J.D. Lehr

# Regional Survey of Buried Glacial Drift Geochemistry over Archean Terrane in Northern Minnesota

Minnesota Department of Natural Resources
Division of Minerals
Hibbing, Minnesota

Report 252
Part II (of II)

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# Regional Survey of Buried Glacial Drift Geochemistry over Archean Terrane in Northern Minnesota

By

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A

Legislative Commission on Minnesota Resources Project

Minnesota Department of Natural Resources
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OVERBURDEN DRILLING MANAGEMENT LIMITED - LABORATORY SAMPLE LOG

ABBREVIATIONS

CLAST:

SIZE OF CLAST:
- G: GRANULES
- P: PEBBLES
- C: COBBLES
- BL: BOULDER CHIPS
- BK: BEDROCK CHIPS

% CLAST COMPOSITION
- V/S VOLCANICS AND SEDIMENTS
- GR GRANITICS
- LS LIMESTONE
- OT OTHER LITHOLOGIES (REFER TO FOOTNOTES BELOW)
- TR ONLY TRACE PRESENT
- NA NOT APPLICABLE

MATRIX:
- S/U SORTED OR UNSORTED
- SD SAND | Y YES FRACTION PRESENT | F: FINE
- ST SILT | N FRACTION NOT PRESENT | M: MEDIUM
- CY CLAY | C: COARSE

COLOR:
- B: BEIGE
- GY: GREY
- GB: GREY BEIGE
- GN: GREEN
- GG: GREY GREEN
- BN: BROWN
- BK: BLACK
- OC: OCHRE
- PK: PINK
- OE: ORANGE

DESCRIPTION:

- BLD: BOULDER CHIPS
- BDK: BEDROCK CHIPS

NUMBER OF GRAINS:

T: NUMBER FOUND ON SHAKING TABLE
P: NUMBER FOUND AFTER PANNING

THICKNESS:

C: CALCULATED THICKNESS OF GRAIN
M: ACTUAL MEASURED THICKNESS OF GRAIN

FOOTNOTES:

A GRITTY CLAY LUMPS PRESENT

B SMOOTH CLAY LUMPS PRESENT

C ORGANICS PRESENT

D SAMPLE HIGHLY OXIDIZED

Appendix 8-0B. Abbreviations used in graphic lithology logs.

| | |
|---|---|
| AMOUNT | AMT |
| ANGULAR | ANG |
| APPARENTLY | APAR |
| BLACK | BLK |
| CALCAREOUS | CALC |
| COARSE-GRAINED | CGR |
| COBBLES | COBS |
| CONTAMINATION | CONT |
| CRYSTALLINE | XYLINE |
| DESCRIPTION | DESC |
| FEET | FT |
| FINE-GRAINED | FGR |
| GRANULES | GNL |
| GRAVEL | GVL |
| GREEN | GRN |
| HEAVY MINERAL CONCENTRATE | HMC |
| HOMOGENEOUS | HOMOG |
| INCH | IN |
| INCLUDING | INCL |
| LAMINAE | LAM |
| LIMESTONE AND/OR DOLOMITE AND/OR WHITE CHERT | LS |
| LITHOLOGY | LITH |
| MEDIUM-GRAINED | MGR |
| METASEDIMENT | MS |
| METAVOLCANIC | MV |
| MINOR | MR |
| MODERATE(LY) | MOD |
| OCCASIONAL | OCC |
| OXIDIZED | OX |
| PEBBLES | PEBS |
| PROBABLE(LY) | PROB |
| REDUCED | REDU |
| ROCK | RX |
| ROUNDED | RND |
| SAMPLE NUMBER | SN |
| SECONDARY | SEC |
| SEDIMENT | SED |
| SEVERAL | SEV |
| SHALE | SH |
| SILT CLAY FRACTION SAMPLE INTERVAL | S/C |
| SLIGHTLY | SL |
| SMALL | SM |
| SUB ROUNDED | SUBRN |
| SUB ANGULAR | SUBAN |
| TRANSITION | TRANS |
| UNOXIDIZED | UNOX |
| VERY | V |
| VOLCANIC | VOLC |
| WITH | W/ |



Appendix 8-0C. Abbreviations used on sample information and analyse sheet.

LEGEND

ST = Sample interval length (feet)
D = Drilling method for this hole:
- S = Rotasonic
- M = Mud Rotary
- A = Air Rotary

G = Area name: L = Little Fork
O = Orr
FORTY = Forty acre location, i.e. SE 1/4-NW1/4
LEGAL DESC = Section-Township(N)-Range(W)
COUNTY: K = Koochiching
SL = St. Louis
DRIFT TYPE: DML = Des Moines Lobe
RL = Rainy Lobe
ASSAY FTG = Assayed Footage Composite, for HMC or bedrock
GOLD GRAINS = # of gold grains counted by ODM in Heavy Mineral Concentrate
WT (g) HMC FEED = Feed weight (grams) for heavy mineral concentrate sample
WT (g) +10 FEED = Weight (grams) of +10 mesh in feed weight
WT (g) NONMAG = Weight (grams) of nonmagnetic heavy mineral conc from feed
WT (g) MAG = Weight (grams) of magnetic heavy mineral conc from feed
WT (g) -63uM = Weight (grams) of -63 micron screen fraction
WT (g) -63 FEED = Weight (grams) of feed for -63 micron screening
WT % -63uM = Wt% -63 micron fraction, dry screen from feed
WT % +10 = Wt% +10 mesh fraction from HMC flowsheet
WT % SAND = Wt% by difference of -63um and +10 mesh

REMARKS = SI Sample Interval of -63um

WT g/kg = Weight of this fraction divided wt of feed in kg x 1000
-1 (in Master File only) = Analysis not performed on this sample
-2 (in Master File only) = Not applicable for this sample
Sample Number Suffix (example 18808R)
- R = Replicate split of same sample number
- S = An analytical standard sample: Lab result
- V = An analytical standard sample: certified values
- C = Recleaned the +10M fraction that was found to contain silty-clay lumps
- A or B = Two separate samples if extremely large sample wt, i.e. mudpit

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## Appendix 8-1A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-101

Drilling Completion Date 12/19/85

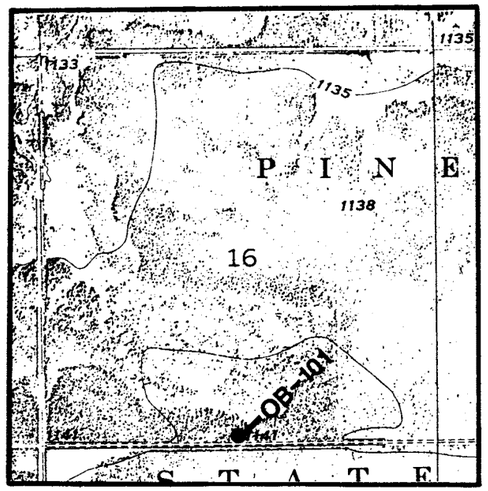
LOCATION (see map at right)

S-T-R SW¼-SE¼-16-157N-25W

County Koochiching

Quadrangle Lindford 7.5

Regional Survey Area Littlefork




HOLE PARAMETERS

Surface Elevation 1141 ft.

Total Depth 135 ft.

Elevation, Top of Precambrian Bedrock 1015 ft.

Drilling Method Rotasonic

Sample Diameter 3.5 inch

Sample Collection Method Core: Sleeved & Boxed

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-3 | Organic Sediments | | | |
| 3-125 | Des Moines Lobe Gl. Drift | G | A,B,C | |
| 125-126 | Rainy Lobe Gl. Drift | G | A,B,C | |
| 126-135 | Bedrock | G,H | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Quartz Biotite Garnet Schist

Thin Section Description (or number): #19700 at 131 ft. Biotite-bearing amphibolite. Estimated mode (volume %): Hornblende, 50; Biotite, 12; Quartz, 18; Plagioclase, 20; Apatite, Tr; Opaque oxides, Tr. Foliation defined by crudely oriented hornblende and biotite. Overall, rock is fresh with good granoblastic texture. Biotite is quite fresh but locally shows incipient alteration to chlorite and opaque oxides. Plagioclase (oligoclase) is typically well twinned and fresh. Plagioclase is most heavily sericitized in the same areas where biotite is most altered. Hornblende is pleochroic from pale yellowish-green to green, and is anhedral with few prism faces. Core description notes garnet-biotite schist. No garnets were seen in this thin section, but this rock type would be compatible with a garnet schist and may represent a garnet-poor interval.
(by T. Boerboom, MGS)



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 16933 | 17.9 | 1.7 | 16.2 | 99.6 | 88.2 | 11.4 | 9.1 | 2.3 | 0 | NA | P | 50 | 40 | 10 | NA | U | Y | Y | Y | B | B | TILL |
| -938CP | 19.3 | 1.4 | 17.9 | 91.8 | 80.4 | 11.4 | 6.3 | 5.1 | 0 | NA | P | 60 | 20 | 20 | NA | U | Y | Y | Y | B | B | TILL |
| -940CP | 12.6 | 1.4 | 11.2 | 100.6 | 86.4 | 14.2 | 11.2 | 3.0 | 0 | NA | P | 50 | 40 | 10 | NA | U | Y | Y | Y | B | B | TILL |
| -941 | 7.1 | 1.0 | 6.1 | 112.4 | 98.5 | 13.9 | 11.1 | 2.8 | 0 | NA | P | 50 | 40 | 10 | NA | U | Y | Y | Y | B | B | TILL |
| -942 | 8.8 | 0.6 | 8.2 | 136.9 | 123.9 | 13.0 | 10.5 | 2.5 | 0 | NA | P | 50 | 40 | 10 | NA | U | Y | Y | Y | B | B | TILL |
| -944CP | 19.6 | 0.4 | 19.2 | 183.6 | 181.1 | 2.5 | 2.0 | 0.5 | 0 | NA | P | 50 | 40 | 10 | NA | U | Y | Y | Y | B | B | TILL |
| -945 | 13.9 | 0.5 | 13.4 | 322.5 | 291.7 | 30.8 | 26.1 | 4.7 | 0 | NA | P | 55 | 35 | 10 | NA | U | Y | Y | Y | B | B | TILL |
| -946 | 6.8 | 0.9 | 5.9 | 132.7 | 115.4 | 17.3 | 16.2 | 1.1 | 0 | NA | P | 40 | 60 | NA | NA | U | Y | Y | Y | B | B | TILL |

GOLD CLASSIFICATION

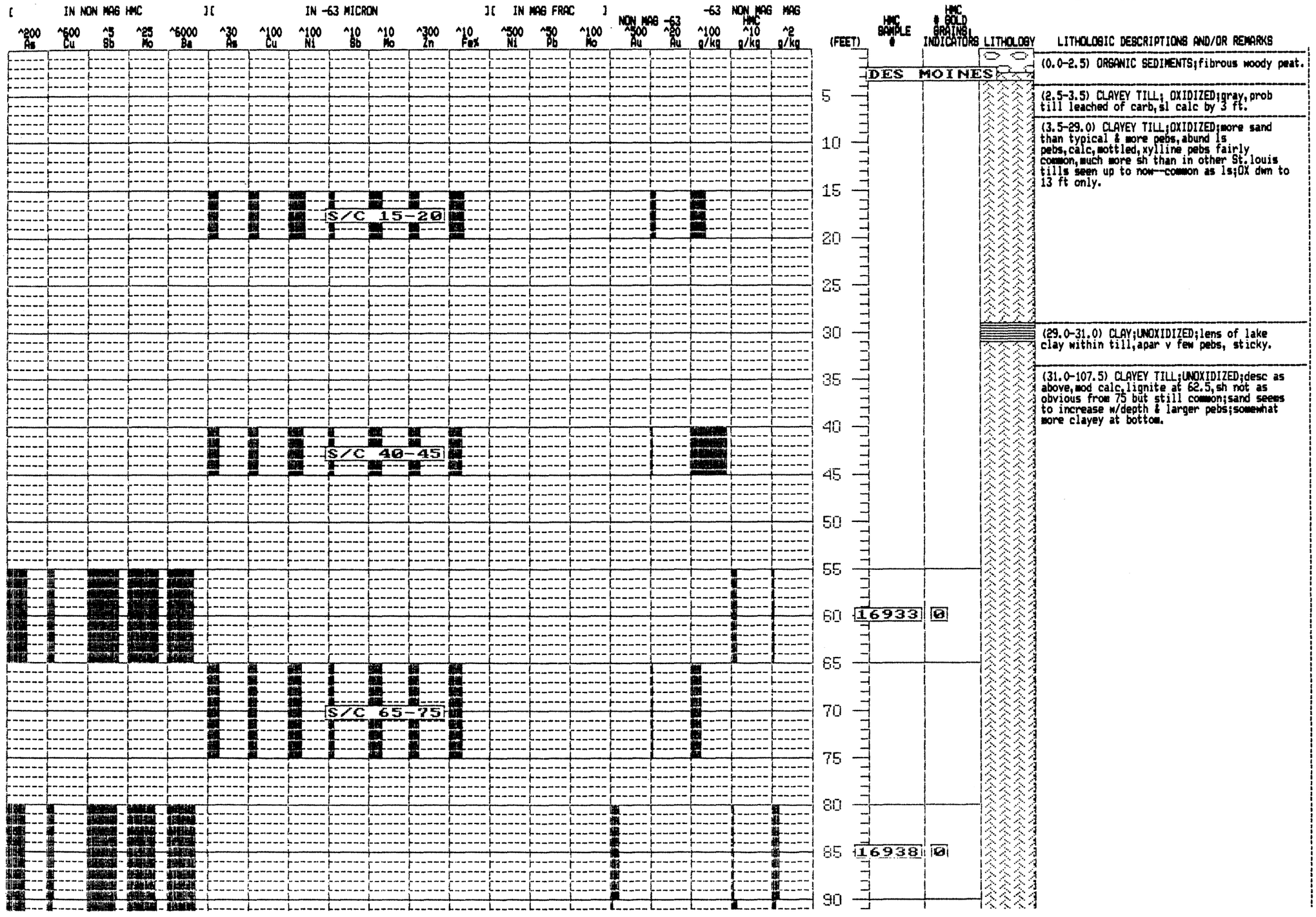
VISIBLE GOLD FROM SHAKING TABLE AND PANNING

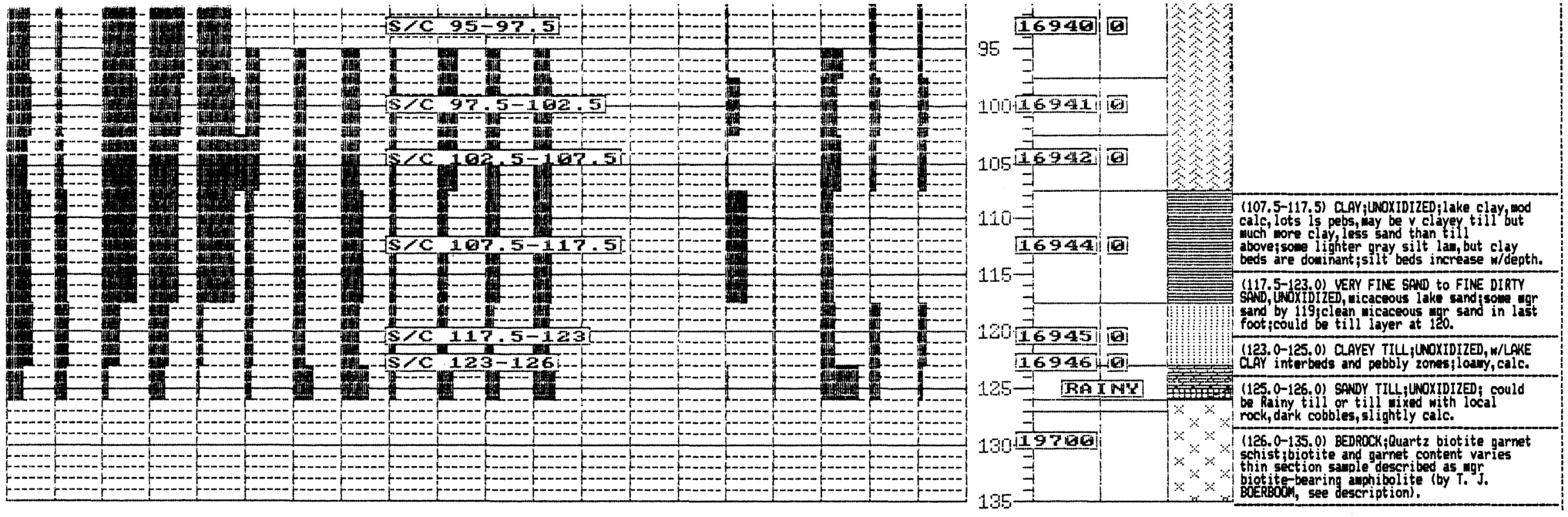
| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | NUMBER OF GRAINS: ABRADED T | ABRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16933 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -938 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -940 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -941 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -942 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -944 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -945 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -946 | N | NO VISIBLE GOLD | | | | | | | | | | | |

SUMMARY OF G. MEYER LOG OB-101, ROTASONIC CORE

# OB-101

Appendix 8-1B.




S/C 95-97.5
S/C 97.5-102.5
S/C 102.5-107.5
S/C 107.5-117.5
S/C 117.5-123
S/C 123-126
95
100
105
110
115
120
125
130
135
16940
16941
16942
16944
16945
16946
RAINY
19700
(107.5-117.5) CLAY;UNOXIDIZED;lake clay,mod calc,lots ls pebs,may be v clayey till but much more clay,less sand than till above;some lighter gray silt lam,but clay beds are dominant;silt beds increase w/depth.
(117.5-123.0) VERY FINE SAND to FINE DIRTY SAND,UNOXIDIZED,micaceous lake sand;some mgr sand by 119;clean micaceous mgr sand in last foot;could be till layer at 120.
(123.0-125.0) CLAYEY TILL;UNOXIDIZED,w/LAKE CLAY interbeds and pebbly zones;loamy,calc.
(125.0-126.0) SANDY TILL;UNOXIDIZED; could be Rainy till or till mixed with local rock,dark cobbles,slightly calc.
(126.0-135.0) BEDROCK;Quartz biotite garnet schist;biotite and garnet content varies thin section sample described as mgr biotite-bearing amphibolite (by T. J. BOERBOOM, see description).

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16929 | 101 | 15-20 | 5. | S | L | SW-SE | 16 | 157 | 25 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 15.4 | 422.0 | 4 | -1 | -1 | |
| 16930 | 101 | 25-30 | 5. | S | L | SW-SE | 16 | 157 | 25 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16931 | 101 | 40-45 | 5. | S | L | SW-SE | 16 | 157 | 25 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 22.3 | 252.0 | 9 | -1 | -1 | |
| 16932 | 101 | 55-60 | 5. | S | L | SW-SE | 16 | 157 | 25 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16933 | 101 | 60-65 | 5. | S | L | SW-SE | 16 | 157 | 25 | K | DML. CLAYEY TILL | 55-65 | 0.0 | 17900.0 | 1700.0 | 9.1 | 2.3 | -1.0 | -1.0 | -1.0 | -1 | 9 | -1 | |
| 16934 | 101 | 65-70 | 5. | S | L | SW-SE | 16 | 157 | 25 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16935 | 101 | 70-75 | 5. | S | L | SW-SE | 16 | 157 | 25 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 34.6 | 1363.0 | 3 | -1 | -1 | SII-63]=65-75 |
| 16936 | 101 | 75-80 | 5. | S | L | SW-SE | 16 | 157 | 25 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16937 | 101 | 80-85 | 5. | S | L | SW-SE | 16 | 157 | 25 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16938 | 101 | 85-90 | 5. | S | L | SW-SE | 16 | 157 | 25 | K | DML. CLAYEY TILL | 80-90 | 0.0 | 19300.0 | 1400.0 | 6.3 | 5.1 | -1.0 | -1.0 | -1.0 | -1 | 7 | -1 | |
| 16939 | 101 | 90-95 | 5. | S | L | SW-SE | 16 | 157 | 25 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16940 | 101 | 95-97.5 | 2.5 | S | L | SW-SE | 16 | 157 | 25 | K | DML. CLAYEY TILL | 90-97.5 | 0.0 | 12600.0 | 1400.0 | 11.2 | 3.0 | 63.2 | 1484.0 | 4 | 11 | 85 | | |
| 16941 | 101 | 97.5-102.5 | 5. | S | L | SW-SE | 16 | 157 | 25 | K | DML. CLAYEY TILL | 97.5-102.5 | 0.0 | 7100.0 | 1000.0 | 11.1 | 2.8 | 34.7 | 1105.0 | 3 | 14 | 83 | | |
| 13830R | 101 | 97.5-102.5 | 5. | S | L | SW-SE | 16 | 157 | 25 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 27.0 | 676.0 | 4 | -1 | -1 | | |
| 16942 | 101 | 102.5-107.5 | 5. | S | L | SW-SE | 16 | 157 | 25 | K | DML. CLAYEY TILL | 102.5-107.5 | 0.0 | 8800.0 | 600.0 | 10.5 | 2.5 | 37.7 | 975.0 | 4 | 7 | 89 | | |
| 16943 | 101 | 107.5-112.5 | 5. | S | L | SW-SE | 16 | 157 | 25 | K | DML CLAY: GLACIAL LK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16944 | 101 | 112.5-117.5 | 5. | S | L | SW-SE | 16 | 157 | 25 | K | DML CLAY: GLACIAL LK | 107.5-117.5 | 0.0 | 19600.0 | 400.0 | 2.0 | 0.5 | 44.1 | 1826.0 | 2 | 2 | 96 | SII-63]=107.5-117.5 | |
| 16945 | 101 | 117.5-123 | 5.5 | S | L | SW-SE | 16 | 157 | 25 | K | DML. F. TO V.F. SAND | 117.5-123 | 0.0 | 13900.0 | 500.0 | 26.1 | 4.7 | 26.9 | 1016.0 | 3 | 4 | 93 | | |
| 16946 | 101 | 123-126 | 3. | S | L | SW-SE | 16 | 157 | 25 | K | DML. CLAYEY TILL | 123-126 | 0.0 | 6800.0 | 900.0 | 16.2 | 1.1 | 45.6 | 605.0 | 8 | 13 | 79 | AF OVERLAPS RAINY | |
| 13850 | 101 | 125-126 | 1. | S | L | SW-SE | 16 | 157 | 25 | K | RL. SANDY GVL. TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 23.1 | 318.0 | 7 | -1 | -1 | | |
| 19700 | 101 | 127-135 | 8.0 | S | L | SW-SE | 16 | 157 | 25 | K | BEDROCK | 127-135 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16938 | 91 | 0.14 | 520 | 660 | 6900 | 23.20 | 54 | 130 | 97 | 290 | 0 | 88 | -10 | 17 | 0.5 | 0 | -10 | 3.7 | 4000 | 331 | 160 | 8 | -10 | 11 | -2 | 120.0 | 21.4 | 0 | 12.00 |
| 16944 | 230 | 0.09 | 727 | 640 | 7400 | 26.40 | 83 | 160 | 150 | 270 | 0 | 92 | -10 | 15 | 1.0 | 0 | -10 | 3.5 | 4600 | 406 | 140 | -4 | -10 | 14 | -2 | 140.0 | 21.8 | 0 | 2.57 |
| 16933 | 10 | 0.14 | 477 | 610 | 6700 | 24.10 | 55 | 110 | 84 | 270 | 0 | 92 | -10 | 19 | 0.5 | 0 | -10 | 3.9 | 3700 | 273 | 140 | 8 | -10 | 21 | -2 | 100.0 | 16.4 | 1 | 7.23 |
| 16940 | 26 | 0.11 | 457 | 630 | 6900 | 23.00 | 53 | 120 | 80 | 270 | 0 | 88 | -12 | 18 | 2.0 | 0 | -10 | 3.4 | 4100 | 293 | 160 | 6 | -10 | 8 | -2 | 100.0 | 20.6 | 1 | 9.14 |
| 16941 | 140 | 0.11 | 522 | 760 | 7200 | 22.90 | 51 | 95 | 78 | 270 | 0 | 94 | 23 | 16 | 0.5 | 0 | -10 | 3.7 | 4500 | 317 | 160 | 8 | -10 | 33 | -2 | 110.0 | 22.0 | 2 | 8.41 |
| 16942 | -22 | 0.10 | 512 | 660 | 6500 | 23.30 | 55 | 130 | 96 | 290 | 0 | 83 | 10 | 15 | 0.5 | 0 | -10 | 3.6 | 5600 | 310 | 160 | 8 | -10 | 5 | -2 | 110.0 | 21.6 | 1 | 8.07 |
| 16945 | -5 | 0.28 | 1410 | 390 | 10000 | 26.40 | 160 | 230 | 160 | 170 | 0 | 100 | -10 | 10 | 0.5 | 0 | -10 | 1.8 | 700 | 851 | 120 | 9 | -10 | 43 | -2 | 200.0 | 51.3 | 2 | 19.30 |
| 16946 | -23 | 0.12 | 540 | 180 | 15000 | 22.90 | 110 | 270 | 140 | 120 | 0 | 62 | -10 | 8 | 0.5 | 0 | -10 | -0.5 | -300 | 343 | 39 | -2 | -10 | 16 | -2 | 92.0 | 20.4 | 2 | 11.70 |

