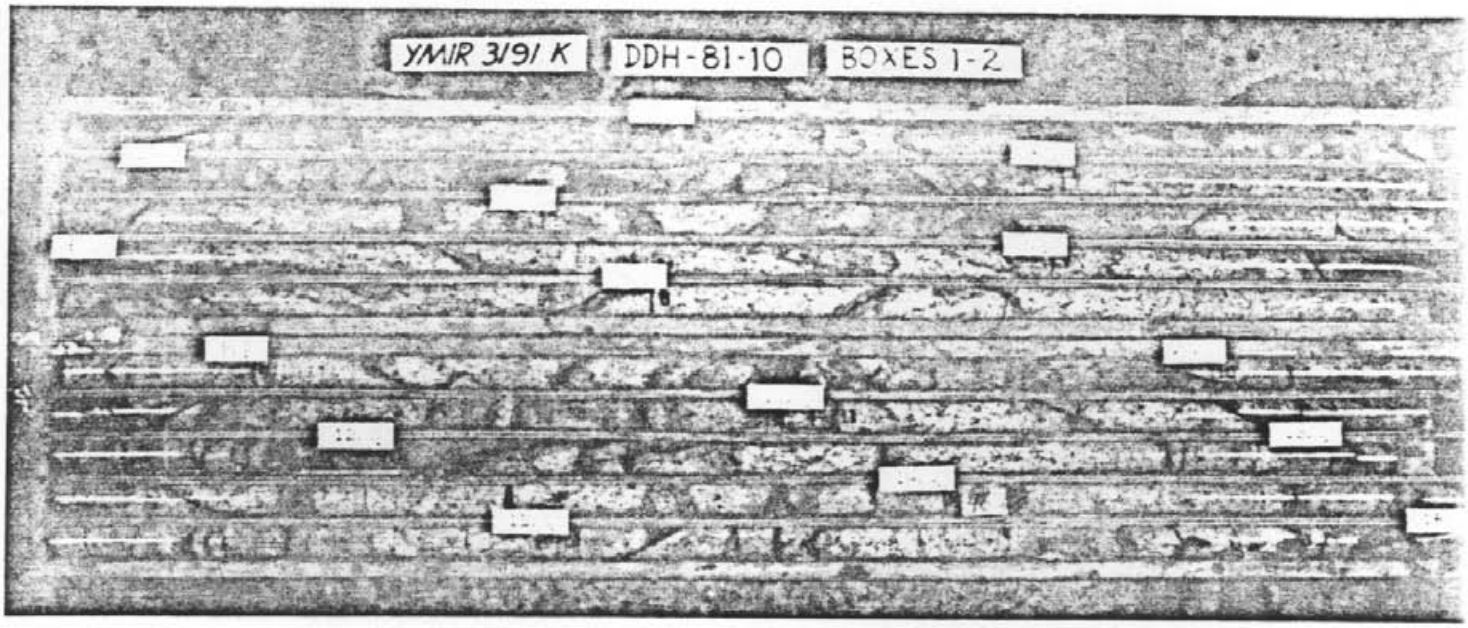

YMIR 3/91 K
DDH-81-9
BOXES 9-10

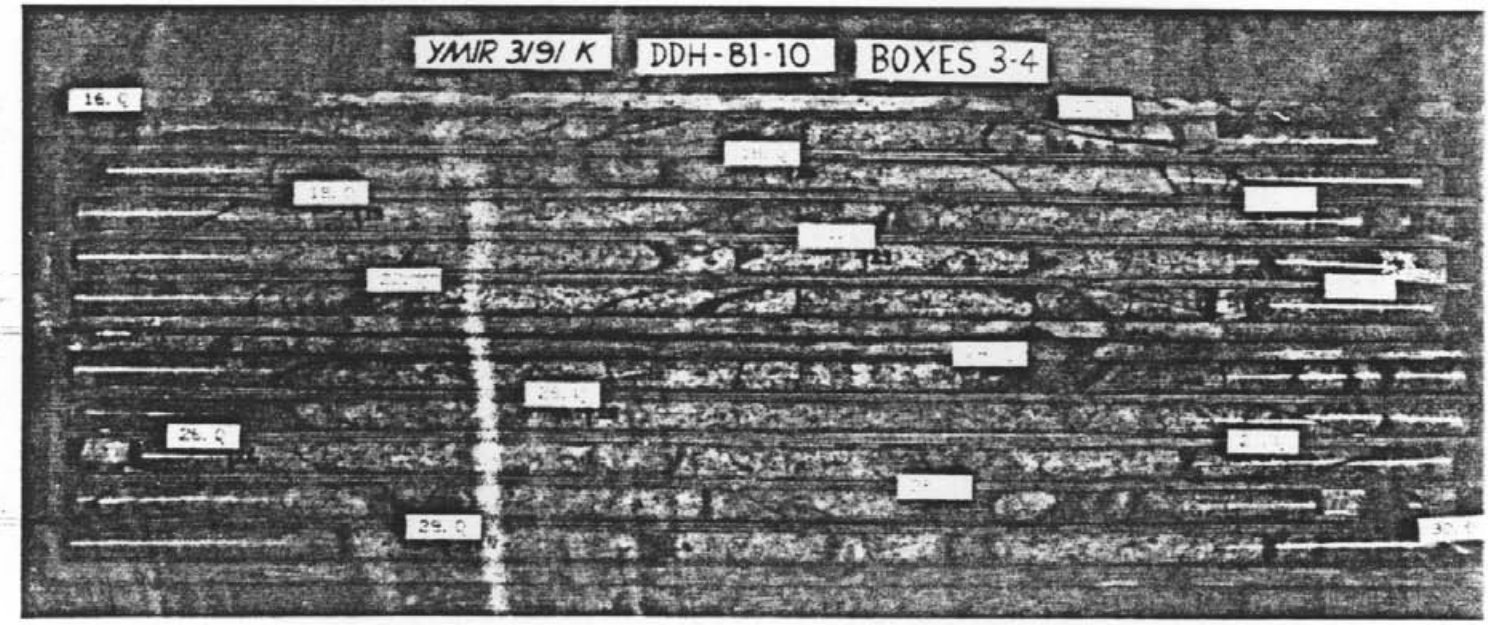

YMIR 3/91 K
DDH-81-9
BOXES 11-12

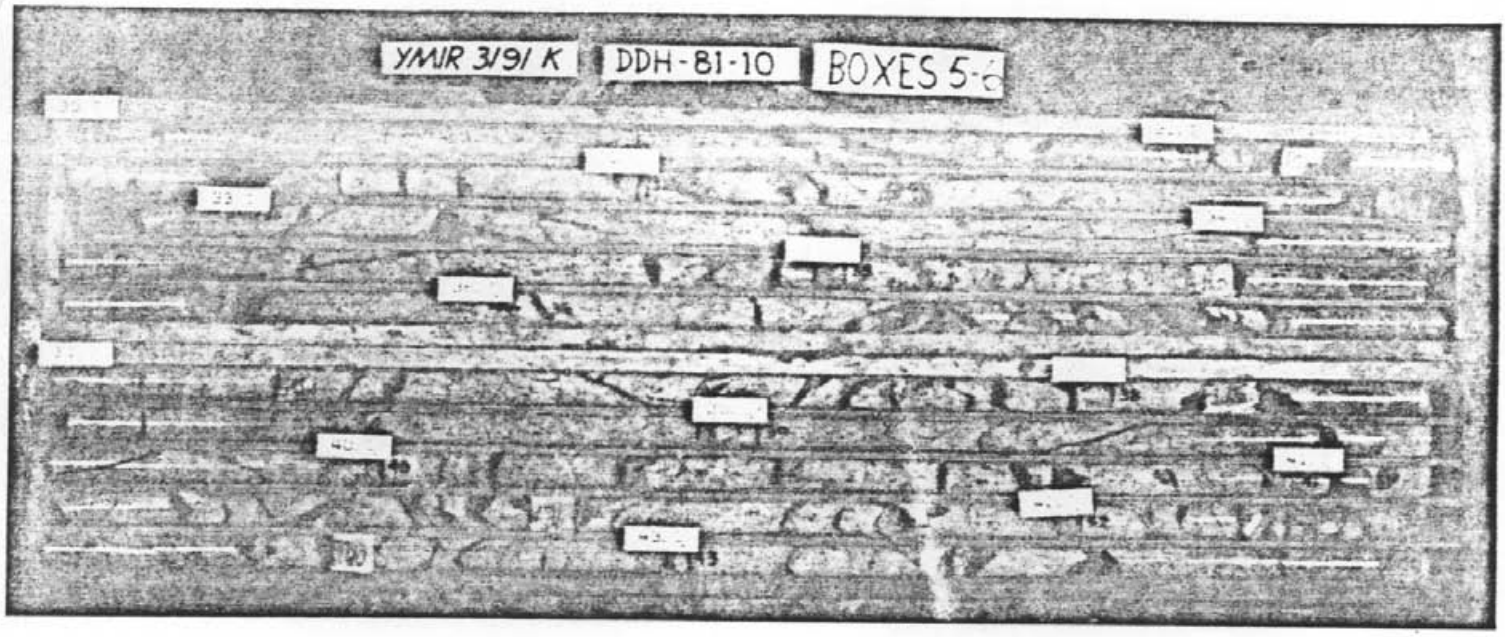

YMIR 3/91 K
DDH-81-9
BOXES 13-14

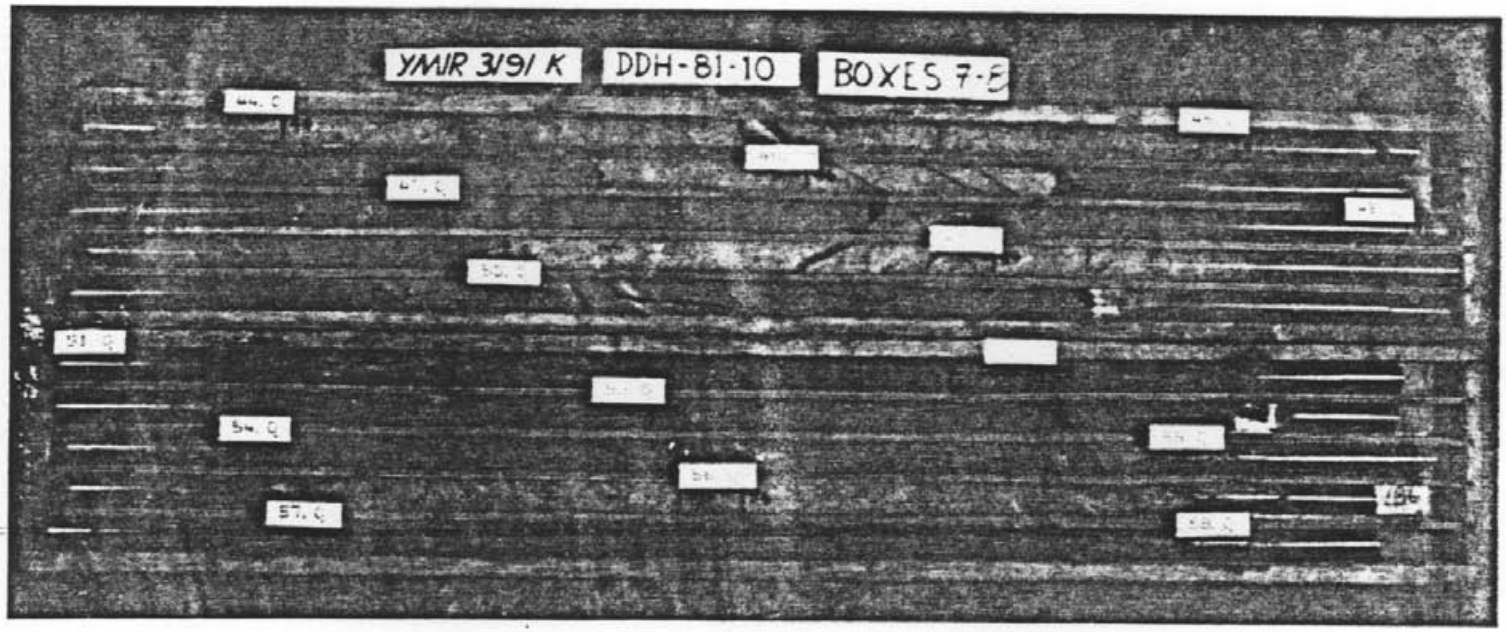

YMIR 3/91 K
DDH-81-9
BOXES 15-16

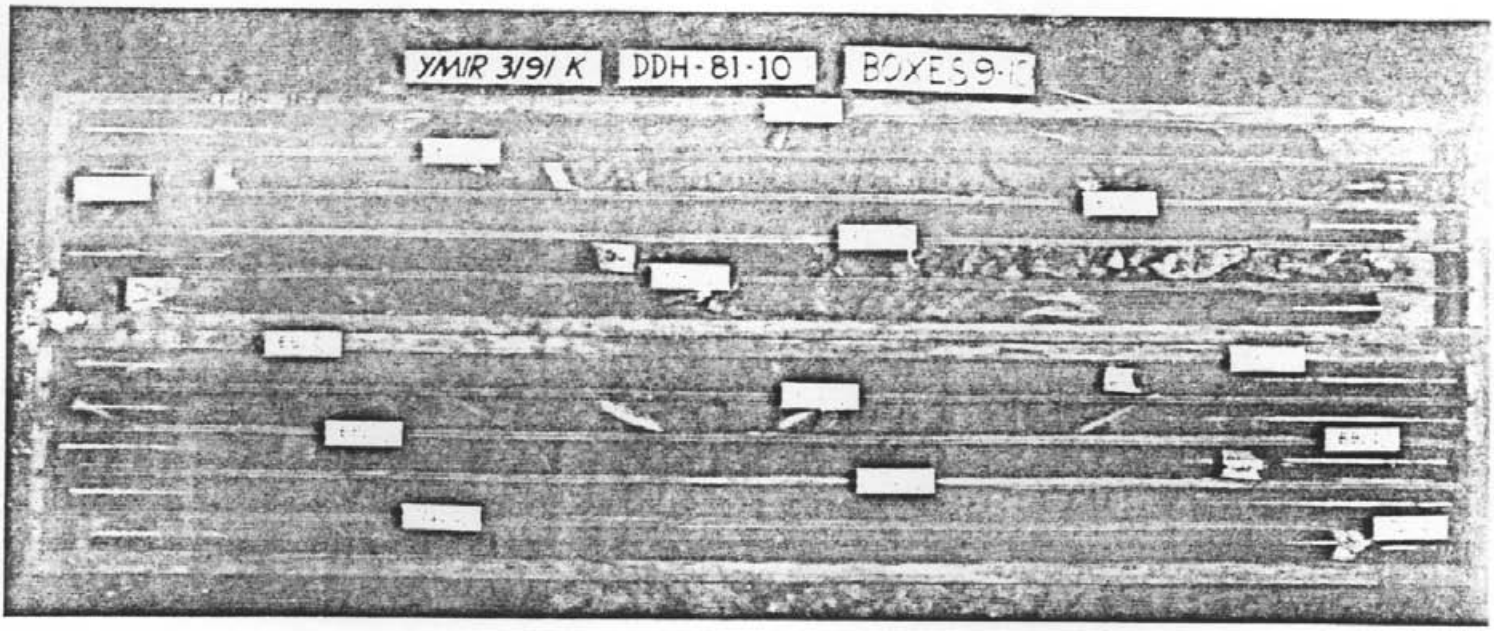

YMIR 3/91 K
DDH-81-9
BOXES 17-18
END OF HOLE

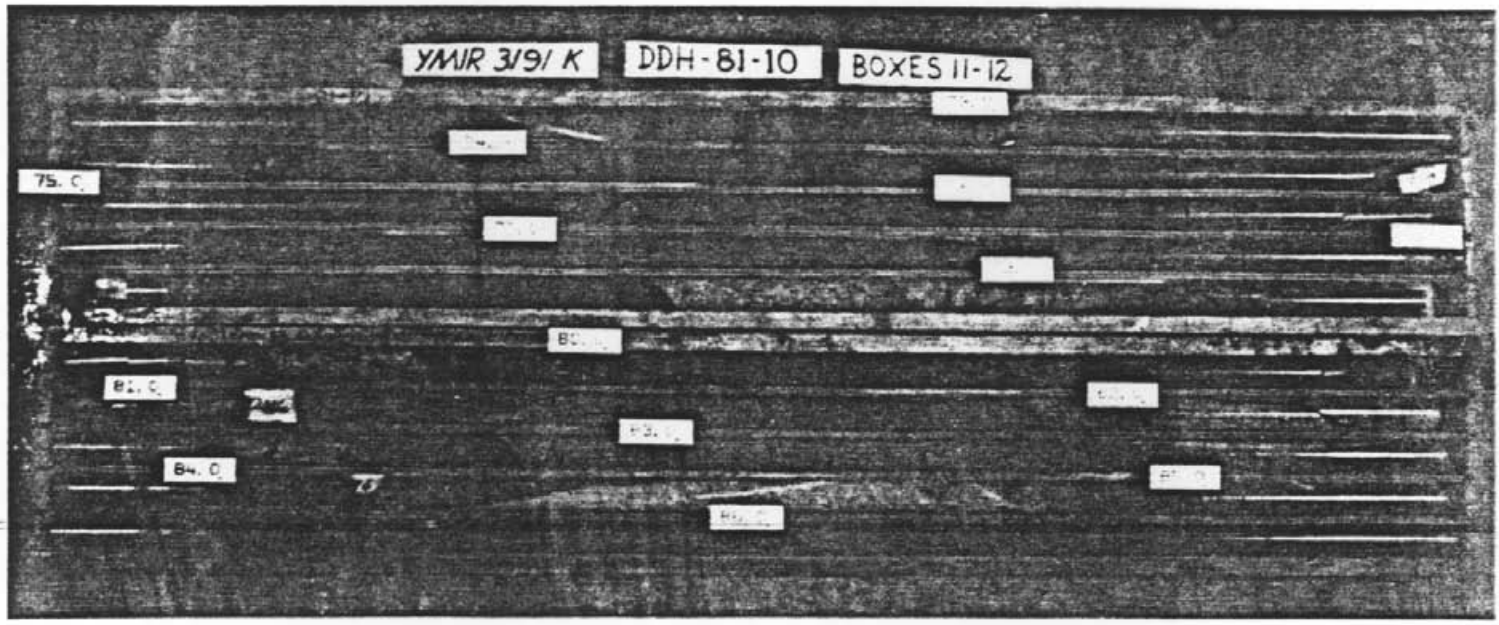

YMIR 3/91 K
DDH-81-10
BOXES 1-2


YMIR 3/91 K
DDH-81-10
BOXES 3-4


YMIR 3/91 K
DDH-81-10
BOXES 5-6


YMIR 3/91 K
DDH-81-10
BOXES 7-8


YMIR 3/91 K
DDH-81-10
BOXES 9-10


YMIR 3/91 K
DDH-81-10
BOXES 11-12
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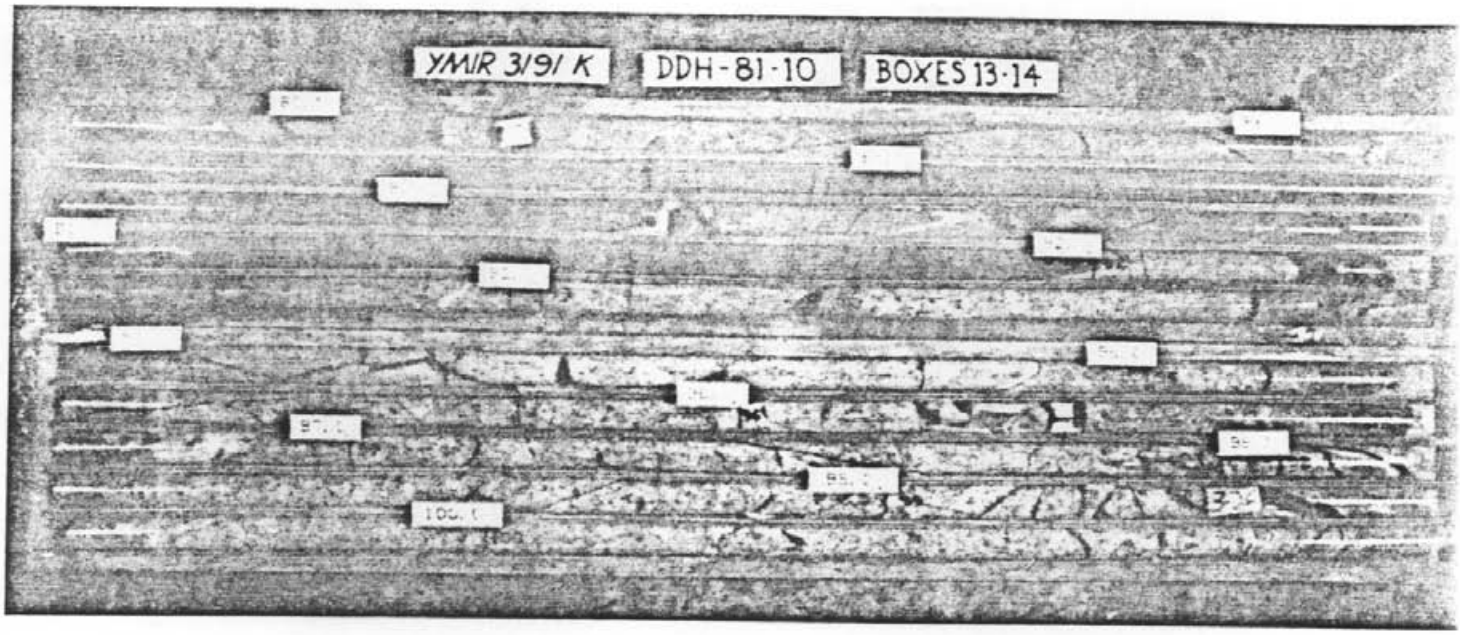
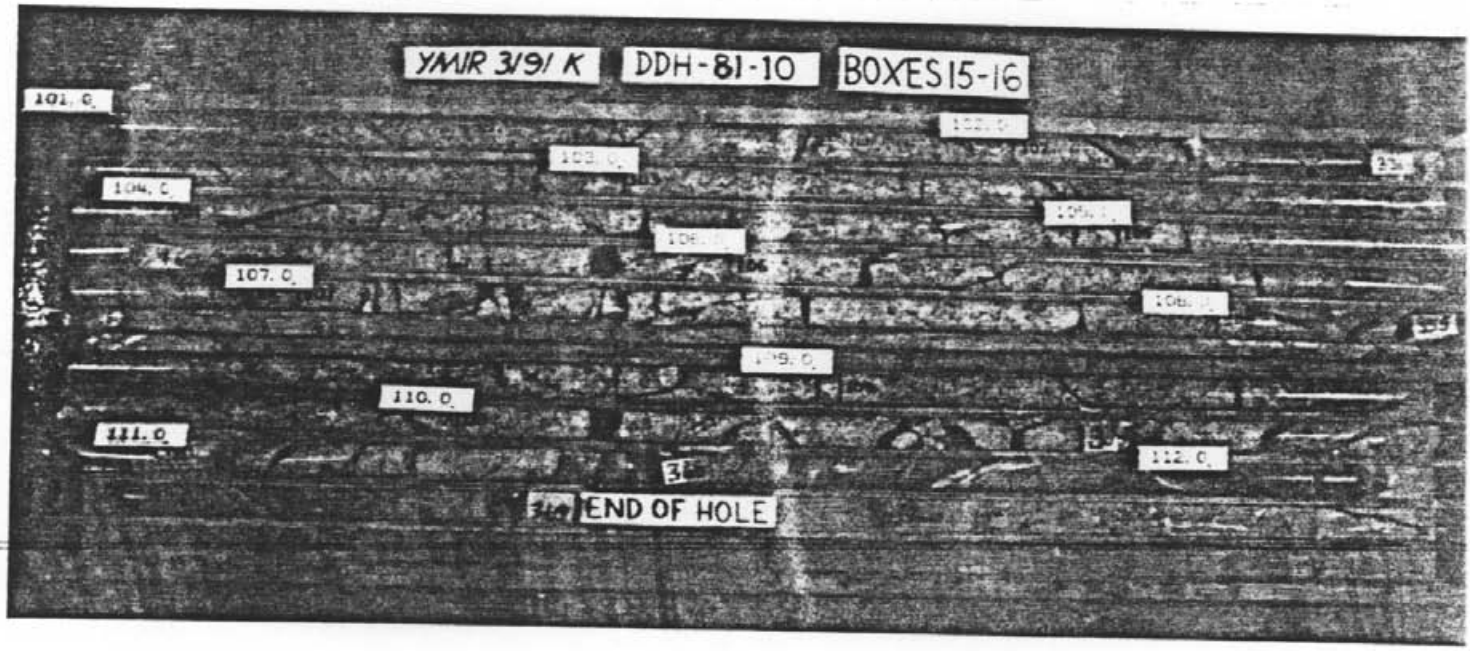
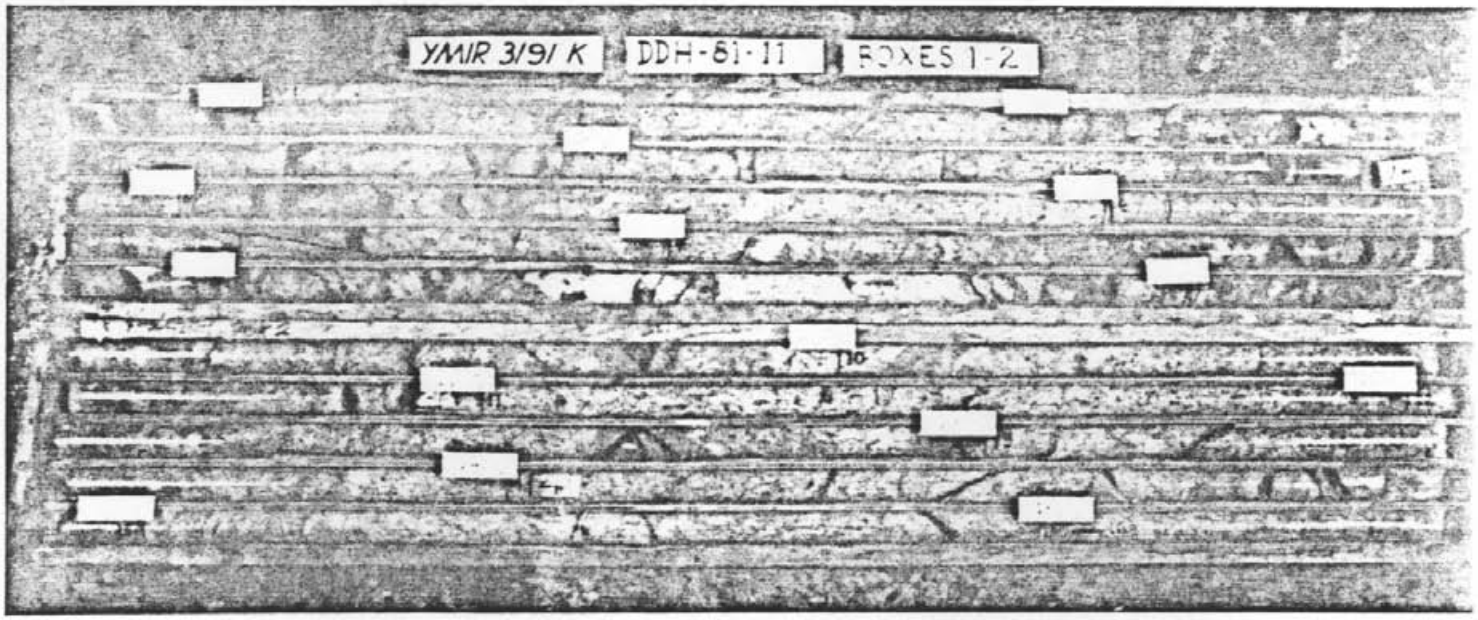
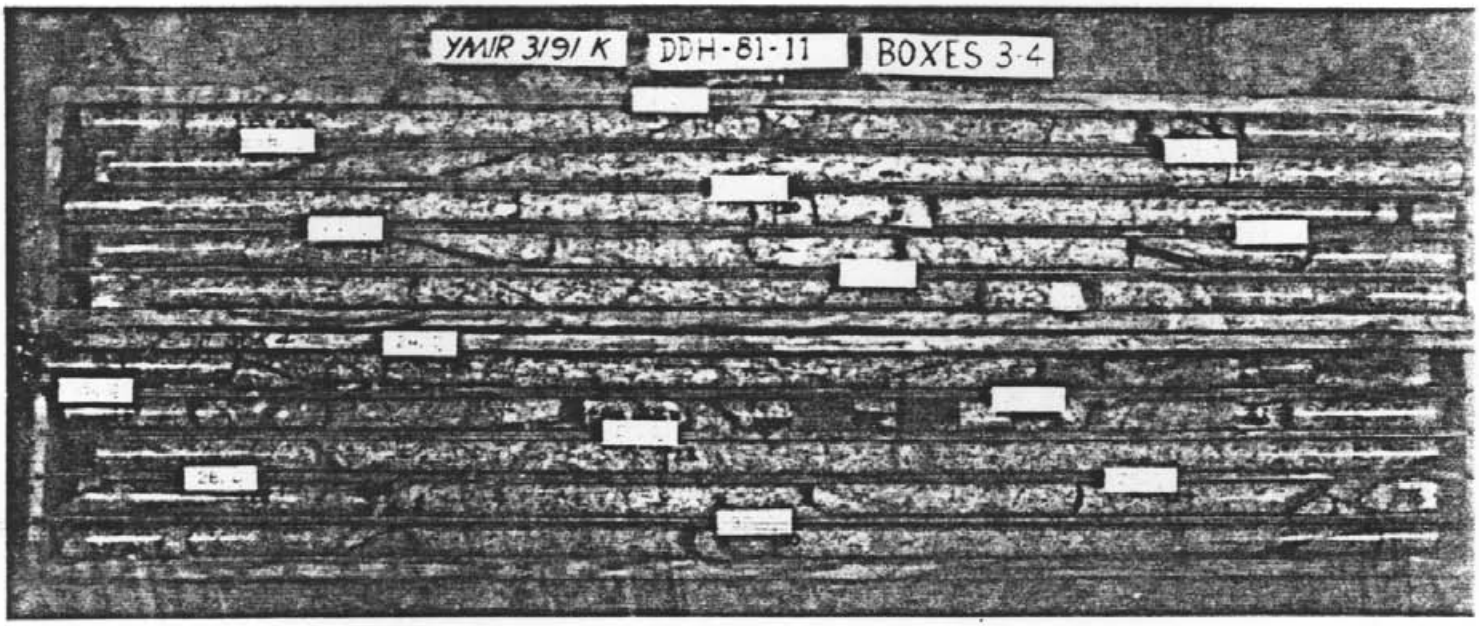
84. 0