-63uM ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | V | CR | MN | FE % | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13830R | -1 | 130 | 79 | 550 | 3.0 | 17 | 33 | 22 | 79 | 9 | 2 | 3 | -0.5 | 1 | 8 | -1 | -1 | 1 | 13 | -1 | 3 | 39.9 |
| 13850 | -1 | 150 | 170 | 560 | 4.3 | 25 | 58 | 38 | 91 | 5 | -1 | 2 | -0.5 | -1 | 5 | -1 | -1 | 2 | 13 | -1 | 2 | 72.6 |
| 16944 | -1 | 120 | 120 | 590 | 3.6 | 23 | 42 | 25 | 79 | 5 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 19 | -1 | 2 | 24.2 |
| 16929 | -2 | 120 | 89 | 560 | 3.5 | 20 | 39 | 25 | 77 | 7 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | -1 | 20 | -1 | 3 | 36.5 |
| 16931 | 1 | 120 | 83 | 580 | 3.2 | 19 | 34 | 22 | 86 | 9 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | -1 | 17 | -1 | 3 | 88.5 |
| 16935 | 1 | 110 | 76 | 590 | 3.2 | 18 | 33 | 21 | 77 | 9 | 2 | 3 | -0.5 | -1 | 1 | -1 | -1 | -1 | 16 | -1 | 3 | 25.4 |
| 16940 | -1 | 130 | 82 | 650 | 3.4 | 20 | 37 | 24 | 87 | 9 | 1 | 4 | -0.5 | -1 | 1 | -1 | -1 | 1 | 17 | -1 | 4 | 42.6 |
| 16941 | 1 | 130 | 80 | 660 | 3.5 | 20 | 37 | 24 | 88 | 9 | -1 | 4 | -0.5 | -1 | 1 | -1 | -1 | -1 | 16 | -1 | 3 | 31.4 |
| 16942 | -1 | 130 | 83 | 650 | 3.5 | 21 | 35 | 23 | 88 | 9 | 2 | 4 | -0.5 | -1 | 1 | -1 | -1 | 1 | 19 | -1 | 3 | 38.7 |
| 16945 | -1 | 92 | 110 | 500 | 3.3 | 23 | 37 | 25 | 54 | 5 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | -1 | 15 | -1 | -1 | 26.5 |
| 16946 | -1 | 120 | 150 | 640 | 4.4 | 28 | 57 | 38 | 83 | 4 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | 2 | 19 | -1 | 2 | 75.4 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19700 | -5 | 0.3 | -1.0 | 550 | 10.0 | -10 | 74.0 | 4.0 | 140 | 28 | -2 | 4 | -100 | 4.4 | 34 | -0.5 | -2 | 78 | 53 | 5.00 | 16.0 | -10 | -5 | 2.50 | -1.0 | -20 | 1.0 | 7.7 | -200 | -2 | 1.8 | -5 | -200 | -500 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19700 | 67 | 19 | 66 | 799 | 1.1 | -10 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0 | 0.00 | 0 |

## Appendix 8-2A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-102

Drilling Completion Date 12/20/85

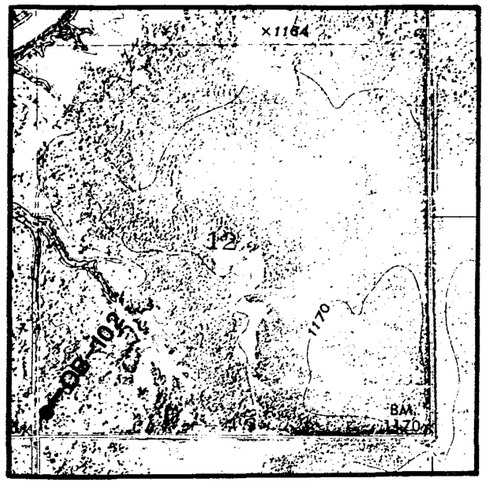
LOCATION (see map at right)

S-T-R SW¼-SW¼-12-156N-25W

County Koochiching

Quadrangle Lindford SE 7.5

Regional Survey Area Littlefork




HOLE PARAMETERS

Surface Elevation 1164 ft.

Total Depth 191 ft.

Elevation, Top of Precambrian Bedrock 980.5 ft.

Drilling Method Rotasonic

Sample Diameter 3.5 inch

Sample Collection Method Core: Sleeved & Boxed

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-1 | Organic Sediments | | | |
| 1-159 | Des Moines Lobe Gl. Drift | G | A,B,C | |
| 159-183.5 | Rainy Lobe Gl. Drift | G | A,B,C | A = Au & W |
| 183.5-191 | Bedrock | G,H | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Biotite Paragneiss

Thin Section Description (or number): #19701 at 185'. Biotite paragneiss. Estimated mode [excluding quartz vein] (volume %): Quartz, 20; Plagioclase, 52; Biotite, 27; Chlorite, 1; Sulfides, Tr; Opaque oxides, Tr; Apatite, Tr; Zircon, Tr. Fresh, well-foliated (defined by biotite); feldspar only weakly sericitized. Plagioclase is albitic in composition, possibly bordering on oligoclase. No K-feldspar detected without stain. Biotite is dark brown and is interlayered with chlorite and opaque oxides due to slight retrograde metamorphism. Rutilated quartz vein subparallel to foliation is only weakly recrystallized and strained. Irregular blebs of sulfides (pyrite) are disseminated throughout rock. Layering defined by grain-size variations; mode remains constant. (by T. Boerboom, MGS)



## HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) TABLE SPLIT | +10 CHIPS | TABLE FEED | WEIGHT (GRAMS DRY) TABLE CONC | M.I. LIGHTS | M. I. CONC. TOTAL | NON MAG | MAG | AU NO. V.G. | AU CALC PPB | DESCRIPTION CLAST SIZE | CLAST % V/S | GR | LS | OT | MATRIX S/U | SD | ST | CY | COLOR SD | COLOR CY | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17037 | 18.7 | 1.7 | 17.0 | 92.4 | 68.0 | 24.4 | 18.1 | 6.3 | 1 | 21 | P | 15 | 55 | 30 | NA | U | Y | Y | Y | BN | BN | TILL |
| -043CP | 27.9 | 2.6 | 25.3 | 186.7 | 161.3 | 25.4 | 23.7 | 1.7 | 2 | 138 | P | 15 | 45 | 40 | NA | U | Y | Y | Y | BN | BN | TILL |
| -049CP | 14.8 | 1.1 | 13.7 | 91.3 | 75.7 | 15.6 | 12.3 | 3.3 | 0 | NA | P | 25 | 35 | 40 | NA | U | Y | Y | Y | BN | BN | TILL |
| -050 | 7.5 | 0.6 | 6.9 | 92.9 | 86.4 | 6.5 | 5.1 | 1.4 | 1 | 294 | P | 35 | 25 | 40 | NA | U | Y | Y | Y | BN | BN | TILL |
| -051 | 6.6 | 0.4 | 6.2 | 89.6 | 84.1 | 5.5 | 4.2 | 1.3 | 0 | NA | P | 35 | 25 | 40 | NA | U | Y | Y | Y | BN | BN | TILL |
| -053 | 12.3 | 2.2 | 10.1 | 232.2 | 170.6 | 61.6 | 50.6 | 11.0 | 0 | NA | P | 35 | 60 | 5 | NA | U | Y | Y | Y | B | B | TILL |
| -054 | 13.1 | 1.7 | 11.4 | 119.6 | 58.7 | 60.9 | 48.0 | 12.9 | 1 | 60 | P | 35 | 60 | 5 | NA | U | Y | Y | Y | B | B | TILL |
| -055 | 12.3 | 1.3 | 11.0 | 252.9 | 186.8 | 66.1 | 52.9 | 13.2 | 1 | 93 | P | 35 | 55 | 10 | NA | U | Y | Y | Y | B | B | TILL |
| -056 | 10.8 | 1.8 | 9.0 | 240.8 | 190.0 | 50.8 | 40.6 | 10.2 | 0 | NA | P | 40 | 55 | 5 | NA | U | Y | Y | Y | B | B | TILL |
| -057 | 11.2 | 0.6 | 10.6 | 192.4 | 133.0 | 59.4 | 46.6 | 12.8 | 0 | NA | P | 40 | 60 | TR | NA | S | M | Y | Y | B | B | SAND |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17037 | N | 50 X 75 | 13 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | TOTAL | 1 | 18.1 | 21 | |
| -043CP | N | 50 X 75 | 13 C | | | 1 | | | | 1 | | | |
| | | 100 X 150 | 25 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | TOTAL | 2 | 23.7 | 138 | |
| -049CP | N | NO VISIBLE GOLD | | | | | | | | | | | 1 GRAIN FRESH COPPER (50X125) |
| -050 | N | 100 X 100 | 20 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | TOTAL | 1 | 5.1 | 294 | |
| -051 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -053 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -054 | N | 75 X 175 | 25 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | TOTAL | 1 | 48.0 | 60 | |
| -055 | N | 150 X 150 | 29 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | TOTAL | 1 | 52.9 | 93 | |
| -056 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -057 | N | NO VISIBLE GOLD | | | | | | | | | | | |

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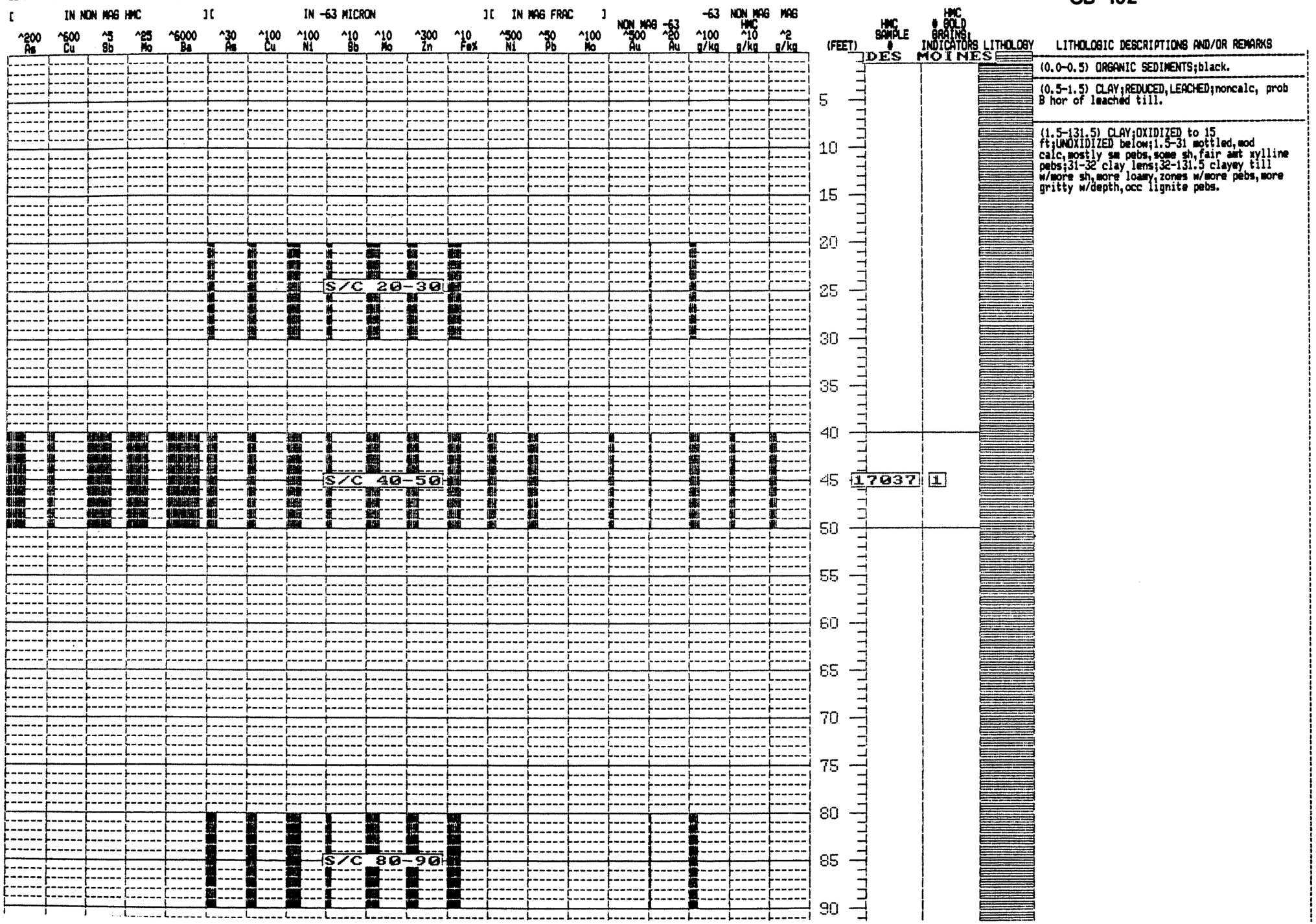
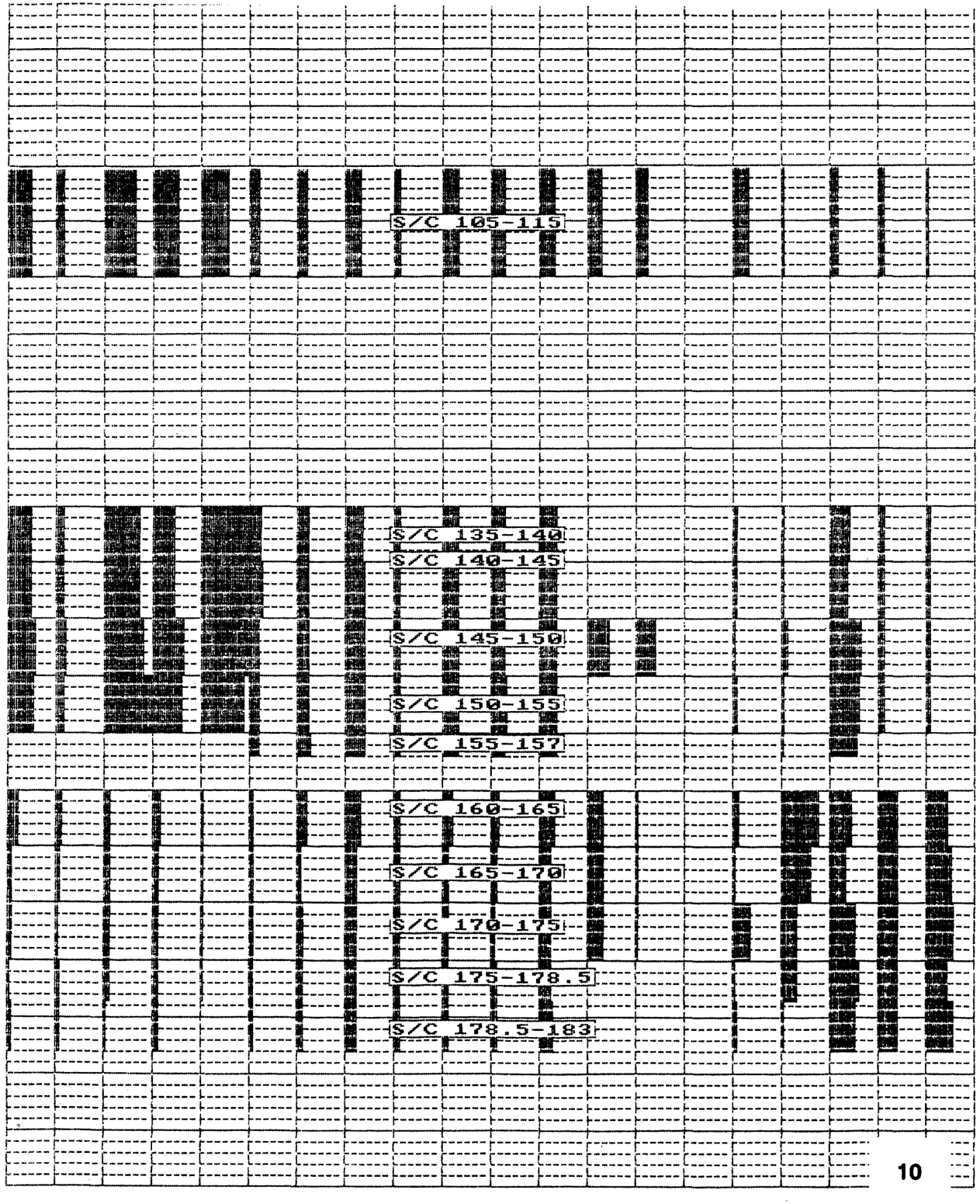
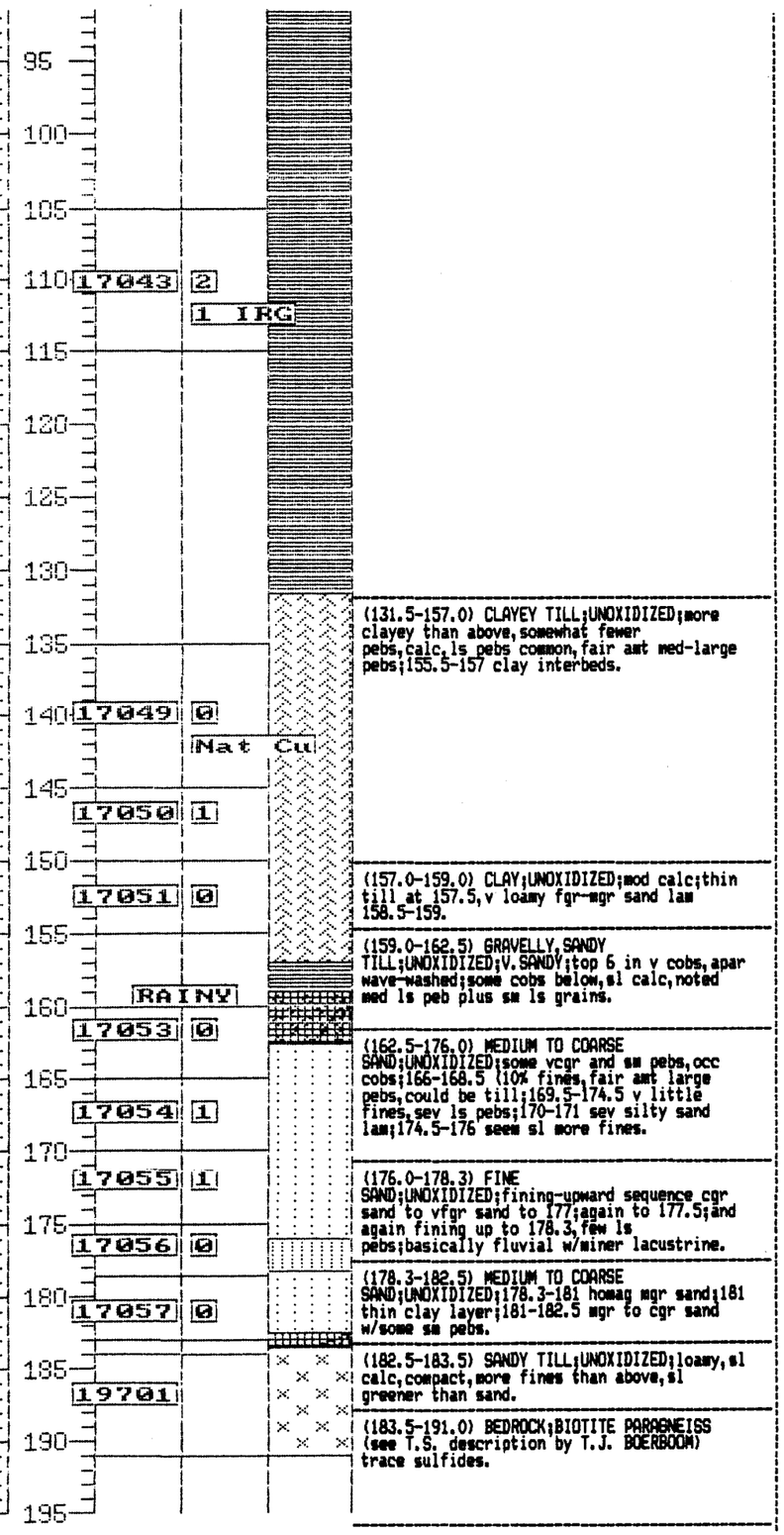
SUMMARY OF G. MEYER LOG OB-102, ROTASONIC CORE

# OB-102

Appendix 8-2B.






(131.5-157.0) CLAYEY TILL;UNOXIDIZED;more clayey than above,somewhat fewer pebs,calc,ls pebs common,fair amt med-large pebs;155.5-157 clay interbeds.

(157.0-159.0) CLAY;UNOXIDIZED;mod calc;thin till at 157.5,v loamy fgr-mgr sand lam 158.5-159.

(159.0-162.5) GRAVELLY,SANDY TILL;UNOXIDIZED;V.SANDY;top 6 in v cobs,apar wave-washed;some cobs below,sl calc,noted med ls peb plus sm ls grains.

(162.5-176.0) MEDIUM TO COARSE SAND;UNOXIDIZED;some vcgr and sm pebs,occ cobs;166-168.5 (10% fines,fair amt large pebs,could be till;169.5-174.5 v little fines,sev ls pebs;170-171 sev silty sand lam;174.5-176 seem sl more fines.

(176.0-178.3) FINE SAND;UNOXIDIZED;fining-upward sequence cgr sand to vfgr sand to 177;again to 177.5;and again fining up to 178.3,few ls pebs;basically fluvial w/miner lacustrine.

(178.3-182.5) MEDIUM TO COARSE SAND;UNOXIDIZED;178.3-181 homag mgr sand;181 thin clay layer;181-182.5 mgr to cgr sand w/some sm pebs.

(182.5-183.5) SANDY TILL;UNOXIDIZED;loamy,sl calc,compact,more fines than above,sl greener than sand.

(183.5-191.0) BEDROCK;BIOTITE PARAGNEISS (see T.S. description by T.J. BOERBOOM) trace sulfides.

**Appendix 8-2C.**

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17034 | 102 | 20-25 | 5. | S | L | SW-SW | 12 | 156 | 25 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 17035 | 102 | 25-30 | 5. | S | L | SW-SW | 12 | 156 | 25 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 28.5 | 1919.0 | 1 | -1 | -1 | SII-63I=20-30 |
| 17035R | 102 | 25-30 | 5.0 | S | L | SW-SW | 12 | 156 | 25 | K | DML. CLAYEY TILL | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 17036 | 102 | 40-45 | 5. | S | L | SW-SW | 12 | 156 | 25 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 17037 | 102 | 45-50 | 5. | S | L | SW-SW | 12 | 156 | 25 | K | DML. CLAYEY TILL | 40-50 | 1.0 | 18700.0 | 1700.0 | 18.1 | 6.3 | 35.6 | 1541.0 | 2 | 9 | 89 | SII-63I=40-50 |
| 17038 | 102 | 60-65 | 5. | S | L | SW-SW | 12 | 156 | 25 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 17039 | 102 | 65-70 | 5. | S | L | SW-SW | 12 | 156 | 25 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 17040 | 102 | 80-85 | 5. | S | L | SW-SW | 12 | 156 | 25 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 17041 | 102 | 85-90 | 5. | S | L | SW-SW | 12 | 156 | 25 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 22.7 | 1229.0 | 2 | -1 | -1 | SII-63I=80-90 |
| 17042 | 102 | 105-110 | 5. | S | L | SW-SW | 12 | 156 | 25 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 17043 | 102 | 110-115 | 5. | S | L | SW-SW | 12 | 156 | 25 | K | DML. CLAYEY TILL | 105-115 | 2.0 | 27900.0 | 2600.0 | 23.7 | 1.7 | 38.8 | 2778.0 | 1 | 9 | 90 | SII-63I=105-115 |
| 17044 | 102 | 115-120 | 5. | S | L | SW-SW | 12 | 156 | 25 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 17045 | 102 | 120-125 | 5. | S | L | SW-SW | 12 | 156 | 25 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 17046 | 102 | 125-130 | 5. | S | L | SW-SW | 12 | 156 | 25 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 17047 | 102 | 130-135 | 5. | S | L | SW-SW | 12 | 156 | 25 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 17048 | 102 | 135-140 | 5. | S | L | SW-SW | 12 | 156 | 25 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 24.8 | 607.0 | 4 | -1 | -1 | |
| 17049 | 102 | 140-145 | 5. | S | L | SW-SW | 12 | 156 | 25 | K | DML. CLAYEY TILL | 135-145 | 0.0 | 14800.0 | 1100.0 | 12.3 | 3.3 | 22.4 | 621.0 | 4 | 7 | 89 | |
| 17050 | 102 | 145-150 | 5. | S | L | SW-SW | 12 | 156 | 25 | K | DML. CLAYEY TILL | 145-150 | 1.0 | 7500.0 | 600.0 | 5.1 | 1.4 | 35.0 | 547.0 | 6 | 8 | 86 | |
| 17051 | 102 | 150-155 | 5. | S | L | SW-SW | 12 | 156 | 25 | K | DML. CLAYEY TILL | 150-155 | 0.0 | 6600.0 | 400.0 | 4.2 | 1.3 | 25.0 | 421.0 | 6 | 6 | 88 | |
| 13831R | 102 | 150-155 | 5. | S | L | SW-SW | 12 | 156 | 25 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 23.8 | 569.0 | 4 | -1 | -1 | |
| 17052 | 102 | 155-157 | 5. | S | L | SW-SW | 12 | 156 | 25 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 20.4 | 368.0 | 6 | -1 | -1 | |
| 17053 | 102 | 160-165 | 5. | S | L | SW-SW | 12 | 156 | 25 | K | RL. SANDY GVL. TILL | 160-165 | 0.0 | 12300.0 | 2200.0 | 50.6 | 11.0 | 40.9 | 911.0 | 4 | 18 | 78 | |
| 17054 | 102 | 165-170 | 5. | S | L | SW-SW | 12 | 156 | 25 | K | RL. MED. TO C. SAND | 165-170 | 1.0 | 13100.0 | 1700.0 | 48.0 | 12.9 | 39.7 | 1174.0 | 3 | 13 | 84 | |
| 17055 | 102 | 170-175 | 5. | S | L | SW-SW | 12 | 156 | 25 | K | RL. MED. TO C. SAND | 170-175 | 1.0 | 12300.0 | 1300.0 | 52.9 | 13.2 | 51.5 | 999.0 | 5 | 11 | 84 | |
| 13832R | 102 | 170-175 | 5. | S | L | SW-SW | 12 | 156 | 25 | K | RL. MED. TO C. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 25.6 | 1096.0 | 2 | -1 | -1 | |
| 17056 | 102 | 175-178.5 | 3.5 | S | L | SW-SW | 12 | 156 | 25 | K | RL. SILTY SAND | 175-178.5 | 0.0 | 10800.0 | 1800.0 | 40.6 | 10.2 | 47.2 | 810.0 | 6 | 17 | 77 | |
| 17057 | 102 | 178.5-183 | 4.5 | S | L | SW-SW | 12 | 156 | 25 | K | RL. MED. TO C. SAND | 178.5-183 | 0.0 | 11200.0 | 600.0 | 46.6 | 12.8 | 45.8 | 852.0 | 5 | 5 | 90 | |
| 17058 | 102 | 183-183.5 | 0.5 | S | L | SW-SW | 12 | 156 | 25 | K | RL. SANDY GVL. TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 19701 | 102 | 184-191 | 7.0 | S | L | SW-SW | 12 | 156 | 25 | K | BEDROCK | 184-191 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17037 | 64 | 0.12 | 647 | 870 | 7200 | 26.10 | 87 | 100 | 90 | 240 | 0 | 89 | -16 | 13 | 0.5 | 0 | -10 | 3.1 | 4700 | 271 | 200 | 7 | -10 | 30 | -2 | 150.0 | 20.9 | 1 | 13.90 |
| 17043 | 160 | 0.13 | 554 | 680 | 7800 | 27.00 | 94 | 120 | 94 | 240 | 0 | 95 | -14 | 13 | 0.5 | 0 | -10 | 3.3 | 3400 | 237 | 160 | 8 | -10 | 17 | -2 | 130.0 | 16.3 | 1 | 18.00 |
| 17049 | 34 | 0.14 | 560 | 760 | 7300 | 26.40 | 86 | 110 | 100 | 310 | 0 | 92 | -10 | 11 | 0.5 | 0 | -10 | 3.7 | 6500 | 246 | 150 | 11 | -10 | 19 | -2 | 120.0 | 21.1 | 1 | 9.44 |
| 17050 | 22 | 0.14 | 548 | 800 | 8900 | 29.50 | 90 | 130 | 120 | 270 | 0 | 110 | -11 | 16 | 0.5 | 0 | -10 | 4.0 | 8400 | 225 | 140 | 6 | -10 | 17 | -2 | 120.0 | 17.7 | 1 | 4.25 |
| 17051 | 37 | 0.12 | 557 | 810 | 7100 | 31.50 | 91 | 130 | 100 | 360 | 0 | 100 | -15 | 15 | 0.5 | 0 | -10 | 4.9 | 5300 | 236 | 150 | 5 | -10 | 30 | -2 | 120.0 | 18.9 | 1 | 4.38 |
| 17053 | 67 | 0.30 | 546 | 420 | 8800 | 23.50 | 100 | 160 | 63 | 120 | 0 | 40 | -10 | 4 | -0.5 | 0 | -10 | -0.5 | -300 | 358 | 69 | 6 | 210 | 30 | -2 | 110.0 | 11.2 | 4 | 38.50 |
| 17054 | -23 | 0.29 | 341 | 530 | 9600 | 23.30 | 72 | 110 | 36 | 130 | 0 | 16 | -10 | 3 | -0.5 | 0 | -10 | -0.5 | -200 | 200 | 85 | 8 | -10 | 23 | -2 | 60.0 | 13.7 | 4 | 35.90 |
| 17055 | 190 | 0.24 | 307 | 470 | 9000 | 21.40 | 64 | 110 | 32 | 140 | 0 | 13 | -10 | 3 | -0.5 | 0 | -10 | -0.5 | -200 | 178 | 74 | 7 | -10 | 21 | -2 | 52.0 | 13.2 | 4 | 39.80 |
| 17056 | -24 | 0.42 | 352 | 480 | 9500 | 21.50 | 63 | 100 | 37 | 140 | 0 | 11 | -10 | 3 | -0.5 | 0 | -10 | -0.5 | -200 | 197 | 87 | 7 | -10 | 21 | -2 | 58.0 | 12.6 | 4 | 30.10 |
| 17057 | 46 | 0.30 | 434 | 510 | 8300 | 21.30 | 67 | 110 | 42 | 140 | 0 | 17 | -14 | 3 | -0.5 | 0 | -10 | -0.2 | -100 | 255 | 95 | 8 | -10 | 26 | -2 | 76.0 | 14.1 | 4 | 35.70 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 17037 | 0.830 | 2.30 | 1500 | 110 | 15 | 200 | -1 | -1 | -0.5 | 12 | 0.3 |
| 17043 | 0.710 | 2.00 | 1300 | 150 | 15 | 200 | -1 | -1 | -0.5 | 11 | 0.1 |
| 17050 | 0.500 | 2.00 | 1400 | 230 | 13 | 210 | -1 | -1 | 0.5 | 19 | 0.2 |
| 17053 | 1.700 | 1.70 | 1000 | 160 | 24 | 330 | -1 | -1 | -0.5 | -1 | 0.9 |
| 17054 | 1.200 | 1.70 | 1200 | 170 | 20 | 370 | -1 | -1 | -0.5 | -1 | 1.0 |
| 17055 | 1.300 | 1.70 | 1100 | 170 | 19 | 380 | -1 | 1 | -0.5 | -1 | 1.1 |

-63uM ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | V | CR | MN | FE % | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13831R | -1 | 140 | 91 | 570 | 3.2 | 18 | 38 | 26 | 90 | 9 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | 1 | 14 | -1 | 3 | 41.8 |
| 13832R | -1 | 71 | 77 | 410 | 2.5 | 15 | 24 | 17 | 37 | 7 | -1 | 1 | -0.5 | -1 | 2 | -1 | -1 | 2 | 7 | -1 | -1 | 23.4 |
| 17035 | 0 | 0 | 51 | 0 | 0.0 | 0 | 0 | 0 | 69 | 6 | 1 | 2 | -0.5 | 1 | 1 | -1 | 0 | -1 | 0 | 0 | 0 | 14.9 |
| 17035R | -1 | 120 | 74 | 500 | 3.2 | 17 | 32 | 20 | 74 | 5 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | -1 | 13 | -1 | 2 | 0.0 |
| 17037 | -1 | 120 | 81 | 560 | 3.3 | 19 | 35 | 21 | 83 | 7 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | -1 | 15 | -1 | 3 | 23.1 |
| 17041 | -1 | 120 | 79 | 590 | 3.3 | 19 | 35 | 22 | 82 | 7 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | -1 | 15 | -1 | 3 | 18.5 |
| 17043 | -1 | 120 | 82 | 560 | 3.1 | 18 | 33 | 20 | 79 | 6 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | -1 | 15 | -1 | 3 | 14.0 |
| 17048 | -1 | 130 | 87 | 630 | 3.5 | 20 | 37 | 23 | 79 | 7 | 1 | 3 | -0.5 | -1 | 2 | -1 | -1 | -1 | 19 | -1 | 3 | 40.9 |
| 17049 | -1 | 140 | 84 | 640 | 3.7 | 20 | 38 | 24 | 87 | 8 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | -1 | 16 | -1 | 3 | 36.1 |
| 17050 | 2 | 130 | 82 | 660 | 3.6 | 21 | 39 | 25 | 87 | 6 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | -1 | 19 | -1 | 3 | 64.0 |
| 17051 | 1 | 140 | 89 | 660 | 3.7 | 21 | 40 | 25 | 92 | 6 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | -1 | 15 | -1 | 3 | 59.4 |
| 17052 | -1 | 140 | 90 | 640 | 3.7 | 21 | 41 | 26 | 89 | 6 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | 1 | 25 | -1 | 3 | 55.4 |
| 17053 | 15 | 71 | 89 | 520 | 3.4 | 21 | 33 | 18 | 51 | 3 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | 8 | 15 | -1 | 1 | 44.9 |
| 17054 | 12 | 65 | 69 | 440 | 2.6 | 16 | 23 | 9 | 34 | 2 | -1 | 1 | -0.5 | -1 | 1 | -1 | -1 | 2 | 14 | -1 | 1 | 33.8 |
| 17055 | 6 | 65 | 67 | 390 | 2.4 | 15 | 22 | 12 | 30 | 2 | -1 | 1 | -0.5 | -1 | -1 | -1 | -1 | 2 | 11 | -1 | -1 | 51.6 |
| 17056 | 6 | 67 | 61 | 400 | 2.6 | 16 | 25 | 11 | 33 | 2 | -1 | 1 | -0.5 | -1 | -1 | -1 | -1 | 2 | 12 | -1 | -1 | 58.3 |
| 17057 | -1 | 72 | 79 | 410 | 2.7 | 17 | 25 | 12 | 38 | 2 | -1 | 1 | -0.5 | -1 | 1 | -1 | -1 | 2 | 11 | -1 | 1 | 53.8 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19701 | -5 | -0.2 | -1.0 | 710 | -5.0 | -10 | 53.0 | 3.0 | 150 | 18 | 2 | 4 | -100 | 4.2 | 29 | -0.5 | -2 | 91 | 75 | 4.10 | 13.0 | -10 | -5 | 2.70 | -1.0 | -20 | -1.0 | 6.9 | -200 | -2 | 2.1 | -5 | -200 | -500 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19701 | 62 | 26 | 72 | 460 | 1.5 | -10 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0 | 0.00 | 0 |

**Appendix 8-3A.** DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-103

Drilling Completion Date 12/20/85

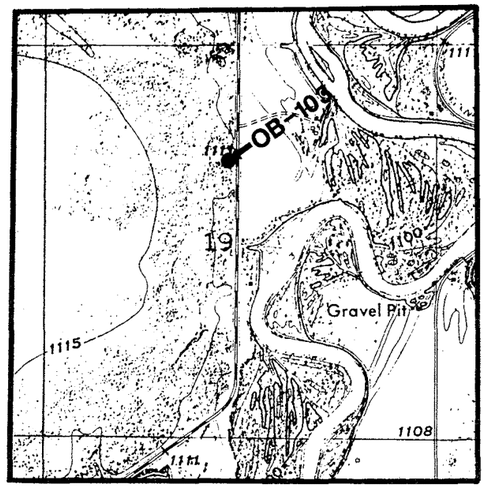
LOCATION (see map at right)

S-T-R SE¼-NW¼-19-69N-26W

County Koochiching

Quadrangle Littlefork NW 7.5

Regional Survey Area Littlefork




HOLE PARAMETERS

Surface Elevation 1111 ft.

Total Depth 124 ft.

Elevation, Top of Precambrian Bedrock 989 ft.

Drilling Method Rotasonic

Sample Diameter 3.5 inch

Sample Collection Method Core: Sleeved & Boxed

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpre-tation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-65 | No Core | | | |
| 65-119.5 | Des Moines Lobe Gl. Drift | G | A,B,C | |
| 119.5-122 | Rainy Lobe Gl. Drift | G | A,B,C | B = Au & As |
| 122-124 | Bedrock | G,H | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Biotite Gneiss

Thin Section Description (or number): #19702 at 123 ft. Biotite gneiss. Estimated mode (volume %): Plagioclase (oligoclase?), 50; Quartz, 40; Biotite, 9; Muscovite, 1; Zircon, Tr; Apatite, Tr; Cordierite(?), Tr. Well-foliated rock (defined by biotite and muscovite) with clean, fresh, granoblastic quartz and feldspar. Well-twinned plagioclase has a refractive index greater than or equal to quartz; and therefore, oligoclase is approximate composition. Moderate iron staining is present along grain boundaries and fractures. Minor amounts of fine-grained clay minerals or chlorite, plus dusty hydrous Fe-oxides pseudomorph an earlier mineral, possibly epidote. Rock apparently lacks K-feldspar. (by T. Boerboom, MGS)



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 16912 | 9.0 | 0.6 | 8.4 | 107.5 | 100.1 | 7.4 | 5.0 | 2.4 | 0 | NA | P | 5 | 20 | 75 | NA | S | F | Y | N | B | NA | SAND |
| -914 | 11.1 | 0.0 | 11.1 | 67.2 | 66.9 | 0.3 | 0.2 | 0.1 | 0 | NA | TR | NA | NA | NA | NA | S | N | Y | Y | NA | B | SILT&CL |
| -915 | 3.3 | 0.4 | 2.9 | 204.3 | 192.8 | 11.5 | 9.5 | 2.0 | 0 | NA | P | 30 | 70 | NA | NA | U | Y | Y | Y | GB | GB | TILL |
| -916 | 3.9 | 1.4 | 2.5 | 145.9 | 133.2 | 12.7 | 10.8 | 1.9 | 1 | 139 | P | 30 | 70 | NA | NA | U | Y | Y | Y | B | B | TILL |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16912 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -914 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -915 | Y | NO VISIBLE GOLD | | | | | | | | | | | EST. 5% PYRITE |
| -916 | N | 100 X 100 | 20 C | 1 | | | | | 1 | 1 | | | |
| | | | | | | | | TOTAL | | 1 | 10.8 | 139 | |

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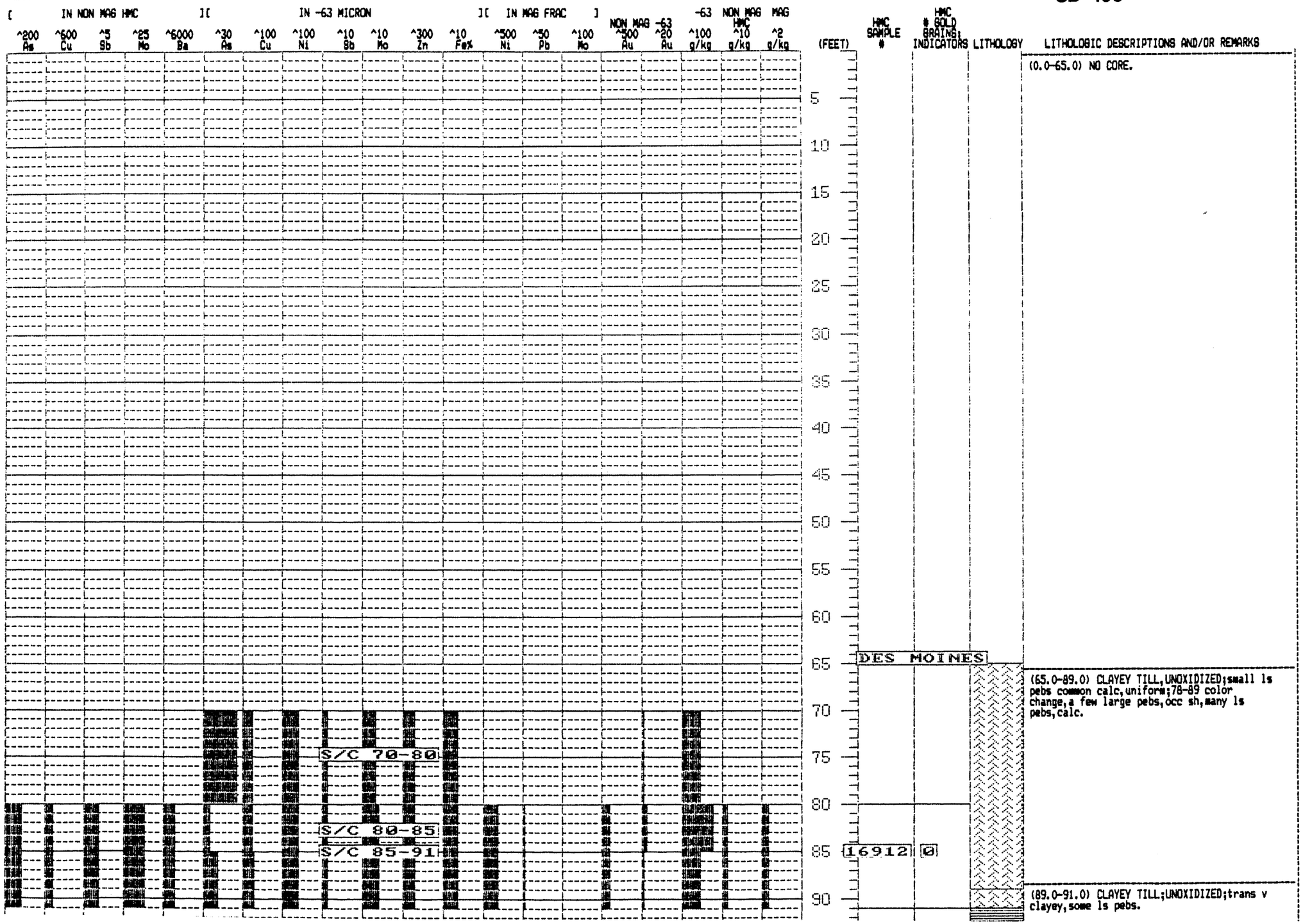
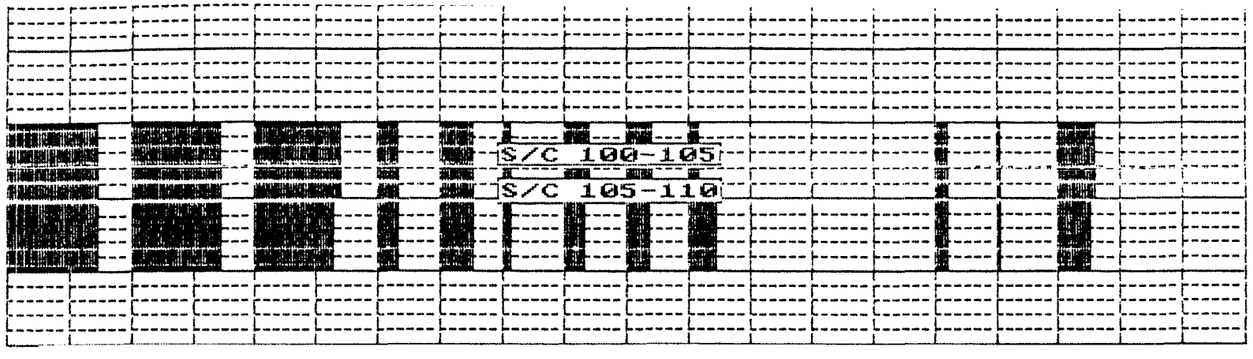
SUMMARY OF G. MEYER LOG OB-103, ROTASONIC CORE

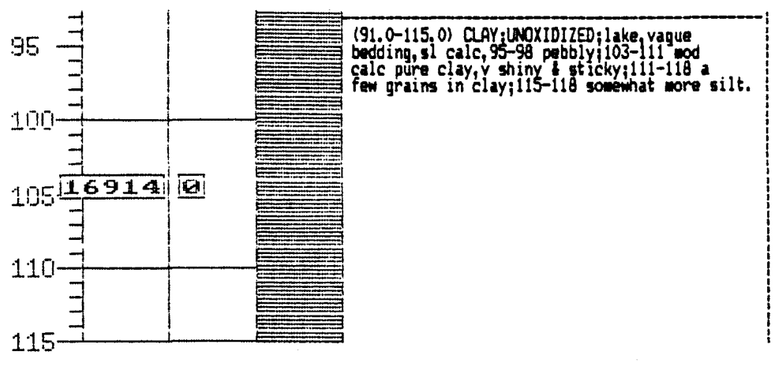
# OB-103

Appendix 8-3B.