YMIR 3/91 K
DDH-81-10
BOXES 13-14


YMIR 3/91 K
DDH-81-10
BOXES 15-16
101. 0
107. 0
110. 0
111. 0
END OF HOLE


YMIR 3/91 K
DDH-81-11
BOXES 1-2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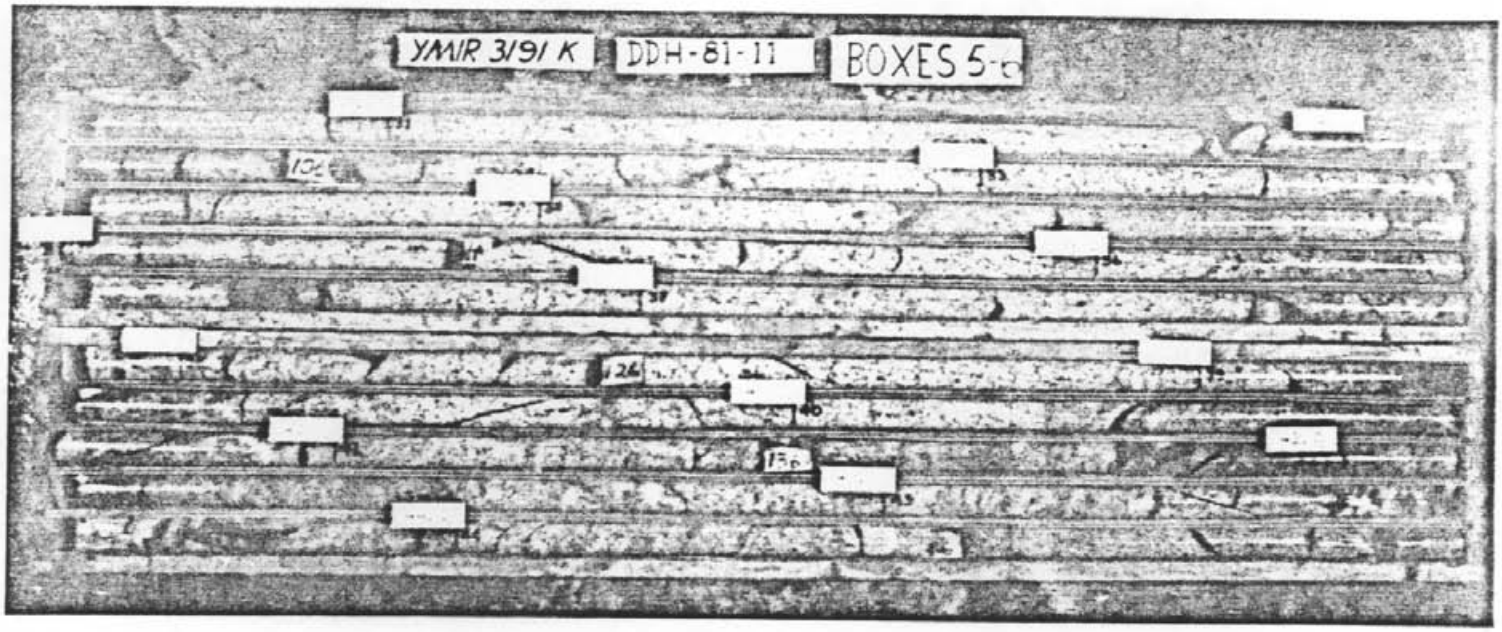
DDH-81-11
BOXES 3-4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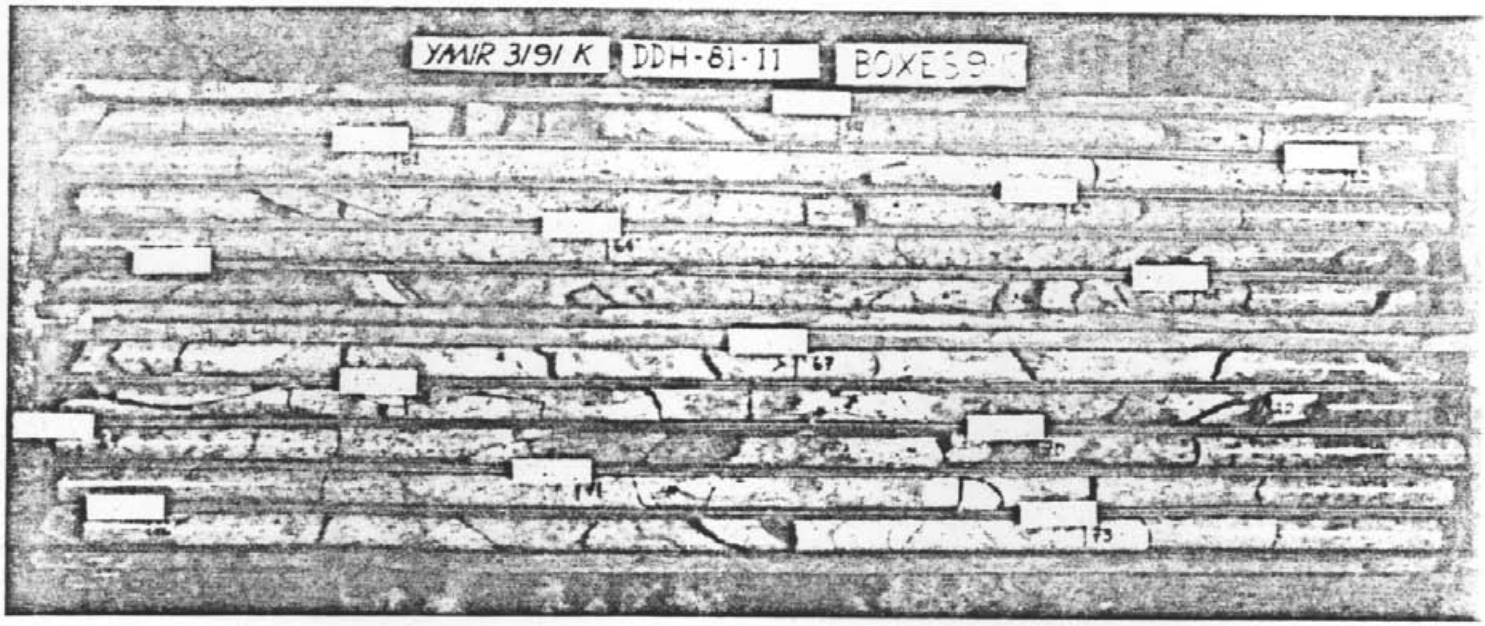
DDH-81-11
BOXES 5-6


YMIR 3/91 K
DDH-81-11
BOXES 7-8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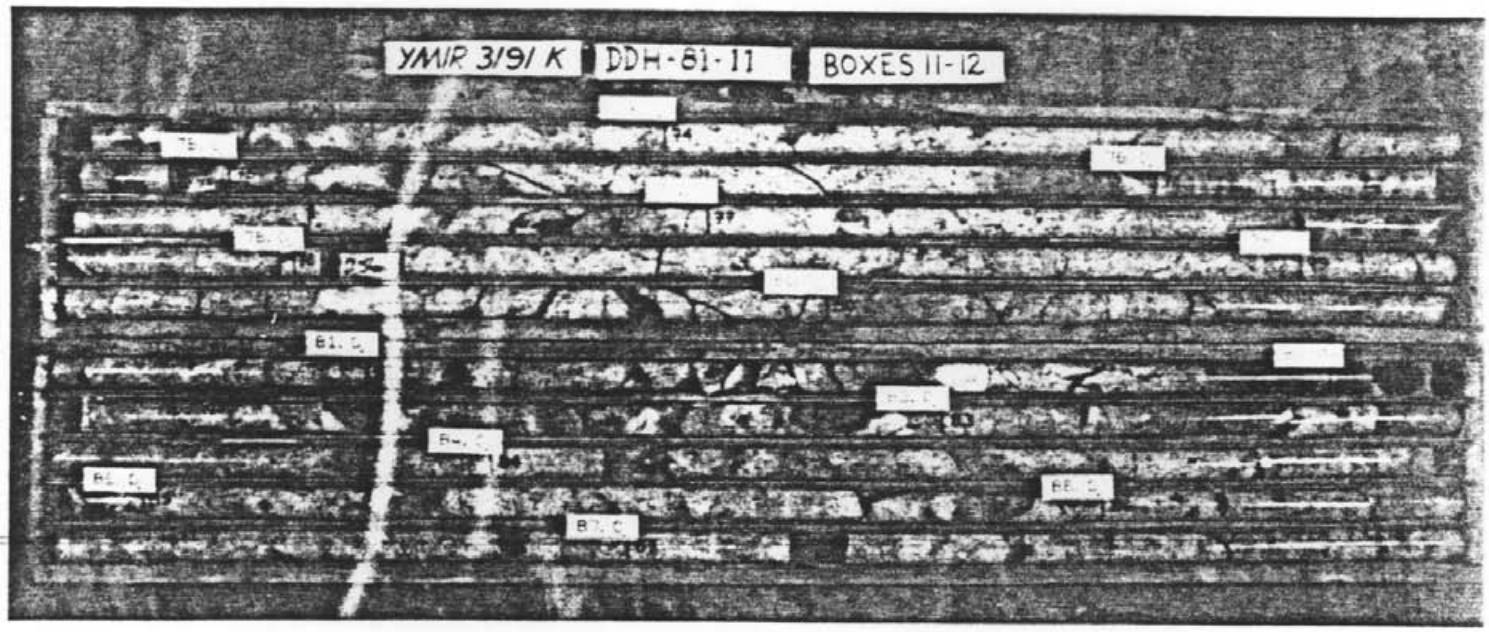
DDH-81-11
BOXES 9-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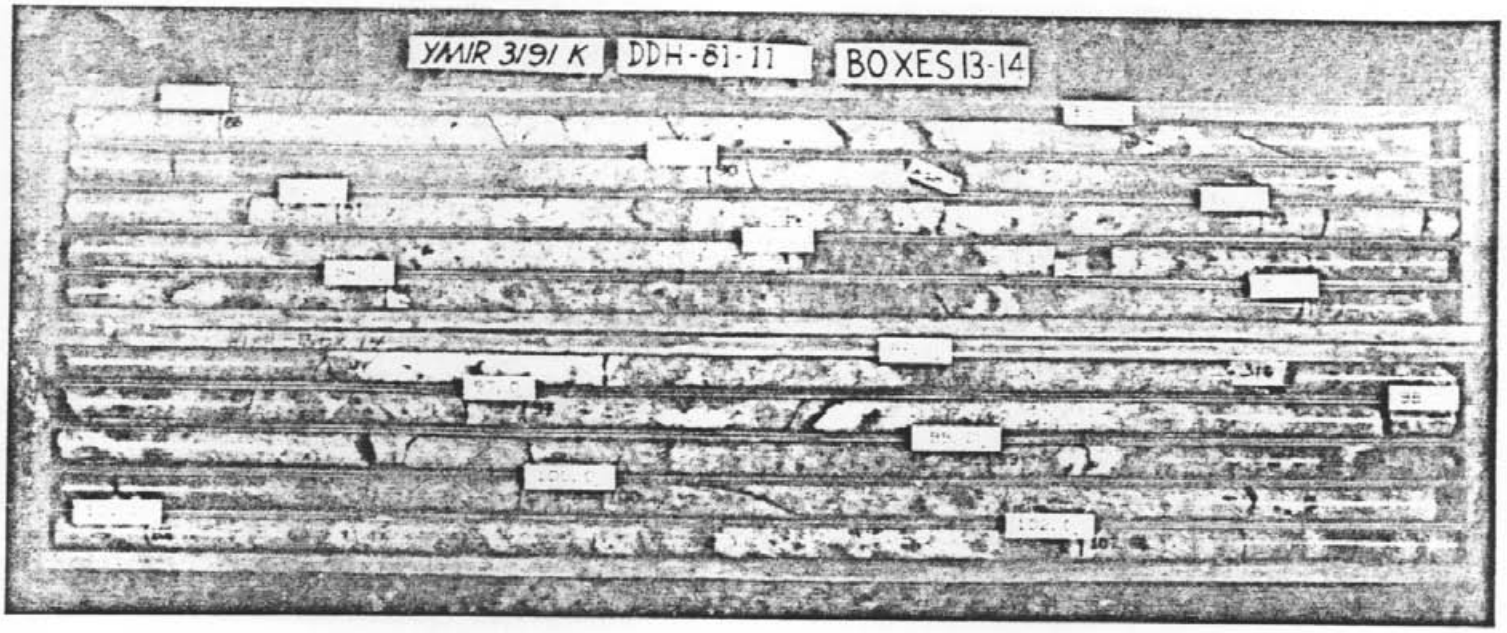
DDH-81-11
BOXES 11-12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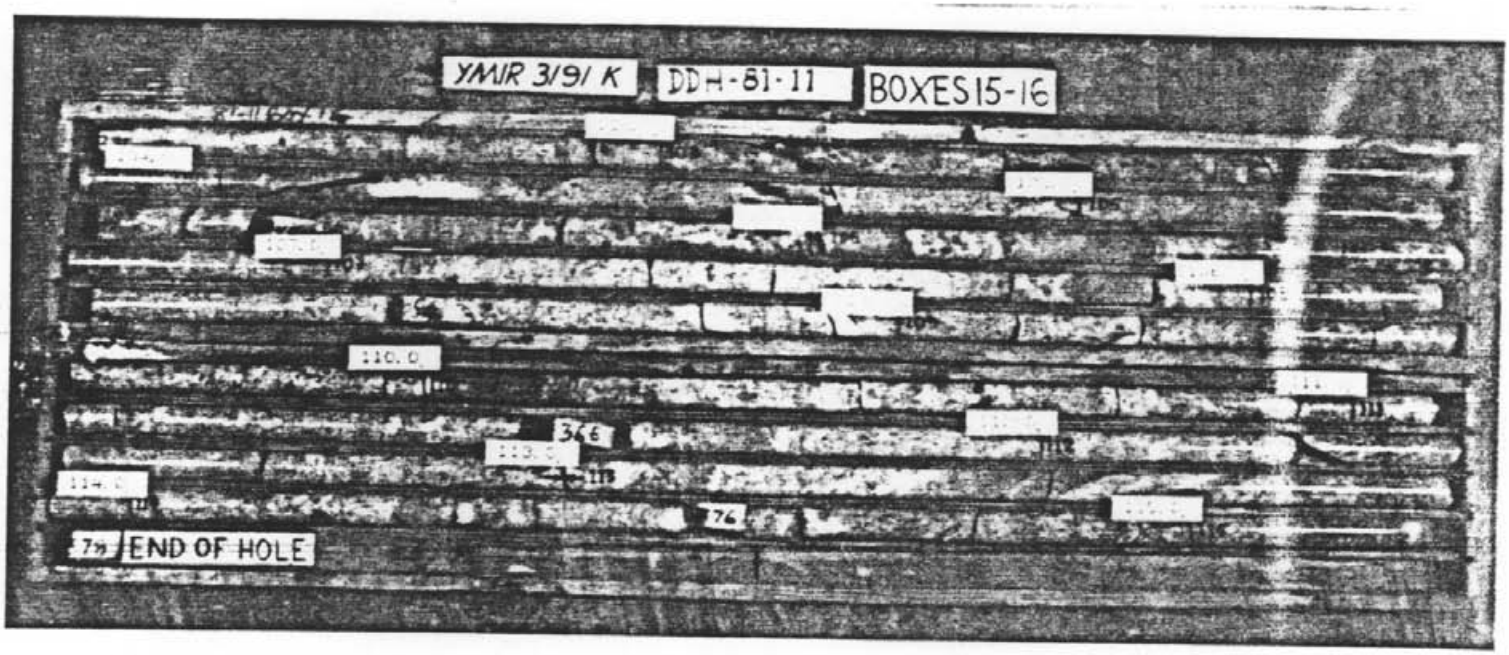
DDH-81-11
BOXES 13-14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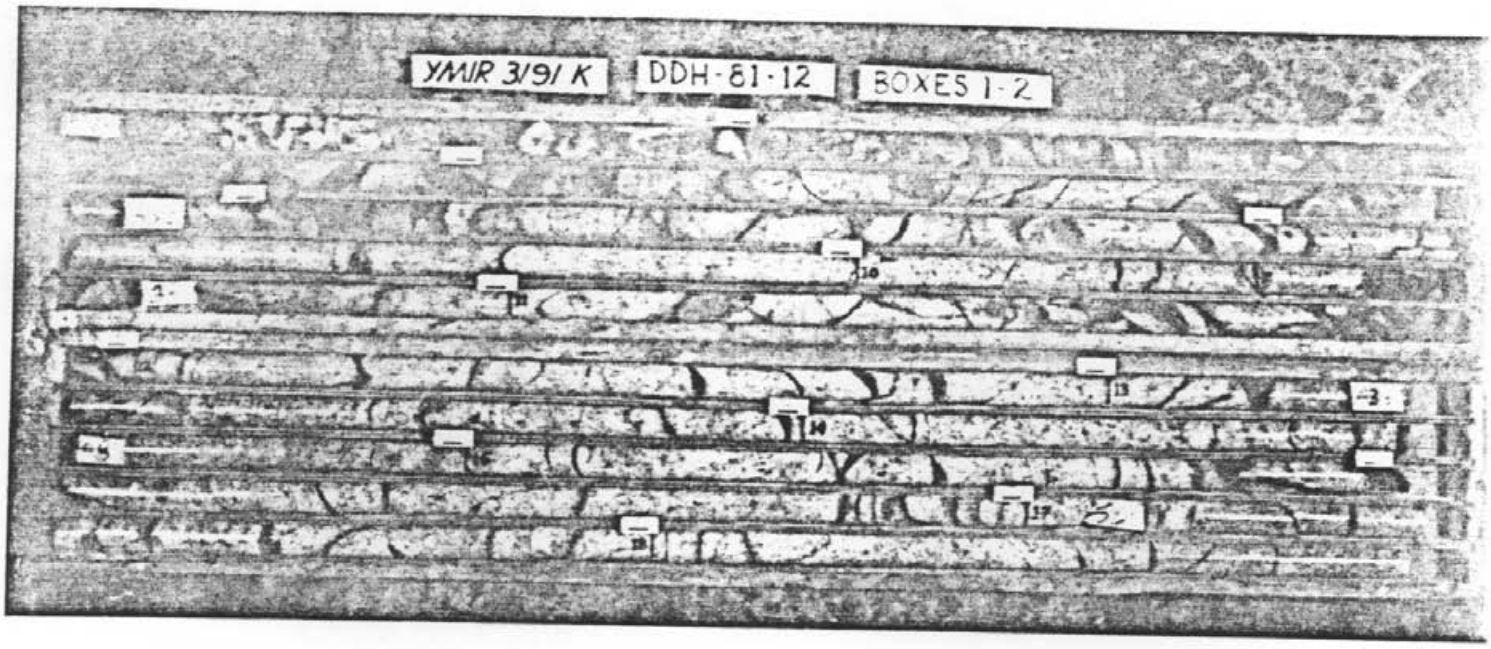
DDH-81-11
BOXES 15-16
END OF HOLE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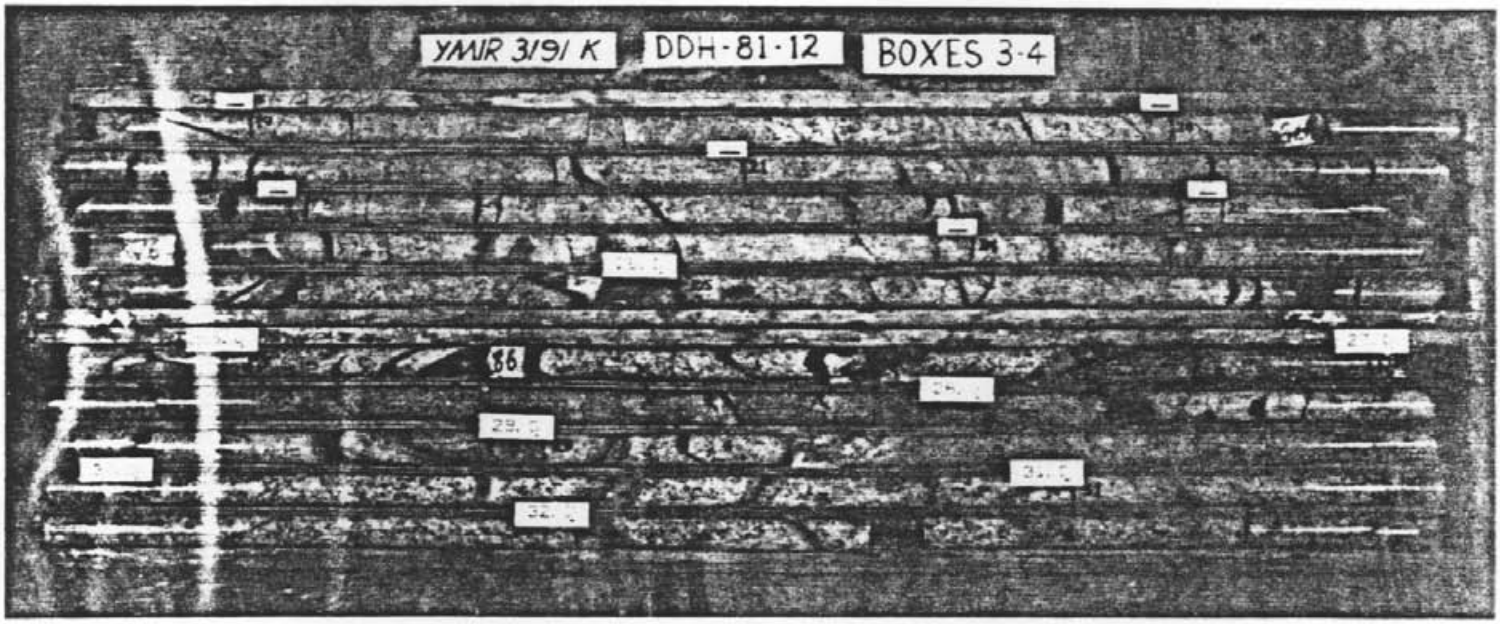
DDH-81-12
BOXES 1-2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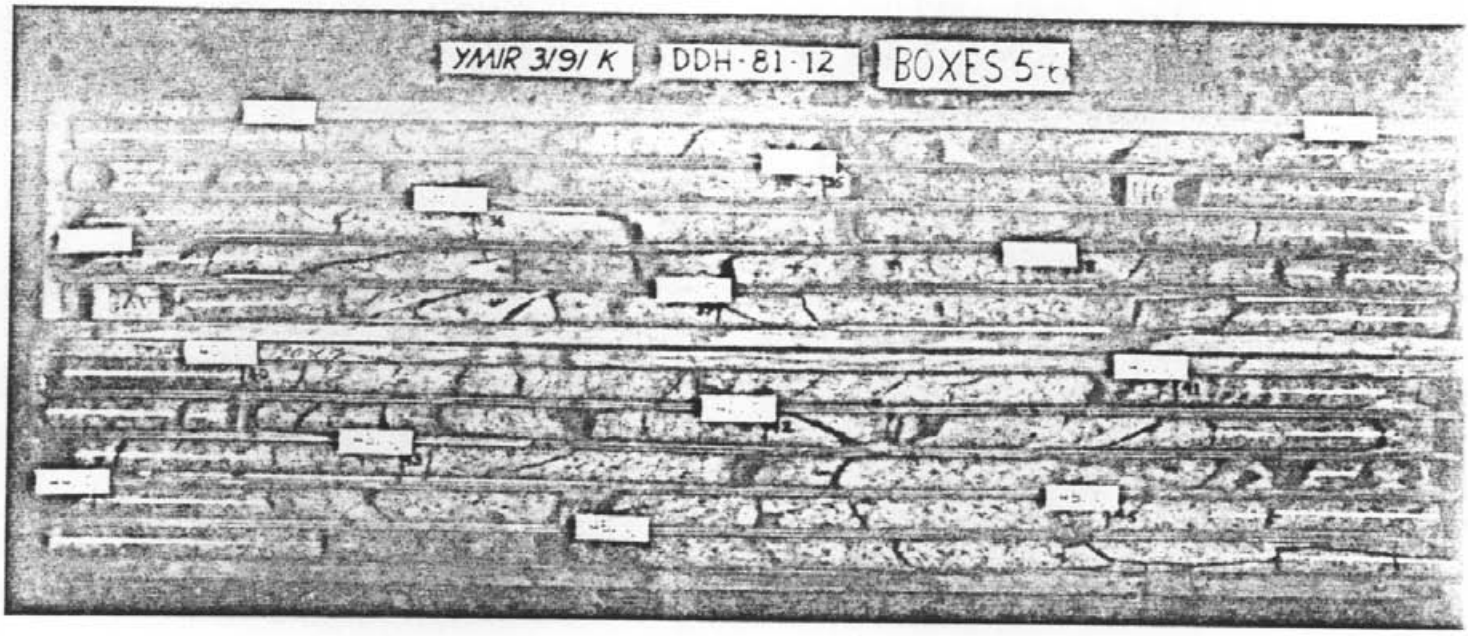
DDH-81-12
BOXES 3-4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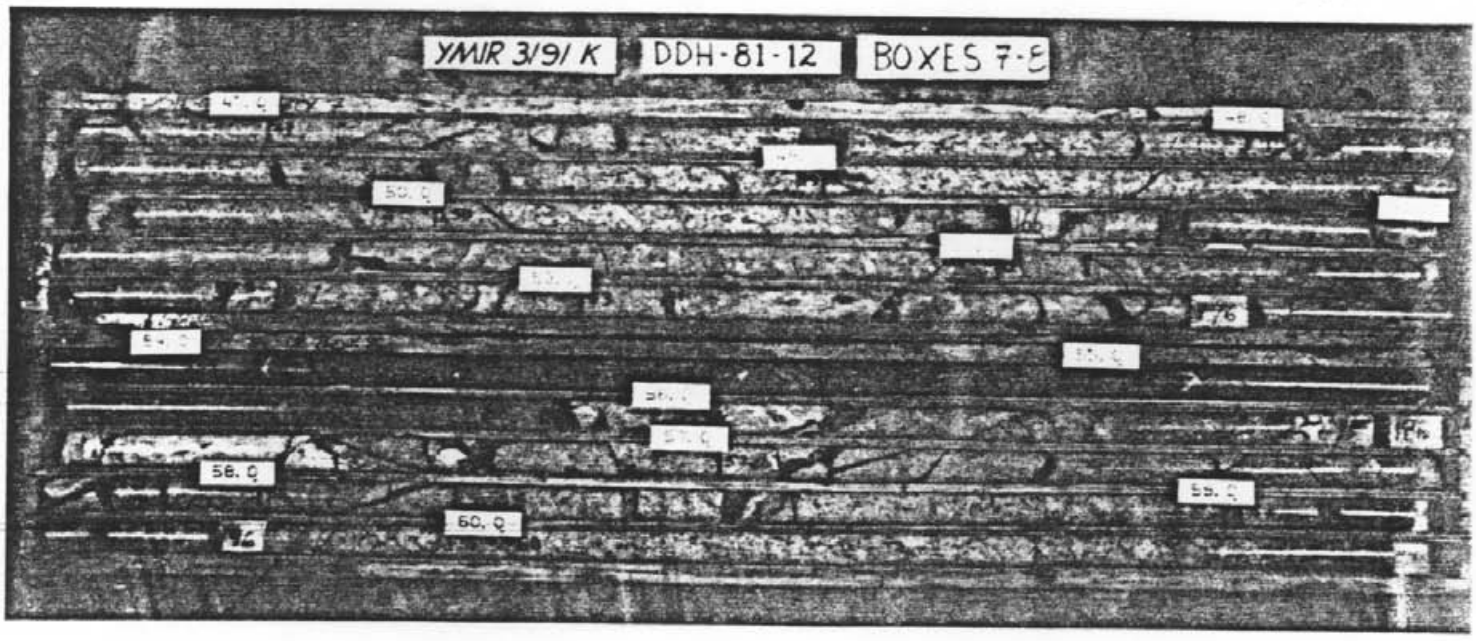
DDH-81-12
BOXES 5-6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DDH-81-12
BOXES 7-8
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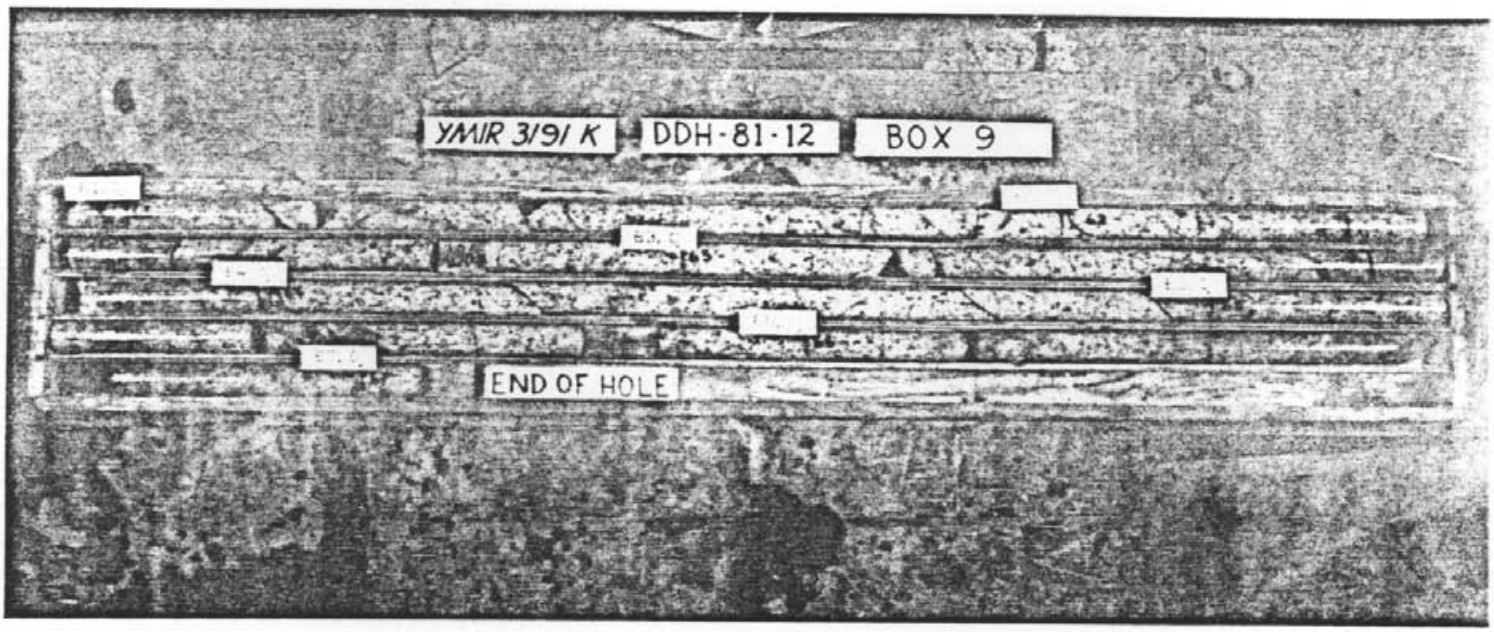
55. 0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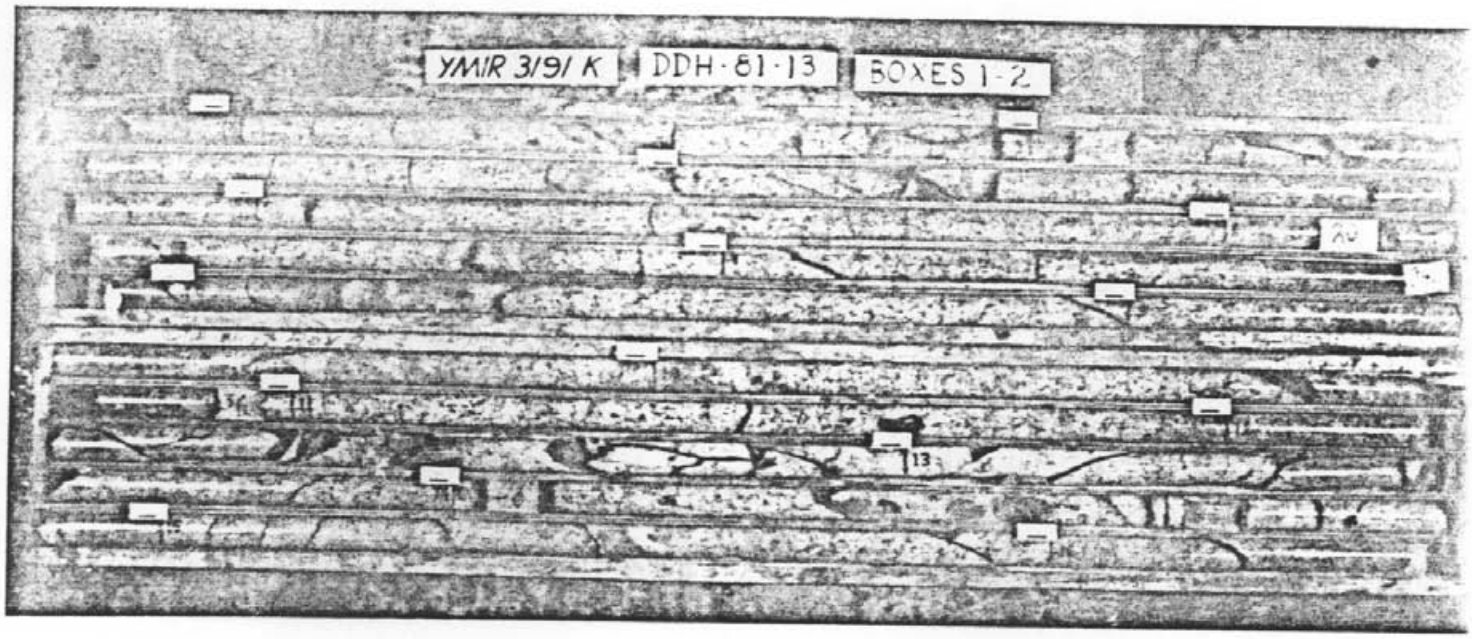
DDH-81-12
BOX 9
END OF HOLE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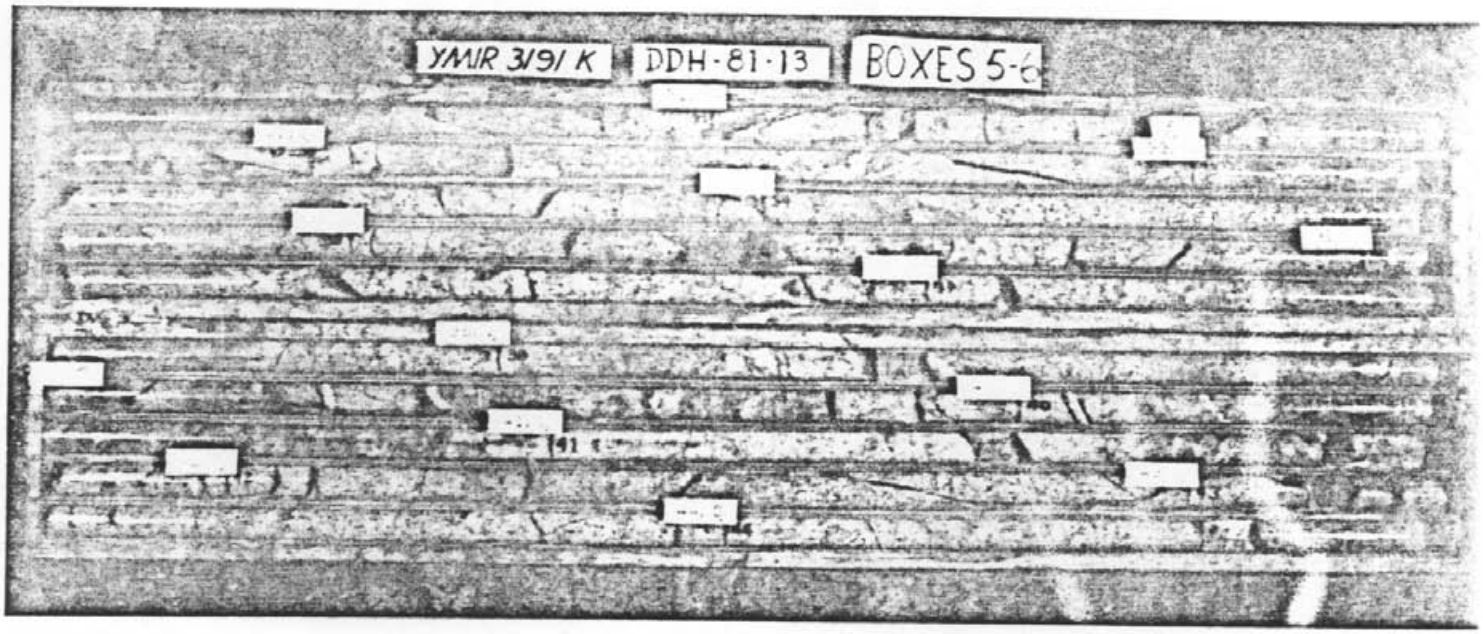
DDH-81-13
BOXES 1-2