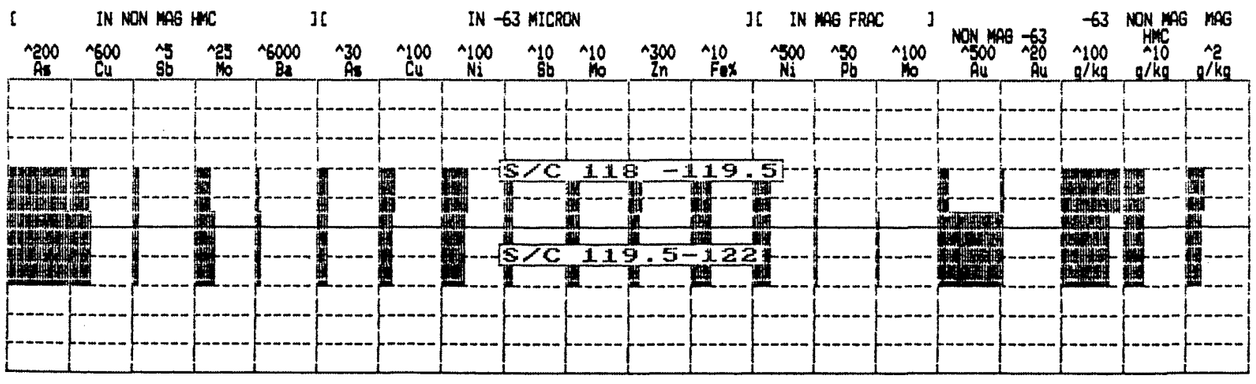


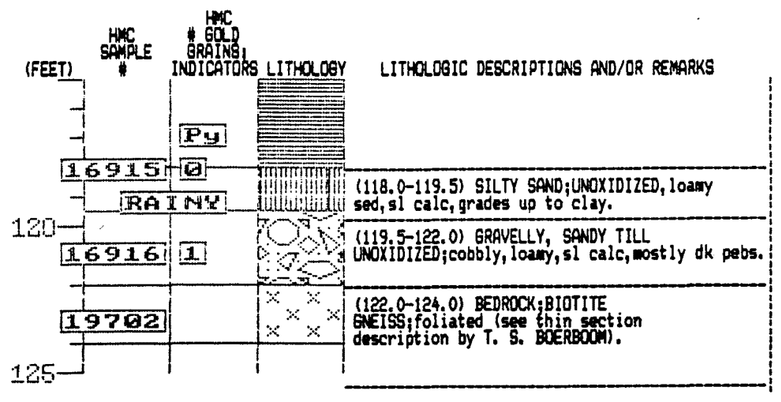

| HMC SAMPLE # | HMC # GOLD GRAINS; INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|
| | | | (0.0-65.0) NO CORE. |
| | | DES MOINES | (65.0-89.0) CLAYEY TILL,UNOXIDIZED;small ls pebs common calc,uniform;78-89 color change,a few large pebs,occ sh,many ls pebs,calc. |
| 16912 | 0 | | (89.0-91.0) CLAYEY TILL;UNOXIDIZED;trans v clayey,some ls pebs. |




SUMMARY OF G. MEYER LOG OB-103, ROTASONIC CORE



## MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16908 | 103 | 65-70 | 5. | S | L | SE-NW | 19 | 69 | 26 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16909 | 103 | 70-75 | 5. | S | L | SE-NW | 19 | 69 | 26 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16910 | 103 | 75-80 | 5. | S | L | SE-NW | 19 | 69 | 26 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 35.9 | 793.0 | 5 | -1 | -1 | SIE-63]=70-80 |
| 16910R | 103 | 75-80 | 5.0 | S | L | SE-NW | 19 | 69 | 26 | K | DML. CLAYEY TILL | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 16911 | 103 | 80-85 | 5. | S | L | SE-NW | 19 | 69 | 26 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 23.8 | 635.0 | 4 | -1 | -1 | |
| 13833R | 103 | 80-85 | 5. | S | L | SE-NW | 19 | 69 | 26 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 23.7 | 319.0 | 7 | -1 | -1 | |
| 16912 | 103 | 85-91 | 6. | S | L | SE-NW | 19 | 69 | 26 | K | DML. CLAYEY TILL | 80-91 | 0.0 | 9000.0 | 600.0 | 5.0 | 2.4 | 19.2 | 432.0 | 4 | 7 | 89 | |
| 16913 | 103 | 100-105 | 5. | S | L | SE-NW | 19 | 69 | 26 | K | DML CLAY: GLACIAL LK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 20.9 | 347.0 | 6 | -1 | -1 | |
| 16914 | 103 | 105-110 | 5. | S | L | SE-NW | 19 | 69 | 26 | K | DML CLAY: GLACIAL LK | 100-110 | 0.0 | 11100.0 | 0.0 | 0.2 | 0.1 | 18.4 | 353.0 | 5 | 0 | 95 | |
| 16915 | 103 | 118-119.5 | 1.5 | S | L | SE-NW | 19 | 69 | 26 | K | DML. SILT | 118-119.5 | 0.0 | 3300.0 | 400.0 | 9.5 | 2.0 | 24.8 | 272.0 | 9 | 12 | 79 | |
| 16916 | 103 | 119.5-122 | 2.5 | S | L | SE-NW | 19 | 69 | 26 | K | RL. SANDY GVL. TILL | 119.5-122 | 1.0 | 3900.0 | 1400.0 | 10.8 | 1.9 | 16.9 | 219.0 | 8 | 36 | 56 | |
| 19702 | 103 | 122-124 | 2.0 | S | L | SE-NW | 19 | 69 | 26 | K | BEDROCK | 122-124 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |

## NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16914 | 100 | 0.18 | 1140 | 870 | 6800 | 38.20 | 140 | 150 | 270 | 300 | 0 | 230 | -34 | 11 | 0.5 | 0 | 200 | 10.0 | 17000 | 614 | 210 | -9 | -10 | 570 | -2 | 160.0 | 43.0 | 0 | 0.21 |
| 16912 | 110 | 0.15 | 852 | 640 | 6300 | 25.40 | 62 | 100 | 110 | 230 | 0 | 77 | -10 | 13 | 0.5 | 0 | -10 | 1.9 | 1600 | 464 | 290 | 10 | 10 | 36 | -2 | 190.0 | 35.1 | 1 | 5.06 |
| 16915 | 79 | 0.21 | 310 | 280 | 11000 | 20.40 | 140 | 220 | 160 | 120 | 0 | 180 | -10 | 6 | -0.5 | 0 | -10 | -0.4 | -300 | 140 | 60 | 4 | -10 | 16 | -2 | 32.0 | 11.1 | 3 | 7.28 |
| 16916 | 730 | 0.24 | 554 | 300 | 11000 | 21.40 | 140 | 230 | 180 | 160 | 0 | 210 | 11 | 8 | -0.5 | 0 | -10 | -0.4 | 500 | 309 | 74 | 3 | -10 | 33 | -2 | 65.0 | 16.6 | 3 | 8.16 |

## MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 16912 | 1.400 | 1.60 | 980 | 180 | 21 | 200 | -1 | -1 | -0.5 | -1 | 0.3 |
| 16915 | 1.700 | 1.70 | 1000 | 150 | 51 | 190 | -1 | -1 | -0.5 | -1 | 0.6 |
| 16916 | 1.600 | 1.70 | 1200 | 150 | 28 | 200 | -1 | 2 | -0.5 | -1 | 0.5 |

## -63uM ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | V | CR | MN | FE % | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13833R | 2 | 140 | 90 | 480 | 3.2 | 17 | 36 | 23 | 81 | 5 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | -1 | 12 | -1 | 3 | 74.3 |
| 16914 | 1 | 160 | 120 | 700 | 4.5 | 26 | 52 | 33 | 110 | 8 | -1 | 3 | -0.5 | 1 | 2 | -1 | -1 | 1 | 22 | -1 | 4 | 52.1 |
| 16910 | -1 | 130 | 91 | 610 | 3.7 | 21 | 39 | 24 | 80 | 25 | -1 | 3 | -0.5 | 16 | 1 | -1 | -1 | -1 | 18 | -1 | 3 | 45.3 |
| 16910R | 0 | 0 | 58 | 0 | 0.0 | 0 | 0 | 0 | 74 | 6 | -1 | 3 | -0.5 | 1 | 2 | 2 | 0 | -1 | 0 | 0 | 0 | 0.0 |
| 16911 | -1 | 140 | 92 | 550 | 3.6 | 20 | 39 | 23 | 82 | 5 | -1 | 4 | -0.5 | 1 | 2 | 1 | -1 | 1 | 18 | -1 | 3 | 37.5 |
| 16912 | -1 | 150 | 94 | 570 | 3.8 | 21 | 41 | 26 | 90 | 11 | -1 | 4 | -0.5 | 1 | 2 | -1 | -1 | 1 | 19 | -1 | 4 | 44.4 |
| 16913 | -1 | 190 | 120 | 640 | 1.6 | 26 | 52 | 33 | 120 | 12 | 1 | 4 | -0.5 | 1 | 2 | -1 | -1 | 1 | 22 | -1 | 4 | 60.2 |
| 16915 | 1 | 77 | 120 | 530 | 3.3 | 21 | 38 | 22 | 56 | 5 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 15 | -1 | -1 | 91.2 |
| 16916 | -1 | 74 | 100 | 530 | 3.3 | 23 | 34 | 20 | 49 | 5 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | 6 | 17 | -1 | 2 | 77.2 |

## BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19702 | -5 | -0.2 | 1.0 | 500 | 6.0 | -10 | 68.0 | 2.0 | 57 | 15 | -2 | 2 | -100 | 2.4 | 30 | -0.5 | -2 | -50 | 50 | 4.30 | 8.5 | -10 | -5 | 2.50 | -1.0 | -20 | -1.0 | 5.4 | -200 | -2 | 1.9 | -5 | -200 | -500 |

## BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19702 | 26 | 18 | 57 | 259 | 0.6 | -10 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0 | 0.00 | 0 |

## Appendix 8-4A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-104

Drilling Completion Date 12/18/85

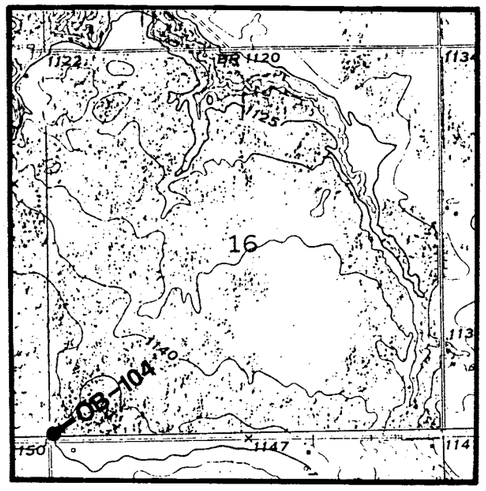
LOCATION (see map at right)

S-T-R SW¼-SW¼-16-68N-26W

County Koochiching

Quadrangle Littlefork NW 7.5

Regional Survey Area Littlefork




HOLE PARAMETERS

Surface Elevation 1148 ft.

Total Depth 96 ft.

Elevation, Top of Precambrian Bedrock 1059 ft.

Drilling Method Rotasonic

Sample Diameter 3.5 inch

Sample Collection Method Core: Sleeved & Boxed

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-81 | Des Moines Lobe Gl. Drift | G | A,B,C | |
| 81-89 | Rainy Lobe Gl. Drift | G | A,B,C | B = Au |
| 89-96 | Bedrock | G,H | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Biotite Paragneiss with Granitic Segregation

Thin Section Description (or number): #19703 at 89.5 ft. Biotite paragneiss with granitic segregation. Estimated mode (volume %), granitic layer and paragneiss layer, respectively: Microcline, 30/--; Plagioclase, 40/50; Quartz, 15/35; Biotite, 15/15; Calcite, Tr/Tr; Zircon, Tr/Tr; Chlorite, Tr/Tr; Apatite, Tr/Tr; Metamict-epidote/allanite (? deep-red clay mineral), Tr/Tr; Pyrite, Tr/Tr; Sphene, --/Tr. Subhedral, fresh and well-foliated biotite commonly contains dark pleochroic haloes due to abundant inclusions of small zircons. Coarser-grained (1 to 3 mm) granitic layer contains clean and fresh tartan-twinned orthoclase; plagioclase in both layers is poorly twinned, sericitized, and apparently albitized (refractive index less than quartz). Minor myrmekitic plagioclase/quartz intergrowths occur in granitic fraction of rock. Rock contains abundant very fine semi-opaque dusty material which is microscopically unresolvable, but is probably a Ca-Fe aluminosilicate. (by T. Boerboom, MGS)



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 17061 | 17.0 | 0.8 | 16.2 | 80.3 | 76.5 | 3.8 | 2.5 | 1.3 | 0 | NA | P | 15 | 20 | 65 | NA | U | Y | Y | Y | B | B | TILL |
| -066CP | 15.9 | 0.9 | 15.0 | 81.2 | 61.6 | 19.6 | 14.7 | 4.9 | 0 | NA | P | 15 | 15 | 70 | NA | S | M | Y | Y | B | B | SAND |
| -068CP | 19.1 | 1.2 | 17.9 | 88.0 | 73.6 | 14.4 | 11.3 | 3.1 | 0 | NA | P | 45 | 10 | 45 | NA | S | M | Y | Y | B | B | SAND |
| -069 | 5.2 | 1.0 | 4.2 | 52.4 | 49.3 | 3.1 | 2.5 | 0.6 | 1 | 1157 | P | 30 | 10 | 60 | NA | U | Y | Y | Y | B | B | TILL |
| -070 | 7.1 | 2.8 | 4.3 | 76.2 | 64.6 | 11.6 | 9.8 | 1.8 | 0 | NA | P | 30 | 20 | 50 | NA | U | Y | Y | Y | B | B | TILL |
| -071 | 7.5 | 0.6 | 6.9 | 88.1 | 79.3 | 8.8 | 7.5 | 1.3 | 0 | NA | P | 50 | 25 | 25 | 1 | U | Y | Y | Y | B | B | TILL |
| -072 | 5.2 | 0.8 | 4.4 | 97.4 | 74.4 | 23.0 | 19.6 | 3.4 | 0 | NA | P | 60 | 40 | TR | NA | U | Y | Y | Y | B | B | TILL |
| 17073 | 7.7 | 1.6 | 6.1 | 132.2 | 114.7 | 17.5 | 14.2 | 3.3 | 0 | NA | P | 60 | 40 | TR | NA | U | Y | Y | Y | B | B | TILL |

GOLD CLASSIFICATION

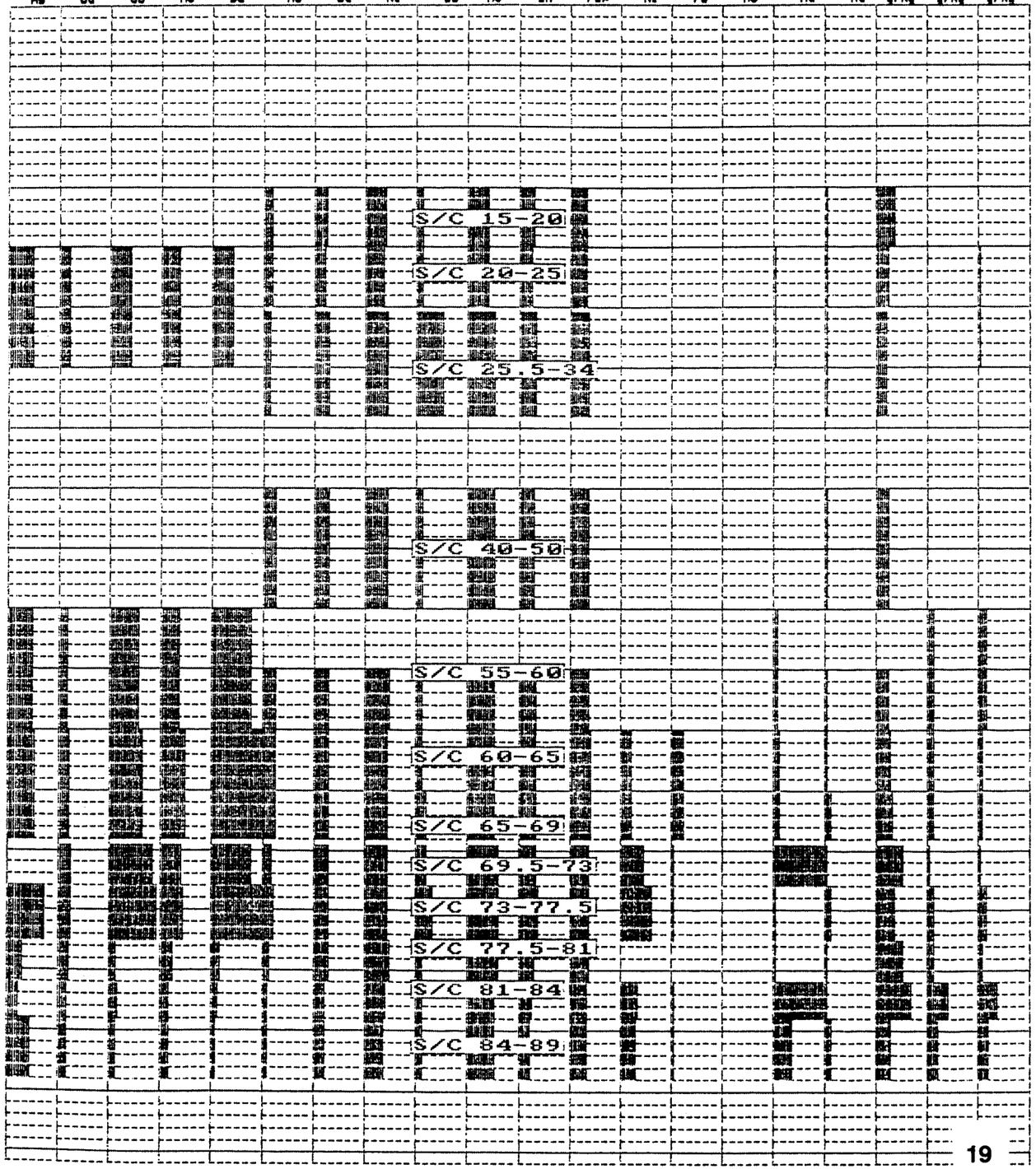
VISIBLE GOLD FROM SHAKING TABLE AND PANNING

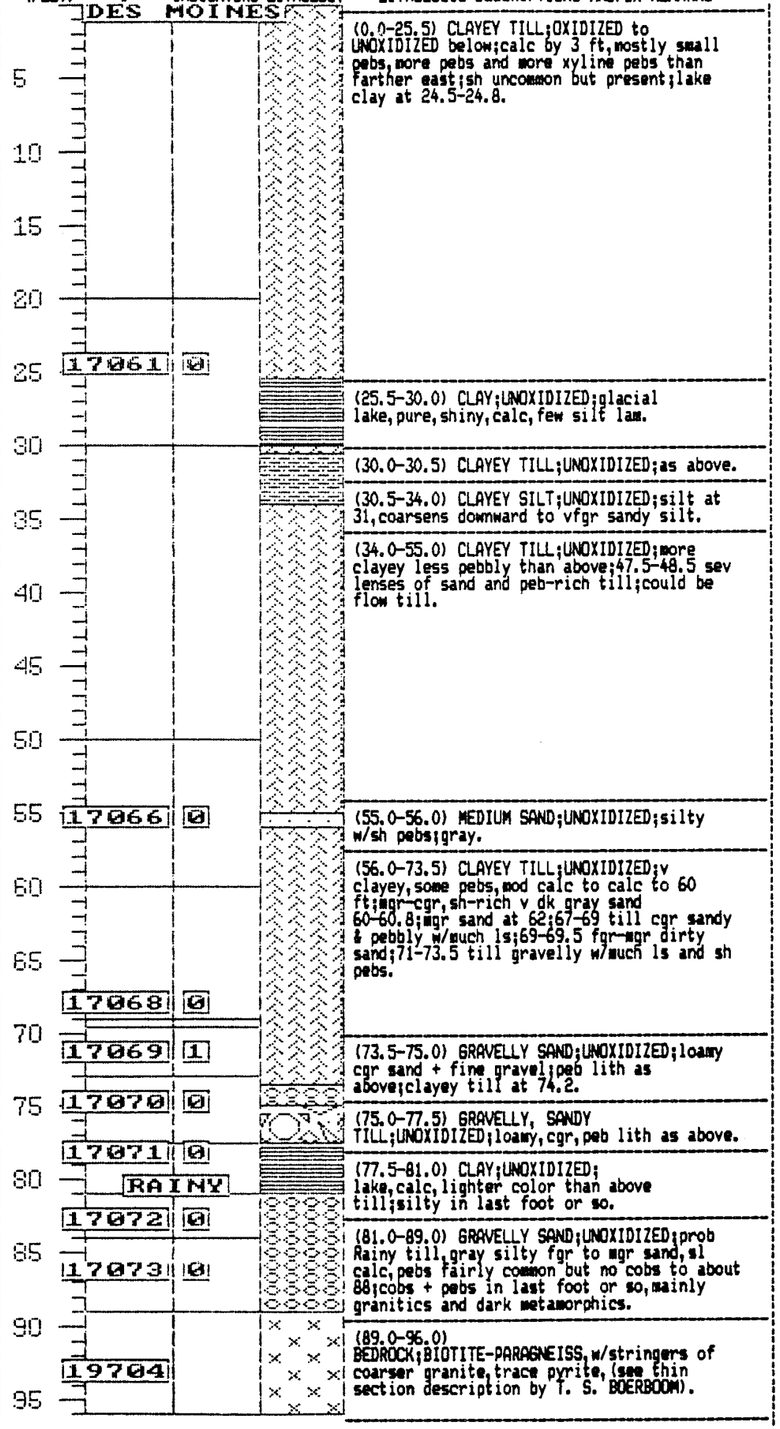
| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | NUMBER OF GRAINS ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17061 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -066CP | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -068CP | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -069 | N | 100 X 150 | 25 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | TOTAL | 1 | 2.5 | 1157 | |
| -070 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -071 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -072 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -073 | N | NO VISIBLE GOLD | | | | | | | | | | | |

SUMMARY OF G. MEYER LOG OB-104, ROTASONIC CORE

# OB-104

Appendix 8-4B.



MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY DESC | LEGAL | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17059 | 104 | 15-20 | 5. | S | L | SW-SW | 16 | 68 | 26 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 28.0 | 805.0 | 3 | -1 | -1 | |
| 17060 | 104 | 20-25 | 5. | S | L | SW-SW | 16 | 68 | 26 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 26.5 | 1177.0 | 2 | -1 | -1 | |
| 17061 | 104 | 25.5-30 | 4.5 | S | L | SW-SW | 16 | 68 | 26 | K | DML. CLAYEY TILL | 20-30 | 0.0 | 17000.0 | 800.0 | 2.5 | 1.3 | -1.0 | -1.0 | -1 | 5 | -1 | | |
| 17062 | 104 | 30.5-34 | 3.5 | S | L | SW-SW | 16 | 68 | 26 | K | DML CLAY: GLACIAL LK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 23.5 | 1122.0 | 2 | -1 | -1 | SI[-63]=25.5-34 |
| 17062R | 104 | 30.5-34 | 3.5 | S | L | SW-SW | 16 | 68 | 26 | K | DML CLAY: GLACIAL LK | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 17063 | 104 | 40-45 | 5. | S | L | SW-SW | 16 | 68 | 26 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 17064 | 104 | 45-50 | 5. | S | L | SW-SW | 16 | 68 | 26 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 22.6 | 952.0 | 2 | -1 | -1 | SI[-63]=40-50 | |
| 17065 | 104 | 50-55 | 5. | S | L | SW-SW | 16 | 68 | 26 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | | |
| 17066 | 104 | 55-60 | 5. | S | L | SW-SW | 16 | 68 | 26 | K | DML. CLAYEY TILL | 50-60 | 0.0 | 15900.0 | 900.0 | 14.7 | 4.9 | 19.0 | 745.0 | 3 | 6 | 91 | | |
| 17067 | 104 | 60-65 | 5. | S | L | SW-SW | 16 | 68 | 26 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 24.7 | 857.0 | 3 | -1 | -1 | | |
| 13834R | 104 | 60-65 | 5. | S | L | SW-SW | 16 | 68 | 26 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 21.1 | 967.0 | 2 | -1 | -1 | | |
| 17068 | 104 | 65-69 | 4. | S | L | SW-SW | 16 | 68 | 26 | K | DML. CLAYEY TILL | 60-69 | 0.0 | 19100.0 | 1200.0 | 11.3 | 3.1 | 20.2 | 623.0 | 3 | 6 | 91 | | |
| 17069 | 104 | 69.5-73 | 3.5 | S | L | SW-SW | 16 | 68 | 26 | K | DML. CLAYEY TILL | 69.5-73 | 1.0 | 5200.0 | 1000.0 | 2.5 | 0.6 | 28.8 | 573.0 | 5 | 19 | 76 | | |
| 17069R | 104 | 69.5-73 | 3.5 | S | L | SW-SW | 16 | 68 | 26 | K | DML. CLAYEY TILL | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 17070 | 104 | 73-77.5 | 4.5 | S | L | SW-SW | 16 | 68 | 26 | K | DML. CLAYEY TILL | 73-77.5 | 0.0 | 7100.0 | 2800.0 | 9.8 | 1.8 | 23.5 | 664.0 | 4 | 39 | 57 | | |
| 17071 | 104 | 77.5-81 | 3.5 | S | L | SW-SW | 16 | 68 | 26 | K | DML CLAY: GLACIAL LK | 77.5-81 | 0.0 | 7500.0 | 600.0 | 7.5 | 1.3 | 31.8 | 590.0 | 5 | 8 | 87 | | |
| 17072 | 104 | 81-84 | 3. | S | L | SW-SW | 16 | 68 | 26 | K | RL. SILTY SAND | 81-84 | 0.0 | 5200.0 | 800.0 | 13.6 | 3.4 | 38.6 | 553.0 | 7 | 15 | 78 | | |
| 17073 | 104 | 84-89 | 5. | S | L | SW-SW | 16 | 68 | 26 | K | RL. F. TO V.F. SAND | 84-89 | 0.0 | 7700.0 | 1600.0 | 14.2 | 3.3 | 22.5 | 821.0 | 3 | 21 | 76 | | |
| 13835R | 104 | 84-89 | 5. | S | L | SW-SW | 16 | 68 | 26 | K | RL. F. TO V.F. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 25.3 | 727.0 | 4 | -1 | -1 | | |
| 19703 | 104 | 89-90 | 1.0 | S | L | SW-SW | 16 | 68 | 26 | K | BEDROCK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | | |
| 19704 | 104 | 90-96 | 6.0 | S | L | SW-SW | 16 | 68 | 26 | K | BEDROCK | 89-96 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17061 | -25 | 0.13 | 859 | 720 | 7200 | 29.00 | 80 | 130 | 120 | 280 | 0 | 97 | -19 | 9 | 0.5 | 0 | -10 | 2.1 | 2400 | 463 | 210 | 11 | 30 | 60 | -2 | 200.0 | 28.7 | 0 | 2.83 |
| 17069 | 3400 | 0.12 | 490 | 520 | 6500 | 27.40 | 80 | 120 | 150 | 400 | 0 | 3 | -10 | 10 | -0.5 | 0 | -10 | 4.3 | 4600 | 266 | 130 | 15 | -10 | 55 | -2 | 96.0 | 16.5 | 0 | 2.71 |
| 17066 | 45 | 0.10 | 583 | 880 | 7300 | 27.80 | 99 | 120 | 94 | 310 | 0 | 97 | -10 | 9 | 0.5 | 0 | -10 | 2.9 | 4500 | 264 | 110 | 6 | -10 | 31 | -2 | 130.0 | 16.6 | 1 | 11.60 |
| 17068 | 60 | 0.09 | 498 | 650 | 6600 | 28.20 | 99 | 110 | 110 | 280 | 0 | 100 | -18 | 12 | 0.5 | 0 | -10 | 3.2 | 12000 | 225 | 120 | 4 | -10 | 22 | -2 | 110.0 | 15.6 | 1 | 8.49 |
| 17070 | -16 | 0.08 | 290 | 310 | 5700 | 34.20 | 88 | 150 | 140 | 220 | 0 | 140 | -10 | 11 | 2.0 | 0 | -10 | 4.5 | 5600 | 163 | 44 | 2 | -10 | 50 | -2 | 85.0 | 9.4 | 1 | 7.73 |
| 17071 | -24 | 0.16 | 528 | 360 | 10000 | 25.00 | 130 | 200 | 110 | 140 | 0 | 55 | 18 | 6 | 0.5 | 0 | -10 | 0.7 | 1000 | 275 | 56 | -3 | -10 | 17 | -2 | 94.0 | 14.3 | 1 | 5.58 |
| 17072 | 1100 | 0.20 | 558 | 290 | 11000 | 22.90 | 140 | 220 | 100 | 120 | 0 | 40 | -10 | 4 | 0.5 | 0 | -10 | 0.8 | 600 | 310 | 56 | -3 | -10 | 21 | -2 | 97.0 | 15.2 | 4 | 15.10 |
| 17073 | 180 | 0.23 | 617 | 310 | 12000 | 26.10 | 170 | 230 | 97 | 110 | 0 | 84 | -10 | 4 | -0.5 | 0 | -10 | 0.6 | 500 | 343 | 68 | 7 | -10 | 40 | -2 | 110.0 | 22.7 | 2 | 10.80 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 17069 | 1.100 | 1.70 | 67 | 220 | 30 | 320 | -1 | -1 | -0.5 | -1 | 0.1 |
| 17068 | 0.760 | 2.00 | 1300 | 100 | 17 | 200 | -1 | -1 | -0.5 | 11 | 0.2 |
| 17070 | 1.700 | 1.70 | 800 | 310 | 27 | 210 | -1 | -1 | -0.5 | -1 | 0.3 |
| 17072 | 1.700 | 1.70 | 1100 | 170 | 31 | 300 | -1 | -1 | -0.5 | -1 | 0.7 |
| 17073 | 1.700 | 1.70 | 1000 | 150 | 27 | 270 | -1 | -1 | -0.5 | -1 | 0.4 |

-63uM ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | V | CR | MN | FE % | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13834R | -1 | 150 | 100 | 580 | 3.6 | 20 | 42 | 28 | 100 | 7 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | 1 | 16 | -1 | 3 | 21.8 |
| 13835R | -1 | 99 | 110 | 530 | 3.4 | 22 | 41 | 28 | 65 | 3 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | 5 | 14 | -1 | 2 | 36.2 |
| 17069 | -1 | 140 | 69 | 640 | 3.8 | 21 | 43 | 27 | 95 | 5 | -1 | 6 | -0.5 | 1 | 3 | 2 | -1 | 1 | 17 | -1 | 3 | 50.3 |
| 17059 | 1 | 150 | 78 | 580 | 3.4 | 20 | 38 | 23 | 83 | 5 | -1 | 4 | -0.5 | -1 | 2 | 1 | -1 | 1 | 16 | -1 | 3 | 34.8 |
| 17060 | 1 | 120 | 76 | 540 | 3.3 | 18 | 35 | 20 | 73 | 5 | -1 | 4 | -0.5 | -1 | 2 | 1 | -1 | 1 | 14 | -1 | 3 | 22.5 |
| 17062 | 1 | 130 | 110 | 620 | 3.6 | 22 | 44 | 26 | 91 | 4 | -1 | 5 | -0.5 | 1 | 3 | 5 | -1 | 1 | 18 | -1 | 3 | 20.9 |
| 17062R | 0 | 0 | 83 | 0 | 0.0 | 0 | 0 | 0 | 85 | 5 | -1 | 2 | -0.5 | 1 | 1 | -1 | 0 | -1 | 0 | 0 | 0 | 0.0 |
| 17064 | -1 | 160 | 90 | 650 | 3.8 | 21 | 42 | 27 | 90 | 7 | -1 | 5 | -0.5 | -1 | 3 | 1 | -1 | 1 | 19 | -1 | 4 | 23.7 |
| 17066 | -1 | 170 | 96 | 610 | 3.8 | 22 | 47 | 27 | 100 | 7 | -1 | 5 | -0.5 | -1 | 3 | 1 | -1 | 2 | 18 | -1 | 3 | 25.5 |
| 17067 | 1 | 170 | 89 | 630 | 3.9 | 22 | 45 | 28 | 100 | 7 | 1 | 5 | -0.5 | 1 | 3 | -1 | -1 | -1 | 3 | -1 | -1 | 28.8 |
| 17068 | 2 | 150 | 88 | 660 | 4.0 | 23 | 45 | 28 | 98 | 7 | -1 | 5 | -0.5 | 1 | 3 | 2 | -1 | 1 | 19 | -1 | 3 | 32.4 |
| 17069R | 0 | 0 | 73 | 0 | 0.0 | 0 | 0 | 0 | 92 | 7 | 1 | 3 | -0.5 | 1 | 1 | -1 | 0 | 1 | 0 | 0 | 0 | 0.0 |
| 17070 | 2 | 140 | 88 | 630 | 3.8 | 21 | 44 | 27 | 110 | 6 | -1 | 6 | -0.5 | 1 | 3 | 3 | -1 | 2 | 16 | -1 | 3 | 35.4 |
| 17071 | 1 | 120 | 100 | 590 | 3.7 | 21 | 46 | 26 | 88 | 4 | -1 | 6 | -0.5 | -1 | 3 | 1 | -1 | 1 | 18 | -1 | 3 | 53.9 |
| 17072 | 1 | 98 | 92 | 530 | 3.4 | 20 | 39 | 21 | 69 | 3 | -1 | 5 | -0.5 | 1 | 2 | 1 | -1 | 2 | 17 | -1 | 3 | 69.8 |
| 17073 | 2 | 87 | 97 | 470 | 3.2 | 20 | 36 | 20 | 60 | 3 | -1 | 5 | -0.5 | 1 | 2 | 1 | -1 | 5 | 18 | -1 | 3 | 27.4 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19704 | -5 | -0.2 | -1.0 | 1200 | 6.0 | -10 | 84.0 | 3.0 | 91 | 22 | -2 | 5 | -100 | 3.8 | 47 | -0.5 | -2 | 61 | 80 | 5.70 | 11.0 | -10 | 8 | 2.70 | -1.0 | -20 | -1.0 | 13.0 | -200 | -2 | 2.2 | -5 | -200 | -500 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19704 | 65 | 23 | 68 | 650 | 1.5 | -10 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0 | 0.00 | 0 |

## Appendix 8-5A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-105

Drilling Completion Date 12/14/85

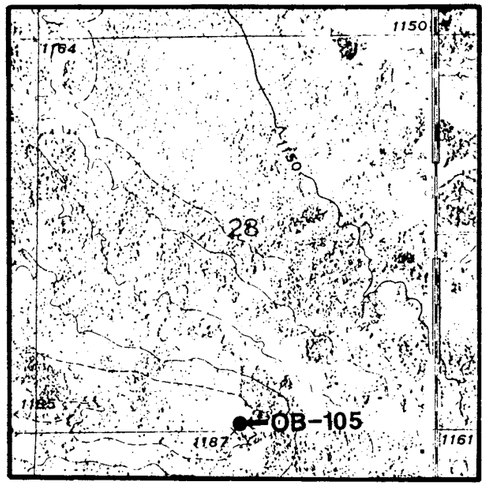
LOCATION (see map at right)

S-T-R SE¼-SW¼-28-68N-25W

County Koochiching

Quadrangle Littlefork SE 7.5

Regional Survey Area Littlefork




HOLE PARAMETERS

Surface Elevation 1187 ft.

Total Depth 63 ft.

Elevation, Top of Precambrian Bedrock 1131 ft.

Drilling Method Rotasonic

Sample Diameter 3.5 inch

Sample Collection Method Core: Sleeved & Boxed

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-18 | Des Moines Lobe Gl. Drift | G | | |
| 18-56 | Rainy Lobe Gl. Drift | G | A,B,C | A = Cu,Zn,Mo |
| 56-63 | Bedrock | G,H | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: 56-58 ft. & 61.5-63 ft. Tonalitic Hornblende Biotite Gneiss and 58-61.5 Tonalite

Thin Section Description (or number): #13870 at 58 ft.; #13871 at 63 ft. #13870; Tonalite (probably an intrusive mass within biotite paragneiss or schist-rich migmatite). Estimated mode (volume %): Plagioclase, 50; Quartz, 18; Biotite, 30; K-feldspar(?), Tr; Zircon, Tr; Apatite, Tr to 1; Epidote, Tr; Calcite, Tr; Garnet, Tr; Opaques (pyrite), Tr to 1. Medium- to coarse-grained igneous rock which consists almost entirely of biotite, plagioclase, and quartz. No preferred orientations are visible. Rare, small, round garnets are included in plagioclase. #13871; Tonalitic hornblende-biotite gneiss. Estimated mode (volume %): Plagioclase (albite), 40; Quartz, 35; Hornblende, 4; Biotite, 20; Chlorite, Tr; Apatite, Tr to 1; Zircon, Tr; Opaques (pyrite), 1. Well-oriented biotite and hornblende define foliation. Rock is medium-grained (up to 1 mm) quartz and well-twinned plagioclase feldspar are clean and granoblastic. Zircons are relatively abundant. Hornblende is patchily altered to grayish-green chlorite. (by T. Boerboom, MGS)



## HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

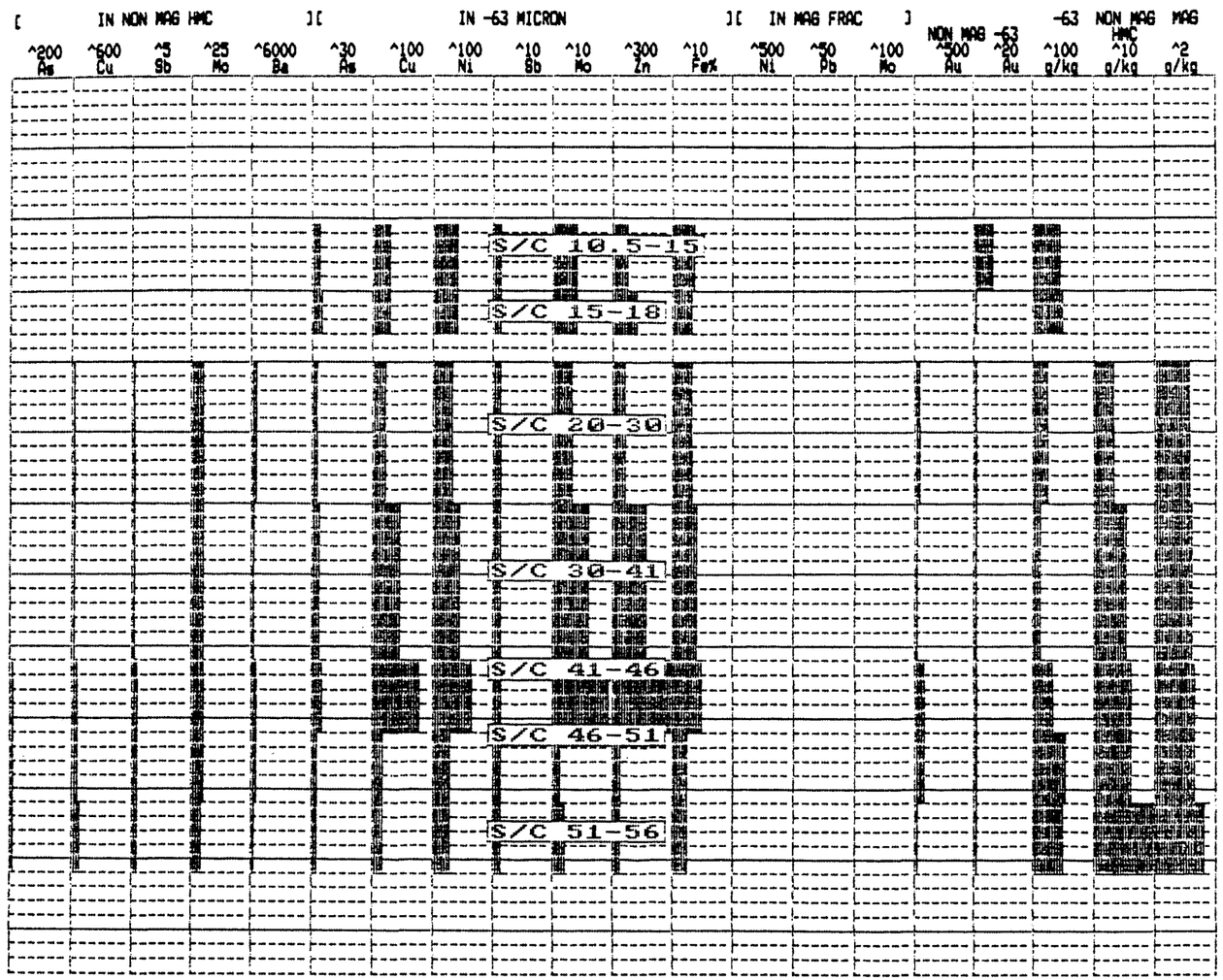
| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | DESCRIPTION | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | CLAST | | | | | MATRIX | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 17003CP | 25.5 | 0.0 | 25.5 | 201.1 | 87.5 | 113.6 | 85.6 | 28.0 | 0 | NA | TR | NA | NA | NA | NA | S | F | Y | Y | B | B | SAND |
| -005CP | 25.9 | 0.8 | 25.1 | 555.1 | 399.6 | 155.5 | 125.4 | 30.1 | 0 | NA | G | 20 | 80 | NA | NA | S | F/M | Y | Y | B | B | SAND |
| -007CP | 24.3 | 1.1 | 23.2 | 469.8 | 304.4 | 165.4 | 134.4 | 31.0 | 0 | NA | P | 20 | 80 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -008 | 12.6 | 0.9 | 11.7 | 264.8 | 122.0 | 142.8 | 123.0 | 19.8 | 0 | NA | P | 30 | 70 | NA | NA | U | Y | Y | Y | GB | GB | TILL |
| -010CP | 22.7 | 1.5 | 21.2 | 356.0 | 203.5 | 152.5 | 138.1 | 14.4 | 0 | NA | P | 50 | 50 | NA | NA | U | Y | Y | Y | GB | GB | TILL |

GOLD CLASSIFICATION

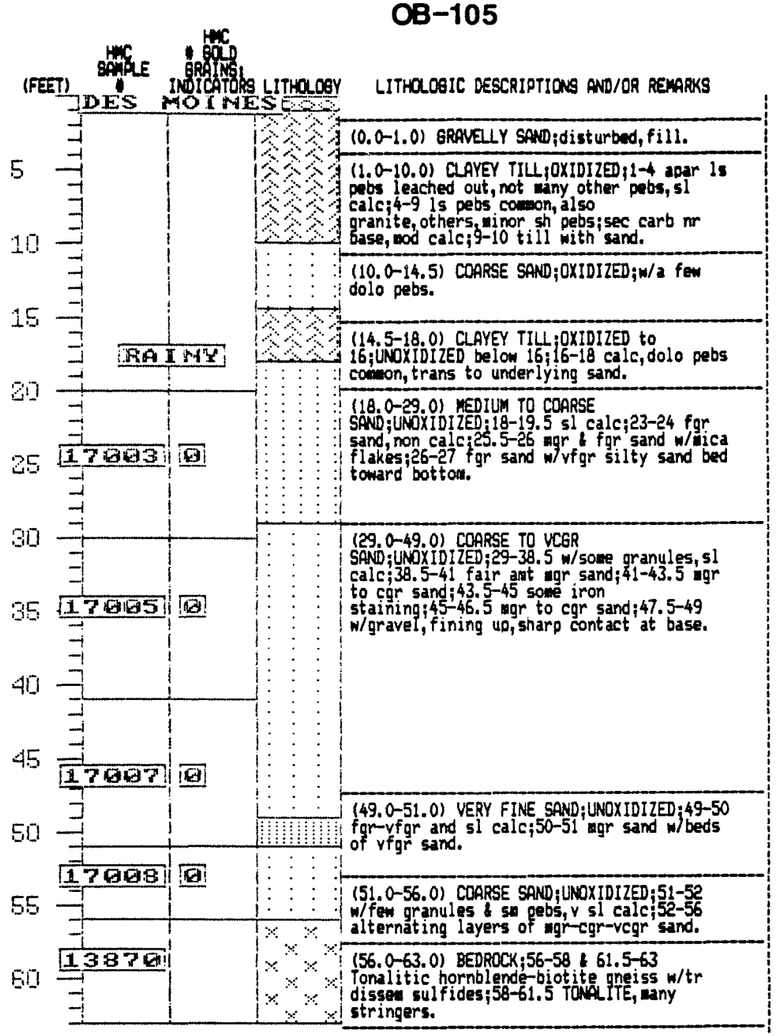
VISIBLE GOLD FROM SHAKING TABLE AND PANNING

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | NUMBER OF GRAINS ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17003 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -005 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -007 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -008 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -010 | N | NO VISIBLE GOLD | | | | | | | | | | | |

SUMMARY OF G. MEYER LOG OB-105, ROTASONIC CORE




## OB-105




LITHOLOGIC DESCRIPTIONS AND/OR REMARKS

(0.0-1.0) GRAVELLY SAND;disturbed,fill.

(1.0-10.0) CLAYEY TILL;OXIDIZED;1-4 apar ls pebs leached out,not many other pebs,sl calc;4-9 ls pebs common,also granite,others,minor sh pebs;sec carb nr base,mod calc;9-10 till with sand.

(10.0-14.5) COARSE SAND;OXIDIZED;w/a few dolo pebs.

(14.5-18.0) CLAYEY TILL;OXIDIZED to 16;UNOXIDIZED below 16;16-18 calc,dolo pebs common,trans to underlying sand.

(18.0-29.0) MEDIUM TO COARSE SAND;UNOXIDIZED;18-19.5 sl calc;23-24 fgr sand,non calc;25.5-26 mgr & fgr sand w/mica flakes;26-27 fgr sand w/vfgr silty sand bed toward bottom.

(29.0-49.0) COARSE TO VCGR SAND;UNOXIDIZED;29-38.5 w/some granules,sl calc;38.5-41 fair amt mgr sand;41-43.5 mgr to cgr sand;43.5-45 some iron staining;45-46.5 mgr to cgr sand;47.5-49 w/gravel,fining up,sharp contact at base.

(49.0-51.0) VERY FINE SAND;UNOXIDIZED;49-50 fgr-vfgr and sl calc;50-51 mgr sand w/beds of vfgr sand.

(51.0-56.0) COARSE SAND;UNOXIDIZED;51-52 w/few granules & sm pebs,v sl calc;52-56 alternating layers of mgr-cgr-vcgr sand.

(56.0-63.0) BEDROCK;56-58 & 61.5-63 Tonalitic hornblende-biotite gneiss w/tr disseм sulfides;58-61.5 TONALITE,many stringers.

Appendix 8-5B.