YMIR 3/91 K
DDH-81-13
BOXES 3-4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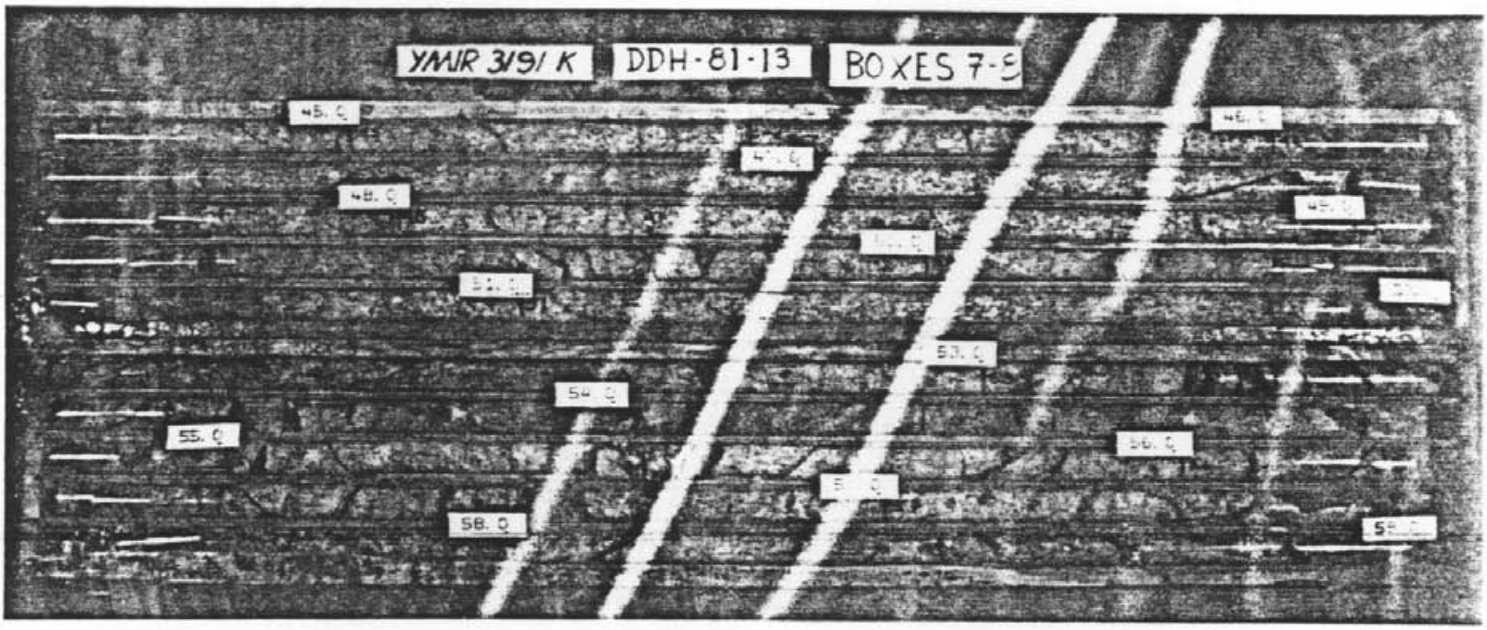
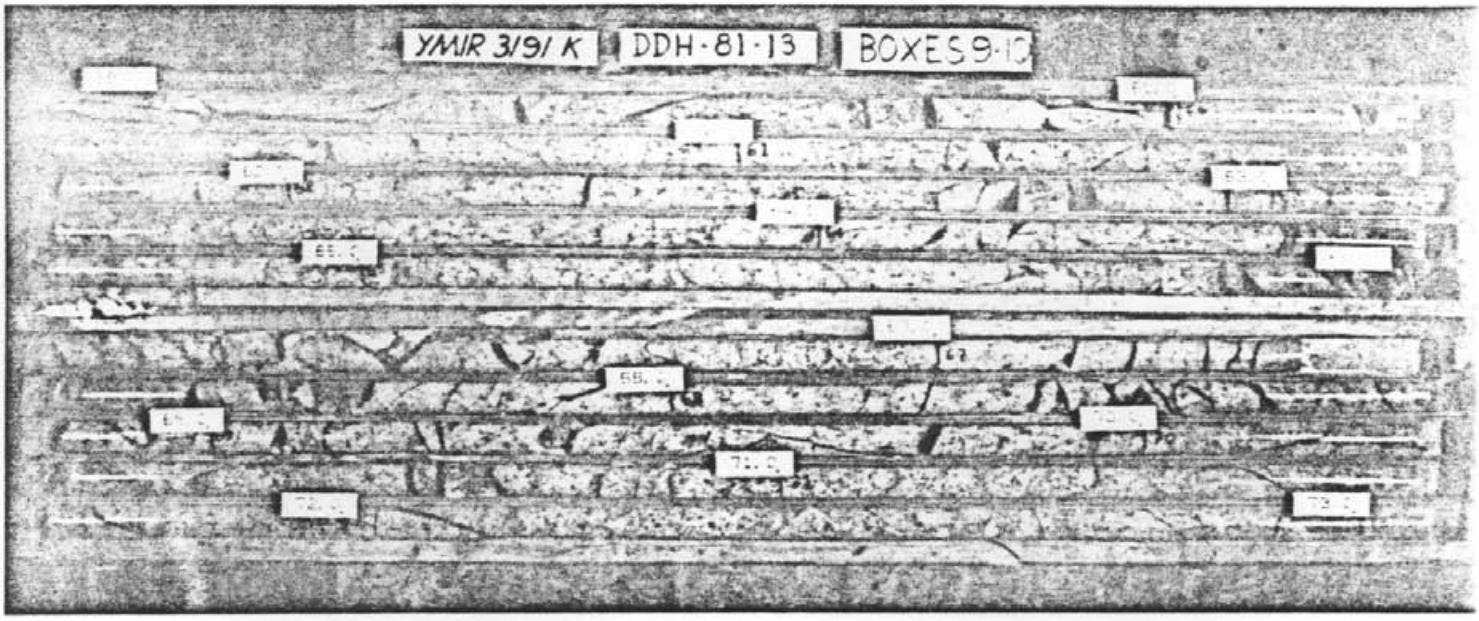
DDH-81-13
BOXES 5-6


YMIR 3/91 K
DDH-81-13
BOXES 7-8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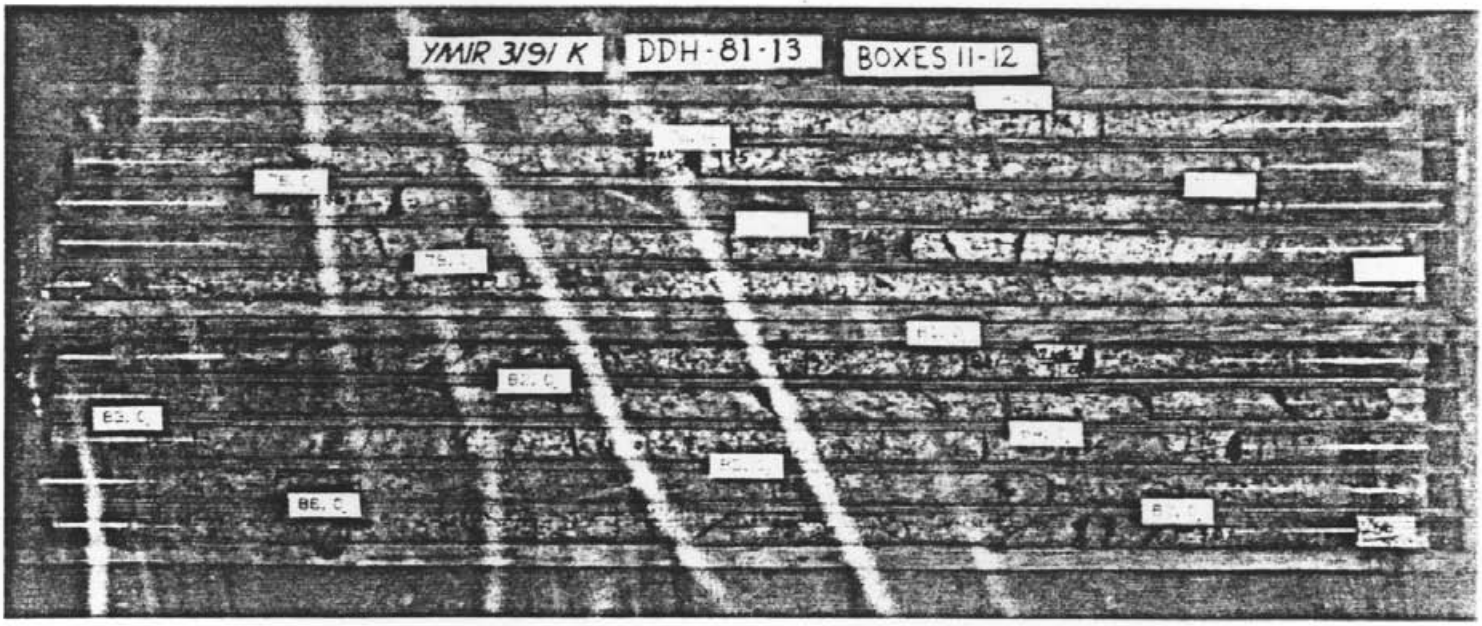
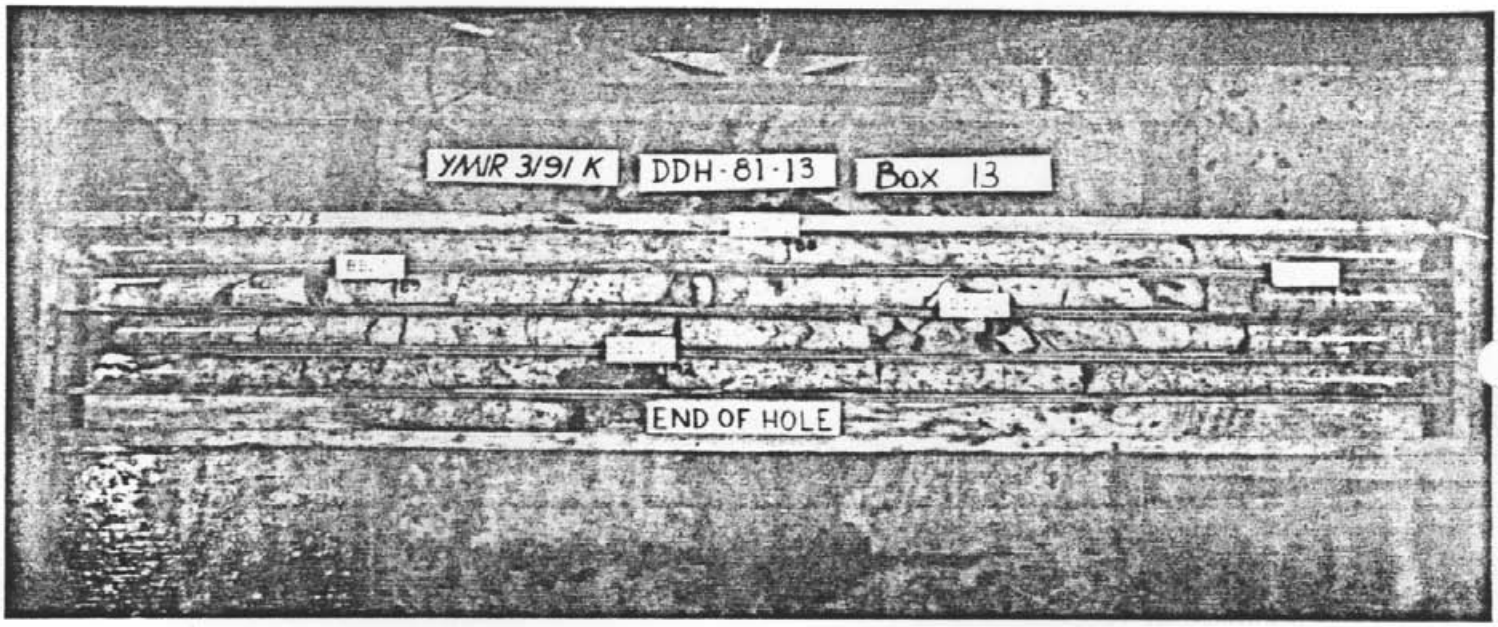
DDH-81-13
BOXES 9-10