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT(g) MAG | WT (g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17000 | 105 | 10.5-15 | 4.5 | S | L | SE-SW | 28 | 68 | 25 | K | DML. MED. TO C. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 33.3 | 737.0 | 5 | -1 | -1 | |
| 17001 | 105 | 15-18 | 3. | S | L | SE-SW | 28 | 68 | 25 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 21.1 | 436.0 | 5 | -1 | -1 | |
| 17002 | 105 | 20-25 | 5. | S | L | SE-SW | 28 | 68 | 25 | K | RL. MED. TO C. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 17003 | 105 | 25-30 | 5. | S | L | SE-SW | 28 | 68 | 25 | K | RL. MED. TO C. SAND | 20-30 | 0.0 | 25500.0 | 0.0 | 85.6 | 28.0 | 31.9 | 1329.0 | 2 | 0 | 98 | SI[-63]=20-30 |
| 17004 | 105 | 30-35 | 5. | S | L | SE-SW | 28 | 68 | 25 | K | RL. MED. TO C. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 17005 | 105 | 35-41 | 6. | S | L | SE-SW | 28 | 68 | 25 | K | RL. MED. TO C. SAND | 30-41 | 0.0 | 25900.0 | 800.0 | 125.4 | 30.1 | 19.5 | 1460.0 | 1 | 3 | 96 | SI[-63]=30-41 |
| 17006 | 105 | 41-46 | 5. | S | L | SE-SW | 28 | 68 | 25 | K | RL. MED. TO C. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 18.6 | 590.0 | 3 | -1 | -1 | |
| 17006R | 105 | 41-46 | 5.0 | S | L | SE-SW | 28 | 68 | 25 | K | RL. MED. TO C. SAND | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 17007 | 105 | 46-51 | 5. | S | L | SE-SW | 28 | 68 | 25 | K | RL. MED. TO C. SAND | 41-51 | 0.0 | 24300.0 | 1100.0 | 134.4 | 31.0 | 38.5 | 746.0 | 5 | 5 | 90 | |
| 17008 | 105 | 51-56 | 5. | S | L | SE-SW | 28 | 68 | 25 | K | RL. MED. TO C. SAND | 51-56 | 0.0 | 12600.0 | 900.0 | 123.0 | 19.8 | 42.1 | 861.0 | 5 | 7 | 88 | |
| 17009 | 105 | 55 | -2.0 | S | L | SE-SW | 28 | 68 | 25 | K | RL. UNCLASS. SLUFF | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 18.9 | 486.0 | 4 | -1 | -1 | SLUFF MAT'L |
| 17009R | 105 | 55 | -2.0 | S | L | SE-SW | 28 | 68 | 25 | K | RL. UNCLASS. SLUFF | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 17010 | 105 | 55 | -2.0 | S | L | SE-SW | 28 | 68 | 25 | K | RL. UNCLASS. SLUFF | 55 | 0.0 | 22700.0 | 1500.0 | 138.1 | 14.4 | 19.0 | 476.0 | 4 | 7 | 89 | SLUFF MAT'L |
| 17010R | 105 | 55 | -2.0 | S | L | SE-SW | 28 | 68 | 25 | K | RL. UNCLASS. SLUFF | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 13870 | 105 | 56-63 | 7.0 | S | L | SE-SW | 28 | 68 | 25 | K | BEDROCK | 56-63 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17003 | 44 | 0.18 | 255 | 390 | 9300 | 18.30 | 41 | 93 | 24 | 130 | 0 | -2 | -10 | 5 | -0.5 | 0 | -10 | -0.3 | 400 | 148 | 60 | 6 | -10 | 14 | -2 | 39.0 | 7.1 | 3 | 74.50 |
| 17005 | 26 | 0.18 | 163 | 320 | 9500 | 17.10 | 43 | 96 | 25 | 130 | 0 | -2 | -10 | 5 | -0.5 | 0 | -10 | -0.3 | -300 | 91 | 28 | 6 | -10 | 15 | -2 | 23.0 | 3.8 | 5 | 95.60 |
| 17007 | 72 | 0.19 | 188 | 370 | 8900 | 20.10 | 68 | 120 | 42 | 120 | 0 | -4 | -10 | 5 | -0.5 | 0 | -10 | -0.4 | 400 | 109 | 34 | 6 | -10 | 15 | -2 | 28.0 | 6.1 | 6 | 102.00 |
| 17008 | -18 | 0.22 | 200 | 340 | 8300 | 19.50 | 90 | 150 | 63 | 130 | 0 | 9 | -10 | 4 | -0.5 | 0 | -10 | -0.4 | -200 | 115 | 40 | 5 | -10 | 16 | -2 | 29.0 | 9.0 | 10 | 83.30 |
| 17010 | 18 | 0.25 | 142 | 300 | 8700 | 17.60 | 74 | 140 | 58 | 130 | 0 | -4 | -10 | 4 | -0.5 | 0 | -10 | 0.5 | -100 | 75 | 21 | 4 | -10 | 17 | -2 | 16.0 | 3.3 | 6 | 105.00 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 17010 | 1.600 | 6.50 | 1100 | 140 | 30 | 410 | -1 | -1 | -0.5 | 14 | 0.6 |

-63uM ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | V | CR | MN | FE % | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17000 | 6 | 90 | 98 | 540 | 3.5 | 21 | 39 | 29 | 71 | 4 | -1 | 4 | -0.5 | -1 | 2 | 1 | -1 | 5 | 21 | -1 | 2 | 45.2 |
| 17001 | -1 | 130 | 88 | 550 | 3.3 | 19 | 40 | 27 | 120 | 5 | -1 | 4 | -0.5 | 1 | 2 | 1 | -1 | 3 | 22 | -1 | 3 | 48.4 |
| 17003 | -1 | 75 | 95 | 300 | 3.1 | 21 | 30 | 20 | 65 | 2 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | 2 | 18 | -1 | 1 | 24.0 |
| 17005 | -1 | 90 | 120 | 370 | 4.0 | 25 | 45 | 43 | 170 | 4 | -1 | 6 | -0.5 | 1 | 2 | 1 | -1 | 3 | 26 | -1 | 1 | 13.4 |
| 17006 | -1 | 100 | 130 | 520 | 4.8 | 37 | 65 | 76 | 550 | 5 | -1 | 9 | -0.5 | -1 | 2 | -1 | -1 | 3 | 26 | -1 | 2 | 31.5 |
| 17006R | 0 | 0 | 120 | 0 | 0.0 | 0 | 0 | 0 | 560 | 7 | 2 | 9 | -0.5 | -1 | 1 | -1 | 0 | 2 | 0 | 0 | 0 | 0.0 |
| 17007 | -1 | 63 | 81 | 440 | 2.4 | 17 | 27 | 15 | 31 | 2 | -1 | -1 | -0.5 | -1 | -1 | -1 | -1 | -1 | 11 | -1 | -1 | 51.6 |
| 17008 | -1 | 64 | 84 | 450 | 2.5 | 17 | 27 | 15 | 32 | 2 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | 1 | 12 | -1 | -1 | 48.9 |
| 17009 | -1 | 78 | 130 | 470 | 3.3 | 22 | 40 | 44 | 270 | 4 | -1 | 12 | -0.5 | 1 | 2 | -1 | -1 | 3 | 15 | -1 | -1 | 38.9 |
| 17009R | 0 | 0 | 110 | 0 | 0.0 | 0 | 0 | 0 | 290 | 5 | 1 | 9 | -0.5 | 1 | 1 | -1 | 0 | 2 | 0 | 0 | 0 | 0.0 |
| 17010 | -1 | 75 | 220 | 520 | 4.1 | 23 | 53 | 53 | 92 | 4 | 1 | 30 | -0.5 | -1 | 2 | -1 | -1 | 3 | 19 | -1 | -1 | 39.9 |
| 17010R | 0 | 0 | 190 | 0 | 0.0 | 0 | 0 | 0 | 110 | 5 | -1 | 22 | -0.5 | 1 | 2 | -1 | 0 | 3 | 0 | 0 | 0 | 0.0 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13870 | -6 | -0.2 | -1.1 | 0 | 0.0 | 0 | 50.0 | 0.0 | 260 | 24 | 0 | 2 | -50 | 4.9 | 33 | 0.0 | 0 | 0 | 0 | 0.00 | 0.0 | -5 | -2 | 2.60 | 0.0 | 0 | 0.0 | 6.5 | 0 | -3 | 1.8 | 0 | 200 | 0 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13870 | 0 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | -320 | 0 | 0 | -3 | 580 | -2.2 | 0 | 0.00 | 0 |

## Appendix 8-6A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-106

Drilling Completion Date 12/16/85

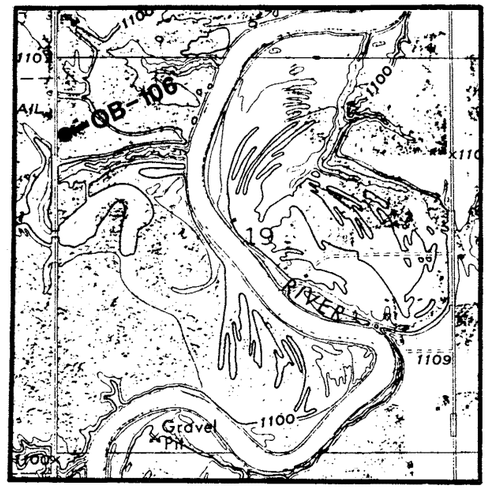
LOCATION (see map at right)

S-T-R SW¼-NW¼-19-69N-25W

County Koochiching

Quadrangle Littlefork 7.5

Regional Survey Area Littlefork




HOLE PARAMETERS

Surface Elevation 1107 ft.

Total Depth 114 ft.

Elevation, Top of Precambrian Bedrock 999 ft.

Drilling Method Rotasonic

Sample Diameter 3.5 inch

Sample Collection Method Core: Sleeved & Boxed

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-98.5 | Des Moines Lobe Gl. Drift | G | A,B,C | |
| 98.5-108 | Rainy Lobe Gl. Drift | G | A,B,C | |
| 108-114 | Bedrock | G,H | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Quartz Biotite Schist

Thin Section Description (or number): #19705 at 108 ft. Hornblende-biotite-chlorite schist (retrograded amphibolite); fabric suggestive of shear followed by neocrystallization. Estimated mode (volume %), Present assemblage: Chlorite, 68; Biotite, 5; Hornblende, 17; Sericite, 7; Calcite, 1; Quartz, 1; Opaques (leucoxene), 1; Apatite, Tr to 1. "Premetamorphic" assemblage: Plagioclase (now sericite), 8 to 12; Hornblende, 80 to 85; Biotite, 5; Quartz, 1. Prior to heavy retrograde metamorphism, rock was apparently very rich in hornblende and biotite, with subordinate plagioclase and quartz. Hornblende is heavily altered to pale greenish-yellow chlorite, granular dusty opaques, sphene, and leucoxene; alteration occurs incipiently along cleavage planes and ranges to complete replacement. Biotite is red-brown and fresh, and appears to have grown after an earlier phase of retrograde metamorphism. The biotite books are typically rimmed by a fine, dusty, opaque material (Fe-oxides?). Plagioclase is completely altered to sericite and fine-grained muscovite. Calcite is most abundant where chlorite replacement of hornblende is most pervasive. (by T. Boerboom, MGS)



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 16954CP | 7.5 | 0.4 | 7.1 | 146.3 | 144.3 | 2.0 | 1.4 | 0.6 | 0 | NA | P | 30 | 30 | 40 | NA | U | Y | Y | Y | B | B | TILL |
| -957CP | 4.9 | 0.0 | 4.9 | 233.6 | 232.2 | 1.4 | 0.9 | 0.5 | 0 | NA | TR | NA | NA | NA | NA | U | Y | Y | Y | B | B | TILL |
| -958 | 7.9 | 0.4 | 7.5 | 55.7 | 52.8 | 2.9 | 1.9 | 1.0 | 0 | NA | P | 50 | 35 | 15 | NA | U | Y | Y | Y | B | B | TILL |
| 960CP | 11.9 | 0.0 | 11.9 | 33.6 | 33.4 | 0.2 | 0.1 | 0.1 | 0 | NA | TR | NA | NA | NA | NA | S | F | Y | Y | B | B | SAND |
| -961 | 9.8 | 1.6 | 8.2 | 278.2 | 248.9 | 29.3 | 24.5 | 4.8 | 0 | NA | P | 30 | 70 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -962 | 14.0 | 2.3 | 11.7 | 197.5 | 162.9 | 34.6 | 29.8 | 4.8 | 0 | NA | P | 10 | 90 | NA | NA | U | Y | Y | Y | B | B | TILL |

GOLD CLASSIFICATION

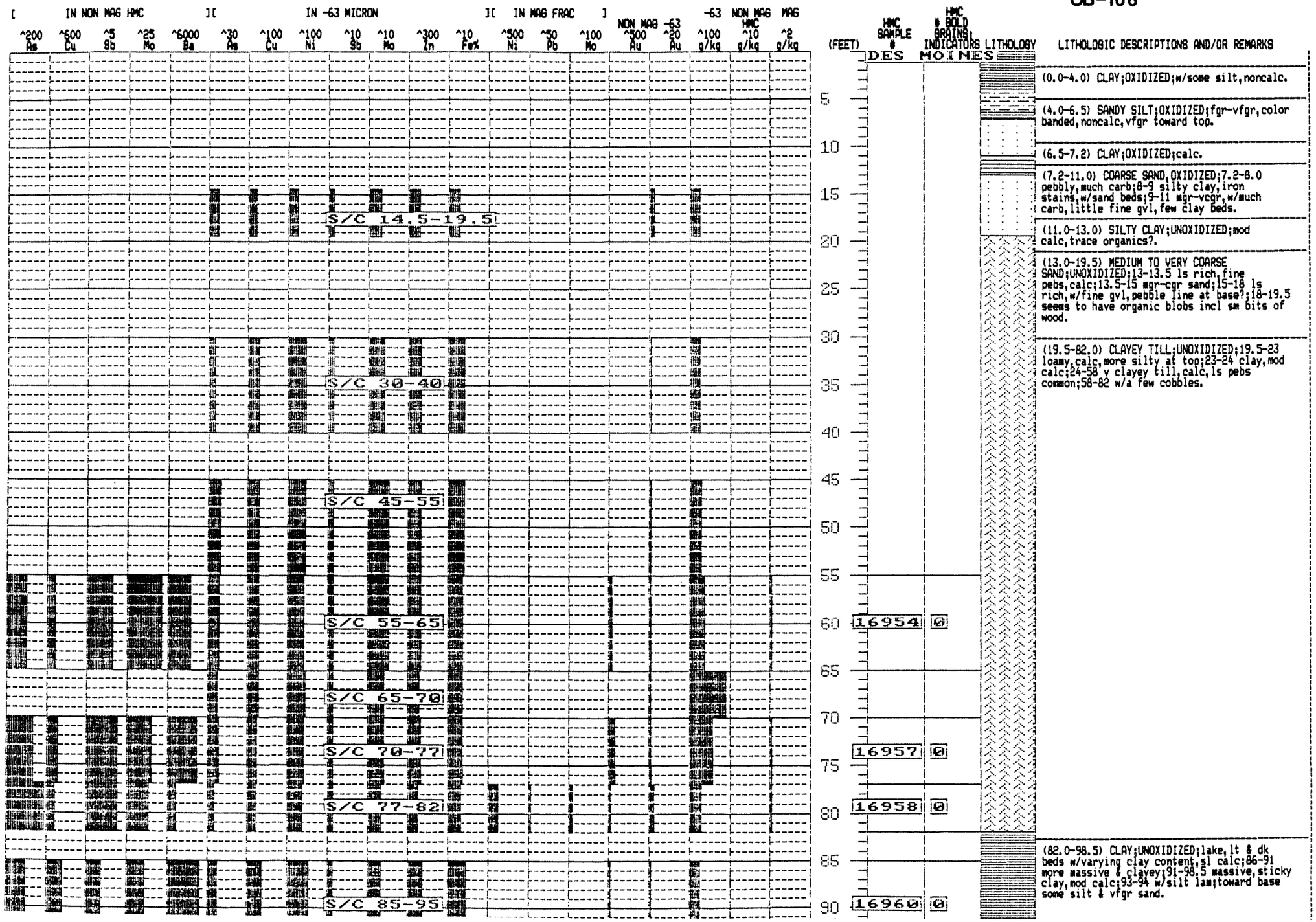
VISIBLE GOLD FROM SHAKING TABLE AND PANNING

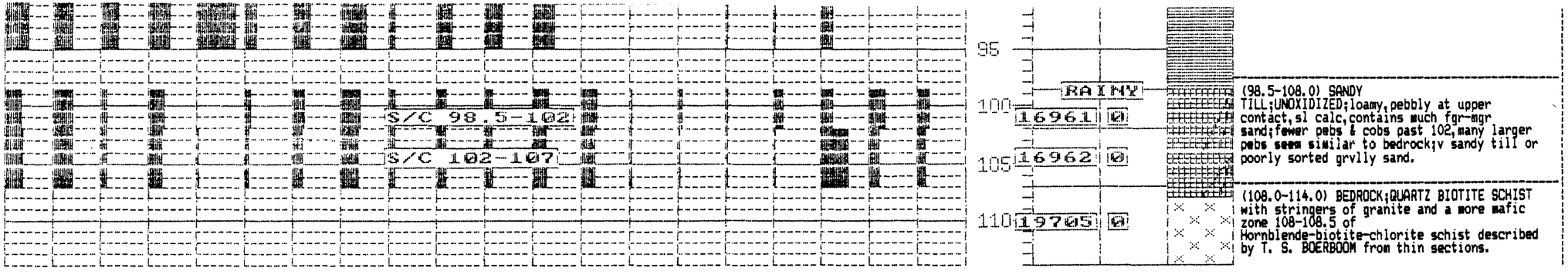
| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | NUMBER OF GRAINS ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16954 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -957 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -958 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -960 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -961 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -962 | N | NO VISIBLE GOLD | | | | | | | | | | | |

SUMMARY OF G. MEYER LOG OB-106, ROTASONIC CORE

# OB-106

Appendix 8-6B.




S/C 98.5-102
S/C 102-107
95
100
105
110
RAINY
16961
16962
19705
(98.5-108.0) SANDY TILL;UNOXIDIZED;loamy,pebbly at upper contact,sl calc,contains much fgr-mgr sand;fewer pebs & cobs past 102,many larger pebs seem similar to bedrock;v sandy till or poorly sorted grvlly sand.
(108.0-114.0) BEDROCK;QUARTZ BIOTITE SCHIST with stringers of granite and a more mafic zone 108-108.5 of Hornblende-biotite-chlorite schist described by T. S. BOERBOOM from thin sections.

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16947 | 106 | 14.5-19.5 | 5. | S | L | SW-NW | 19 | 69 | 25 | K | DML. MED. TO C. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 15.6 | 640.0 | 2 | -1 | -1 | |
| 16948 | 106 | 30-35 | 5. | S | L | SW-NW | 19 | 69 | 25 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16949 | 106 | 35-40 | 5. | S | L | SW-NW | 19 | 69 | 25 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 22.9 | 911.0 | 3 | -1 | -1 | SIE-631=30-40 |
| 16950 | 106 | 40-45 | 5. | S | L | SW-NW | 19 | 69 | 25 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16951 | 106 | 45-50 | 5. | S | L | SW-NW | 19 | 69 | 25 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16952 | 106 | 50-55 | 5. | S | L | SW-NW | 19 | 69 | 25 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 22.7 | 766.0 | 3 | -1 | -1 | SIE-631=45-55 |
| 16953 | 106 | 55-60 | 5. | S | L | SW-NW | 19 | 69 | 25 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16954 | 106 | 60-65 | 5. | S | L | SW-NW | 19 | 69 | 25 | K | DML. CLAYEY TILL | 55-65 | 0.0 | 7500.0 | 400.0 | 1.4 | 0.6 | 21.4 | 589.0 | 4 | 5 | 91 | SIE-631=55-65 |
| 16955 | 106 | 65-70 | 5. | S | L | SW-NW | 19 | 69 | 25 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 21.5 | 244.0 | 9 | -1 | -1 | | |
| 16956 | 106 | 70-75 | 5. | S | L | SW-NW | 19 | 69 | 25 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 13836R | 106 | 70-75 | 5. | S | L | SW-NW | 19 | 69 | 25 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 20.6 | 556.0 | 4 | -1 | -1 | | |
| 16957 | 106 | 75-77 | 2. | S | L | SW-NW | 19 | 69 | 25 | K | DML. CLAYEY TILL | 70-77 | 0.0 | 4900.0 | 0.0 | 0.9 | 0.5 | 21.6 | 392.0 | 6 | 0 | 94 | SIE-631=70-77 |
| 16958 | 106 | 77-82 | 5. | S | L | SW-NW | 19 | 69 | 25 | K | DML. CLAYEY TILL | 77-82 | 0.0 | 7900.0 | 400.0 | 1.9 | 1.0 | 20.5 | 782.0 | 3 | 5 | 92 | | |
| 16959 | 106 | 85-90 | 5. | S | L | SW-NW | 19 | 69 | 25 | K | DML CLAY: GLACIAL LK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16960 | 106 | 90-95 | 5. | S | L | SW-NW | 19 | 69 | 25 | K | DML CLAY: GLACIAL LK | 85-95 | 0.0 | 11900.0 | 0.0 | 0.1 | 0.1 | 20.4 | 927.0 | 2 | 0 | 98 | SIE-631=85-95 |
| 16961 | 106 | 98.5-102 | 3.5 | S | L | SW-NW | 19 | 69 | 25 | K | RL. SANDY GVL. TILL | 98.5-102 | 0.0 | 9800.0 | 1600.0 | 24.5 | 4.8 | 23.4 | 958.0 | 2 | 16 | 82 | | |
| 16962 | 106 | 102-107 | 5. | S | L | SW-NW | 19 | 69 | 25 | K | RL. SANDY GVL. TILL | 102-107 | 0.0 | 14000.0 | 2300.0 | 29.8 | 4.8 | 73.6 | 1306.0 | 6 | 16 | 78 | | |
| 13837R | 106 | 102-107 | 5. | S | L | SW-NW | 19 | 69 | 25 | K | RL. SANDY GVL. TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 38.2 | 780.0 | 5 | -1 | -1 | | |
| 19705 | 106 | 107-114 | 7.0 | S | L | SW-NW | 19 | 69 | 25 | K | BEDROCK | 107-114 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16954 | -33 | 0.16 | 1070 | 800 | 5700 | 31.70 | 88 | 100 | 130 | 360 | 0 | 96 | -27 | 21 | 0.5 | 0 | -10 | 3.3 | 3300 | 640 | 300 | 6 | 40 | 17 | -2 | 200.0 | 29.2 | 0 | 1.53 |
| 16957 | 73 | 0.12 | 1010 | 740 | 6200 | 30.70 | 89 | 110 | 170 | 240 | 0 | 130 | -27 | 15 | 0.5 | 0 | -10 | 3.8 | 4200 | 616 | 320 | 15 | -10 | 21 | -2 | 180.0 | 38.0 | 0 | 1.01 |
| 16958 | 30 | 0.08 | 997 | 800 | 5900 | 29.40 | 94 | 100 | 120 | 200 | 0 | 180 | -20 | 13 | 0.5 | 0 | -10 | 3.8 | 1100 | 538 | 280 | 11 | -10 | 37 | -2 | 160.0 | 32.2 | 0 | 1.94 |
| 16960 | 23 | 0.29 | 972 | 750 | 7400 | 27.80 | 110 | 140 | 230 | 270 | 0 | 92 | -20 | 11 | -0.5 | 0 | -10 | 1.9 | 4800 | 473 | 180 | 7 | -10 | 47 | -2 | 210.0 | 32.5 | 0 | 0.11 |
| 16961 | -28 | 0.27 | 1250 | 290 | 9700 | 24.70 | 310 | 340 | 250 | 140 | 0 | 64 | -10 | 8 | 0.5 | 0 | -10 | -0.6 | -100 | 735 | 110 | 6 | 10 | 28 | -2 | 150.0 | 42.3 | 3 | 19.00 |
| 16962 | 17 | 0.26 | 1080 | 230 | 10000 | 21.70 | 280 | 340 | 240 | 120 | 0 | 74 | -24 | 7 | 0.5 | 0 | -10 | -0.6 | -300 | 657 | 100 | 5 | 170 | 15 | -2 | 140.0 | 34.4 | 2 | 22.00 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 16958 | 1.200 | 1.30 | 1200 | 120 | 24 | 200 | -1 | 8 | -0.5 | -1 | 0.1 |
| 16961 | 1.200 | 1.60 | 1500 | 160 | 38 | 170 | -1 | 7 | -0.5 | -1 | 0.5 |
| 16962 | 1.500 | 1.60 | 1500 | 140 | 26 | 130 | -1 | 3 | -0.5 | -1 | 0.3 |

-63um ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | V | CR | MN | FE % | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16947 | -2 | 73 | 68 | 940 | 2.8 | 15 | 25 | 21 | 79 | 7 | -1 | 3 | -0.5 | -1 | -1 | -1 | -1 | 1 | 21 | -1 | 3 | 24.4 |
| 16949 | 1 | 150 | 96 | 640 | 3.9 | 23 | 42 | 28 | 93 | 5 | -1 | 4 | -0.5 | -1 | 2 | -1 | -1 | 1 | 21 | -1 | 4 | 25.1 |
| 16952 | -1 | 160 | 97 | 610 | 3.9 | 23 | 44 | 28 | 94 | 10 | -1 | 5 | -0.5 | -1 | 2 | 1 | -1 | 1 | 21 | -1 | 4 | 29.6 |
| 16954 | -1 | 160 | 96 | 560 | 3.6 | 21 | 40 | 26 | 93 | 9 | -1 | 5 | -0.5 | -1 | 2 | -1 | -1 | 1 | 21 | -1 | 4 | 36.3 |
| 16955 | 1 | 170 | 93 | 580 | 3.6 | 22 | 43 | 27 | 88 | 7 | -1 | 4 | -0.5 | 1 | 2 | -1 | -1 | 1 | 21 | -1 | 4 | 88.1 |
| 13836R | -1 | 180 | 98 | 580 | 3.8 | 21 | 44 | 28 | 99 | 9 | 1 | 4 | -0.5 | -1 | 2 | -1 | -1 | 1 | 14 | -1 | 3 | 37.1 |
| 16957 | -1 | 160 | 91 | 530 | 3.5 | 21 | 40 | 25 | 92 | 9 | -1 | 4 | -0.5 | 1 | 2 | -1 | -1 | 1 | 22 | -1 | 4 | 55.1 |
| 16958 | 2 | 120 | 77 | 540 | 3.0 | 18 | 35 | 21 | 77 | 5 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | 1 | 19 | -1 | 4 | 26.2 |
| 16960 | -1 | 150 | 120 | 590 | 4.3 | 26 | 53 | 34 | 110 | 7 | -1 | 3 | -0.5 | 1 | 2 | -1 | -1 | 1 | 22 | -1 | 3 | 22.0 |
| 16961 | 4 | 81 | 110 | 500 | 3.2 | 22 | 39 | 23 | 48 | 4 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | 1 | 12 | -1 | -1 | 24.4 |
| 16962 | 1 | 80 | 120 | 410 | 2.9 | 21 | 37 | 21 | 44 | 3 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | 5 | 11 | -1 | -1 | 56.4 |
| 13837R | -1 | 83 | 120 | 520 | 3.3 | 22 | 39 | 23 | 47 | 3 | -1 | 1 | -0.5 | -1 | 1 | -1 | -1 | 3 | 9 | -1 | -1 | 49.0 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19705 | -5 | -0.2 | -1.0 | 580 | -5.0 | -10 | 90.0 | 3.0 | 160 | 23 | 3 | 4 | -100 | 3.8 | 36 | -0.5 | -2 | 73 | 55 | 5.60 | 15.0 | -10 | 5 | 2.60 | -1.0 | -20 | -1.0 | 9.0 | -200 | -2 | 3.0 | -5 | -200 | -500 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FED % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19705 | 42 | 21 | 67 | 464 | 1.3 | -10 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0 | 0.00 | 0 |

## Appendix 8-7A. DRILL HOLE SUMMARY SHEET

### IDENTIFICATION

DNR Drill Hole Number OB-107

Drilling Completion Date 12/15/85

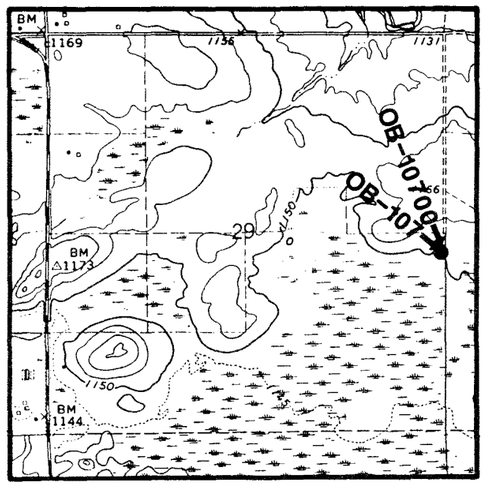
### LOCATION (see map at right)

S-T-R NE¼-SE¼-29-68N-24W

County Koochiching

Quadrangle Ericsburg SW 7.5

Regional Survey Area Littlefork




### HOLE PARAMETERS

Surface Elevation 1150 ft.

Total Depth 150 ft.

Elevation, Top of Precambrian Bedrock 1008 ft.

Drilling Method Rotasonic

Sample Diameter 3.5 inch

Sample Collection Method Core: Sleeved & Boxed

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

### INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-63.5 | Des Moines Lobe Gl. Drift | G | A,B,C | |
| 63.5-142 | Rainy Lobe Gl. Drift | G | A,B,C | A = Au & Zn<br>B = Au |
| 142-150 | Bedrock | G,H | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

### BEDROCK

Principal Rock Type: Biotite Paragneiss with Leucocratic Tonalite Segregation

Thin Section Description (or number): #19706 at 143 ft.; #19707 at 145 ft. #19706 - Same as #19707 (polished section). The opaque phases are disseminated pyrite and pyrite in thin veinlets parallel to foliation. Also some pyrite within biotite, parallel to foliation planes, commonly with a rim of carbonate between pyrite and biotite grains. Very small amounts of chalcopyrite occur with pyrite. Thin biotite selvages separate the paleosome and neosome components of this migmatitic rock, and biotite segregations also occur within the leucogranite neosome. #19707; Biotite paragneiss with leucocratic tonalite segregation. Estimated mode (volume %) - Gneissic portion (paleosome): Plagioclase, 64; Quartz, 20; Biotite, 15; Garnet, Tr to 1; Zircon, Tr; Apatite, Tr; Opaques (pyrite), Tr to 1; Calcite, Tr. Tonalite (neosome, probably highly variable): Quartz, 45; Plagioclase, 53; Microcline, 1; Biotite, 1. Gneissic portion consists of well-foliated biotite, minor amounts of garnet and disseminated pyrite in a matrix of fresh, medium-grained, granoblastic quartz plus sodic plagioclase. Coarse-grained leucocratic portion consists of quartz, sodic plagioclase, minor microcline, and minor biotite. (by T. Boerboom, MGS)



## HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) TABLE SPLIT | +10 CHIPS | TABLE FEED | WEIGHT (GRAMS DRY) TABLE CONC | M.I. LIGHTS | M. I. CONC. TOTAL | NON MAG | MAG | AU NO. V.G. | AU CALC PPB | DESCRIPTION CLAST SIZE | CLAST % V/S GR | CLAST % LS | CLAST % OT | MATRIX S/U | MATRIX SD | MATRIX ST | MATRIX CY | COLOR SD | COLOR CY | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16973CP | 12.1 | 0.5 | 11.6 | 81.5 | 77.0 | 4.5 | 3.1 | 1.4 | 0 | NA | P | 5 | 10 | 85 | NA | U | Y | Y | Y | B | B TILL |
| -982CP | 29.8 | 0.0 | 29.8 | 565.2 | 324.4 | 240.8 | 199.3 | 41.5 | 1 | 8 | TR | NA | NA | NA | NA | S | F | Y | Y | B | B SAND |
| -984CP | 27.9 | 0.0 | 27.9 | 548.1 | 287.2 | 260.9 | 214.2 | 46.7 | 9 | 31 | TR | NA | NA | NA | NA | S | F | Y | Y | B | B SAND |
| -986CP | 16.2 | 0.2 | 16.0 | 389.5 | 219.0 | 170.5 | 145.7 | 24.8 | 5 | 194 | P | 5 | 95 | TR | NA | S | F | Y | Y | B | B SAND |
| -988CP | 16.1 | 0.0 | 16.1 | 343.5 | 160.5 | 183.0 | 155.7 | 27.3 | 7 | 85 | TR | NA | NA | NA | NA | S | F | Y | Y | B | B SAND |
| -989 | 23.7 | 0.0 | 23.7 | 416.6 | 196.1 | 220.5 | 180.1 | 40.4 | 2 | 8 | TR | NA | NA | NA | NA | S | F | Y | Y | B | B SAND |
| -990 | 15.4 | 0.0 | 15.4 | 214.1 | 71.7 | 142.4 | 113.1 | 29.3 | 0 | NA | TR | NA | NA | NA | NA | S | F | Y | Y | B | B SAND |

### GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16973 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -982 | N | 100 X 100 | 20 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | TOTAL | 1 | 199.3 | 8 | |
| -984 | Y | 25 X 25 | 5 C | | 1 | | | | | 1 | | | EST. 1% PYRITE |
| | | 25 X 50 | 8 C | | 1 | | | | | 1 | | | |
| | | 50 X 50 | 10 C | | 2 | | | | | 2 | | | |
| | | 50 X 75 | 13 C | 1 | | | | | | 1 | | | |
| | | 75 X 75 | 15 C | | 2 | | | | | 2 | | | |
| | | 100 X 100 | 20 C | 1 | | | | | | 1 | | | |
| | | 125 X 125 | 25 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | TOTAL | 9 | 214.2 | 31 | |
| -986 | Y | 50 X 100 | 15 C | | 1 | | | | | 1 | | | EST. 1% PYRITE |
| | | 100 X 150 | 25 C | 1 | | | | | | 1 | | | |
| | | 150 X 150 | 29 C | 1 | | | | | | 1 | | | |
| | | 125 X 150 | 27 C | 1 | | | | | | 1 | | | |
| | | 200 X 250 | 42 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | TOTAL | 5 | 145.7 | 194 | |
| -988 | Y | 25 X 25 | 5 C | | 1 | 1 | | | | 2 | | | EST. 1% PYRITE |
| | | 25 X 75 | 10 C | | | 1 | | | | 1 | | | |
| | | 50 X 50 | 10 C | | 1 | | | | | 1 | | | |
| | | 50 X 75 | 13 C | 1 | | | | | | 1 | | | |
| | | 75 X 100 | 18 C | 1 | | | | | | 1 | | | |
| | | 200 X 200 | 38 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | TOTAL | 7 | 155.7 | 85 | |
| -989 | N | 50 X 75 | 13 C | 1 | | | | | | 1 | | | |
| | | 50 X 125 | 18 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | TOTAL | 2 | 180.1 | 8 | |
| -990 | N | NO VISIBLE GOLD | | | | | | | | | | | |

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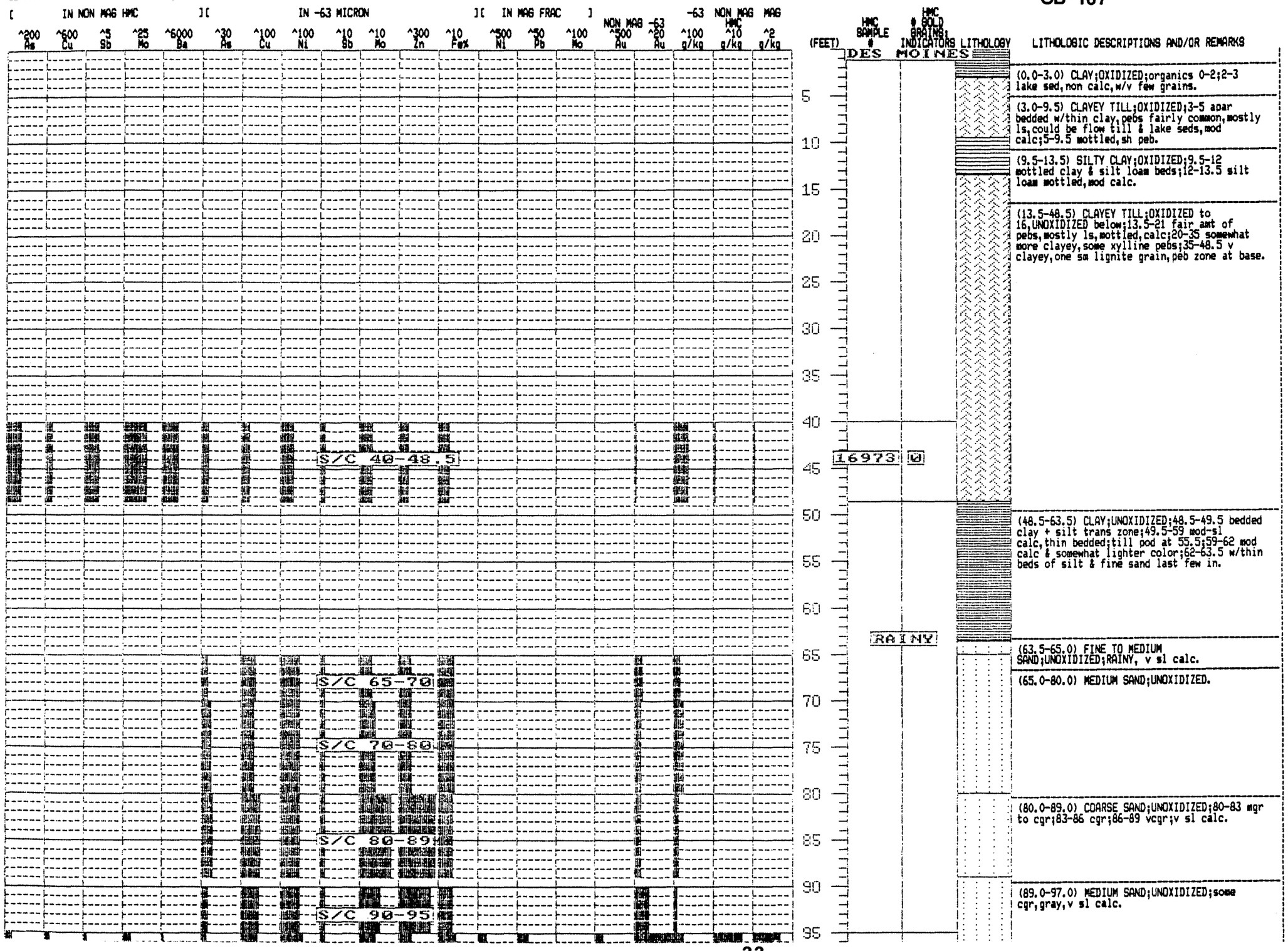
SUMMARY OF G. MEYER LOG OB-107, ROTASONIC CORE

# OB-107

Appendix 8-7B.



(97.0-102.0) COARSE SAND;UNOXIDIZED;gray.

(102.0-115.0) MEDIUM SAND;UNOXIDIZED;noncalc,gray,v uniform.

(115.0-121.0) MEDIUM TO COARSE SAND;UNOXIDIZED;115-117 only cgr sand;gray.

(121.0-132.0) FINE TO MEDIUM SAND;UNOXIDIZED;gray.

(132.0-142.0) MEDIUM SAND;UNOXIDIZED;gray;138-142 fgr to mgr.

(142.0-150.0) BEDROCK;BIOTITE PARAGNEISS LEUCOCRATIC, TONALITIC SEGREGATION;sulfide-rich veinlet at 142.5 (see thin section description by T. S. BOERBOOM).

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16970 | 107 | 30-35 | 5. | S | L | NE-SE | 29 | 68 | 24 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16971 | 107 | 35-40 | 5. | S | L | NE-SE | 29 | 68 | 24 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16972 | 107 | 40-45 | 5. | S | L | NE-SE | 29 | 68 | 24 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16973 | 107 | 45-48.5 | 3.5 | S | L | NE-SE | 29 | 68 | 24 | K | DML. CLAYEY TILL | 40-48.5 | 0.0 | 12100.0 | 500.0 | 3.1 | 1.4 | 40.2 | 1173.0 | 3 | 4 | 93 | SIE-63I=40-48.5 |
| 16974 | 107 | 50-55 | 5. | S | L | NE-SE | 29 | 68 | 24 | K | DML CLAY: GLACIAL LK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16975 | 107 | 65-70 | 5. | S | L | NE-SE | 29 | 68 | 24 | K | RL. MED. TO C. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 6.5 | 434.0 | 2 | -1 | -1 | |
| 16976 | 107 | 70-75 | 5. | S | L | NE-SE | 29 | 68 | 24 | K | RL. MED. TO C. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16977 | 107 | 75-80 | 5. | S | L | NE-SE | 29 | 68 | 24 | K | RL. MED. TO C. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 20.4 | 896.0 | 2 | -1 | -1 | SIE-63I=70-80 |
| 16978 | 107 | 80-84 | 4. | S | L | NE-SE | 29 | 68 | 24 | K | RL. MED. TO C. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16979 | 107 | 84-89 | 5. | S | L | NE-SE | 29 | 68 | 24 | K | RL. MED. TO C. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 8.1 | 820.0 | 1 | -1 | -1 | SIE-63I=80-89 |
| 16980 | 107 | 90-95 | 5. | S | L | NE-SE | 29 | 68 | 24 | K | RL. MED. TO C. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 4.4 | 652.0 | 1 | -1 | -1 | |
| 16981 | 107 | 95-100 | 5. | S | L | NE-SE | 29 | 68 | 24 | K | RL. MED. TO C. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 15.7 | 619.0 | 3 | -1 | -1 | |
| 16982 | 107 | 100-105 | 5. | S | L | NE-SE | 29 | 68 | 24 | K | RL. MED. TO C. SAND | 95-105 | 1.0 | 29800.0 | 0.0 | 199.3 | 41.5 | -1.0 | -1.0 | -1 | 0 | -1 | |
| 16983 | 107 | 105-110 | 5. | S | L | NE-SE | 29 | 68 | 24 | K | RL. MED. TO C. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 5.8 | 1549.0 | 0 | -1 | -1 | SIE-63I=100-110 |
| 16984 | 107 | 110-115 | 5. | S | L | NE-SE | 29 | 68 | 24 | K | RL. MED. TO C. SAND | 105-115 | 9.0 | 27900.0 | 0.0 | 214.2 | 46.7 | -1.0 | -1.0 | -1 | 0 | -1 | |
| 16985 | 107 | 115-120 | 5. | S | L | NE-SE | 29 | 68 | 24 | K | RL. MED. TO C. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 5.6 | 1196.0 | 0 | -1 | -1 | SIE-63I=110-120 |
| 16986 | 107 | 120-125 | 5. | S | L | NE-SE | 29 | 68 | 24 | K | RL. MED. TO C. SAND | 115-125 | 5.0 | 16200.0 | 200.0 | 145.7 | 24.8 | -1.0 | -1.0 | -1 | 1 | -1 | |
| 16987 | 107 | 125-127 | 2. | S | L | NE-SE | 29 | 68 | 24 | K | RL. F. TO V.F. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 39.3 | 714.0 | 6 | -1 | -1 | SIE-63I=120-127 |
| 16988 | 107 | 127-132 | 5. | S | L | NE-SE | 29 | 68 | 24 | K | RL. F. TO V.F. SAND | 125-132 | 7.0 | 16100.0 | 0.0 | 155.7 | 27.3 | 19.7 | 611.0 | 3 | 0 | 97 | |
| 16989 | 107 | 132-137 | 5. | S | L | NE-SE | 29 | 68 | 24 | K | RL. MED. TO C. SAND | 132-137 | 2.0 | 23700.0 | 0.0 | 180.1 | 40.4 | 57.5 | 898.0 | 6 | 0 | 94 | |
| 16990 | 107 | 137-142 | 5. | S | L | NE-SE | 29 | 68 | 24 | K | RL. F. TO V.F. SAND | 137-142 | 0.0 | 15400.0 | 0.0 | 113.1 | 29.3 | 19.8 | 1159.0 | 2 | 0 | 98 | |
| 19706 | 107 | 142-143 | 1.0 | S | L | NE-SE | 29 | 68 | 24 | K | BEDROCK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 19707 | 107 | 143-150 | 7.0 | S | L | NE-SE | 29 | 68 | 24 | K | BEDROCK | 142-150 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16973 | 10 | 0.14 | 798 | 660 | 6500 | 24.60 | 65 | 110 | 100 | 210 | 0 | 72 | -22 | 15 | 0.5 | 0 | -10 | 1.9 | 2500 | 437 | 260 | 7 | 80 | 15 | -2 | 170.0 | 27.7 | 0 | 3.63 |
| 16982 | 110 | 0.26 | 202 | 360 | 9900 | 24.60 | 100 | 140 | 65 | 120 | 0 | 30 | -11 | 5 | -0.5 | 0 | -10 | -0.4 | -300 | 120 | 49 | 6 | -10 | 12 | -2 | 33.0 | 12.4 | 7 | 146.00 |
| 16984 | 60 | 0.28 | 214 | 320 | 9600 | 21.00 | 86 | 130 | 61 | 130 | 0 | 15 | -10 | 6 | -0.5 | 0 | -10 | -0.4 | 100 | 116 | 50 | 4 | -10 | 12 | -2 | 29.0 | 9.6 | 8 | 158.00 |
| 16986 | 84 | 0.26 | 161 | 330 | 8800 | 19.10 | 72 | 130 | 60 | 140 | 0 | 11 | -10 | 5 | -0.5 | 0 | -10 | 0.7 | -300 | 94 | 40 | 4 | -10 | 15 | -2 | 25.0 | 6.1 | 9 | 106.00 |
| 16988 | 48 | 0.34 | 183 | 300 | 8400 | 17.10 | 63 | 130 | 56 | 140 | 0 | 11 | -10 | 6 | -0.5 | 0 | -10 | -0.3 | -200 | 107 | 48 | 6 | -10 | 16 | -2 | 27.0 | 5.7 | 10 | 110.00 |
| 16989 | 60 | 0.24 | 255 | 320 | 9700 | 18.30 | 71 | 140 | 70 | 150 | 0 | 16 | -10 | 6 | -0.5 | 0 | -10 | 0.4 | 100 | 135 | 65 | 5 | -10 | 19 | -2 | 35.0 | 6.2 | 8 | 130.00 |
| 16990 | 39 | 0.21 | 270 | 340 | 10000 | 18.90 | 79 | 130 | 65 | 130 | 0 | 13 | -10 | 7 | -0.5 | 0 | -10 | -0.3 | -200 | 153 | 71 | 6 | -10 | 11 | -2 | 39.0 | 8.7 | 7 | 87.00 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 16982 | 1.000 | 5.30 | 1000 | 110 | 26 | 340 | -1 | -1 | 0.5 | 13 | 1.4 |
| 16984 | 0.880 | 5.80 | 1300 | 130 | 30 | 380 | -1 | -1 | 0.5 | 18 | 1.7 |
| 16986 | 0.880 | 5.50 | 1300 | 130 | 24 | 410 | -1 | -1 | 0.5 | 14 | 1.5 |
| 16988 | 1.100 | 6.00 | 1500 | 130 | 21 | 460 | -1 | -1 | -0.5 | 16 | 1.7 |
| 16989 | 0.860 | 5.30 | 1400 | 130 | 22 | 390 | -1 | -1 | 0.5 | 16 | 1.7 |