YMIR 3/91 K
DDH-81-13
BOXES 11-12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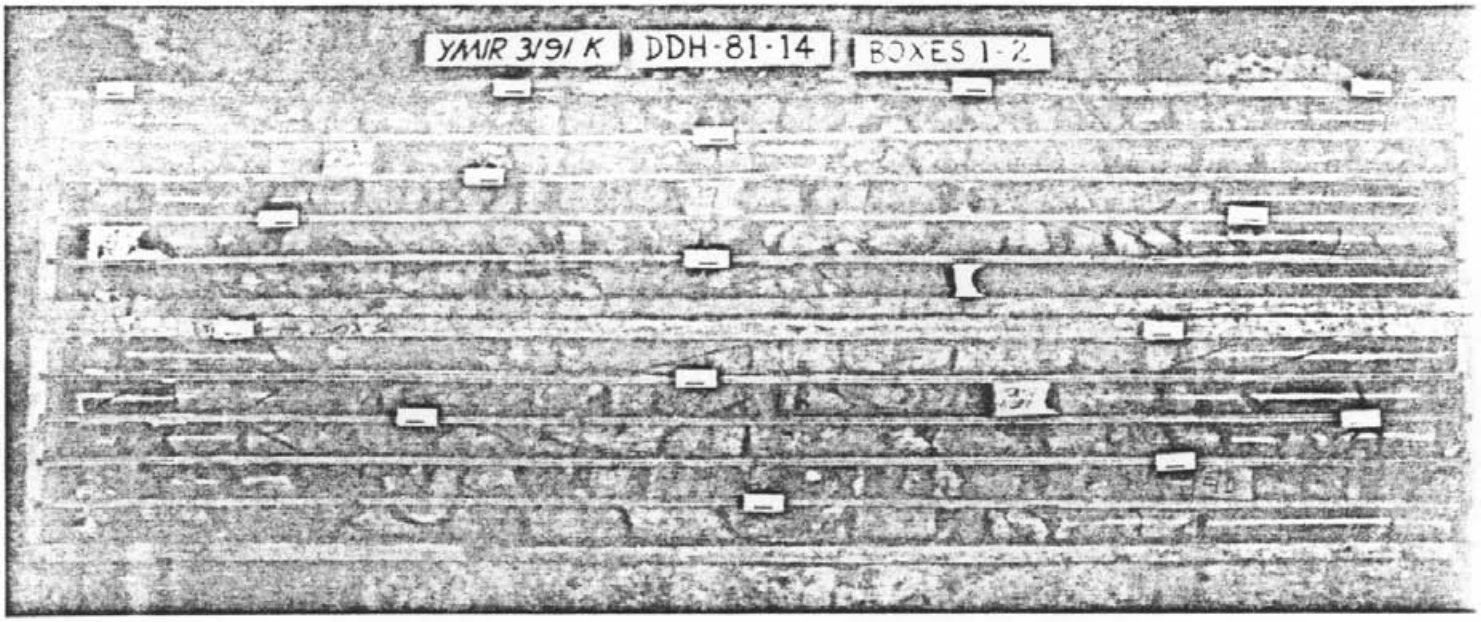
DDH-81-13
Box 13
END OF HOLE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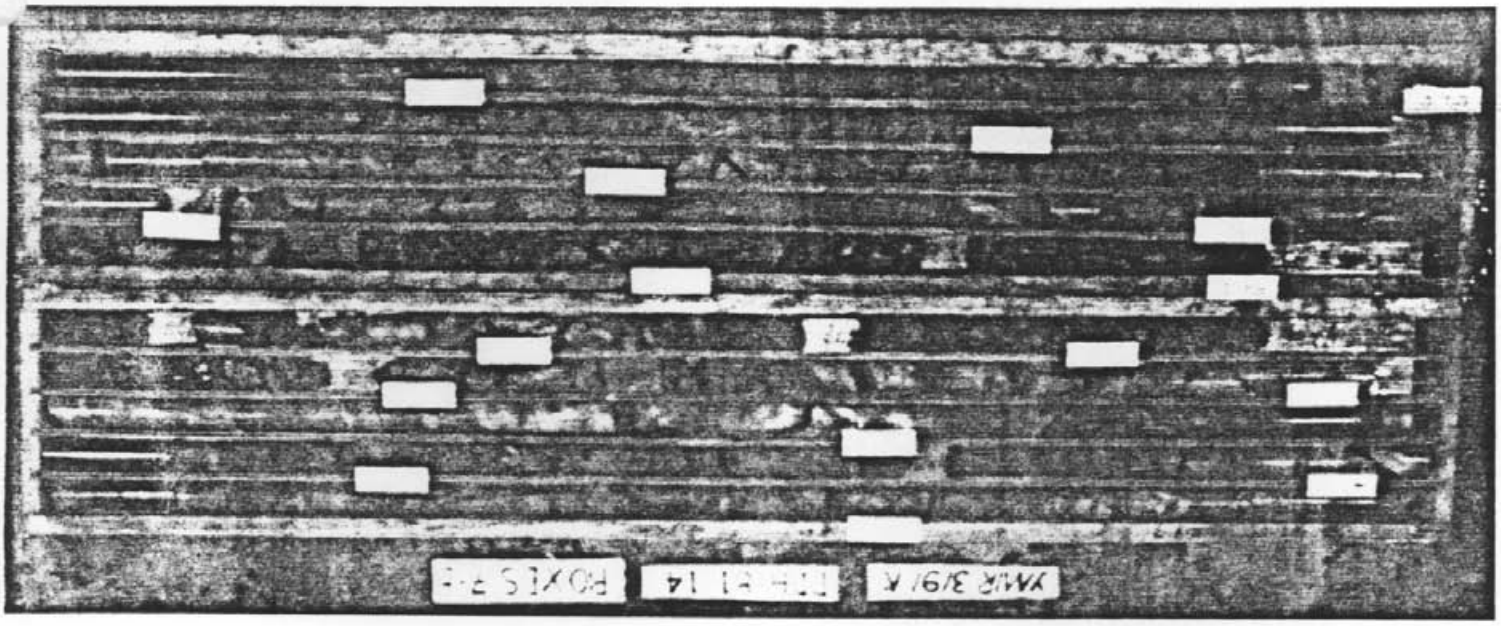
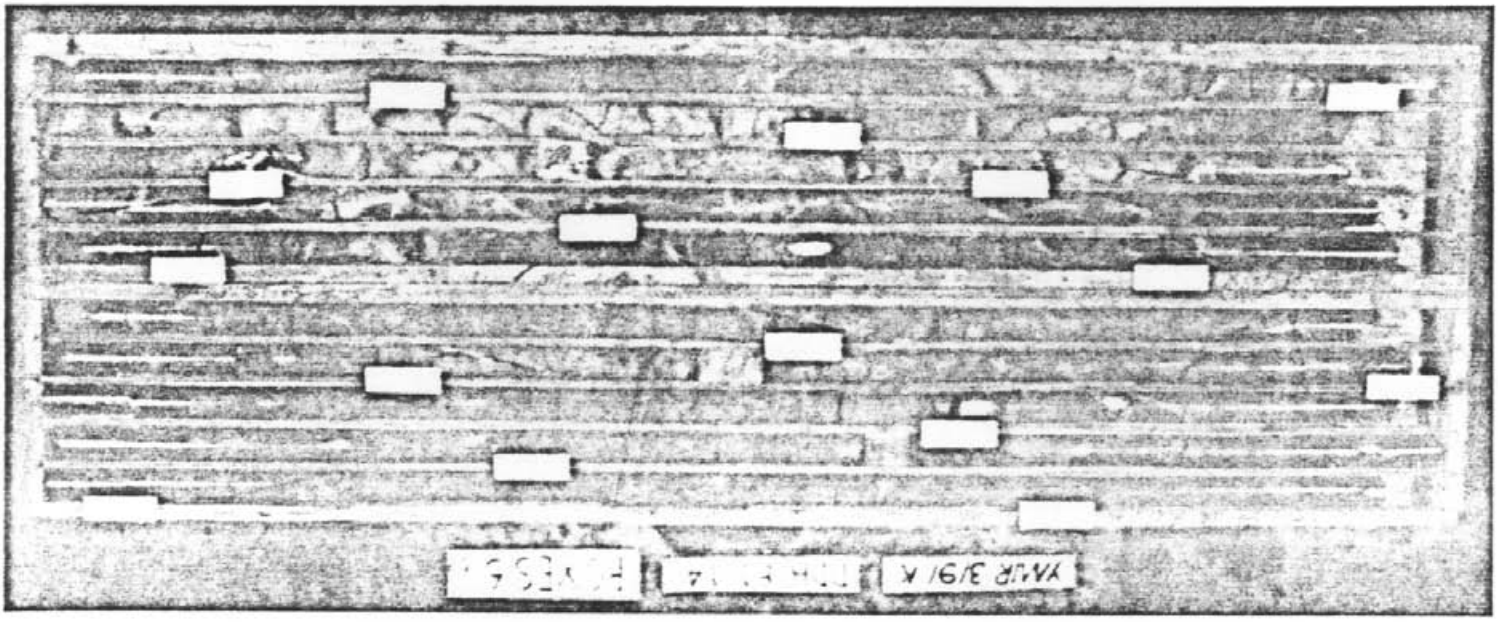
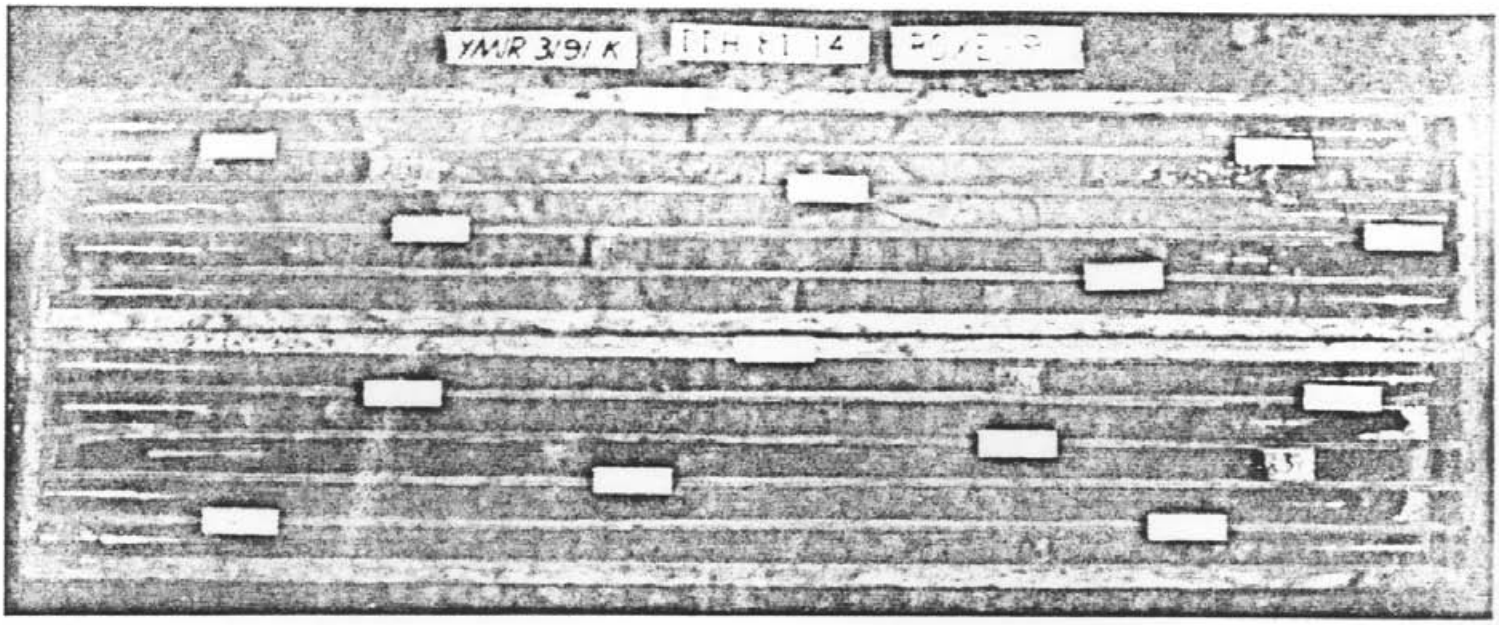
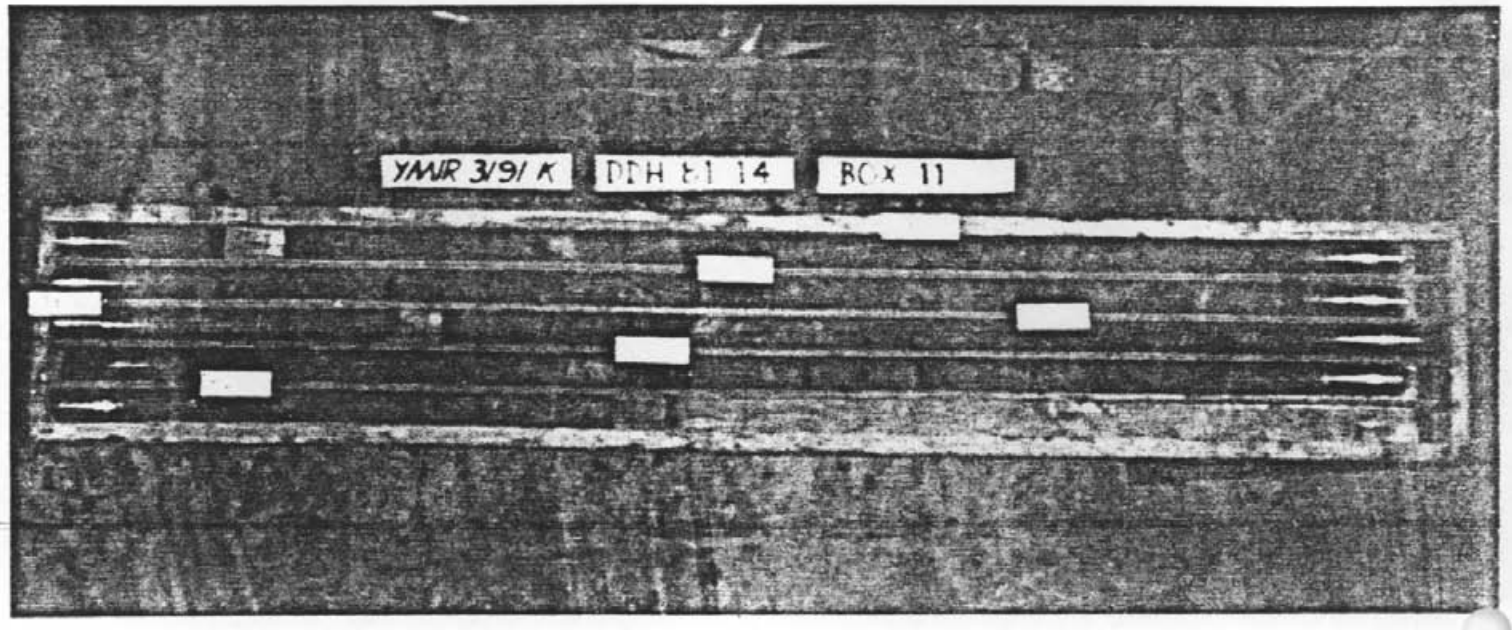
DDH-81-14
BOXES 1-2


YMIR 3/91 K
BOXES






YMJR 3/91 K


YMJR 3/91 K
DTH 8-1 14
BOX 11

# APPENDIX V

## COSTS

SECTION I: 1979 Costs
SECTION II: 1980 Costs
SECTION III: 1981 Costs

# SECTION 1: 1979 Costs

FINAL COSTS
YMIR - 1979

| Claim | General Costs(1) | Specific Costs(2) | Total |
|---|---|---|---|
| Stewart 1 | $ 5,187.90 | $ 2,359.05 | $ 7,545.95 |
| Stewart 2 | 5,186.90 | 13,841.93 | 19,028.83 |
| Stewart 3 | 5,186.90 | 11,482.87 | 16,699.77 |
| Stewart 4 | 1,556.67 | 3,539.41 | 5,096.08 |
| Stewart 5 | 5,186.90 | - | 5,186.90 |
| Stewart 6 | 4,148.36 | - | 4,148.36 |
| Stewart 7 | 3,116.89 | 250.29 | 3,367.18 |
| Stewart 8 | 5,186.90 | 2,202.01 | 7,388.91 |
| Stewart 9 | 5,186.90 | 2,571.83 | 7,758.73 |
| Stewart 10 | 5,186.90 | - | 5,186.90 |
| Stewart 11 | 5,186.90 | - | 5,186.90 |
| Stewart 12 | 2,074.32 | - | 2,074.32 |
| Stewart 13 | 1,038.88 | - | 1,038.88 |
| Reverted Crown Grants | | | |
| Houlton L4626 | 191.35 | - | 191.35 |
| Princess No. 1 L4627 | 217.53 | - | 217.41 |
| Maggie L5144 | 134.04 | - | 134.04 |
| Royal L5322 | 217.53 | - | 217.53 |
| Ruby/Free Silver L2902/2904 | 236.68 | - | 236.68 |
| Totals | $ 54,427.33 | $ 36,247.39 | $ 90,674.72 |

SECTION II: 1980 Costs

FINAL COSTS
YMIR - 1980

| Item | | Initial Program Costs | Drilling Costs |
|---|---|---|---|
| 1. | Labour | $ 27,507.17 | $ - |
| 2. | Camp Costs | 15,002.75 | 6,223.86 |
| 3. | Publications | 117.12 | - |
| 4. | General Contract Services | 2,165.17 | 3,762.64 |
| 5. | Road Clearing & Repair | 3,455.00 | - |
| 6. | Road Construction & Site Clearing | - | 9,917.00 |
| 7. | Geochemistry | 3,054.44 | 9,479.01 |
| 8. | Drilling | - | 62,495.20 |
| 9. | Geophysics | 450.00 | - |
| 10. | Truck | 4,537.00 | 2,833.37 |
| 11. | Helicopter | 3,324.12 | 6,341.31 |
| 12. | Miscellaneous | 2,155.75 | - |
| Totals | | $ 61,768.52 | $94,052.59 |
| Total Costs 1980 | | | $155,821.11 |

# SECTION III: 1981 Costs

COST DISTRIBUTION: YMIR 1981

The costs to the claims have been subdivided into specific costs, those costs pertaining to specific claims and general costs, those cost pertaining to the entire claim group.

Specific Costs

Labour
- Detailed geologic mapping
- IP survey
- Core splitting/sampling
- Diamond drill core logging
- Trench sampling

Linecutting

Geophysics

Diamond Drilling

Geochemical Analysis

General Costs

Labour
- Road building
- Right of way
- Prospecting
- Travel
- Office time
- Mobilization/demobilization
- Reconnaissance maping

Field Equipment

Fuel and Lubricants

Office Materials (Supplies)

Camp Materials (Supplies)

General Contract Services

Road Location/Construction

Right of Way Cleanup/Logging

Geological Consultant

Shipping

Contract Transportation
- Truck
- Helicopter
- Misc.

Utilities

Dwellings

Equipment Rentals

Travel Allowance

In the case of specific costs, allotments have been made on the basis of % gridded areas/claim according to Table 1. General costs have been allotted according to % total area/claim on the basis of Table 2.

TABLE 1
PERCENT TOTAL LINE CUT PER CLAIM

| Claim | Total Line Cut (m) | % Total Line |
|---|---|---|
| Stewart 1 | 2,000 | 3.70 |
| Stewart 2 | 48,300 | 89.44 |
| Stewart 3 | 2,100 | 3.89 |
| Stewart 9 | 1,600 | 2.97 |
| Total | 54,000 | 100.00 |

TABLE 2
PERCENT TOTAL AREA PER CLAIM

| Claim | Units | Acres | Hectares | % Area |
|---|---|---|---|---|
| Stewart 1 | 20 | 1235.60 | 500 | 9.44 |
| Stewart 2 | 20 | 1235.60 | 500 | 9.44 |
| Stewart 3 | 20 | 1235.60 | 500 | 9.44 |
| Stewart 4 | 6 | 370.68 | 150 | 2.84 |
| Stewart 5 | 20 | 1235.60 | 500 | 9.44 |
| Stewart 6 | 16 | 988.48 | 400 | 7.54 |
| Stewart 7 | 12 | 741.36 | 300 | 5.66 |
| Stewart 8 | 20 | 1235.60 | 500 | 9.44 |
| Stewart 9 | 20 | 1235.60 | 500 | 9.44 |
| Stewart 10 | 20 | 1235.60 | 500 | 9.44 |
| Stewart 11 | 20 | 1235.60 | 500 | 9.44 |
| Stewart 12 | 8 | 494.24 | 200 | 3.77 |
| Stewart 13 | 4 | 247.12 | 100 | 1.89 |
| Jock 1 | 1 | 61.78 | 1 | 0.48 |
| Jock 2 | 1 | 61.78 | 1 | 0.48 |

TABLE 2 (CONT'D)

| Claim | Units | Acres | Hectares | % Area |
|---|---|---|---|---|
| Reverted Crown Grants | | | | |
| Houlton L4626 | 1 | 46.00 | 18.61 | 0.35 |
| Princess No. 1 L4627 | 1 | 51.64 | 20.90 | 0.40 |
| Margie L5144 | 1 | 31.00 | 12.54 | 0.24 |
| Royal L5322 | 1 | 51.65 | 20.90 | 0.41 |
| Free Silver L2902 | 1 | 55.96 | 22.65 | 0.43 |
| Ruby L2904 | | | | |
| Totals | 215 | | | 100.00 |

COST BREAKDOWN

1. Labour

| | |
|---|---|
| Company | $28,150.93 |
| Non-Company | $ 3,572.66 |

TABLE
TIME DISTRIBUTION

| Item | # ManDays | % Total | |
|---|---|---|---|
| Specific | | | |
| Detailed Geologic Mapping | 42 | 6.1 | $ 1,935.10 |
| Geophysics (IP Survey) | 24 | 3.5 | 1,110.30 |
| Diamond Drilling | | | |
| - Core Logging | 40 | 5.8 | 1,839.93 |
| - Core Splitting & Sampling | 160 | 23.3 | 7,391.44 |
| Trench Sampling | 80 | 11.6 | 3,679.86 |
| Linecutting | 6 | 0.9 | 285.51 |
| Total | 352 | 51.2 | $16,242.14 |
| General | | | |
| Road Building | 21 | 3.0 | 951.69 |
| Logging | 7 | 1.0 | 317.23 |
| Prospecting | 8 | 1.2 | 380.67 |
| Travel | 20 | 2.9 | 919.96 |
| Office | 40 | 5.8 | 1,839.93 |
| Mobilization/demobilization | 60 | 8.7 | 2,759.89 |
| Reconnaissance | 20 | 2.9 | 919.96 |
| Cook/cook's helper | 160 | 23.3 | 7,391.44 |
| Totals | 336 | 47.8 | $15,480.79 |
| Grand Total | 688 | 100.00 | $31,722.93 |

| | | |
|---|---|---|
| 2. | Field Equipment | |
| | Items included are:<br>Axes, Flagging, Compasses, Field Testing Kits, etc. | $ 8,239.32 |
| 3. | Office Materials | |
| | Items included are:<br>Pencils, Pens, Mylar, Notebooks | $ 457.53 |
| 4. | Fuel and Lubricants | |
| | Items included are:<br>Stove oil, Gasoline, Naptha | $ 480.21 |
| 5. | Camp Materials | |
| | Items included are:<br>Groceries, Lumber, Tents | $ 21,088.53 |
| 6. | General Contract Services | |
| | Items included are:<br>Hot Shot Services, Courier, Etc. | $ 11,071.72 |
| 7. | Road Location/Construction | |
| | Items included are:<br>Cat Time, Travel Time, Culverts | $ 30,607.41 |
| 8. | Right of Way Cleanup/Logging | |
| | Items included are:<br>Wages, Cat Time, Skidder Time, Travel | $ 7,300.00 |
| 9. | Diamond Core Drilling | |
| | Items included are:<br>Footage Rate, Testing, Downhole Losses | $129,569.20 |
| 10. | Geophysical Survey (IP) | |
| | Items included are:<br>Contract Services from Phoenix Geophysics | $ 23,807.00 |
| 11. | Geochemical Assays ($MoS_2$, $WO_3$) | |
| | Items included are:<br>600 samples of diamond drill core, bulk trench samples | $ 12,333.25 |

| | | |
|---|---|---|
| 12. | Geological Consultant | |
| | F. E. Mutschler | $ 596.55 |
| 13. | Linecutting | |
| | Items included are: | |
| | Contract Services, Pearson/Gallagher Ltd. | $ 19,250.00 |
| 14. | Shipping | |
| | Items included are: | |
| | Shipment of diamond drill core samples | $ 599.74 |
| 15. | Contract Transportation | |
| | Truck, Helicopter, Misc. | $ 8,602.84 |
| 16. | Utilities | |
| | Items included are: | |
| | Telephone tolls, Electricity, Land Rental | $ 1,520.70 |
| 17. | Dwellings | |
| | Items included are: | |
| | Trailer Rental, Trailer Transport | $ 14,392.90 |
| 18. | Equipment Rentals | |
| | Items included are: | |
| | Compressor Rental, Jackleg, Air Hose | $ 4,523.94 |
| 19. | Travel Allowance | |
| | Items included are: | |
| | Hotel Costs, Travel to and from Work Area | $ 4,523.94 |
| | TOTAL: | $331,063.79 |

TABLE OF COSTS
YMIR: 1981

| | |
|---|---|
| Labour | $ 31,722.93 |
| Field Equipment | 8,239.32 |
| Fuel and Lubricants | 480.21 |
| Office Materials (Supplies) | 457.53 |
| Camp Materials (Supplies) | 21,088.53 |
| General Contract Services | 11,071.72 |
| Road Location/Construction | 30,607.41 |
| Right of Way Cleanup/Logging | 7,300.00 |
| Diamond Core Drilling | 129,569.20 |
| Geophysics (IP Survey) | 23,807.00 |
| Geochemistry (Analysis) | 12,233.25 |
| Geological Consultant | 596.55 |
| Linecutting | 19,250.00 |
| Shipping | 599.74 |
| Contract Transportation | |
| Truck | 7,565.31 |
| Helicopter | 986.53 |
| Miscellaneous | 51.00 |
| Utilities | 1,520.70 |
| Dwellings | 14,392.90 |
| Equipment Rentals | 5,000.02 |
| Travel Allowance | 4,523.94 |
| TOTAL: | $331,063.79 |

SPECIFIC COSTS/CLAIM

| Claim | % Total Grid Area/Claim | Geophysics IP Survey | Linecutting | Diamond Drilling | Geochemical Analysis | Labour | Totals |
|---|---|---|---|---|---|---|---|
| Stewart 1 | 3.70 | $ 880.85 | $ 712.25 | $ 4,794.06 | $ 452.63 | $ 600.96 | $ 7,440.75 |
| Stewart 2 | 89.44 | 21,292.48 | 17,217.20 | 115,886.69 | 10,941.42 | 14,526.97 | 179,865.26 |
| Stewart 3 | 3.89 | 926.09 | 748.82 | 4,040.24 | 475.87 | 631.82 | 7,822.84 |
| Stewart 9 | 2.47 | 707.08 | 571.73 | 3,848.21 | 363.33 | 482.39 | 5,972.74 |
| TOTAL | 100.00 | $23,807.00 | $19,250.00 | $129,569.20 | $12,233.25 | $16,242.14 | $201,101.59 |

COST DISTRIBUTION/CLAIM

| Claim | Specific Costs | General Costs | Total |
|---|---|---|---|
| Stewart 1 | $ 7,440.75 | $ 12,268.43 | $ 19,709.18 |
| Stewart 2 | 179,865.26 | 12,268.43 | 192,133.69 |
| Stewart 3 | 7,822.84 | 12,268.43 | 20,091.27 |
| Stewart 4 | | 3,677.93 | 3,677.93 |
| Stewart 5 | | 12,268.43 | 12,268.43 |
| Stewart 6 | | 9,799.15 | 9,799.15 |
| Stewart 7 | | 7,355.86 | 7,355.86 |
| Stewart 8 | | 12,268.43 | 12,268.43 |
| Stewart 9 | 5,972.74 | 12,268.43 | 12,268.43 |
| Stewart 10 | | 12,268.43 | 12,268.43 |
| Stewart 11 | | 12,268.43 | 12,268.43 |
| Stewart 12 | | 4,899.57 | 4,899.57 |
| Stewart 13 | | 2,456.29 | 2,456.29 |
| Jock 1 | | 623.82 | 623.82 |
| Jock 2 | | 623.82 | 623.82 |
| Reverted Crown Grants | | | |
| Houlton | | 454.87 | 454.87 |
| Princess No. 1 | | 519.85 | 519.85 |
| Maggie | | 311.91 | 311.91 |
| Royal | | 534.84 | 534.84 |
| Free Silver/Ruby | | 558.84 | 558.84 |
| Totals | $201,101.59 | 129,962.20 | 331.063.79 |

**SHELL CANADA LIMITED – MINERALS DEPARTMENT**
**DRILL HOLE OR SECTION DATA RECORD**



PROJECT NAME: Ymir
PROJECT NO.: 3191K
HOLE/SEC. NO.: 81-1

POLITICAL UNIT:

| SUB SYSTEM | LOC. EXCEPTION | LATITUDE | | | LONGITUDE | | | |
|---|---|---|---|---|---|---|---|---|
| | | LSD | SEC | | TWP | RGE | E W | M |
| | | 1/4 | UNIT | B | No. | | L | POR |
| | | N S | SEC | DEG LAT | MIN | DEG. LONG | | MIN |

ADDITIONAL INFO.:

CLAIM/PERMIT NO.:

WORK DONE Name Dates Remarks

DRILLING: D. W. Coates

LOGGING: Shell Canada Resources Ltd.

ASSAYING: Geo Analytical Services

LOGGED BY: G. W. Turner

| | LATITUDE | DEPARTURE | ELEVATION (DATUM) | BEARING | INCLINATION | LENGTH |
|---|---|---|---|---|---|---|
| FIELD LOCATION | 49°15' | 117°15' | 1607.5 | 150° | 45° | 114.6 m |
| SURVEY GRID | +0+21 N | -0+20 E | | AZ. 0 | | |

LANDMARKS:

OTHER FEATURES:

| FORM/ UNIT | DEPTH | LITHOLOGY, Texture, Structure, Mineralization (Litholog) | Structural Angle SYMBOL C.A./Dip ● | SAMPLE No. | FROM ..... TO ..... | INT. IN FT. | REC. OVERY | ASSAY RESULTS $MoS_2$ |
|---|---|---|---|---|---|---|---|---|
| | 0.0 - 4.1 | OVERBURDEN | | | | | | |
| | 4.1 - 28.6 | QUARTZ MONZONITE PORPHYRY | | | | | | |
| | | - coarsely porphyritic (k-spar, plag) | | 81-1-1 | 4.1- 7.1 | 3 | | <0.001 |
| | | - zoned phenocrysts @ 1.0 - 3.0 cm in length | | 1-2 | 7.1-10.1 | 3 | | 0.012 |
| | | - groundmass med. to fine grained | | 1-3 | 10.1-13.1 | 3 | | 0.021 |
| | | - moderate sericite alteration imparting dark to lime green coloration to both groundmass and phenocrysts (emphasis zoning in phenocrysts | | 1-4 | 13.1-16.1 | 3 | | 0.037 |
| | | | | 1-5 | 16.1-19.1 | 3 | | <0.001 |
| | | | | 1-6 | 19.1-22.1 | 3 | | <0.001 |
| | | | | 1-7 | 22.5-25.1 | 3 | | 0.029 |
| | | - phenocrysts perthitic | | 1-8 | 25.1-26.1 | 1 | | <0.001 |
| | | - preferential alteration (sericite) along zonal boundaries | | 1-9 | 26.1-27.1 | 1 | | <0.001 |
| | | | | 1-10 | 27.1-28.1 | 1 | | <0.001 |
| | | - transected by sporadic quartz (mo-py) stockwork | | | | | | |
| | | - sporadic mo-py along fractures | | | | | | |
| | | - contains spessartine garnet as irregular segregations within matrix | | | | | | |
| | | 5.7 - 6.1 - Aplite | | 1-11 | 28.1-29.1 | 1 | | 0.060 |
| | | | | 1-12 | 29.1-30.1 | 1 | | 0.100 |
| | 28.6 - 48.5 | PHASE II BRECCIA | | 1-13 | 30.1-31.1 | 1 | | 0.096 |
| | | - gradational contact from severely altered quartz monzonite | | | | | | |
| | | - 1.0 m bleached zone @ contact | | | | | | |
| | | - bleaching appears to be superimposed on sericite alteration | | 1-14 | 31.1-32.1 | | | 0.104 |
| | | | | 1-15 | 32.1-33.1 | | | 0.104 |
| | | - contains angular fragments of quartz monzonite porphyry (qmp) hornfels, skarnified hornfels, aplite, and molybdenite-pyrite | | 1-16 | 33.1-34.1 | | | 0.079 |
| | | | | 1-17 | 34.1-35.1 | | | 0.073 |
| | | | | 1-18 | 35.1-36.1 | | | 0.054 |
| | | - matrix composed of interlocking quartz-plag-k-spar-carbonate sericite-pyrite-molybdenite | | 1-19 | 36.1-37.1 | | | 0.263 |
| | | | | 1-20 | 37.1-38.1 | | | 0.183 |
| | | - calcite precipitation pervasive but confined to patches | | 1-21 | 38.1-39.1 | | | 0.079 |
| | | | | 1-22 | 39.1-40.1 | | | 0.459 |
| | | - moderate to intense sericitization of plagioclase - in places recrystallized to muscovite | | 1-23 | 40.1-41.1 | | | 0.768 |
| | | | | 1-24 | 41.1-42.1 | | | 0.546 |
| | | | | 1-25 | 42.1-43.1 | | | 0.605 |
| | | - sporadic granulation | | 1-26 | 43.1-44.1 | | | 0.445 |
| | | - transected by sporadic qtz (mo-py) stockwork | | 1-27 | 44.1-45.1 | | | 0.133 |

SYMBOLS AND ABBREVIATIONS:

SHEET INTERVAL: from ..... to .....

**SHELL CANADA LIMITED – MINERALS DEPARTMENT**
**DRILL HOLE OR SECTION DATA RECORD**



PROJECT NAME: Ymir
PROJECT NO.: 3191K
HOLE/SEC. NO.: 81-1

POLITICAL UNIT:

| SUR. SYSTEM | LOC. EXCEPTION | LATITUDE | | | LONGITUDE | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | LSD | SEC | | TWP | RGE | E/W | M | |
| | | 1/4 | UNIT | B | No. | L | POR | | |
| | | U/V | SEC | DEG LAT | MIN | DEG.LONG | MIN | | |

WORK DONE Name Dates Remarks

DRILLING:

LOGGING:

ASSAYING:

LOGGED BY:

ADDITIONAL INFO.:

CLAIM/PERMIT NO.:

| | LATITUDE | DEPARTURE | ELEVATION (DATUM) | BEARING | INCLINATION | LENGTH |
|---|---|---|---|---|---|---|
| FIELD LOCATION | | | | | | |
| SURVEY GRID | N | E | | AZ. | | |

LANDMARKS:

OTHER FEATURES:

| FORM/ UNIT | DEPTH | LITHOLOGY, Texture, Structure, Mineralization (Lithology) | Structural Angle SYMBOL C.A./Dip @ |
|---|---|---|---|
| | | - transected by pegmatic segregations of qtz-py(po)-feldspar | |
| | 48.5 - 115.0 | QUARTZ MONZONITE PORPHYRY<br>- sharp contact @ 45° to C.A.<br>- as from 4.1 to 28.6<br>63.6 - 69.1 - random crackle stockwork containing qtz-py-mo<br>- qtz veins contain carbonate ribbon structures and vein selvages<br>76.7 - 78.2 - intense random $MoS_2$ bearing quartz stockwork zone<br>- chloritic alteration along fractures<br>76.7 - 83.1 - intense sericite alteration<br>85.5 - 89.6 - spessartine garnet along fractures, as irregular segregations<br>83.5 - 89.6 - random $MoS_2$ bearing quartz stockwork<br><br>114.6 - END OF HOLE | |

| SAMPLE No. | FROM ..... TO..... | INT. IN FT. | REC-OVERY | ASSAY RESULTS $MoS_2$ |
|---|---|---|---|---|
| 81-1-28 | 45.1-46.1 | | | 0.255 |
| 1-29 | 46.1-47.1 | | | 0.317 |
| 1-30 | 47.1-48.1 | | | |
| 1-31 | 48.1-49.1 | | | |
| 1-32 | 49.1-50.1 | | | 0.359 |
| 1-33 | 50.1-51.1 | | | 0.050 |
| 1-34 | 51.1-52.1 | | | 0.029 |
| 1-35 | 52.1-53.1 | | | 0.029 |
| 1-36 | 53.1-54.1 | | | 0.037 |
| 1-37 | 54.1-57.1 | | | 0.012 |
| 1-38 | 57.1-60.1 | | | 0.017 |
| 1-39 | 60.1-63.1 | | | 0.039 |
| 1-40 | 63.1-66.1 | | | <0.001 |
| 1-41 | 66.1-69.1 | | | <0.001 |
| 1-42 | 69.1-72.1 | | | 0.007 |
| 1-43 | 72.1-75.1 | | | 0.021 |
| 1-44 | 75.1-78.1 | | | 0.004 |
| 1-45 | 78.1-81.1 | | | 0.027 |
| 1-46 | 81.1-84.1 | | | 0.004 |
| 1-47 | 84.1-87.1 | | | 0.027 |
| 1-48 | 87.1-90.1 | | | 0.002 |
| 1-49 | 90.1-93.1 | | | 0.007 |
| 1-50 | 93.1-96.1 | | | 0.007 |
| 1-51 | 96.1-99.1 | | | 0.002 |
| 1-52 | 99.1-102.1 | | | <0.001 |
| 1-53 | 102.1-105.1 | | | <0.001 |
| 1-54 | 105.1-108.1 | | | 0.011 |
| 1-55 | 108.1-111.1 | | | 0.002 |
| 1-56 | 111.1-114.6 | | | 0.008 |

SYMBOLS AND ABBREVIATIONS:

SHEET INTERVAL: from..... to.....

# SHELL CANADA LIMITED – MINERALS DEPARTMENT
## DRILL HOLE OR SECTION DATA RECORD



PROJECT NAME: Ymir
PROJECT NO.: 3191K
HOLE/SEC. NO.: DDH 81-2

POLITICAL UNIT:

| SUR SYSTEM | LOC EXCEPTION | LATITUDE | | | LONGITUDE | | | |
|---|---|---|---|---|---|---|---|---|
| | | LSD | SEC | TWP | RGE | E W | M | |
| | | 1/4 | UNIT | B | No | L | POR | |
| | | N S | SEC | DEG LAT | MIN | DEG.LONG | MIN | |

WORK DONE Name Dates Remarks

DRILLING: D. W. Coates

LOGGING: Shell Canada Resources Ltd.

ASSAYING: Geo Analytical Services (Chemex Labs

LOGGED BY: G. W. Turner

ADDITIONAL INFO.:

CLAIM/PERMIT NO.:

| | LATITUDE | DEPARTURE | ELEVATION (DATUM) | BEARING | INCLINATION | LENGTH |
|---|---|---|---|---|---|---|
| FIELD LOCATION | 49°15' | 117°15' | 1608.5 | 140° | -45° | 92.3 m |
| SURVEY GRID | 0+06 N | -0+34 E | | AZ. 0 | | |

LANDMARKS:

OTHER FEATURES:

| FORM/ UNIT | DEPTH | LITHOLOGY, Texture, Structure, Mineralization (Litholog) | Structural Angle SYMBOL C.A./Dip @ |
|---|---|---|---|
| | 0.0-1.8 | OVERBURDEN | |
| | 1.8 - 2.6 | QUARTZ MONZONITE PORPHYRY<br>- as in hole 81-1<br>- coarsely porphyritic (k-spar-plag)<br>- intense sericitic alteration | |
| | 2.6 - 44.5 | PHASE II BRECCIA<br>- sharp contact @ 80° to C.A.<br>- similar to that intersected in 81-1<br>- $MoS_2$ content lower than 81-1<br>- intensly sericitized fragments of qmp occur adjacent to unaltered fragments of sim. composition<br>- indicates alteration occurred prior to breccia event<br>- transected by sporadic py-mo bearing stockwork zone @ 32° to CA | |
| | 44.5 - 93.2 | QUARTZ MONZONITE PORPHYRY<br>- as in previous hole 81-1<br>- alteration intensity highly variable<br>- three types of quartz monzonite porphyry<br>1. fine grained equigranular<br>2. medium grained porphyritic<br>3. megacrystic<br>- one phase gradational into next<br>- transected by numerous fine grained aplitic bands ie. identical composition to qmp<br>67.1 - 67.8 - silicified zone<br>- most qtz veins contain scattered $MoS_2$ min. with py. $MoS_2$ finely disseminated throughout qmp in intensly altered sections<br>- veinlets offset by up to 1 cm along fracture planes | |

| SAMPLE No. | FROM ..... TO ..... | INT. IN FT. | REC-OVERY | ASSAY RESULTS $MoS_2$(1) | $MoS_2$(2) |
|---|---|---|---|---|---|
| 81-2-57 | 1.8-2.8 | | | 0.027 | 0.038 |
| 2-58 | 2.8-3.8 | | | 0.158 | 0.045 |
| 2-59 | 3.8-4.8 | | | 0.002 | 0.025 |
| 2-60 | 4.8-5.8 | | | <0.001 | 0.017 |
| 2-61 | 5.8-6.8 | | | 0.021 | 0.030 |
| 2-62 | 6.8-7.8 | | | 0.058 | 0.035 |
| 2-63 | 7.8-8.8 | | | 0.046 | 0.042 |
| 2-64 | 8.8-9.8 | | | 0.037 | 0.037 |
| 2-65 | 9.8-10.8 | | | 0.040 | 0.033 |
| 2-66 | 10.8-11.8 | | | <0.001 | 0.012 |
| 2-67 | 11.8-12.8 | | | <0.001 | <0.001 |
| 2-68 | 12.8-13.8 | | | 0.007 | 0.012 |
| 2-69 | 13.8-14.8 | | | 0.021 | 0.017 |
| 2-70 | 14.8-15.8 | | | 0.016 | 0.015 |
| 2-71 | 15.8-16.8 | | | 0.026 | 0.020 |
| 2-72 | 16.8-17.8 | | | 0.008 | 0.012 |
| 2-73 | 17.8-18.8 | | | 0.012 | 0.015 |
| 2-74 | 18.8-19.8 | | | 0.029 | 0.015 |
| 2-75 | 19.8-20.8 | | | 0.025 | 0.027 |
| 2-76 | 20.8-21.8 | | | 0.037 | 0.025 |
| 2-77 | 21.8-22.8 | | | 0.104 | 0.038 |
| 2-78 | 22.8-23.8 | | | 0.067 | 0.110 |
| 2-79 | 23.8-24.8 | | | 0.037 | |
| 2-80 | 24.8-25.8 | | | 0.042 | |
| 2-81 | 25.8-26.8 | | | 0.025 | |
| 2-82 | 26.8-27.8 | | | 0.012 | |
| 2-83 | 27.8-28.8 | | | 0.017 | |
| 2-84 | 28.8-29.8 | | | 0.050 | |
| 2-85 | 29.8-30.8 | | | 0.079 | |
| 2-86 | 30.8-31.8 | | | 0.088 | |
| 2-87 | 31.8-32.8 | | | 0.088 | |
| 2-88 | 32.8-33.8 | | | 0.058 | |
| 2-89 | 33.8-34.8 | | | 0.104 | |
| 2-90 | 34.8-35.8 | | | <0.001 | |
| 2-91 | 35.8-36.8 | | | 0.017 | |
| 2-92 | 36.8-37.8 | | | 0.042 | |
| 2-93 | 37.8-38.8 | | | 0.033 | |
| 2-94 | 38.8-39.8 | | | 0.050 | |

SYMBOLS AND ABBREVIATIONS: (1) Geo Analytical Services; (2) Chemex Labs (Alberta) Ltd.

SHEET INTERVAL: from ..... to .....

# SHELL CANADA LIMITED – MINERALS DEPARTMENT
## DRILL HOLE OR SECTION DATA RECORD



PROJECT NAME: Ymir
PROJECT NO.: 3191K
HOLE/SEC. NO.: DDH 81-2

POLITICAL UNIT:

| SUB SYSTEM | LOC. EXCEPTION | LATITUDE | | | LONGITUDE | | | |
|---|---|---|---|---|---|---|---|---|
| | | LSD | SEC | TWP | RGE | E/W | M | |
| | | 1/4 | UNIT | B | No. | L | POR | |
| | | N/S | SEC | DEG LAT | MIN | DEG.LONG | MIN | |

WORK DONE Name Dates Remarks

DRILLING:

LOGGING:

ASSAYING:

LOGGED BY:

| | LATITUDE | DEPARTURE | ELEVATION (DATUM) | BEARING | INCLINATION | LENGTH |
|---|---|---|---|---|---|---|
| FIELD LOCATION | | | | | | |
| SURVEY GRID | N | E | | AZ. | | |

ADDITIONAL INFO.:

CLAIM/PERMIT NO.:

LANDMARKS:

OTHER FEATURES:

| FORM/ UNIT | DEPTH | LITHOLOGY, Texture, Structure, Mineralization (Litholog) | Structural Angle SYMBOL C.A./Dip @ |
|---|---|---|---|
| | | 92.3 - END OF HOLE | |

| SAMPLE No. | FROM ..... TO..... | INT. IN FT. | REC-OVERY | ASSAY RESULTS $MoS_2$ |
|---|---|---|---|---|
| 81-2-95 | 39.8-40.8 | | | 0.027 |
| 2-96 | 40.8-41.8 | | | 0.092 |
| 2-97 | 41.8-42.8 | | | 0.135 |
| 2-98 | 42.8-43.8 | | | 0.050 |
| 2-99 | 43.8-44.8 | | | 0.027 |
| 2-100 | 44.8-47.8 | | | 0.012 |
| 2-101 | 47.8-50.8 | | | 0.027 |
| 2-102 | 50.8-53.8 | | | 0.067 |
| 2-103 | 53.8-56.8 | | | 0.015 |
| 2-104 | 56.8-59.8 | | | 0.015 |
| 2-105 | 59.8-62.8 | | | 0.025 |
| 2-106 | 62.8-65.8 | | | 0.050 |
| 2-107 | 65.8-68.8 | | | 0.015 |
| 2-108 | 68.8-71.8 | | | 0.167 |
| 2-109 | 71.8-74.8 | | | <0.001 |
| 2-110 | 74.8-77.8 | | | 0.015 |
| 2-111 | 77.8-80.8 | | | 0.001 |
| 2-112 | 80.8-83.8 | | | 0.037 |
| 2-113 | 83.8-86.8 | | | <0.001 |
| 2-114 | 86.8-89.8 | | | 0.013 |
| 2-115 | 89.8-92.3 | | | 0.004 |

SYMBOLS AND ABBREVIATIONS:

SHEET INTERVAL: from.....to.....

# SHELL CANADA LIMITED – MINERALS DEPARTMENT
## DRILL HOLE OR SECTION DATA RECORD



PROJECT NAME: Ymir
PROJECT NO.: 3191K
HOLE/SEC. NO.: DDH 81-3

POLITICAL UNIT:

| SUR. SYSTEM | LOC. EXCEPTION | LATITUDE | | | LONGITUDE | | | |
|---|---|---|---|---|---|---|---|---|
| | | LSD | SEC | TWP | RGE | E/W | M | |
| | | 1/4 | UNIT | B | No. | L | POR | |
| | | N/S | SEC | DEG LAT | MIN | DEG.LONG | MIN | |

WORK DONE Name Dates Remarks

DRILLING: D. W. Coates

LOGGING: Shell Canada Resources Ltd.

ASSAYING: Chemex Labs (Alberta) Ltd.
Geo Analytical Services

LOGGED BY: G. W. Turner

ADDITIONAL INFO.:

CLAIM/PERMIT NO.:

| | LATITUDE | DEPARTURE | ELEVATION (DATUM) | BEARING | INCLINATION | LENGTH |
|---|---|---|---|---|---|---|
| FIELD LOCATION | 117°15' | 49°15' | 1611.7 | 140° | -45° | |
| SURVEY GRID | -0+07 N | -0+53 E | | AZ. 0 | | |

LANDMARKS:

OTHER FEATURES:

| FORM/ UNIT | DEPTH | LITHOLOGY, Texture, Structure, Mineralization (Litholog) | Structural Angle SYMBOL C.A./Dip @ |
|---|---|---|---|
| | 0.0-0.6 | OVERBURDEN | |
| | 0.6-46.5 | PHASE II BRECCIA<br>- similar to 81.2<br>- contains angular polymiel fragments in fine to medium grained matrix<br>- $MoS_2$ disseminated throughout matrix<br>- minor increase toward footwall<br>- transected by pegmatitic qtz-feldspar segregations (W-Py-Po)<br>- variable degrees of alteration between qmp fragments<br>18.6 - $MoS_2$ content decreases dramatically<br>- hornfelsic fragments well prepared, fractures have bleached envelopes @ 5 mm thickness<br>41.1 - 41.2 - quartz veinlet shows $MoS_2$ selvages along qtz hornfels contact but absent @ qmp/qtz contact<br>- open spaces filled with py, po<br>- conc. of $MoS_2$ @ lower contact | |
| | 46.5<br>92.3 | QUARTZ MONZONITE PORPHYRY<br>- as in previous hole 81-2<br>- bleached appearance in several places, fine grained recrystallized as 'bands' @ 41° to 58° to C.A.<br>- spessartine garnet as segregations and veins throughout<br>- intense sericite alteration associated with random quartz stockwork and associated k-spar | |

| SAMPLE No. | FROM ..... TO ..... | INT. IN FT. | REC. OVERY | ASSAY RESULTS $MoS_2$ (1) | $MoS_2$ (2) |
|---|---|---|---|---|---|
| 81-3-116 | 0.6- 1.6 | 1 | 100% | 0.096 | 0.042 |
| 3-117 | 1.6- 2.6 | 1 | 100% | 0.496 | 0.083 |
| 3-118 | 2.6- 3.6 | 1 | 100% | 0.054 | 0.277 |
| 3-119 | 3.6- 4.6 | 1 | 100% | <0.001 | - |
| 3-120 | 4.6- 5.6 | 1 | 100% | 0.335 | 0.080 |
| 3-121 | 5.6- 6.6 | 1 | 100% | 0.576 | 0.219 |
| 3-122 | 6.6- 7.6 | 1 | 100% | 1.064 | 0.250 |
| 3-123 | 7.6- 8.6 | 1 | 100% | 0.274 | 0.669 |
| 3-124 | 8.6- 9.6 | 1 | 100% | 0.224 | 0.262 |
| 3-125 | 9.6-10.6 | 1 | 100% | 0.083 | 0.117 |
| 3-126 | 10.6-11.6 | 1 | 100% | 0.012 | 0.110 |
| 3-127 | 11.6-12.6 | 1 | 100% | 0.192 | 0.001 |
| 3-128 | 12.6-13.6 | 1 | 100% | 0.206 | 0.077 |
| 3-129 | 13.6-14.6 | 1 | 100% | 0.192 | 0.092 |
| 3-130 | 14.6-15.6 | 1 | 100% | 0.121 | 0.158 |
| 3-131 | 15.6-16.6 | 1 | 100% | 0.037 | - |
| 3-132 | 16.6-17.6 | 1 | 100% | 0.104 | - |
| 3-133 | 17.6-18.6 | 1 | 100% | 0.200 | 0.077 |
| 3-134 | 18.6-19.6 | 1 | 100% | 0.096 | 0.127 |
| 3-135 | 19.6-20.6 | 1 | 100% | 0.083 | 0.038 |
| 3-136 | 20.6-21.6 | 1 | 100% | 0.040 | |
| 3-137 | 21.6-22.6 | 1 | 100% | 0.025 | |
| 3-138 | 22.6-23.6 | 1 | 100% | 0.088 | |
| 3-139 | 23.6-24.6 | 1 | 100% | 0.037 | |
| 3-140 | 24.6-25.6 | 1 | 100% | 0.033 | |
| 3-141 | 25.6-26.6 | 1 | 100% | 0.042 | |
| 3-142 | 26.6-27.6 | 1 | 100% | 0.062 | |
| 3-143 | 27.6-28.6 | 1 | 100% | 0.163 | |
| 3-144 | 28.6-29.6 | 1 | 100% | 0.063 | |
| 3-145 | 29.6-30.6 | 1 | 100% | 0.063 | |
| 3-146 | 30.6-31.6 | 1 | 100% | 0.037 | |
| 3-147 | 31.6-32.6 | 1 | 100% | 0.012 | |
| 3-148 | 32.6-33.6 | 1 | 100% | 0.063 | |
| 3-149 | 33.6-34.6 | 1 | 100% | 0.025 | |
| 3-150 | 34.6-35.6 | 1 | 100% | 0.004 | |
| 3-151 | 35.6-36.6 | 1 | 100% | 0.054 | |
| 3-152 | 36.6-37.6 | 1 | 100% | 0.008 | |
| 3-153 | 37.6-38.6 | 1 | 100% | 0.015 | |

SYMBOLS AND ABBREVIATIONS: (1) Geo Analytical Services Ltd.; (2) Chemex Labs (Alberta) Ltd.

SHEET INTERVAL: from ..... to .....

# SHELL CANADA LIMITED – MINERALS DEPARTMENT
## DRILL HOLE OR SECTION DATA RECORD



PROJECT NAME: Ymir
PROJECT NO.: 3191K
HOLE/SEC. NO.: DDH81-3

POLITICAL UNIT:

| SUR SYSTEM | LOC. EXCEPTION | LATITUDE | | | LONGITUDE | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | LSD | SEC | | TWP | RGE | E W | M | |
| | | 1/4 | UNIT | B | No. | L | POR | | |
| | | U N | SEC | DEG LAT | MIN | DEG.LONG | MIN | | |

ADDITIONAL INFO.:

CLAIM/PERMIT NO.:

WORK DONE Name Dates Remarks

DRILLING:

LOGGING:

ASSAYING:

LOGGED BY:

| | LATITUDE | DEPARTURE | ELEVATION (DATUM) | BEARING | INCLINATION | LENGTH |
|---|---|---|---|---|---|---|
| FIELD LOCATION | | | | | | |
| SURVEY GRID | N | E | | AZ. | | |

LANDMARKS:

OTHER FEATURES:

| FORM/ UNIT | DEPTH | LITHOLOGY, Texture, Structure, Mineralization (Litholog) | Structural Angle SYMBOL C.A./Dip @ |
|---|---|---|---|
| | | alteration envelopes<br>- numerous aplite segregations<br>72.6 - 75.7 - fresh qmp/granodiorite<br>- spessartine as disseminations throughout relatively fresh rock | |
| | 92.3 | END OF HOLE | |

| SAMPLE No. | FROM ..... TO ..... | INT. IN FT. | REC. OVERY | ASSAY RESULTS $MoS_2$ |
|---|---|---|---|---|
| 81-3-154 | 38.6-39.6 | 1 | 100% | 0.025 |
| 3-155 | 39.6-40.6 | 1 | 100% | 0.058 |
| 3-156 | 40.6-41.6 | 1 | 100% | 0.125 |
| 3-157 | 41.6-42.6 | 1 | 100% | 0.011 |
| 3-158 | 42.6-43.6 | 1 | 100% | 0.037 |
| 3-159 | 43.6-44.6 | 1 | 100% | 0.015 |
| 3-160 | 44.6-45.6 | 1 | 100% | 0.035 |
| 3-161 | 45.6-46.6 | 1 | 100% | 0.054 |
| 3-162 | 46.6-49.6 | 1 | 100% | 0.012 |
| 3-163 | 49.6-50.6 | 1 | 100% | - |
| 3-164 | 50.6-53.6 | 3 | 100% | 0.004 |
| 3-165 | 53.6-56.6 | 3 | 100% | 0.002 |
| 3-166 | 56.6-59.6 | 3 | 100% | 0.012 |
| 3-167 | 59.6-62.6 | 3 | 100% | 0.004 |
| 3-168 | 62.6-65.6 | 3 | 100% | 0.014 |
| 3-169 | 65.6-68.6 | 3 | 100% | 0.010 |
| 3-170 | 68.6-71.6 | 3 | 100% | 0.121 |
| 3-171 | 71.6-74.6 | 3 | 100% | 0.083 |
| 3-172 | 74.6-77.6 | 3 | 100% | 0.018 |
| 3-173 | 77.6-80.6 | 3 | 100% | 0.012 |
| 3-174 | 80.6-83.6 | 3 | 100% | 0.033 |
| 3-175 | 83.6-86.6 | 3 | 100% | 0.010 |
| 3-176 | 86.6-89.6 | 3 | 100% | 0.008 |
| 3-177 | 89.6-92.3 | 3 | 100% | 0.004 |

SYMBOLS AND ABBREVIATIONS:

SHEET INTERVAL: from..... to.....

# SHELL CANADA LIMITED – MINERALS DEPARTMENT
## DRILL HOLE OR SECTION DATA RECORD



PROJECT NAME: Ymir
PROJECT NO.: 3191K
HOLE/SEC. NO.: DDH 81-4

POLITICAL UNIT:

| SUB-SYSTEM | LOC. EXCEPTION | LATITUDE | | | LONGITUDE | | | |
|---|---|---|---|---|---|---|---|---|
| | | LSD | SEC | TWP | RGE | E/W | M | |
| | | 1/4 | UNIT | B | No. | L | POR | |
| | | U/N | SEC | DEG LAT | MIN | DEG LONG | MIN | |

ADDITIONAL INFO.:

CLAIM/PERMIT NO.:

WORK DONE Name Dates Remarks

DRILLING: D. W. Coates

LOGGING: Shell Canada Resources Ltd.

ASSAYING: Chemex Labs (Alberta) Ltd.
(Geo Analytical Services Ltd.)

LOGGED BY: G. W. Turner

| | LATITUDE | DEPARTURE | ELEVATION (DATUM) | BEARING | INCLINATION | LENGTH |
|---|---|---|---|---|---|---|
| FIELD LOCATION | 117°15' | 49°15' | 1614.0 | 140 | -45 | 78.0 |
| SURVEY GRID | -0+25 N | -0+63 E | | AZ. 0 | | |

LANDMARKS:

OTHER FEATURES:

| FORM/ UNIT | DEPTH | LITHOLOGY, Texture, Structure, Mineralization (Litholog) | Structural Angle SYMBOL C.A./Dip ● |
|---|---|---|---|
| | 0.0-1.2 | OVERBURDEN | |
| | 1.2-35.9 | PHASE II BRECCIA<br>- as in previous holes<br>- angular polymiel fragments of quartz monzonite porphyry, hornvels, skarn feldspar porphyry<br>10.6 - 11.2 - feldspar porphyry dyke? @ 56° to C.A.<br>- $MoS_2$ content decreasing rapidly downhole ie weakly disseminated @ 16.0 m<br>24.4 - qmp fragment containing truncated $MoS_2$ bearing quartz veinlet<br>28.9 - wash zone<br>22.8 - idiomorphic pyrite<br>- alteration intensity highly variable<br>- $MoS_2$ content appears to be increasing toward lower contact<br><br>QUARTZ MONZONITE PORPHYRY<br>- as in previous holes<br>50.8 - 51.2 - intense sericitic alteration with associated disseminated $MoS_2$<br>- bleached zones throughout<br><br>62.1 - 62.5 - silicified zone with $MoS_2$ as paint along dry fracture<br><br>64.2 - decrease in alteration intensity<br><br>67.0 - 67.6 - aplite dyke | |

| SAMPLE No. | FROM ..... TO ..... | INT. IN FT. | REC. OVERY | ASSAY RESULTS $MoS_2$ (1) | $MoS_2$ (2) |
|---|---|---|---|---|---|
| 81-4-178 | 1.2- 2.2 | 1 | 100% | 0.23 | 0.050 |
| 4-179 | 2.2- 3.2 | 1 | 100% | 0.07 | 0.033 |
| 4-180 | 3.2- 4.2 | 1 | 100% | 0.09 | - |
| 4-181 | 4.2- 5.2 | 1 | 100% | 0.04 | 0.020 |
| 4-182 | 5.2- 6.2 | 1 | 100% | 0.07 | 0.480 |
| 4-183 | 6.2- 7.2 | 1 | 100% | 0.04 | 0.018 |
| 4-184 | 7.2- 8.2 | 1 | 100% | 0.01 | 0.013 |
| 4-185 | 8.2- 9.2 | 1 | 100% | 0.13 | 0.040 |
| 4-186 | 9.2-10.2 | 1 | 100% | 0.05 | <0.001 |
| 4-187 | 10.2-11.2 | 1 | 100% | 0.03 | 0.010 |
| 4-188 | 11.2-12.2 | 1 | 100% | 0.09 | 0.030 |
| 4-189 | 12.2-13.2 | 1 | 100% | 0.05 | 0.015 |
| 4-190 | 13.2-14.2 | 1 | 100% | 0.10 | 0.017 |
| 4-191 | 14.2-15.2 | 1 | 100% | 0.26 | 0.023 |
| 4-192 | 15.2-16.2 | 1 | 100% | 0.21 | 0.052 |
| 4-193 | 16.2-17.2 | 1 | 100% | 0.20 | 0.052 |
| 4-194 | 17.2-18.2 | 1 | 100% | 0.08 | 0.025 |
| 4-195 | 18.2-19.2 | 1 | 100% | 0.01 | 0.010 |
| 4-196 | 19.2-20.2 | 1 | 100% | 0.04 | |
| 4-197 | 20.2-21.2 | 1 | 100% | 0.01 | |
| 4-198 | 21.2-22.2 | 1 | 100% | 0.04 | |
| 4-199 | 22.2-23.2 | 1 | 100% | 0.01 | |
| 4-200 | 23.2-24.2 | 1 | 100% | 0.01 | |
| 4-201 | 24.2-25.2 | 1 | 100% | 0.01 | |
| 4-202 | 25.2-26.2 | 1 | 100% | 0.08 | |
| 4-203 | 26.2-27.2 | 1 | 100% | 0.03 | |
| 4-204 | 27.2-28.2 | 1 | 100% | 0.03 | |
| 4-205 | 28.2-29.2 | 1 | 100% | 0.01 | |
| 4-206 | 29.2-30.2 | 1 | 100% | 0.01 | |
| 4-207 | 30.2-31.2 | 1 | 100% | 0.04 | |
| 4-208 | 31.2-32.2 | 1 | 100% | 0.06 | |
| 4-209 | 32.2-33.2 | 1 | 100% | 0.12 | |
| 4-210 | 33.2-34.2 | 1 | 100% | 0.06 | |
| 4-211 | 34.2-35.2 | 1 | 100% | 0.03 | |
| 4-212 | 35.2-36.2 | 1 | 100% | 0.04 | |
| 4-213 | 36.2-37.2 | 1 | 100% | 0.03 | |
| 4-214 | 37.2-38.2 | 1 | 100% | 0.02 | |
| 4-215 | 38.2-41.2 | 3 | 100% | 0.09 | <0.010 |
| 4-216 | 41.2-44.2 | 3 | 100% | 0.09 | <0.010 |

SYMBOLS AND ABBREVIATIONS: (1) Geo Analytical Services; (2) Chemex Labs (Alberta) Ltd.

SHEET INTERVAL: from ..... to .....

# SHELL CANADA LIMITED – MINERALS DEPARTMENT
## DRILL HOLE OR SECTION DATA RECORD



PROJECT NAME: Ymir

PROJECT NO.: 3191K

HOLE/SEC. NO.: DDH 81-4

POLITICAL UNIT:

| SUB SYSTEM | LOC. EXCEPTION | LATITUDE | | | LONGITUDE | | | |
|---|---|---|---|---|---|---|---|---|
| | | LSD | SEC | | TWP | RGE | E W | M |
| | | 1/4 | UNIT | B | No. | L | | POR |
| | | N S | SEC | DEG LAT | MIN | DEG.LONG | | MIN |

WORK DONE Name Dates Remarks

DRILLING:

LOGGING:

ASSAYING:

LOGGED BY:

ADDITIONAL INFO.:

CLAIM/PERMIT NO.:

| | LATITUDE | DEPARTURE | ELEVATION (DATUM) | BEARING | INCLINATION | LENGTH |
|---|---|---|---|---|---|---|
| FIELD LOCATION | | | | | | |
| SURVEY GRID | N | E | | AZ. | | |

LANDMARKS:

OTHER FEATURES:

| FORM/ UNIT | DEPTH | LITHOLOGY, Texture, Structure, Mineralization (Litholog) | Structural Angle SYMBOL C.A./Dip ● |
|---|---|---|---|
| | 78.0 | END OF HOLE | |

| SAMPLE No. | FROM ..... TO ..... | INT. IN FT. | REC. OVERY | ASSAY RESULTS $MoS_2$(1) | $MoS_2$(2) |
|---|---|---|---|---|---|
| 81-4-217 | 44.2-47.2 | 3 | 100% | 0.02 | 0.090 |
| 4-218 | 47.2-50.2 | 3 | 100% | 0.22 | <0.010 |
| 4-219 | 50.2-53.2 | 3 | 100% | 0.03 | 0.018 |
| 4-220 | 53.2-56.2 | 3 | 100% | 0.21 | 0.013 |
| 4-221 | 56.2-59.2 | 3 | 100% | 0.02 | 0.012 |
| 4-222 | 59.2-62.2 | 3 | 100% | 0.10 | |
| 4-223 | 62.2-65.2 | 3 | 100% | 0.15 | |
| 4-224 | 65.2-68.2 | 3 | 100% | 0.08 | |
| 4-225 | 68.2-71.2 | 3 | 100% | 0.03 | |
| 4-226 | 71.2-74.2 | 3 | 100% | 0.03 | |
| 4-227 | 74.2-78.0 | 3 | 100% | 0.03 | |

SYMBOLS AND ABBREVIATIONS

SHEET INTERVAL: from ..... to .....

# SHELL CANADA LIMITED – MINERALS DEPARTMENT
## DRILL HOLE OR SECTION DATA RECORD



PROJECT NAME: Ymir
PROJECT NO.: 3191K
HOLE/SEC. NO.: DDH 81-5

POLITICAL UNIT:

| SUB SYSTEM | LOC. EXCEPTION | LATITUDE | | | LONGITUDE | | | |
|---|---|---|---|---|---|---|---|---|
| | | LSD | SEC | TWP | RGE | E/W | M | |
| | | 1/4 | UNIT | B | No. | L | POR | |
| | | U/N | SEC | DEG LAT | MIN | DEG.LONG | MIN | |

WORK DONE Name Dates Remarks

DRILLING: D. W. Coates

LOGGING: Shell Canada Resources Ltd.

ASSAYING: Geo Analytical Services Ltd.

LOGGED BY: G. W. Turner

ADDITIONAL INFO.:

CLAIM/PERMIT NO.:

| | LATITUDE | DEPARTURE | ELEVATION (DATUM) | BEARING | INCLINATION | LENGTH |
|---|---|---|---|---|---|---|
| FIELD LOCATION | 117°15' | 49°15' | 1593.0 | 157 | -45 | 113.7 |
| SURVEY GRID | 0+05 N | 0+39 E | | AZ. 0 | | |

LANDMARKS:

OTHER FEATURES:

| FORM/ UNIT | DEPTH | LITHOLOGY, Texture, Structure, Mineralization (Litholog) | Structural Angle SYMBOL C.A./Dip @ |
|---|---|---|---|
| | 0.0-3.0 | OVERBURDEN | |
| | 3.0-31.0 | MIXED QUARTZ MONZONITE PORPHYRY/HORNFELS<br>- gradational contact between quartz monzonite porphyry and hornfels<br>- hornfelsic fragments contain pyritic quartz stockwork (tr $MoS_2$).<br>- bedding @ 37° to C.A.<br>- some skarnified fragments (garnet-diopside) likely origoinate from Arrow Tungsten skarn<br>- quartz monzonite fine grained (almost aplitic) silicified and contains trace amounts of disseminated pyrite-mafic component altered to chlorite<br>- some secondary biotite<br>24.7 - quartz monzonite becoming porphyritic<br>27.7 - 28.2 - intense sericite alteration with associated qtz-mo stockwork<br>Note: molybdenite as fine disseminations associated with pyrite in highly altered sections of quartz monzonite porphyry | |
| | 31.0-38.1 | QUARTZ MONZONITE PORPHYRY<br>- highly variable degree of sericitic alteration<br>- as in previous holes | |
| | 38.1-100.8 | PHASE II BRECCIA<br>- as in previous holes although weakly mineralized with molybdenum (pyrite, pyrrhotite)<br>- molybdenite disseminated through matrix<br>- qmp fragments intensely altered<br>- pegmatitic segregations of py, po, qtz and k-spar occur throughout<br>- sericitization increasing downhole | |

| SAMPLE No. | FROM ..... TO ..... | INT. IN FT. | REC. OVERY | ASSAY RESULTS $MoS_2$ |
|---|---|---|---|---|
| 81-5-228 | 26.0-27.0 | 1 | 100% | 0.03 |
| 5-229 | 27.0-28.0 | 1 | 100% | 0.01 |
| 5-230 | 28.0-29.0 | 1 | 100% | 0.03 |
| 5-231 | 29.0-30.0 | 1 | 100% | 0.03 |
| 5-232 | 30.0-31.0 | 1 | 100% | 0.01 |
| 5-233 | 31.0-32.0 | 1 | 100% | 0.02 |
| 5-234 | 32.0-33.0 | 1 | 100% | 0.20 |
| 5-235 | 33.0-34.0 | 1 | 100% | 0.02 |
| 5-236 | 34.0-35.0 | 1 | 100% | 0.02 |
| 5-237 | 35.0-36.0 | 1 | 100% | 0.02 |
| 5-238 | 36.0-37.0 | 1 | 100% | 0.04 |
| 5-239 | 37.0-38.0 | 1 | 100% | 0.02 |
| 5-240 | 38.0-39.0 | 1 | 100% | 0.16 |
| 5-241 | 39.0-40.0 | 1 | 100% | 0.12 |
| 5-242 | 40.0-41.0 | 1 | 100% | 0.08 |
| 5-243 | 41.0-42.0 | 1 | 100% | 0.05 |
| 5-244 | 42.0-43.0 | 1 | 100% | 0.03 |
| 5-245 | 43.0-44.0 | 1 | 100% | <0.01 |
| 5-246 | 44.0-45.0 | 1 | 100% | 0.05 |
| 5-247 | 45.0-46.0 | 1 | 100% | 0.06 |
| 5-248 | 46.0-47.0 | 1 | 100% | 0.04 |
| 5-249 | 47.0-48.0 | 1 | 100% | 0.04 |
| 5-250 | 48.0-49.0 | 1 | 100% | 0.02 |
| 5-251 | 49.0-50.0 | 1 | 100% | 0.03 |
| 5-252 | 50.0-51.0 | 1 | 100% | 0.05 |
| 5-253 | 51.0-52.0 | 1 | 100% | 0.04 |
| 5-254 | 52.0-53.0 | 1 | 100% | 0.03 |
| 5-255 | 53.0-54.0 | 1 | 100% | 0.02 |
| 5-256 | 54.0-55.0 | 1 | 100% | 0.06 |
| 5-257 | 55.0-56.0 | 1 | 100% | 0.04 |
| 5-258 | 56.0-57.0 | 1 | 100% | 0.10 |
| 5-259 | 57.0-58.0 | 1 | 100% | 0.04 |
| 5-260 | 58.0-59.0 | 1 | 100% | 0.04 |
| 5-261 | 59.0-60.0 | 1 | 100% | 0.20 |
| 5-262 | 60.0-61.0 | 1 | 100% | 0.04 |
| 5-263 | 61.0-62.0 | 1 | 100% | 0.11 |
| 5-264 | 62.0-63.0 | 1 | 100% | 0.07 |
| 5-265 | 63.0-64.0 | 1 | 100% | 0.03 |

SYMBOLS AND ABBREVIATIONS:

SHEET INTERVAL: from..... to.....

# SHELL CANADA LIMITED – MINERALS DEPARTMENT
## DRILL HOLE OR SECTION DATA RECORD



PROJECT NAME: Ymir
PROJECT NO.: 3191K
HOLE/SEC. NO.: DDH 81-5

POLITICAL UNIT:

| SUB-SYSTEM | LOC. EXCEPTION | LATITUDE | | | LONGITUDE | | | |
|---|---|---|---|---|---|---|---|---|
| | | LSD | SEC | TWP | RGE | E/W | M | |
| | | 1/4 | UNIT | B | No. | L | POR | |
| | | N | SEC | DEG LAT | MIN | DEG.LONG | MIN | |

WORK DONE Name Dates Remarks

DRILLING:

LOGGING:

ASSAYING:

LOGGED BY:

ADDITIONAL INFO.:

CLAIM/PERMIT NO.:

| | LATITUDE | DEPARTURE | ELEVATION (DATUM) | BEARING | INCLINATION | LENGTH |
|---|---|---|---|---|---|---|
| FIELD LOCATION | | | | | | |
| SURVEY GRID | N | E | | AZ. | | |

LANDMARKS:

OTHER FEATURES:

| FORM/ UNIT | DEPTH | LITHOLOGY, Texture, Structure, Mineralization (Litholog) | Structural Angle SYMBOL C.A./Dip @ |
|---|---|---|---|
| | | - $MoS_2$ concentration @ contact | |
| | 100.8 | QUARTZ MONZONITE PORPHYRY | |
| | 113.7 | - moderate to intense sericitization | |
| | | - contact @ 35° to C.A. | |
| | | - as in previous holes | |
| | | - sporadic qtz mo py stockwork | |
| | 113.7 | END OF HOLE | |

| SAMPLE No. | FROM ..... TO..... | INT. IN FT. | REC. OVERY | ASSAY RESULTS $MoS_2$ |
|---|---|---|---|---|
| 81-5-266 | 64.0-65.0 | 1 | 100% | 0.07 |
| 5-267 | 65.0-66.0 | 1 | 100% | 0.03 |
| 5-268 | 66.0-67.0 | 1 | 100% | 0.03 |
| 5-269 | 67.0-68.0 | 1 | 100% | 0.02 |
| 5-270 | 68.0-69.0 | 1 | 100% | 0.01 |
| 5-271 | 69.0-70.0 | 1 | 100% | 0.01 |
| 5-272 | 70.0-71.0 | 1 | 100% | 0.01 |
| 5-273 | 71.0-72.0 | 1 | 100% | 0.03 |
| 5-274 | 72.0-73.0 | 1 | 100% | 0.01 |
| 5-275 | 73.0-74.0 | 1 | 100% | 0.02 |
| 5-276 | 74.0-75.0 | 1 | 100% | <0.01 |
| 5-277 | 75.0-76.0 | 1 | 100% | 0.01 |
| 5-278 | 76.0-77.0 | 1 | 100% | 0.04 |
| 5-279 | 77.0-78.0 | 1 | 100% | 0.02 |
| 5-280 | 78.0-79.0 | 1 | 100% | 0.04 |
| 5-281 | 79.0-80.0 | 1 | 100% | 0.01 |
| 5-282 | 80.0-81.0 | 1 | 100% | 0.07 |
| 5-283 | 81.0-82.0 | 1 | 100% | <0.01 |
| 5-284 | 82.0-83.0 | 1 | 100% | 0.13 |
| 5-285 | 83.0-84.0 | 1 | 100% | 0.05 |
| 5-286 | 84.0-85.0 | 1 | 100% | 0.04 |
| 5-287 | 85.0-86.0 | 1 | 100% | 0.07 |
| 5-288 | 86.0-87.0 | 1 | 100% | 0.04 |
| 5-289 | 87.0-88.0 | 1 | 100% | 0.03 |
| 5-290 | 88.0-89.0 | 1 | 100% | 0.04 |
| 5-291 | 89.0-90.0 | 1 | 100% | <0.01 |
| 5-292 | 90.0-91.0 | 1 | 100% | <0.01 |
| 5-293 | 91.0-92.0 | 1 | 100% | <0.01 |
| 5-294 | 92.0-93.0 | 1 | 100% | 0.01 |
| 5-295 | 93.0-94.0 | 1 | 100% | 0.01 |
| 5-296 | 94.0-95.0 | 1 | 100% | 0.01 |
| 5-297 | 95.0-96.0 | 1 | 100% | 0.03 |
| 5-298 | 96.0-97.0 | 1 | 100% | 0.02 |
| 5-299 | 97.0-98.0 | 1 | 100% | 0.07 |
| 5-300 | 98.0-99.0 | 1 | 100% | 0.07 |
| 5-301 | 99.0-100.0 | 1 | 100% | 0.31 |
| 5-302 | 100.0-101.0 | 1 | 100% | - |
| 5-303 | 101.0-104.0 | 3 | 100% | 0.07 |
| 5-304 | 104.0-107.0 | 3 | 100% | 0.04 |
| 5-305 | 107.0-110.0 | 3 | 100% | 0.05 |
| 5-306 | 110.0-113.7 | 3 | 100% | 0.05 |

SYMBOLS AND ABBREVIATIONS:

SHEET INTERVAL: from..... to.....

# SHELL CANADA LIMITED – MINERALS DEPARTMENT
## DRILL HOLE OR SECTION DATA RECORD



PROJECT NAME: Ymir
PROJECT NO.: 3191K
HOLE/SEC. NO.: 81-6

POLITICAL UNIT:

| SUR. SYSTEM | LOC. EXCEPTION | LATITUDE | | | LONGITUDE | | | |
|---|---|---|---|---|---|---|---|---|
| | | LSD | SEC | TWP | RGE | E W | M | |
| | | 1/4 | UNIT | B | No. | L | POR | |
| | | U N | SEC | DEG LAT | MIN | DEG.LONG | MIN | |

WORK DONE Name Dates Remarks

DRILLING: D. W. Coates

LOGGING: Shell Canada Resources Ltd.

ASSAYING: Geo Analytical Services Ltd.

LOGGED BY: G. W. Turner

ADDITIONAL INFO.:

CLAIM/PERMIT NO.:

| | LATITUDE | DEPARTURE | ELEVATION (DATUM) | BEARING | INCLINATION | LENGTH |
|---|---|---|---|---|---|---|
| FIELD LOCATION | 117°15' | 49°15' | 1591 | 157° | -45° | 126.2 |
| SURVEY GRID | -0+11 N | -1+24 E | | AZ. 0 | | |

LANDMARKS:

OTHER FEATURES:

| FORM/ UNIT | DEPTH | LITHOLOGY, Texture, Structure, Mineralization (Litholog) | Structural Angle SYMBOL C.A./Dip @ |
|---|---|---|---|
| | 0.0-4.6 | OVERBURDEN | |
| | 4.6-35.9 | MIXED QUARTZ MONZONITE PORPHYRY/HORNFELS<br>- contact between qmp/hornfels<br>- sedimentary inclusions are skarnified (garnet-diopside)<br>- qmp very fine grained with some pyrite as disseminations<br>26.2 - quartz vein crosscuts both qmp and hornfels. $MoS_2$ appears to have come out of solution preferentially along the vein/hornfles contact rather than the vein/qmp contact | |
| | 35.9-93.6 | PHASE II BRECCIA<br>- mineralization consistant throughout @ < 0.1% $MoS_2$<br>- mineralization appears to concentrate where the breccia is most active ie. @ point where fragments are smallest and most angular<br>- pyrite as pegmatitic segregations associated with quartz and feldspar<br>55.9 - 56.0 - brecciated vein @ 32° to core axis<br>- sericite alteration highly variable in both fragments and matrix<br>- mineralization appears to increase downhole toward lower contact<br>88.4 - greisen pod - sericite-pyrite-quartz-fluorite?<br>- lower contact gradational into qmp | |

| SAMPLE No. | FROM ..... TO ..... | INT. IN FT. | REC-OVERY | ASSAY RESULTS $MoS_2$ |
|---|---|---|---|---|
| 81-6-307 | 35.0-36.0 | | | 0.11 |
| 6-308 | 36.0-37.0 | | | 0.18 |
| 6-309 | 37.0-38.0 | | | 0.02 |
| 6-310 | 38.0-39.0 | | | 0.03 |
| 6-311 | 39.0-40.0 | | | 0.02 |
| 6-312 | 40.0-41.0 | | | 0.03 |
| 6-313 | 41.0-42.0 | | | 0.01 |
| 6-314 | 42.0-43.0 | | | 0.01 |
| 6-315 | 43.0-44.0 | | | 0.01 |
| 6-316 | 44.0-45.0 | | | 0.01 |
| 6-317 | 45.0-46.0 | | | 0.02 |
| 6-318 | 46.0-47.0 | | | 0.04 |
| 6-319 | 47.0-48.0 | | | 0.06 |
| 6-320 | 48.0-49.0 | | | 0.04 |
| 6-321 | 49.0-50.0 | | | 0.09 |
| 6-322 | 50.0-51.0 | | | 0.16 |
| 6-323 | 51.0-52.0 | | | 0.09 |
| 6-324 | 52.0-53.0 | | | 0.08 |
| 6-325 | 53.0-54.0 | | | 0.90 |
| 6-326 | 54.0-55.0 | | | 0.23 |
| 6-327 | 55.0-56.0 | | | 0.13 |
| 6-328 | 56.0-57.0 | | | 0.15 |
| 6-329 | 57.0-58.0 | | | 0.05 |
| 6-330 | 58.0-59.0 | | | 0.09 |
| 6-331 | 59.0-60.0 | | | 0.07 |
| 6-332 | 60.0-61.0 | | | 0.04 |
| 6-333 | 61.0-62.0 | | | 0.10 |
| 6-334 | 62.0-63.0 | | | 0.07 |
| 6-335 | 63.0-64.0 | | | 0.04 |
| 6-336 | 64.0-65.0 | | | 0.16 |
| 6-337 | 65.0-66.0 | | | 0.03 |
| 6-338 | 66.0-67.0 | | | 0.01 |
| 6-339 | 67.0-68.0 | | | 0.08 |
| 6-340 | 68.0-69.0 | | | 0.02 |
| 6-341 | 69.0-70.0 | | | 0.02 |
| 6-342 | 70.0-71.0 | | | 0.02 |
| 6-343 | 71.0-72.0 | | | 0.02 |
| 6-344 | 72.0-73.0 | | | 0.03 |
| 6-345 | 73.0-74.0 | | | 0.05 |

SYMBOLS AND ABBREVIATIONS:

SHEET INTERVAL: from ..... to .....

# SHELL CANADA LIMITED – MINERALS DEPARTMENT
## DRILL HOLE OR SECTION DATA RECORD



PROJECT NAME: Ymir
PROJECT NO.: 3191K
HOLE/SEC. NO.: DDH 81-6

POLITICAL UNIT:

| SUR. SYSTEM | LOC. EXCEPTION | LATITUDE | | | LONGITUDE | | | |
|---|---|---|---|---|---|---|---|---|
| | | LSD | SEC | TWP | RGE | E/W | M | |
| | | 1/4 | UNIT | B | No. | L | POR | |
| | | U/N | SEC | DEG LAT | MIN | DEG.LONG | MIN | |

WORK DONE Name Dates Remarks

DRILLING:

LOGGING:

ASSAYING:

LOGGED BY:

| | LATITUDE | DEPARTURE | ELEVATION (DATUM) | BEARING | INCLINATION | LENGTH |
|---|---|---|---|---|---|---|
| FIELD LOCATION | | | | | | |
| SURVEY GRID | N | E | | AZ. | | |

ADDITIONAL INFO.:

CLAIM/PERMIT NO.:

LANDMARKS:

OTHER FEATURES:

| FORM/ UNIT | DEPTH | LITHOLOGY, Texture, Structure, Mineralization (Litholog) | Structural Angle SYMBOL C.A./Dip @ |
|---|---|---|---|
| | 93.6-99.4 | QUARTZ MONZONITE PORPHYRY<br>- as in previous holes | |
| | 99.4-105.4 | LAMPROPHYRE DYKE<br>- as in hole 80-3 | |
| | 105.4-126.2 | QUARTZ MONZONITE PORPHYRY<br>- as in previous holes<br>- secondary hydrothermal biotite as a dissemination throughout<br>118.5 - 119.6 - pervasive k-spar flooding | |
| | 126.2 | END OF HOLE | |

| SAMPLE No. | FROM ..... TO ..... | INT. IN FT. | REC-OVERY | ASSAY RESULTS $MoS_2$ |
|---|---|---|---|---|
| 81-6-346 | 74.0-75.0 | | | 0.03 |
| 6-347 | 75.0-76.0 | | | 0.03 |
| 6-348 | 76.0-77.0 | | | 0.05 |
| 6-349 | 77.0-78.0 | | | 0.03 |
| 6-350 | 78.0-79.0 | | | <0.01 |
| 6-351 | 79.0-80.0 | | | 0.02 |
| 6-352 | 80.0-81.0 | | | 0.02 |
| 6-353 | 81.0-82.0 | | | 0.03 |
| 6-354 | 82.0-83.0 | | | 0.03 |
| 6-355 | 83.0-84.0 | | | 0.06 |
| 6-356 | 84.0-85.0 | | | 0.03 |
| 6-357 | 85.0-86.0 | | | 0.03 |
| 6-358 | 86.0-87.0 | | | 0.04 |
| 6-359 | 87.0-88.0 | | | 0.07 |
| 6-360 | 88.0-89.0 | | | 0.11 |
| 6-361 | 89.0-90.0 | | | 0.12 |
| 6-362 | 80.0-91.0 | | | 0.05 |
| 6-363 | 91.0-92.0 | | | 0.02 |
| 6-364 | 92.0-93.0 | | | 0.03 |
| 6-365 | 93.0-94.0 | | | 0.02 |
| 6-366 | 94.0-97.0 | | | 0.02 |
| 6-367 | 97.0-100.0 | | | 0.01 |
| 6-368 | 100.0-103.0 | | | 0.01 |
| 6-369 | 103.0-106.0 | | | 0.01 |
| 6-370 | 106.0-109.0 | | | 0.01 |
| 6-371 | 109.0-112.0 | | | 0.05 |
| 6-372 | 112.0-115.0 | | | 0.02 |
| 6-373 | 115.0-118.0 | | | 0.02 |
| 6-374 | 118.0-121.0 | | | 0.01 |
| 6-375 | 121.0-124.0 | | | 0.01 |
| 6-376 | 124.0-126.2 | | | 0.02 |

SYMBOLS AND ABBREVIATIONS:

SHEET INTERVAL: from..... to.....

# SHELL CANADA LIMITED – MINERALS DEPARTMENT
## DRILL HOLE OR SECTION DATA RECORD



PROJECT NAME: Ymir
PROJECT NO.: 3191K
HOLE/SEC. NO.: DDH 81-7

POLITICAL UNIT:

| SUR SYSTEM | LOC EXCEPTION | LATITUDE | | | LONGITUDE | | | |
|---|---|---|---|---|---|---|---|---|
| | | LSD | SEC | TWP | RGE | E W | M | |
| | | 1/4 | UNIT | B | No. | L | POR | |
| | | N S | SEC | DEG LAT | MIN | DEG.LONG | MIN | |

WORK DONE Name Dates Remarks

DRILLING: D. W. Coates

LOGGING: Shell Canada Resources Ltd.

ASSAYING: Geo Analytical Services Ltd.

LOGGED BY: G. W. Turner

ADDITIONAL INFO.:

CLAIM/PERMIT NO.:

| | LATITUDE | DEPARTURE | ELEVATION (DATUM) | BEARING | INCLINATION | LENGTH |
|---|---|---|---|---|---|---|
| FIELD LOCATION | 117°15' | 49°15' | 1588.6 | 157 | -45° | 93.3 |
| SURVEY GRID | 0+25 N | 1+59 E | | AZ. 0 | | |

LANDMARKS:

OTHER FEATURES:

| FORM/ UNIT | DEPTH | LITHOLOGY, Texture, Structure, Mineralization (Litholog) | Structural Angle SYMBOL C.A./Dip @ |
|---|---|---|---|
| | 0.0-2.7 | 'OVERBURDEN' | |
| | 2.7-42.8 | MIXED QUARTZ MONZONITE PORPHYRY/HORNFELS<br>- as in previous hole 81-6<br>- highly fractured<br>- transected by sporadic qtz-mo stockwork<br>- alteration (sericitic) increasing downhole<br>- becoming increasingly porphyritic downhole<br>2.7-18.0 broken core | |
| | 42.8-62.5 | PHASE II BRECCIA<br>- very weakly mineralized<br>- contact well milled<br>- fragments rounded<br>- as in previous holes | |
| | 62.5-75.4 | PHASE I BRECCIA<br>- sharp contact with Phase II Breccia @ 45° to C.A.<br>- fragments dominantly hornfelsic angular<br>- fragments consist of hornfels (rhyolite), qmp, argillite skarn<br>- matrix fine grained, siliceous, pyritic<br>73.5 - sericite-biotite alteration of a feldspar porphyry fragment (rhyolite porphyry?)<br>73.8 - tr $MoS_2$ along fracture in a fragment of hornfels | |
| | 75.4-76.0 | QUARTZ MONZONITE PORPHYRY/HORNFELS<br>- as from 2.7 to 42.8 | |
| | 76.0<br>80.6 | ARGILLACEOUS QUARTZITE<br>- transected by numerous pyritic fractures, qtz veinlets<br>- bedding @ 56° to C.A. | |
| | 860.6-87.4 | QUARTZ MONZONITE PORPHYRY<br>- medium to coarse grained<br>- sporadic sericitic alteration as envelopes associated with quartz veinlets & fractures | |
| | 87.4<br>93.9<br>93.9 | QUARTZ MONZONITE PORPHYRY/HORNFELS CONTACT<br>- as from 2.7 to 42.8<br>END OF HOLE | |

| SAMPLE No. | FROM ..... TO ..... | INT. IN FT. | REC. OVERY | ASSAY RESULTS $MoS_2$ |
|---|---|---|---|---|
| 81-5-377 | 42.0-45.0 | | | <0.001 |
| 5-378 | 45.0-48.0 | | | 0.042 |
| 5-379 | 48.0-51.0 | | | 0.058 |
| 5-380 | 51.0-54.0 | | | 0.083 |
| 5-381 | 54.0-57.0 | | | 0.259 |
| 5-382 | 57.0-60.0 | | | <0.001 |
| 5-383 | 60.0-63.0 | | | 0.067 |
| 5-384 | 63.0-66.0 | | | 0.042 |
| 5-385 | 66.0-69.0 | | | 0.042 |
| 5-386 | 69.0-72.0 | | | 0.067 |
| 5-387 | 72.0-75.0 | | | 0.342 |
| 5-388 | 91.0-93.9 | | | 0.400 |

SYMBOLS AND ABBREVIATIONS:

SHEET INTERVAL: from..... to.....

# SHELL CANADA LIMITED – MINERALS DEPARTMENT
## DRILL HOLE OR SECTION DATA RECORD



PROJECT NAME: Ymir
PROJECT NO.: 3191K
HOLE/SEC. NO.: DDH 81-8

POLITICAL UNIT:

| SUB SYSTEM | LOC. EXCEPTION | LATITUDE | | | LONGITUDE | | | |
|---|---|---|---|---|---|---|---|---|
| | | LSD | SEC | | TWP | RGE | E W | M |
| | | 1/4 | UNIT | B | No. | L | POR | |
| | | N S | SEC | DEG LAT | MIN | DEG.LONG | | MIN |

ADDITIONAL INFO.:

CLAIM/PERMIT NO.:

WORK DONE Name Dates Remarks

DRILLING: D. W. Coates

LOGGING: Shell Canada Resources Ltd.

ASSAYING:

LOGGED BY: G. W. Turner

| | LATITUDE | DEPARTURE | ELEVATION (DATUM) | BEARING | INCLINATION | LENGTH |
|---|---|---|---|---|---|---|
| FIELD LOCATION | | | | | | |
| SURVEY GRID | N | E | | AZ. | | |

LANDMARKS:

OTHER FEATURES:

| FORM/ UNIT | DEPTH | LITHOLOGY, Texture, Structure, Mineralization (Litholog) | Structural Angle SYMBOL C.A./Dip @ |
|---|---|---|---|
| | 0.0-2.1 | OVERBURDEN | |
| | 2.1-21.4 | HORNFELS<br>- silicified<br>- pyrititc (up to 2.0%) fine disseminated<br>- transected by numerous pegmatitic quartz veins which are in places pyrite bearing<br>- skarnified in places (garnet-diopside-epidote)<br>- alteration as sericitic enveloping of quartz veins<br>- quartz veins have brecciated the host rock in places | |
| | 21.4 | FELDSPAR PORPHYRY | |
| | 25.1 | - Nelson feldspar porphyry dyke | |
| | 25.1-34.3 | PHASE I BRECCIA<br>- as in hole 81-7<br>- fragments milled<br>- set in fine grained siliceous matrix (dacitic?)<br>- pyrite as fine disseminations & as segregation<br>- matrix carbonaceous<br>- transected by carbonate/pyrite veinlets | |
| | 34.3-39.2 | HORNFELS<br>- as from 2.1 to 21.4 | |
| | 39.2-52.3 | SKARN/HORNFELS<br>- skarnified hornfels<br>- schistose<br>- carbonate rich<br>- contains bands of reddish schistose material @ 52° to C.A.<br>- contains pyrite/pyrrhotite as disseminations & anhedral segregations<br>- also contains segregations of brecciated quartz and carbonate | |
| | 52.3-55.0 | PHASE II BRECCIA<br>- as from 62.5 to 75.4 | |
| | 55.0-62.3 | SKARN/HORNFELS<br>- as from 39.2 to 52.3 | |

| SAMPLE No. | FROM ... TO ... | INT. IN FT. | REC-OVERY | ASSAY RESULTS $MoS_2$ | $MoS_2$ |
|---|---|---|---|---|---|
| 81-8-389 | 8.0-11.0 | 3 | 100% | <0.001 | <0.001 |
| 8-390 | 32.0-35.0 | 3 | 100% | 0.083 | <0.001 |
| 8-391 | 45.0-48.0 | 3 | 100% | 0.058 | <0.001 |
| 8-392 | 52.0-55.0 | 3 | 100% | <0.001 | <0.001 |

SYMBOLS AND ABBREVIATIONS:

SHEET INTERVAL: from ... to ...

MVN062V

# SHELL CANADA LIMITED – MINERALS DEPARTMENT
## DRILL HOLE OR SECTION DATA RECORD



PROJECT NAME: Ymir
PROJECT NO.: 3191K
HOLE/SEC. NO.: DDH 81-8

POLITICAL UNIT:

| SUR SYSTEM | LOC EXCEPTION | LATITUDE | | | LONGITUDE | | | |
|---|---|---|---|---|---|---|---|---|
| | | LSD | SEC | TWP | RGE | E W | M | |
| | | 1/4 | UNIT | B | No. | L | POR | |
| | | N S | SEC | DEG LAT | MIN | DEG.LONG | MIN | |

WORK DONE Name Dates Remarks

DRILLING:

LOGGING:

ASSAYING:

LOGGED BY:

ADDITIONAL INFO.:

CLAIM/PERMIT NO.:

| | LATITUDE | DEPARTURE | ELEVATION (DATUM) | BEARING | INCLINATION | LENGTH |
|---|---|---|---|---|---|---|
| FIELD LOCATION | | | | | | |
| SURVEY GRID | N | E | | AZ. | | |

LANDMARKS:

OTHER FEATURES:

| FORM/ UNIT | DEPTH | LITHOLOGY, Texture, Structure, Mineralization (Litholog) | Structural Angle SYMBOL C.A./Dip @ |
|---|---|---|---|
| | 62.3- | PHASE I BRECCIA | |
| | 74.6 | - as from 62.5 to 75.4 | |
| | | 62.8 - feldspar porphyry fragment | |
| | | - some fragments display siliceous rims about unaltered cores | |
| | 74.6- | HORNFELS | |
| | 77.7 | - as from 2.7 to 42.8 | |
| | 77.7- | PHASE I BRECCIA | |
| | 89.8 | - as from 62.5 to 75.4 | |
| | 89.8- | HORNFELS | |
| | 91.7 | - as from 2.7 to 42.8 | |
| | 91.7 | END OF HOLE | |

| SAMPLE No. | FROM ... TO ... | INT. IN FT. | REC. OVERY | ASSAY RESULTS | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 81-8-393 | 61.0-64.0 | 3 | 100% | 0.542 | <0.001 | | | | |
| 8-394 | 64.0-67.0 | 3 | 100% | <0.001 | <0.001 | | | | |
| 8-395 | 67.0-70.0 | 3 | 100% | 0.341 | <0.001 | | | | |
| 8-396 | 70.0-73.0 | 3 | 100% | 0.083 | <0.001 | | | | |
| 8-397 | 73.0-76.0 | 3 | 100% | 0.042 | <0.001 | | | | |
| 8-398 | 76.0-79.0 | 3 | 100% | 0.400 | <0.001 | | | | |
| 8-399 | 79.0-82.0 | 3 | 100% | 0.108 | 0.010 | | | | |
| 8-400 | 82.0-85.0 | 3 | 100% | 0.042 | 0.022 | | | | |
| 8-401 | 85.0-88.0 | 3 | 100% | 0.067 | 0.028 | | | | |
| 8-402 | 88.0-91.7 | 3.7 | 100% | 0.042 | 0.015 | | | | |

SYMBOLS AND ABBREVIATIONS:

SHEET INTERVAL: from ... to ...

SHELL CANADA LIMITED – MINERALS DEPARTMENT

DRILL HOLE OR SECTION DATA RECORD



PROJECT NAME: Ymir

PROJECT NO.: 3191K

HOLE/SEC. NO.: DDH 81-9

POLITICAL UNIT:

| SUR SYSTEM | LOC. EXCEPTION | LATITUDE | | | LONGITUDE | | | |
|---|---|---|---|---|---|---|---|---|
| | | LSD | SEC | TWP | RGE | E W | M | |
| | | 1/4 | UNIT | B | No. | L | POR | |
| | | N S | SEC | DEG LAT | MIN | DEG.LONG | MIN | |

WORK DONE Name Dates Remarks

DRILLING: D. W. Coates

LOGGING: Shell Canada Resources Ltd.

ASSAYING: Geo Analytical Services Ltd.
Chemex Labs (Alberta) Ltd.

LOGGED BY: G. W. Turner

ADDITIONAL INFO.:

CLAIM/PERMIT NO.:

| | LATITUDE | DEPARTURE | ELEVATION (DATUM) | BEARING | INCLINATION | LENGTH |
|---|---|---|---|---|---|---|
| FIELD LOCATION | 117°15' | 49°15' | 1603.0 | 157° | -45 | 128.0 |
| SURVEY GRID | N | E | | AZ. | | |

LANDMARKS:

OTHER FEATURES:

| FORM/ UNIT | DEPTH | LITHOLOGY, Texture, Structure, Mineralization (Litholog) | Structural Angle SYMBOL C.A./Dip @ |
|---|---|---|---|
| | 0.0-2.7 | OVERBURDEN | |
| | 2.7-58.0 | QUARTZ MONZONITE PORPHYRY<br>- as in DDH 31-1<br>- varies from a fresh white appearance to a lime green color (sericitization)<br>- phenocrysts vary from a light to dark green color<br>- intense sericitization occurs dominantly as alteration envelopes up to 1.0 mm in thickness<br>17.0 - spessartine associated with quartz veinlet<br>16.2 - 17.0 - k-feldspar flooding<br>17.8 - 18.4 - intense sericitic alteration associated with quartz veinlets<br>24.3 - 26.3 - intense sericite alteration (pervasive)<br>27.2 - 33.0 - pervasive k-feldspar alteration associated with quartz veinlets @ 45° to C.A.<br>33.2 - 41.4 - intense sericitic alteration<br>42.4 - 57.6 - intense sericitic alteration<br>43.5 - 58.0 - disseminated $MoS_2$<br>- appear to be following fractures @ 45° to C.A. | |
| | 58.0-86.3 | PHASE II BRECCIA<br>- similar to that found in DDH 81-1<br>- fragments consist of qmp, hornfels, skarn, aplite, and quartz-molybdenite<br>- fragment size highly variable<br>- fragments angular<br>- $MoS_2$ has been introduced into fragments & appears to have a preference for the hornfelsic fragments<br>- matrix consists of perthite, sericite, qtz carbonate<br>- alteration intense throughout both fragments and matrix<br>- $MoS_2$ is disseminated throughout | |

| SAMPLE No. | FROM / TO | INT. IN FT. | REC-OVERY | ASSAY RESULTS $MoS_2$(1) | $MoS_2$(2) |
|---|---|---|---|---|---|
| 81-9-403 | 2.7- 6.0 | 3 | 100% | <0.001 | |
| 9-404 | 6.0- 9.0 | 3 | 100% | <0.001 | |
| 9-405 | 9.0-12.0 | 3 | 100% | 0.083 | |
| 9-406 | 12.0-15.0 | 3 | 100% | 0.167 | |
| 9-407 | 15.0-18.0 | 3 | 100% | <0.001 | |
| 9-408 | 18.0-21.0 | 3 | 100% | 0.284 | |
| 9-409 | 21.0-24.0 | 3 | 100% | 0.042 | |
| 9-410 | 24.0-27.0 | 3 | 100% | 0.059 | |
| 9-411 | 27.0-30.0 | 3 | 100% | 0.108 | |
| 9-412 | 30.0-33.0 | 3 | 100% | 0.025 | |
| 9-413 | 33.0-36.0 | 3 | 100% | 0.017 | |
| 9-414 | 36.0-39.0 | 3 | 100% | 0.033 | |
| 9-415 | 39.0-42.0 | 3 | 100% | 0.042 | |
| 9-416 | 42.0-45.0 | 3 | 100% | 0.100 | |
| 9-417 | 45.0-48.0 | 3 | 100% | 0.125 | |
| 9-418 | 48.0-51.0 | 3 | 100% | 0.017 | |
| 9-419 | 51.0-54.0 | 3 | 100% | 0.025 | |
| 9-420 | 54.0-55.0 | 1 | 100% | 0.008 | |
| 9-421 | 55.0-58.0 | 3 | 100% | 0.025 | |
| 9-422 | 58.0-59.0 | 1 | 100% | 0.259 | 0.440 |
| 9-423 | 59.0-60.0 | 1 | 100% | 0.474 | 0.492 |
| 9-424 | 60.0-61.0 | 1 | 100% | 0.434 | 0.809 |
| 9-425 | 61.0-62.0 | 1 | 100% | 0.741 | 1.193 |
| 9-426 | 62.0-63.0 | 1 | 100% | 0.567 | 0.626 |
| 9-427 | 63.0-64.0 | 1 | 100% | 0.050 | 0.067 |
| 9-428 | 64.0-65.0 | 1 | 100% | 0.042 | 0.035 |
| 9-429 | 65.0-66.0 | 1 | 100% | 0.417 | 0.158 |
| 9-430 | 66.0-67.0 | 1 | 100% | 0.400 | 0.415 |
| 9-431 | 67.0-68.0 | 1 | 100% | 0.492 | 0.889 |
| 9-432 | 68.0-69.0 | 1 | 100% | 0.192 | 0.325 |
| 9-433 | 69.0-70.0 | 1 | 100% | 0.617 | 1.118 |
| 9-434 | 70.0-71.0 | 1 | 100% | 0.817 | 0.394 |
| 9-435 | 71.0-72.0 | 1 | 100% | 0.250 | 0.524 |
| 9-436 | 72.0-73.0 | 1 | 100% | 0.067 | 0.038 |
| 9-437 | 73.0-74.0 | 1 | 100% | 0.300 | 0.078 |
| 9-438 | 74.0-75.0 | 1 | 100% | 0.601 | 0.157 |
| 9-439 | 75.0-76.0 | 1 | 100% | 0.459 | 0.145 |
| 9-440 | 76.0-77.0 | 1 | 100% | 0.926 | 0.222 |
| 9-441 | 77.0-78.0 | 1 | 100% | 1.034 | 0.367 |

SYMBOLS AND ABBREVIATIONS: (1) Geo Analytical Services Ltd.; (2) Chemex Labs (Alberta) Ltd.

SHEET INTERVAL: from to

MVN062V

# SHELL CANADA LIMITED – MINERALS DEPARTMENT
## DRILL HOLE OR SECTION DATA RECORD



PROJECT NAME: Ymir
PROJECT NO.: 3191K
HOLE/SEC. NO.: DDH 81-9

POLITICAL UNIT:

| SUR. SYSTEM | LOC. EXCEPTION | LATITUDE | | | LONGITUDE | | | |
|---|---|---|---|---|---|---|---|---|
| | | LSD | SEC | | TWP | RGE | E/W | M |
| | | 1/4 | UNIT | B | No. | L | POR | |
| | | U/N | SEC | DEG LAT MIN | DEG. | LONG | MIN | |

WORK DONE Name Dates Remarks

DRILLING:

LOGGING:

ASSAYING:

LOGGED BY:

ADDITIONAL INFO.:

CLAIM/PERMIT NO.:

| | LATITUDE | DEPARTURE | ELEVATION (DATUM) | BEARING | INCLINATION | LENGTH |
|---|---|---|---|---|---|---|
| FIELD LOCATION | | | | | | |
| SURVEY GRID | N | E | | AZ. | | |

LANDMARKS:

OTHER FEATURES:

| FORM/ UNIT | DEPTH | LITHOLOGY, Texture, Structure, Mineralization (Litholog) | Structural Angle SYMBOL C.A./Dip @ |
|---|---|---|---|
| | 86.3- 128.0 | QUARTZ MONZONITE PORPHYRY<br>- as in previous holes<br>86.3 - 94.1 - light bleached qmp with disseminated $MoS_2$ within matrix<br>- $MoS_2$ also associated with fractures and with quartz veinlets as selvages<br>124.7 - intense sericitic alteration associated with a quartz-carbonate veinlet<br>80.8 - 86.3 - broken core - may represent washed fault gouge | |
| | 128.0 | END OF HOLE | |

| SAMPLE No. | FROM ..... TO ..... | INT. IN FT. | REC-OVERY | ASSAY RESULTS $MoS_2$(1) | $MoS_2$(2) |
|---|---|---|---|---|---|
| 81-9-442 | 78.0-79.0 | 1 | 100% | 0.475 | 0.747 |
| 9-443 | 79.0-80.0 | 1 | 100% | 0.417 | 0.484 |
| 9-444 | 80.0-81.0 | 1 | 100% | 0.459 | 0.259 |
| 9-445 | 81.0-82.0 | 1 | 100% | 0.475 | 0.128 |
| 9-446 | 82.0-83.0 | 1 | 100% | 0.684 | 0.158 |
| 9-447 | 83.0-84.0 | 1 | 100% | 0.075 | 0.023 |
| 9-448 | 84.0-85.0 | 1 | 100% | 0.392 | 0.018 |
| 9-449 | 85.0-86.0 | 1 | 100% | 1.626 | 0.113 |
| 9-450 | 86.0-87.0 | 1 | 100% | 1.093 | 0.195 |
| 9-451 | 87.0-88.0 | 1 | 100% | 0.926 | 0.158 |
| 9-452 | 88.0-89.0 | 1 | 100% | 1.251 | 0.047 |
| 9-453 | 89.0-90.0 | 1 | 100% | 0.359 | 0.178 |
| 9-454 | 99.0-91.0 | 1 | 100% | 0.926 | |
| 9 455 | 91.0-92.0 | 1 | 100% | 0.817 | |
| 9-456 | 92.0-95.0 | 3 | 100% | 0.292 | |
| 9-457 | 95.0-98.0 | 3 | 100% | 0.267 | |
| 9-458 | 98.0-101.0 | 3 | 100% | 0.367 | |
| 9-459 | 101.0-104.0 | 3 | 100% | 0.342 | |
| 9-460 | 104.0-107.0 | 3 | 100% | 0.125 | |
| 9-461 | 107.0-110.0 | 3 | 100% | 0.133 | |
| 9-462 | 110.0-113.0 | 3 | 100% | 0.001 | |
| 9-463 | 113.0-116.0 | 3 | 100% | 0.542 | |
| 9-464 | 116.0-119.0 | 3 | 100% | 0.267 | |
| 9-465 | 119.0-122.0 | 3 | 100% | 0.167 | |
| 9-466 | 122.0-125.0 | 3 | 100% | 0.167 | |
| 9-467 | 125.0-128.0 | 3 | 100% | 1.710 | |

SYMBOLS AND ABBREVIATIONS

SHEET INTERVAL: from ..... to .....

# SHELL CANADA LIMITED – MINERALS DEPARTMENT
## DRILL HOLE OR SECTION DATA RECORD



PROJECT NAME: Ymir
PROJECT NO.: 3191K
HOLE/SEC. NO.: 81-10

POLITICAL UNIT:

| SURVEY SYSTEM | LOC. EXCEPTION | LATITUDE | | | LONGITUDE | | | |
|---|---|---|---|---|---|---|---|---|
| | | LSD | SEC | TWP | RGE | E/W | M | |
| | | 1/4 | UNIT | B | No. | L | POR | |
| | | U/S | SEC | DEG LAT | MIN | DEG.LONG | MIN | |

ADDITIONAL INFO.:

CLAIM/PERMIT NO.:

WORK DONE Name Dates Remarks

DRILLING: D. W. Coates

LOGGING: Shell Canada Resources Ltd.

ASSAYING: Geo Analytical Services Ltd.

LOGGED BY: G. W. Turner

| | LATITUDE | DEPARTURE | ELEVATION (DATUM) | BEARING | INCLINATION | LENGTH |
|---|---|---|---|---|---|---|
| FIELD LOCATION | 117°15' | 49°15' | 1606.1 | 157° | -45 | 121.5 |
| SURVEY GRID | 0+62 N | 0+37 E | | AZ. 0 | | |

LANDMARKS:

OTHER FEATURES:

| FORM/ UNIT | DEPTH | LITHOLOGY, Texture, Structure, Mineralization (Litholog) | Structural Angle SYMBOL C.A./Dip ● |
|---|---|---|---|
| | 0.0-1.3 | OVERBURDEN | |
| | 1.3- 24.5 | QUARTZ MONZONITE PORPHYRY<br>- as in previous holes<br>- alteration highly variable from fresh to intense<br>- weakly stockworked | |
| | 24.5- 24.8 | LAMPROPHYRE DYKE<br>- as in DDH 80-3<br>- fine grained<br>- biotite dominant mafic component<br>- porphyritic<br>- original phenocrysts replaced by calcite and rarely epidote<br>- pervasive sericitization<br>- contains some disseminated magnetite | |
| | 55.5- 56.7 | QUARTZ MONZONITE PORPHYRY<br>- as from 1.3 to 24.5 | |
| | 56.7- 78.6 | LAMPROPHYRE DYKE<br>- as from 24.5 to 24.8 | |
| | 78.6- 79.1 | QUARTZ MONZONITE PORPHYRY<br>- as from 1.3 to 24.5 | |
| | 79.1- 84.2 | LAMPROPHYRE DYKE<br>- as from 24.5 to 24.8 | |
| | 84.2- 34.6 | QUARTZ MONZONITE PORPHYRY<br>- as from 1.3 to 24.5 | |
| | 84.6- 87.0 | LAMPROPHYRE DYKE<br>- as from 24.5 to 24.8 | |
| | 87.0- 88.2 | QUARTZ MONZONITE PORPHYRY<br>- as from 1.3 to 24.5 | |
| | 88.2- 92.3 | LAMPROPHYRE DYKE<br>- as from 24.5 to 24.8 | |
| | 92.3- 111.4 | QUARTZ MONZONITE PORPHYRY<br>- as from 1.3 to 24.5 | |
| | 111.4 121.5 | LAMPROPHYRE DYKE<br>- as from 24.5 to 24.8 | |
| | 121.5 | END OF HOLE | |

| SAMPLE No. | FROM ..... TO ..... | INT. IN FT. | REC. OVERY | ASSAY RESULTS $MoS_2$ |
|---|---|---|---|---|
| 81-10-468 | 1.2- 4.0 | 3 | 100% | 0.07 |
| 10-469 | 4.0- 7.0 | 3 | 100% | 0.04 |
| 10-470 | 7.0-10.0 | 3 | 100% | 0.09 |
| 10-471 | 10.0-13.0 | 3 | 100% | 0.02 |
| 10-472 | 13.0-16.0 | 3 | 100% | 0.02 |
| 10-473 | 16.0-19.0 | 3 | 100% | 0.04 |
| 10-474 | 19.0-22.0 | 3 | 100% | 0.05 |
| 10-475 | 22.0-25.0 | 3 | 100% | <0.01 |
| 10-476 | 25.0-28.0 | 3 | 100% | 0.01 |
| 10-477 | 28.0-31.0 | 3 | 100% | 0.01 |
| 10-478 | 31.0-34.0 | 3 | 100% | 0.01 |
| 10-479 | 34.0-37.0 | 3 | 100% | <0.01 |
| 10-480 | 37.0-40.0 | 3 | 100% | <0.01 |
| 10-481 | 40.0-43.0 | 3 | 100% | <0.01 |
| 10-482 | 43.0-46.0 | 3 | 100% | 0.05 |
| 10-483 | 93.0-96.0 | 3 | 100% | 0.08 |
| 10-484 | 96.0-99.0 | 3 | 100% | 0.07 |
| 10-485 | 99.0-102.0 | 3 | 100% | 0.08 |
| 10-486 | 102.0-105.0 | 3 | 100% | <0.01 |
| 10-487 | 105.0-108.0 | 3 | 100% | 0.06 |
| 10-488 | 108.0-112.5 | 4.5 | 100% | 0.05 |

SYMBOLS AND ABBREVIATIONS:

SHEET INTERVAL: from..... to.....

**SHELL CANADA LIMITED – MINERALS DEPARTMENT**
**DRILL HOLE OR SECTION DATA RECORD**



PROJECT NAME: Ymir
PROJECT NO.: 3191K
HOLE/SEC. NO.: DDH 81-11

POLITICAL UNIT:

| SUR. SYSTEM | LOC. EXCEPTION | LATITUDE | | | LONGITUDE | | | |
|---|---|---|---|---|---|---|---|---|
| | | LSD | SEC | TWP | RGE | E/W | M | |
| | | 1/4 | UNIT | B | No. | L | POR | |
| | | U/N | SEC | DEG LAT | MIN | DEG.LONG | MIN | |

WORK DONE Name Dates Remarks

DRILLING: D. W. Coates

LOGGING: Shell Canada Resources Ltd.

ASSAYING: Geo Analytical Services
Chemex Labs (Alberta) Ltd.

LOGGED BY: G. W. Turner

ADDITIONAL INFO.:

CLAIM/PERMIT NO.:

| | LATITUDE | DEPARTURE | ELEVATION (DATUM) | BEARING | INCLINATION | LENGTH |
|---|---|---|---|---|---|---|
| FIELD LOCATION | 117°15' | 49°15' | 1603.0 | 157° | -60° | 115.2 |
| SURVEY GRID | 0+57 N | -0+05 E | | AZ. 0 | | |

LANDMARKS:

OTHER FEATURES:

| FORM/ UNIT | DEPTH | LITHOLOGY, Texture, Structure, Mineralization (Lithology) | Structural Angle SYMBOL C.A./Dip @ |
|---|---|---|---|
| | 0.0-1.8 | OVERBURDEN | |
| | 1.8- | QUARTZ MONZONITE PORPHYRY<br>- as in previous holes<br>- alteration varies from absent to intense<br>- spessartine garnets throughout associated with quartz veins, fractures and as an integral part of the groundmass<br>- k-feldspar alteration manifests as 'veins' up to three cm in thickness<br>94.0 - several quartz (mo) veinlets @ 38° to C.A.<br>- some coarse sericite in groundmass<br>- approximately 80% of all quartz veins contain some $MoS_2$<br>45.0 - 48.0 - random $MoS_2$ bearing quartz stockwork<br>51.7 - 52.3 - aplite<br>- up to 2% disseminated pyrite in groundmass<br>55.0 - 56.0 - fine grained silicified zone transected by numerous quartz veinlets and fractures<br>66.1 - disseminated $MoS_2$<br>71.2 - brecciated core healed by quartz plus $MoS_2$<br>71.0 - 74.0 - severe sericite alteration | |
| | 74.0-113.0 | PHASE II BRECCIA<br>- equivalent of Phase II Breccia intersected in DDH 81-9<br>74.0 - 81.7 - $MoS_2$ along fractures @ 48° to C.A. and as disseminations within the matrix. Contains pegmatitic segregations of quartz, and inclusions (fragments) of sedimentary material<br>81.7 - 113.0 - inclusions (fragments) of sedimentary material. $MoS_2$ occurs within the fragments and | |

| SAMPLE No. | FROM ... TO ... | INT. IN FT. | REC-OVERY | ASSAY RESULTS $MoS_2$(1) | $MoS_2$(2) |
|---|---|---|---|---|---|
| 81-11-489 | 1.8- 5.0 | | | 0.01 | |
| 11-490 | 5.0- 8.0 | | | 0.03 | |
| 11-491 | 8.0-11.0 | | | 0.03 | |
| 11-492 | 11.0-14.0 | | | 0.01 | |
| 11-493 | 14.0-17.0 | | | 0.01 | |
| 11-494 | 17.0-20.0 | | | <0.01 | |
| 11-495 | 20.0-23.0 | | | 0.01 | |
| 11-496 | 23.0-26.0 | | | <0.01 | |
| 11-497 | 26.0-29.0 | | | <0.01 | |
| 11-498 | 29.0-32.0 | | | 0.02 | |
| 11-499 | 32.0-35.0 | | | <0.01 | |
| 11-500 | 35.0-38.0 | | | <0.01 | |
| 11-501 | 38.0-41.0 | | | 0.02 | |
| 11-502 | 41.0-44.0 | | | <0.01 | |
| 11-503 | 44.0-47.0 | | | <0.01 | |
| 11-504 | 47.0-50.0 | | | 0.02 | |
| 11-505 | 50.0-53.0 | | | <0.01 | |
| 11-506 | 53.0-56.0 | | | 0.07 | |
| 11-507 | 56.0-59.0 | | | 0.03 | |
| 11-508 | 59.0-62.0 | | | 0.01 | |
| 11-509 | 62.0-65.0 | | | 0.03 | |
| 11-510 | 65.0-68.0 | | | 0.02 | |
| 11-511 | 68.0-71.0 | | | 0.01 | |
| 11-512 | 71.0-74.0 | | | 0.02 | |
| | | | | 0.11 | 0.037 |
| | | | | 0.22 | 0.070 |
| | | | | 0.27 | 0.387 |
| 11-513 | 74.0-77.0 | | | | |
| 11-514 | 77.0-80.0 | | | 0.14 | 0.052 |
| 11-515 | 80.0-83.0 | | | 0.33 | 0.220 |
| 11-516 | 83.0-86.0 | | | 0.32 | 0.260 |
| 11-517 | 86.0-89.0 | | | 0.19 | 0.073 |
| 11-518 | 89.0-92.0 | | | 0.09 | 0.023 |
| 11-519 | 92.0-95.0 | | | 0.04 | 0.017 |
| 11-520 | 95.0-98.0 | | | 0.13 | 0.043 |
| 11-521 | 98.0-101.0 | | | 0.07 | |
| 11-522 | 101.0-104.0 | | | 0.06 | |
| 11-523 | 104.0-107.0 | | | 0.09 | |
| 11-524 | 107.0-110.0 | | | 0.07 | |

SYMBOLS AND ABBREVIATIONS: (1) Geo Analytical Services; (2) Chemex Labs (Alberta) Ltd.

SHEET INTERVAL: from ... to ...

MVN062V

# SHELL CANADA LIMITED – MINERALS DEPARTMENT
## DRILL HOLE OR SECTION DATA RECORD

PROJECT NAME: Ymir
PROJECT NO.: 3191K
HOLE/SEC. NO.: DDH 81-11

POLITICAL UNIT:

| SUR. SYSTEM | LOC. EXCEPTION | LATITUDE | | | LONGITUDE | | | |
|---|---|---|---|---|---|---|---|---|
| | | LSD | SEC | | TWP | RGE | E W | M |
| | | 1/4 | UNIT | B | No. | | L | POR |
| | | U N | SEC | DEG LAT | MIN | DEG.LONG | | MIN |

WORK DONE Name Dates Remarks

DRILLING:

LOGGING:

ASSAYING:

LOGGED BY:

| | LATITUDE | DEPARTURE | ELEVATION (DATUM) | BEARING | INCLINATION | LENGTH |
|---|---|---|---|---|---|---|
| FIELD LOCATION | | | | | | |
| SURVEY GRID | N | E | | AZ. | | |

ADDITIONAL INFO.:

CLAIM/PERMIT NO.:

LANDMARKS:

OTHER FEATURES:

| FORM/ UNIT | DEPTH | LITHOLOGY, Texture, Structure, Mineralization (Litholog) | Structural Angle SYMBOL C.A./Dip @ |
|---|---|---|---|
| | | as selvages associated with the pegmatic quartz segregations. The alteration intensity varies from moderate to intense. | |
| | | Overall: appears to represent lowest equivalent of the Phase II Breccia as fragments are slightly rotated and healed by pure $MoS_2$. $MoS_2$ mineralization decreases after 113.0 m but remains continuous to the bottom of the hole. | |
| | 113.0-115.2 | QUARTZ MONZONITE PORPHYRY<br>- as in previous holes | |
| | 115.2 | END OF HOLE | |

| SAMPLE No. | FROM ..... TO..... | INT. IN FT. | REC-OVERY | ASSAY RESULTS $MoS_2$(1) | $MoS_2$(2) |
|---|---|---|---|---|---|
| 81-11-525 | 110.0-113.0 | | | 0.04 | |
| 11-526 | 113.0-115.2 | | | 0.06 | |
| | | | | 0.06 | |

SYMBOLS AND ABBREVIATIONS:

SHEET INTERVAL: from.....to.....

MVN062V

# SHELL CANADA LIMITED – MINERALS DEPARTMENT
## DRILL HOLE OR SECTION DATA RECORD



PROJECT NAME: Ymir
PROJECT NO.: 3191K
HOLE/SEC. NO.: DDH 81-12

POLITICAL UNIT:

| SUR. SYSTEM | LOC. EXCEPTION | LATITUDE | | | LONGITUDE | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | LSD | SEC | | TWP | RGE | E/W | M | |
| | | 1/4 | UNIT | B | No. | | L | POR | |
| | | N/S | SEC | DEG LAT | MIN | DEG.LONG | | MIN | |

ADDITIONAL INFO.:

CLAIM/PERMIT NO.:

WORK DONE Name Dates Remarks

DRILLING: D. W. Coates

LOGGING: Shell Canada Resources Ltd.

ASSAYING: Geo Analytical Services Ltd.

LOGGED BY: G. W. Turner

| | LATITUDE | DEPARTURE | ELEVATION (DATUM) | BEARING | INCLINATION | LENGTH |
|---|---|---|---|---|---|---|
| FIELD LOCATION | 117°15' | 49°15' | 1602.4 | 157° | -45 | 67.0 |
| SURVEY GRID | 0+71 N | 0+55 E | | AZ. 0 | | |

LANDMARKS:

OTHER FEATURES:

| FORM/ UNIT | DEPTH | LITHOLOGY, Texture, Structure, Mineralization (Litholog) | Structural Angle SYMBOL C.A./Dip @ |
|---|---|---|---|
| | 0.0-5.5 | OVERBURDEN | |
| | 5.5-53.8 | QUARTZ MONZONITE PORPHYRY<br>- as in previous holes<br>- moderate sericitic alteration @ top of hole decreasing with depth<br>- transected by weak sporadic quartz (mo) stockwork<br>41.0 - 41.2 - small breccia zone healed by quartz<br>45.5 - 46.5 - spessartine along fracture and as integral part of matrix<br>50.5 - 53.8 - increase in alteration toward contact with lamprophyre dyke: some $MoS_2$ mineralization | |
| | 53.8-55.8 | LAMPROPHYRE DYKE<br>- as in DDH 81-10 | |
| | 55.8-67.0 | QUARTZ MONZONITE PORPHYRY<br>- as in previous holes<br>- unaltered | |
| | 67.0 | END OF HOLE | |

| SAMPLE No. | FROM ... TO ... | INT. IN FT. | REC. OVERY | ASSAY RESULTS $MoS_2$ |
|---|---|---|---|---|
| 81-12-527 | 5.5- 8.0 | | | <0.01 |
| 12-528 | 8.0-11.0 | | | 0.05 |
| 12-529 | 11.0-14.0 | | | 0.05 |
| 12-530 | 14.0-17.0 | | | 0.06 |
| 12-531 | 17.0-20.0 | | | 0.03 |
| 12-532 | 20.0-23.0 | | | 0.04 |
| 12-533 | 23.0-26.0 | | | 0.03 |
| 12-534 | 26.0-29.0 | | | 0.01 |
| 12-535 | 29.0-32.0 | | | 0.03 |
| 12-536 | 32.0-35.0 | | | 0.02 |
| 12-537 | 35.0-38.0 | | | 0.01 |
| 12-538 | 38.0-41.0 | | | 0.01 |
| 12-539 | 41.0-44.0 | | | 0.05 |
| 12-540 | 44.0-47.0 | | | 0.05 |
| 12-541 | 47.0-50.0 | | | 0.02 |
| 12-542 | 50.0-53.0 | | | 0.05 |
| 12-543 | 53.0-56.0 | | | 0.07 |
| 12-544 | 56.0-59.0 | | | 0.08 |
| 12-545 | 59.0-62.0 | | | 0.02 |
| 15-546 | 65.0-67.0 | | | 0.01 |

SYMBOLS AND ABBREVIATIONS:

SHEET INTERVAL: from ... to ...

# SHELL CANADA LIMITED – MINERALS DEPARTMENT
## DRILL HOLE OR SECTION DATA RECORD



PROJECT NAME: Ymir
PROJECT NO.: 3191K
HOLE/SEC. NO.: DDH 81-13

POLITICAL UNIT:

| SUB SYSTEM | LOC. EXCEPTION | LATITUDE | | | LONGITUDE | | | |
|---|---|---|---|---|---|---|---|---|
| | | LSD | SEC | | TWP | RGE | E W | M |
| | | 1/4 | UNIT | B | No. | L | POR | |
| | | N | SEC | DEG LAT | MIN | DEG. LONG | | MIN |

WORK DONE Name Dates Remarks

DRILLING: D. W. Coates

LOGGING: Shell Canada Resources Ltd.

ASSAYING: Geo Analytical Services

LOGGED BY: G. W. Turner

ADDITIONAL INFO.:

CLAIM/PERMIT NO.:

| | LATITUDE | DEPARTURE | ELEVATION (DATUM) | BEARING | INCLINATION | LENGTH |
|---|---|---|---|---|---|---|
| FIELD LOCATION | 117°15' | 49°15' | 1537.0 | 0 | -60° | 93.0 |
| SURVEY GRID | -3+40 N | 3+00 E | | AZ. 0 | | |

LANDMARKS:

OTHER FEATURES:

| FORM/ UNIT | DEPTH | LITHOLOGY, Texture, Structure, Mineralization (Litholog) | Structural Angle SYMBOL C.A./Dip @ |
|---|---|---|---|
| | 0.0-1.8 | OVERBURDEN | |
| | 1.8-93.0 | QUARTZ MONZONITE PORPHYRY<br>- as in previous holes<br>- weakly developed quartz stockwork zone with trace $MoS_2$ association<br>- disseminated pyrite throughout<br>12.3 - 13.8 - aplitic section of qmp intensely stockworked with $MoS_2$ as rosettes disseminated through the qmp<br>- some $MoS_2$ paint along dry fractures<br>- chlorite along some fractures, display slickensides (shearing)<br>41.0 - 41.5 - intense enveloping of k-feldspar about quartz veins<br>83.8 - hornfelsic inclusion<br>89.0 - 89.9 - pegmatitic, transected by $MoS_2$ bearing fractures and quartz veinlets | |
| | 93.0 | END OF HOLE | |

| SAMPLE No. | FROM ..... TO ..... | INT. IN FT. | REC. OVERY | ASSAY RESULTS $MoS_2$ |
|---|---|---|---|---|
| 81-13-547 | 1.8- 5.0 | 3.2 | 100% | 0.06 |
| 13-548 | 5.0- 8.0 | 3 | 100% | 0.11 |
| 13-549 | 8.0-11.0 | 3 | 100% | 0.02 |
| 13-550 | 11.0-14.0 | 3 | 100% | 0.07 |
| 13-551 | 14.0-17.0 | 3 | 100% | 0.03 |
| 13-552 | 17.0-20.0 | 3 | 100% | 0.04 |
| 13-553 | 20.0-23.0 | 3 | 100% | 0.06 |
| 13-554 | 23.0-26.0 | 3 | 100% | 0.06 |
| 13-555 | 26.0-29.0 | 3 | 100% | 0.06 |
| 13-556 | 29.0-32.0 | 3 | 100% | 0.06 |
| 13-557 | 32.0-35.0 | 3 | 100% | 0.07 |
| 13-558 | 35.0-38.0 | 3 | 100% | 0.05 |
| 13-559 | 38.0-41.0 | 3 | 100% | 0.02 |
| 13-560 | 41.0-44.0 | 3 | 100% | 0.05 |
| 13-561 | 44.0-47.0 | 3 | 100% | 0.07 |
| 13-562 | 47.0-50.0 | 3 | 100% | 0.08 |
| 13-563 | 50.0-53.0 | 3 | 100% | 0.02 |
| 13-564 | 53.0-56.0 | 3 | 100% | 0.01 |
| 13-565 | 56.0-59.0 | 3 | 100% | 0.06 |
| 13-566 | 59.0-62.0 | 3 | 100% | 0.11 |
| 13-567 | 62.0-65.0 | 3 | 100% | 0.02 |
| 13-568 | 65.0-68.0 | 3 | 100% | 0.07 |
| 13-569 | 68.0-71.0 | 3 | 100% | 0.03 |
| 13-570 | 71.0-74.0 | 3 | 100% | 0.04 |
| 13-571 | 74.0-77.0 | 3 | 100% | 0.06 |
| 13-572 | 77.0-80.0 | 3 | 100% | 0.06 |
| 13-573 | 80.0-83.0 | 3 | 100% | 0.06 |
| 13-574 | 83.0-86.0 | 3 | 100% | 0.06 |
| 13-575 | 86.0-89.0 | 3 | 100% | 0.07 |
| 13-576 | 89.0-93.0 | 3 | 100% | 0.03 |

SYMBOLS AND ABBREVIATIONS:

SHEET INTERVAL: from ..... to .....

# SHELL CANADA LIMITED – MINERALS DEPARTMENT
## DRILL HOLE OR SECTION DATA RECORD



PROJECT NAME: Ymir
PROJECT NO.: 3191K
HOLE/SEC. NO.: DDH 81-14

POLITICAL UNIT:

| SUR SYSTEM | LOC. EXCEPTION | LATITUDE | | | LONGITUDE | | | |
|---|---|---|---|---|---|---|---|---|
| | | LSD | SEC | | TWP | RGE | E/W | M |
| | | 1/4 | UNIT | B | No. | L | POR | |
| | | U/N | SEC | DEG LAT | MIN | DEG.LONG | MIN | |

WORK DONE Name Dates Remarks

DRILLING: D. W. Coates

LOGGING: Shell Canada Resources Ltd.

ASSAYING: Geo Analytical Services

LOGGED BY: G. W. Turner

ADDITIONAL INFO.:

CLAIM/PERMIT NO.:

| | LATITUDE | DEPARTURE | ELEVATION (DATUM) | BEARING | INCLINATION | LENGTH |
|---|---|---|---|---|---|---|
| FIELD LOCATION | 117°15' | 49°15' | 1687.0 | 0 | -90 | 81.3 |
| SURVEY GRID | -9+00 N | -4+25E | | AZ. 0 | | |

LANDMARKS:

OTHER FEATURES:

| FORM/ UNIT | DEPTH | LITHOLOGY, Texture, Structure, Mineralization (Litholog) | Structural Angle SYMBOL C.A./Dip @ |
|---|---|---|---|
| | 0.0-43.0 | PHASE I BRECCIA/HORNFELS<br>- fragments angular, polymiel, dominantly skarn, hornfels with qmp<br>- matrix fine grained, siliceous, pyritic (py @ approx. 1%)<br>- intense saussuritization<br>- trace amounts of $MoS_2$ as:<br>- selvages on terminated quartz veins within fragments<br>- disseminations within the matrix<br>- as quartz vein selvages which transect both fragments and matrix<br>- unit transected by late carbonate bearing fractures<br>- unit completely recrystallized<br>23.4 - 23.6 - broken core<br>25.1 - 35.3 - broken core<br>- large sedimentary (argillaceous) bands (clasts?) | |
| | 43.0-43.9 | FELDSPAR PORPHYRY<br>- may be clast or dyke<br>- feldspars altered to green sericite assemblage<br>- same fresh feldspar phenocrysts<br>42.1 - 42.7 - broken core | |
| | 43.9-48.3 | PHASE I BRECCIA/HORNFELS<br>- as from 3.7 to 43.0 | |
| | 48.3-68.1 | SKARNIFIED HORNFELS<br>- pyritic<br>- transected by bleached bands @ 1.0 mm thickness<br>50.5 - 55.7 - broken core<br>60.6 - $MoS_2$ bearing quartz vein | |
| | Note: | Entire hole appears to represent gradational contact between hornfels & breccia.<br>- epidote occurs as veinlets along fractures & as irregular segregations<br>64.9 - $MoS_2$ bearing quartz veins | |

| SAMPLE No. | FROM ... TO ... | INT. IN FT. | REC. OVERY | ASSAY RESULTS $MoS_2$ |
|---|---|---|---|---|
| 81-14-577 | 0.0- 3.0 | | | |
| 14-578 | 3.0- 6.0 | | | |
| 14-579 | 6.0- 9.0 | | | |
| 14-580 | 9.0-12.0 | | | <0.001 |
| 14-581 | 12.0-15.0 | | | |
| 14-582 | 15.0-18.0 | | | |
| 14-583 | 18.0-21.0 | | | <0.001 |
| 14-584 | 21.0-24.0 | | | |
| 14-585 | 24.0-27.0 | | | |
| 14-586 | 27.0-30.0 | | | <0.001 |
| 14-587 | 30.0-33.0 | | | |
| 14-588 | 33.0-36.0 | | | |
| 14-589 | 36.0-39.0 | | | <0.001 |
| 14-590 | 39.0-42.0 | | | |
| 14-591 | 42.0-45.0 | | | |
| 14-592 | 45.0-48.0 | | | <0.001 |
| 14-593 | 48.0-51.0 | | | |
| 14-594 | 51.0-54.0 | | | |
| 14-595 | 54.0-57.0 | | | 0.042 |
| 14-596 | 57.0-60.0 | | | |
| 14-597 | 60.0-63.0 | | | |
| 14-598 | 63.0-66.0 | | | <0.001 |
| 14-599 | 66.0-69.0 | | | |
| 14-600 | 69.0-72.0 | | | |
| 14-601 | 72.0-75.0 | | | <0.001 |
| 14-602 | 75.0-78.0 | | | |
| 14-603 | 78.0-81.3 | | | <0.001 |

SYMBOLS AND ABBREVIATIONS:

SHEET INTERVAL: from ... to ...

# SHELL CANADA LIMITED – MINERALS DEPARTMENT
## DRILL HOLE OR SECTION DATA RECORD



PROJECT NAME: Ymir
PROJECT NO.: 3191K
HOLE/SEC. NO.: DDH 81-14

POLITICAL UNIT:

| SUR. SYSTEM | LOC. EXCEPTION | LATITUDE | | | LONGITUDE | | | |
|---|---|---|---|---|---|---|---|---|
| | | LSD | SEC | TWP | RGE | E/W | M | |
| | | 1/4 | UNIT | B | No. | L | POR | |
| | | N/S | SEC | DEG LAT | MIN | DEG.LONG | MIN | |

WORK DONE Name Dates Remarks

DRILLING:

LOGGING:

ASSAYING:

LOGGED BY:

ADDITIONAL INFO.:

CLAIM/PERMIT NO.:

| | LATITUDE | DEPARTURE | ELEVATION (DATUM) | BEARING | INCLINATION | LENGTH |
|---|---|---|---|---|---|---|
| FIELD LOCATION | | | | | | |
| SURVEY GRID | N | E | | AZ. | | |

LANDMARKS:

OTHER FEATURES:

| FORM/ UNIT | DEPTH | LITHOLOGY, Texture, Structure, Mineralization (Litholog) | Structural Angle SYMBOL C.A./Dip @ |
|---|---|---|---|
| | 68.1-<br>75.1 | PHASE I BRECCIA/HORNFELS<br>- as from 3.7 to 43.0 | |
| | 75.1-<br>75.3 | FELDSPAR PORPHYRY<br>- as from 43.0 - 43.9<br>- subhedral feldspar phenocrysts in a fine grained siliceous matrix | |
| | 75.1-<br>81.3 | PHASE I BRECCIA/HORNFELS<br>- as from 68.1 - 75.1 | |
| | 81.3 | END OF HOLE | |

| SAMPLE No. | FROM<br>TO | INT. IN FT. | REC-OVERY | ASSAY RESULTS | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |

SYMBOLS AND ABBREVIATIONS

SHEET INTERVAL: from to

MV/N062V

# SHELL CANADA LIMITED – MINERALS DEPARTMENT
## DRILL HOLE OR SECTION DATA RECORD



PROJECT NAME: Ymir
PROJECT NO.: 3191K
HOLE/SEC. NO.: DDH 81-15 =

POLITICAL UNIT:

| SUB SYSTEM | LOC. EXCEPTION | LATITUDE | | LONGITUDE | | |
|---|---|---|---|---|---|---|
| | | LSD | SEC | TWP | RGE | E/W M |
| | | 1/4 UNIT | B | No. | L | POR |
| | | N/S SEC | DEG LAT | MIN | DEG.LONG | MIN |

WORK DONE Name Dates Remarks

DRILLING: D. W. Coates

LOGGING: Shell Canada Resources Ltd.

ASSAYING: Geo Analytical Services Ltd.
Chemex Labs (Alberta) Ltd.

LOGGED BY: G. W. Turner

ADDITIONAL INFO.:

CLAIM/PERMIT NO.:

| | LATITUDE | DEPARTURE | ELEVATION (DATUM) | BEARING | INCLINATION | LENGTH |
|---|---|---|---|---|---|---|
| FIELD LOCATION | 117°15' | 49°15' | 1613.3 | 0 | -90° | 129.4 |
| SURVEY GRID | 0+00 N | 0+27 E | | AZ. 0 | | |

LANDMARKS:

OTHER FEATURES:

| FORM/ UNIT | DEPTH | LITHOLOGY, Texture, Structure, Mineralization (Litholog) | Structural Angle SYMBOL C.A./Dip ⊕ |
|---|---|---|---|
| | 0.0-1.8 | OVERBURDEN | |
| | 1.8- | PHASE II BRECCIA | |
| | 123.7 | - as in previous holes | |
| | | - dominantly qmp/hornfelsic fragments, angular | |
| | | - alteration intensity highly variable | |
| | | 1.8 - 8.7 - broken core, 40% recovery | |
| | | 6.8 - transected by pegmatitic quartz feldspar vein | |
| | | 11.8 - open spaces containing limonite-sericite-quartz | |
| | | - to 18.5 approximately 0.25% $MoS_2$ in matrix | |
| | | - frequency of pegmatitic segregations increasing downhole | |
| | | - pyrite and pyrrhotite occur as disseminations throughout matrix | |
| | | 26.6 - 31.1 - broken core | |
| | | 30.4 - large (3 cm) segregation of anhedral pyrite/pyrrhotite | |
| | | 31.3 - 31.4 - euhedral pyrite crystals within pegmatitic quartz/feldspar segregation | |
| | | - frequency of hornfelsic fragments increasing downhole | |
| | | 42.2 - 42.4 - fault breccia healed by quartz | |
| | | - $MoS_2$ occurs as preferential rimming of hornfelsic fragments | |
| | | - $MoS_2$ as paint along dry fractures | |
| | | - fragments appear to be becoming larger with a lesser degree of rotation downhole (similar to DDH 81-11) | |
| | | - alteration intensity increasing slightly with depth | |
| | | 112.1 - spessartine occurs with pegmatitic quartz | |
| | | 123.6 - 123.7 - spessartine associated with quartz veinlet | |
| | 123.7 | QUARTZ MONZONITE PORPHYRY | |
| | 129.4 | - as in previous holes | |

| SAMPLE No. | FROM ... TO ... | INT. IN FT. | REC. OVERY | ASSAY RESULTS $MoS_2$(1) | $MoS_2$(2) |
|---|---|---|---|---|---|
| 81-15-604 | 1.8- 5.0 | | | 0.175 | 0.057 |
| 15-605 | 5.0- 8.0 | | | | 0.028 |
| 15-606 | 8.0-11.0 | | | | 0.055 |
| 15-607 | 11.0-14.0 | | | <0.001 | 0.037 |
| 15-608 | 14.0-17.0 | | | | 0.040 |
| 15-609 | 17.0-20.0 | | | | 0.027 |
| 15-610 | 20.0-23.0 | | | <0.001 | 0.037 |
| 15-611 | 23.0-26.0 | | | | 0.038 |
| 15-612 | 26.0-29.0 | | | | 0.027 |
| 15-613 | 29.0-32.0 | | | <0.001 | 0.022 |
| 15-614 | 32.0-35.0 | | | | 0.020 |
| 15-615 | 35.0-38.0 | | | | 0.028 |
| 15-616 | 38.0-41.0 | | | <0.001 | 0.020 |
| 15-617 | 41.0-44.0 | | | | 0.040 |
| 15-618 | 44.0-47.0 | | | | 0.057 |
| 15-619 | 47.0-50.0 | | | 0.209 | 0.067 |
| 15-620 | 50.0-53.0 | | | | 0.055 |
| 15-621 | 53.0-56.0 | | | | 0.017 |
| 15-622 | 56.0-59.0 | | | 0.042 | |
| 15-623 | 59.0-62.0 | | | | |
| 15-624 | 62.0-65.0 | | | | |
| 15-625 | 65.0-68.0 | | | <0.001 | |
| 15-626 | 68.0-71.0 | | | | |
| 15-627 | 71.0-74.0 | | | | |
| 15-628 | 74.0-77.0 | | | 0.042 | |
| 15-629 | 77.0-80.0 | | | | |
| 15-630 | 80.0-83.0 | | | | |
| 15-631 | 83.0-86.0 | | | 0.083 | |
| 15-632 | 86.0-89.0 | | | | |
| 15-633 | 89.0-92.0 | | | | |
| 15-634 | 92.0-95.0 | | | 0.042 | |
| 15-635 | 95.0-98.0 | | | | |
| 15-636 | 98.0-101.0 | | | | |
| 15-637 | 101.0-104.0 | | | <0.001 | |
| 15-638 | 104.0-107.0 | | | | |
| 15-639 | 107.0-110.0 | | | | |
| 15-640 | 110.0-113.0 | | | <0.001 | |
| 15-641 | 113.0-116.0 | | | | |
| 15-642 | 116.0-119.0 | | | | |

SYMBOLS AND ABBREVIATIONS: (1) Geo Analytical Services; (2) Chemex Labs (Alberta) Ltd.

SHEET INTERVAL: from ... to ...

# SHELL CANADA LIMITED – MINERALS DEPARTMENT
## DRILL HOLE OR SECTION DATA RECORD



PROJECT NAME: Ymir
PROJECT NO.: 3191K
HOLE/SEC. NO.: DDH 81-15

POLITICAL UNIT:

| SUB SYSTEM | LOC. EXCEPTION | LATITUDE | | | LONGITUDE | | | |
|---|---|---|---|---|---|---|---|---|
| | | LSD | SEC | TWP | RGE | E/W | M | |
| | | 1/4 | UNIT | B | No. | L | POR | |
| | | N | SEC | DEG LAT | MIN | DEG.LONG | MIN | |

WORK DONE Name Dates Remarks

DRILLING:

LOGGING:

ASSAYING:

LOGGED BY:

ADDITIONAL INFO.:

CLAIM/PERMIT NO.:

| | LATITUDE | DEPARTURE | ELEVATION (DATUM) | BEARING | INCLINATION | LENGTH |
|---|---|---|---|---|---|---|
| FIELD LOCATION | | | | | | |
| SURVEY GRID | N | E | | AZ. | | |

LANDMARKS:

OTHER FEATURES:

| FORM/ UNIT | DEPTH | LITHOLOGY, Texture, Structure, Mineralization (Litholog) | Structural Angle SYMBOL C.A./Dip ● |
|---|---|---|---|
| | | - brecciated quartz monzonite porphyry | |
| | 129.4 | END OF HOLE | |

| SAMPLE No. | FROM ..... TO..... | INT. IN FT. | REC-OVERY | ASSAY RESULTS | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 81-15-643 | 119.0-122.0 | | | <0.001 | | | | | |
| 15-644 | 122.0-125.0 | | | 0.042 | | | | | |
| 15-645 | 125.0-129.4 | | | 0.083 | | | | | |

SYMBOLS AND ABBREVIATIONS:

SHEET INTERVAL: from.....to.....

MVN062V

# SHELL CANADA LIMITED – MINERALS DEPARTMENT
## DRILL HOLE OR SECTION DATA RECORD



PROJECT NAME: Ymir
PROJECT NO.: 3191K
HOLE/SEC. NO.: DDH 81-16

POLITICAL UNIT:

| SUR SYSTEM | LOC EXCEPTION | LATITUDE | | | LONGITUDE | | | |
|---|---|---|---|---|---|---|---|---|
| | | LSD | SEC | TWP | RGE | E W | M | |
| | | 1/4 | UNIT | B | No. | L | POR | |
| | | U N | SEC | DEG LAT | MIN | DEG.LONG | MIN | |

ADDITIONAL INFO.:

CLAIM/PERMIT NO.:

WORK DONE Name Dates Remarks

DRILLING: D. W. Coates Ltd.

LOGGING: Shell Canada Resources Ltd.

ASSAYING: Geo Analytical Services Ltd.
Barringer Magenta

LOGGED BY:

| | LATITUDE | DEPARTURE | ELEVATION (DATUM) | BEARING | INCLINATION | LENGTH |
|---|---|---|---|---|---|---|
| FIELD LOCATION | 117°15' | 49°15' | 1685.0 | 0 | -90 | 95.4 |
| SURVEY GRID | -5+70 N | -1+90 E | | AZ. 0 | | |

LANDMARKS:

OTHER FEATURES:

| FORM/ UNIT | DEPTH | LITHOLOGY, Texture, Structure, Mineralization (Litholog) | Structural Angle SYMBOL C.A./Dip @ |
|---|---|---|---|
| | 0.0-1.5 | OVERBURDEN | |
| | 1.5- 95.4 | QUARTZ MONZONITE PORPHYRY<br>- as in previous holes<br>- coarsely quartz/feldspar porphyritic @ 0.5 and 2.0 cm in diameter respectively<br>- some feldspar phenocrysts completely replaced by silica<br>- matrix fine to medium grained (0.1 to 0.3 mm)<br>- moderate to intense alteration (sericitic, k-feldspar)<br>- mafic component partially to entirely altered to chlorite<br>- containes up to 0.5% pyrite as disseminations<br>- limited quartz stockwork ($MoS_2$-pyrite bearing)<br>- Mn stain along fractures<br>- entire hole contains scattered miriolitic cavities<br>- developed k-feldspar as envelopes about quartz veins<br>- vein density approximately 5/m<br>- intense sericitic alteration throughout following intervals<br>80.2 - 80.4<br>80.9 - 31.2<br>86.0 - 89.9<br>93.0 - 95.4<br>- stockwork intensity highly variable<br>- 95.0 - 95.4 - fault gouge<br>- $MoS_2$ content of quartz veins sporadic<br>84.5 - $MoS_2$ bearing quartz veinlet with potassic alteration envelopes @ 10 cm thickness | |
| | Note: | Alteration seems to occur as bands within unaltered qmp. | |
| | 95.4 | END OF HOLE | |

| SAMPLE No. | FROM ..... TO ..... | INT. IN FT. | REC. OVERY | ASSAY RESULTS $MoS_2$(1) | $MoS_2$(2) |
|---|---|---|---|---|---|
| 81-16-646 | 1.5- 5.0 | | | 0.042 | |
| 16-647 | 5.0- 8.0 | | | | |
| 16-648 | 8.0-11.0 | | | | |
| 16-649 | 11.0-14.0 | | | 0.083 | |
| 16-650 | 14.0-17.0 | | | | |
| 16-651 | 17.0-20.0 | | | | |
| 16-652 | 20.0-23.0 | | | 0.025 | |
| 16-653 | 23.0-26.0 | | | | |
| 16-654 | 26.0-29.0 | | | | |
| 16-655 | 29.0-32.0 | | | 0.042 | |
| 16-656 | 32.0-35.0 | | | | |
| 16-657 | 35.0-38.0 | | | | |
| 16-658 | 38.0-41.0 | | | 0.067 | |
| 16-659 | 41.0-44.0 | | | | |
| 16-660 | 44.0-47.0 | | | | |
| 16-661 | 47.0-50.0 | | | | 0.006 |
| 16-662 | 50.0-53.0 | | | | |
| 16-663 | 53.0-56.0 | | | | |
| 16-664 | 56.0-59.0 | | | | 0.006 |
| 16-665 | 59.0-62.0 | | | | |
| 16-666 | 62.0-65.0 | | | | |
| 16-667 | 65.0-68.0 | | | | 0.005 |
| 16-668 | 68.0-71.0 | | | | |
| 16-669 | 71.0-74.0 | | | | |
| 16-670 | 74.0-77.0 | | | | 0.004 |
| 16-671 | 77.0-80.0 | | | | |
| 16-672 | 80.0-83.0 | | | | |
| 16-673 | 83.0-86.0 | | | | 0.005 |
| 16-674 | 86.0-89.0 | | | | |
| 16-675 | 89.0-92.0 | | | | |
| 16-676 | 92.0-94.5 | | | | 0.004 |

SYMBOLS AND ABBREVIATIONS: (1) Geo Analytical Services; (2) Barringer Magenta

SHEET INTERVAL: from..... to.....