-63uM ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | V | CR | MN | FE % | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16973 | -1 | 120 | 66 | 460 | 2.9 | 17 | 32 | 20 | 70 | 5 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | -1 | 14 | -1 | 2 | 34.3 |
| 16975 | 4 | 140 | 110 | 560 | 3.9 | 24 | 48 | 35 | 97 | 5 | -1 | 3 | -0.5 | 1 | 2 | -1 | -1 | 2 | 21 | -1 | 2 | 15.0 |
| 16977 | 3 | 170 | 110 | 600 | 4.1 | 24 | 48 | 32 | 100 | 7 | -1 | 4 | -0.5 | 1 | 2 | 1 | -1 | 1 | 19 | -1 | 3 | 22.8 |
| 16979 | -3 | 120 | 120 | 570 | 3.8 | 22 | 47 | 47 | 280 | 9 | 1 | 8 | -0.5 | 1 | 2 | 1 | -1 | 2 | 23 | -1 | 3 | 10.0 |
| 16980 | -7 | 88 | 110 | 530 | 3.8 | 24 | 46 | 43 | 240 | 5 | -1 | 5 | -0.5 | 1 | 1 | -1 | -1 | 2 | 16 | -1 | -1 | 6.8 |
| 16981 | 1100 | 100 | 140 | 590 | 4.5 | 30 | 56 | 41 | 95 | 4 | -1 | 4 | -0.5 | 1 | 2 | -1 | -1 | 3 | 18 | -1 | -1 | 25.4 |
| 16983 | 8 | 100 | 140 | 670 | 4.5 | 29 | 53 | 39 | 110 | 4 | -1 | 5 | -0.5 | -1 | 1 | -1 | -1 | 2 | 22 | -1 | -1 | 3.8 |
| 16985 | -5 | 110 | 180 | 810 | 5.0 | 35 | 69 | 37 | 89 | 3 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | 1 | 18 | -1 | -1 | 4.7 |
| 16987 | 15 | 140 | 180 | 800 | 5.7 | 38 | 54 | 39 | 110 | 7 | -1 | 5 | -0.5 | -1 | 2 | -1 | -1 | 2 | 19 | -1 | 2 | 55.0 |
| 16988 | -10 | 120 | 150 | 690 | 4.7 | 32 | 45 | 31 | 120 | 4 | -1 | 4 | -0.5 | 2 | -1 | -1 | 2 | 16 | -1 | -1 | 32.2 | |
| 16989 | 150 | 100 | 120 | 650 | 4.4 | 29 | 41 | 32 | 96 | 4 | -1 | 4 | -0.5 | -1 | 2 | -1 | -1 | 2 | 16 | -1 | -1 | 64.0 |
| 16990 | -2 | 100 | 120 | 690 | 4.3 | 29 | 45 | 28 | 66 | 3 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | 2 | 16 | -1 | -1 | 17.1 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19707 | -5 | -0.2 | -1.0 | 640 | 11.0 | -10 | 58.0 | 4.0 | 150 | 22 | -2 | 5 | -100 | 3.4 | 25 | -0.5 | -2 | 72 | 71 | 4.40 | 12.0 | -10 | -5 | 2.30 | -1.0 | -20 | -1.0 | 7.1 | -200 | -2 | 2.1 | -5 | -200 | 540 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19707 | 52 | 25 | 70 | 492 | 1.0 | -10 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0 | 0.00 | 0 |

## Appendix 8-8A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-108

Drilling Completion Date 12/18/85

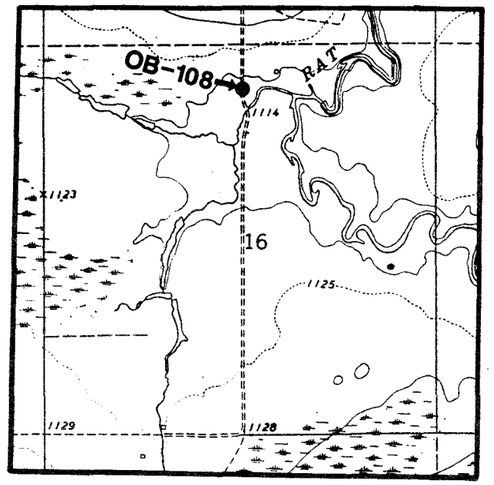
LOCATION (see map at right)

S-T-R NW¼-NE¼-16-69N-24W

County Koochiching

Quadrangle Ericsburg NW 7.5

Regional Survey Area Littlefork




HOLE PARAMETERS

Surface Elevation 1117 ft.

Total Depth 142 ft.

Elevation, Top of Precambrian Bedrock 985.5 ft.

Drilling Method Rotasonic

Sample Diameter 3.5 inch

Sample Collection Method Core: Sleeved & Boxed

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-93 | Des Moines Lobe Gl. Drift | G | A,B,C | |
| 93-131.5 | Rainy Lobe Gl. Drift | G | A,B,C | |
| 131.5-142 | Bedrock | G,H | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Tonalite grading toward granodiorite

Thin Section Description (or number): #19708 at 132 ft. Compare with #19709. Tonalite grading toward granodiorite. Estimated mode (volume %): Plagioclase, 68; Quartz, 20; Microcline, 7; Biotite (green), 4; Epidote, Tr to 1; Apatite, Tr; Muscovite, Tr; Calcite, Tr; Chlorite, Tr; Opaques, Tr; Zircon, Tr; Sphene, Tr. Nonfoliated, medium-grained igneous rock. Plagioclase is patchily saussuritized (sericite + calcite ± epidote). Minor quartz myrmekite in plagioclase. Biotite is green and slightly altered to chlorite, forms ragged decussate masses interstitial to feldspar grains. (by T. Boerboom, MGS)



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 16898CP | 15.2 | 0.5 | 14.7 | 108.1 | 103.2 | 4.9 | 3.2 | 1.7 | 0 | NA | P | 40 | 30 | 30 | NA | U | Y | Y | Y | B | B | TILL |
| -899 | 7.6 | 0.4 | 7.2 | 124.0 | 108.5 | 15.5 | 10.3 | 5.2 | 0 | NA | P | 10 | 20 | 70 | NA | S | F | Y | Y | B | BN | SAND |
| -900 | 8.7 | 0.3 | 8.4 | 101.6 | 98.3 | 3.3 | 1.2 | 2.1 | 0 | NA | P | 15 | 10 | 75 | NA | S | F | Y | Y | B | B | SAND |
| -901 | 7.0 | 0.0 | 7.0 | 214.6 | 167.0 | 47.6 | 42.0 | 5.6 | 0 | NA | TR | NA | NA | NA | NA | S | M | Y | Y | B | B | SAND |
| -903CP | 21.4 | 4.6 | 16.8 | 289.4 | 204.3 | 85.1 | 70.9 | 14.2 | 1 | 88 | P | 70 | 30 | TR | NA | U | Y | Y | Y | B | B | TILL |
| -905CP | 16.0 | 4.7 | 11.3 | 231.5 | 142.6 | 88.9 | 76.4 | 12.5 | 0 | NA | P | 60 | 40 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -906 | 9.7 | 3.0 | 6.7 | 279.8 | 235.5 | 44.3 | 37.4 | 6.9 | 0 | NA | P | 30 | 70 | NA | NA | U | Y | Y | Y | GB | GB | TILL |
| -907 | 7.0 | 5.0 | 2.0 | 181.1 | 158.3 | 22.8 | 19.2 | 3.6 | 1 | 1 | P | 30 | 70 | NA | NA | U | Y | Y | Y | B | B | TILL |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | NUMBER OF GRAINS: ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16898 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -899 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -900 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -901 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -903 | N | 125 X 200 | 31 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | TOTAL | 1 | 70.9 | 88 | |
| -905 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -906 | Y | NO VISIBLE GOLD | | | | | | | | | | | EST. 10% PYRITE |
| -907 | Y | 25 X 25 | 5 C | | 1 | | | | | 1 | | | EST. 10% PYRITE COATING ON GRAIN |
| | | | | | | | | | TOTAL | 1 | 19.2 | 1 | |

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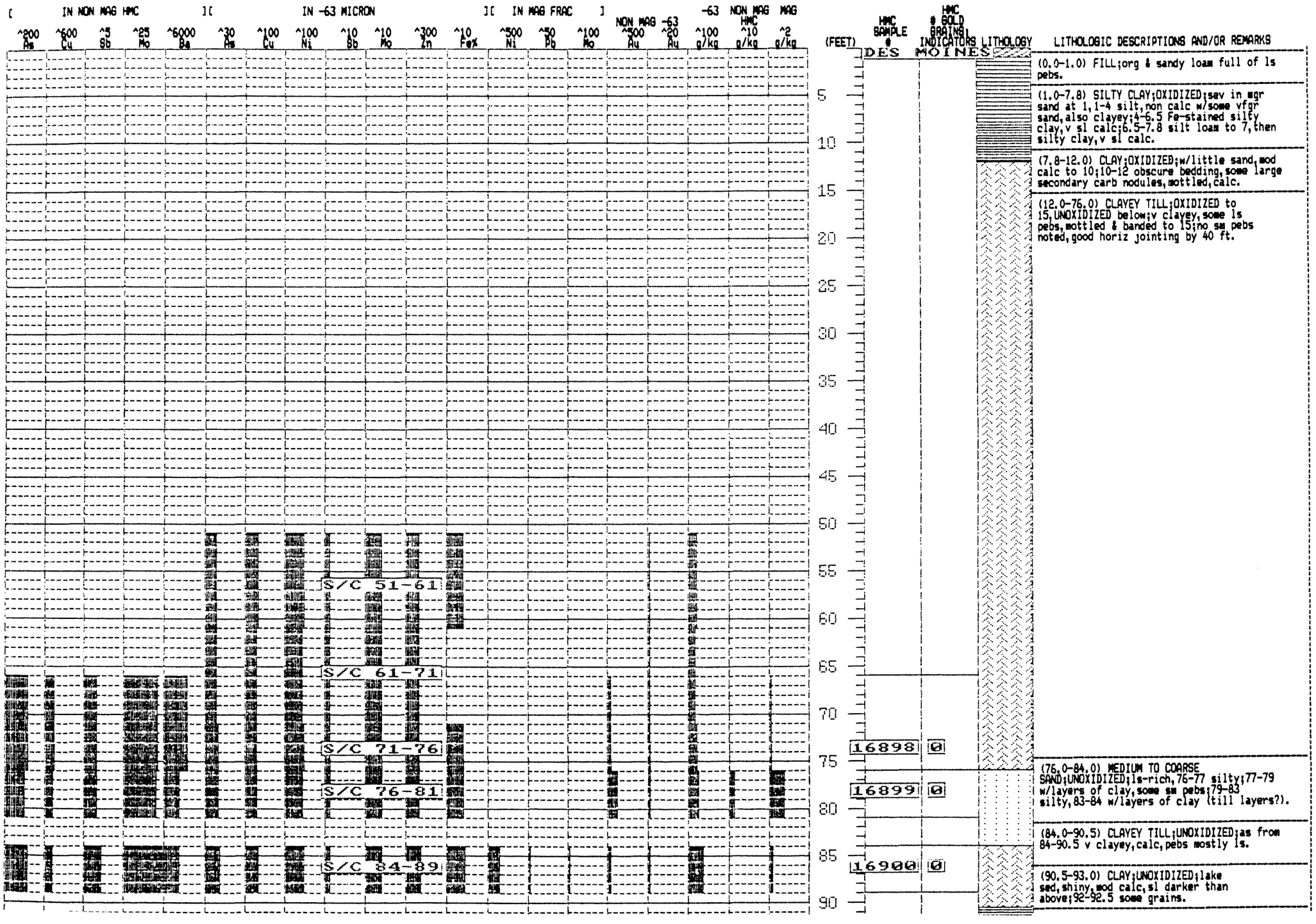
SUMMARY OF G. MEYER LOG OB-108, ROTASONIC CORE

# OB-108

Appendix 8-8B.




LITHOLOGIC DESCRIPTIONS AND/OR REMARKS

(0.0-1.0) FILL;org & sandy loam full of ls pebs.

(1.0-7.8) SILTY CLAY;OXIDIZED;sev in mgr sand at 1,1-4 silt,non calc w/some vfgr sand,also clayey;4-6.5 Fe-stained silty clay,v sl calc;6.5-7.8 silt loam to 7,then silty clay,v sl calc.

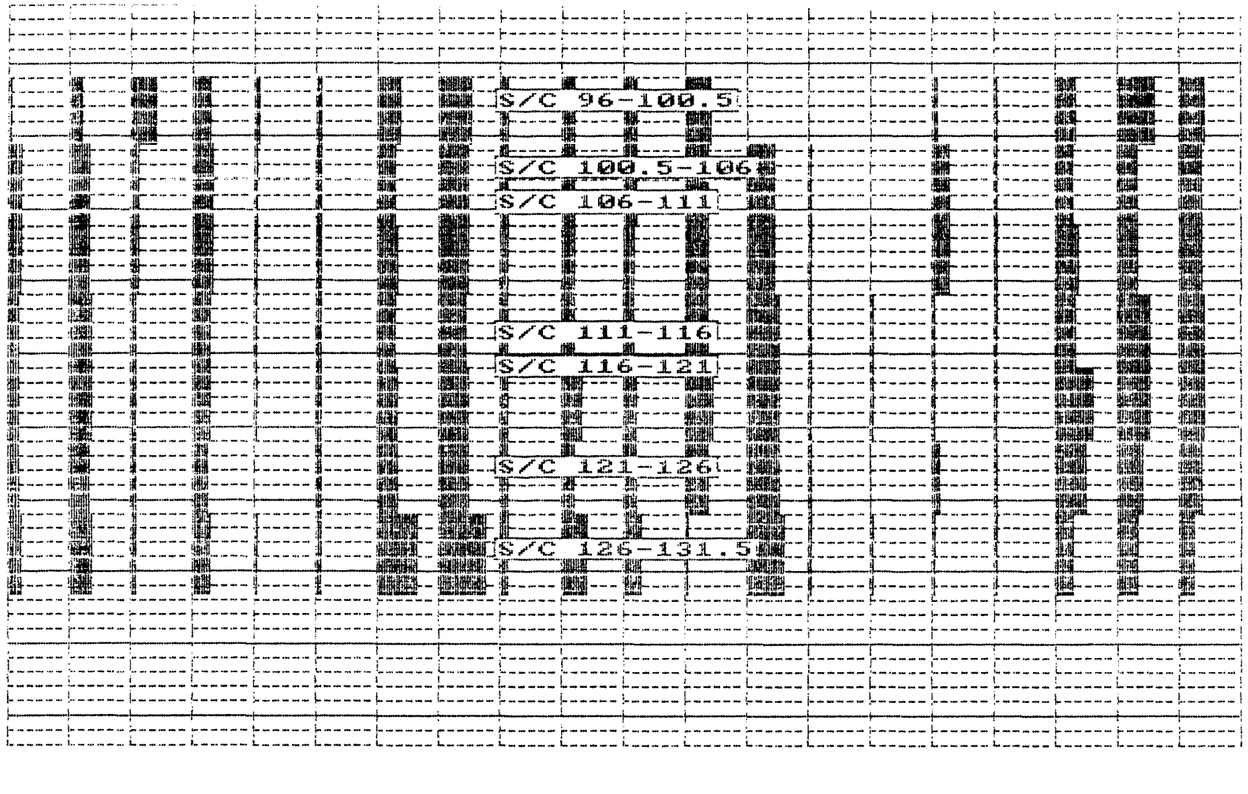
(7.8-12.0) CLAY;OXIDIZED;w/little sand,mod calc to 10;10-12 obscure bedding,some large secondary carb nodules,mottled,calc.

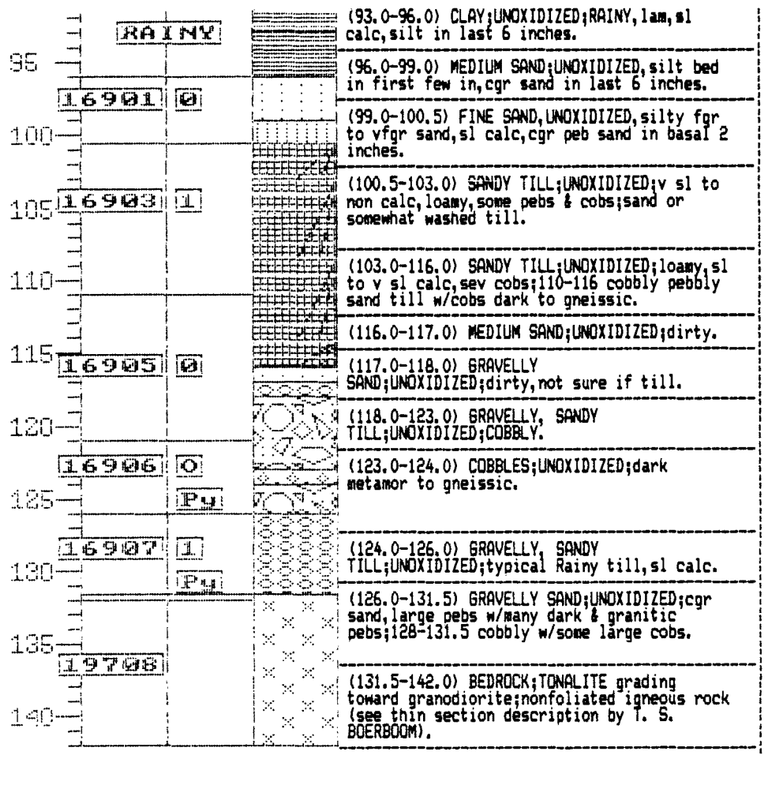
(12.0-76.0) CLAYEY TILL;OXIDIZED to 15,UNOXIDIZED below;v clayey,some ls pebs,mottled & banded to 15;no ss pebs noted,good horiz jointing by 40 ft.

(76.0-84.0) MEDIUM TO COARSE SAND;UNOXIDIZED;ls-rich,76-77 silty;77-79 w/layers of clay,some ss pebs;79-83 silty,83-84 w/layers of clay (till layers?).

(84.0-90.5) CLAYEY TILL;UNOXIDIZED;as from 84-90.5 v clayey,calc,pebs mostly ls.

(90.5-93.0) CLAY;UNOXIDIZED;lake sed,shiny,mod calc,sl darker than above;92-92.5 some grains.




(93.0-96.0) CLAY;UNOXIDIZED;RAINY,lam,sl calc,silt in last 6 inches.

(96.0-99.0) MEDIUM SAND;UNOXIDIZED,silt bed in first few in,cgr sand in last 6 inches.

(99.0-100.5) FINE SAND,UNOXIDIZED,silty fgr to vfgr sand,sl calc,cgr peb sand in basal 2 inches.

(100.5-103.0) SANDY TILL;UNOXIDIZED;v sl to non calc,loamy,some pebs & cobs;sand or somewhat washed till.

(103.0-116.0) SANDY TILL;UNOXIDIZED;loamy,sl to v sl calc,sev cobs;110-116 cobbly pebbly sand till w/cobs dark to gneissic.

(116.0-117.0) MEDIUM SAND;UNOXIDIZED;dirty.

(117.0-118.0) GRAVELLY SAND;UNOXIDIZED;dirty,not sure if till.

(118.0-123.0) GRAVELLY, SANDY TILL;UNOXIDIZED;COBBLY.

(123.0-124.0) COBBLES;UNOXIDIZED;dark metamor to gneissic.

(124.0-126.0) GRAVELLY, SANDY TILL;UNOXIDIZED;typical Rainy till,sl calc.

(126.0-131.5) GRAVELLY SAND;UNOXIDIZED;cgr sand,large pebs w/many dark & granitic pebs;128-131.5 cobbly w/some large cobs.

(131.5-142.0) BEDROCK;TONALITE grading toward granodiorite;nonfoliated igneous rock (see thin section description by T. S. BOERBOOM).

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY DESC | LEGAL | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16888 | 108 | 6-11 | 5. | S | L | NW-NE | 16 | 69 | 24 | K | DML CLAY: GLACIAL LK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16889 | 108 | 26-31 | 5. | S | L | NW-NE | 16 | 69 | 24 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16890 | 108 | 31-36 | 5. | S | L | NW-NE | 16 | 69 | 24 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16891 | 108 | 36-41 | 5. | S | L | NW-NE | 16 | 69 | 24 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16892 | 108 | 41-46 | 5. | S | L | NW-NE | 16 | 69 | 24 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16893 | 108 | 46-51 | 5. | S | L | NW-NE | 16 | 69 | 24 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16894 | 108 | 51-56 | 5. | S | L | NW-NE | 16 | 69 | 24 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16895 | 108 | 56-61 | 5. | S | L | NW-NE | 16 | 69 | 24 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 20.1 | 1106.0 | 2 | -1 | -1 | SIE-63]=51-61 |
| 16896 | 108 | 61-66 | 5. | S | L | NW-NE | 16 | 69 | 24 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16897 | 108 | 66-71 | 5. | S | L | NW-NE | 16 | 69 | 24 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 19.1 | 1343.0 | 1 | -1 | -1 | SIE-63]=61-71 |
| 16897R | 108 | 66-71 | 5.0 | S | L | NW-NE | 16 | 69 | 24 | K | DML. CLAYEY TILL | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 16898 | 108 | 71-76 | 5. | S | L | NW-NE | 16 | 69 | 24 | K | DML. CLAYEY TILL | 66-76 | 0.0 | 15200.0 | 500.0 | 3.2 | 1.7 | 17.0 | 830.0 | 2 | 3 | 95 | |
| 16899 | 108 | 76-81 | 5. | S | L | NW-NE | 16 | 69 | 24 | K | DML. MED. TO C. SAND | 76-81 | 0.0 | 7600.0 | 400.0 | 10.3 | 5.2 | 15.0 | 643.0 | 2 | 5 | 93 | |
| 16900 | 108 | 84-89 | 5. | S | L | NW-NE | 16 | 69 | 24 | K | DML. CLAYEY TILL | 84-89 | 0.0 | 8700.0 | 300.0 | 1.2 | 2.1 | 23.2 | 613.0 | 4 | 3 | 93 | |
| 13838R | 108 | 84-89 | 5. | S | L | NW-NE | 16 | 69 | 24 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 22.0 | 506.0 | 4 | -1 | -1 | |
| 16901 | 108 | 96-100.5 | 4.5 | S | L | NW-NE | 16 | 69 | 24 | K | RL. MED. TO C. SAND | 96-100.5 | 0.0 | 7000.0 | 0.0 | 42.0 | 5.6 | 23.4 | 728.0 | 3 | 0 | 97 | |
| 16902 | 108 | 100.5-106 | 5.5 | S | L | NW-NE | 16 | 69 | 24 | K | RL. SANDY GVL. TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 32.5 | 1188.0 | 3 | -1 | -1 | |
| 16903 | 108 | 106-111 | 5. | S | L | NW-NE | 16 | 69 | 24 | K | RL. SANDY GVL. TILL | 100.5-111 | 1.0 | 21400.0 | 4600.0 | 70.9 | 14.2 | 24.0 | 695.0 | 3 | 21 | 76 | |
| 16904 | 108 | 111-116 | 5. | S | L | NW-NE | 16 | 69 | 24 | K | RL. SANDY GVL. TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 27.2 | 842.0 | 3 | -1 | -1 | |
| 16905 | 108 | 116-121 | 5. | S | L | NW-NE | 16 | 69 | 24 | K | RL. SANDY GVL. TILL | 111-121 | 0.0 | 16000.0 | 4700.0 | 76.4 | 12.5 | 23.1 | 393.0 | 6 | 29 | 65 | |
| 16906 | 108 | 121-126 | 5. | S | L | NW-NE | 16 | 69 | 24 | K | RL. SANDY GVL. TILL | 121-126 | 0.0 | 9700.0 | 3000.0 | 37.4 | 6.9 | 34.8 | 719.0 | 5 | 31 | 64 | |
| 16907 | 108 | 126-131.5 | 5.5 | S | L | NW-NE | 16 | 69 | 24 | K | RL. GVL. SAND | 126-131.5 | 1.0 | 7000.0 | 5000.0 | 19.2 | 3.6 | 17.7 | 630.0 | 3 | 71 | 26 | |
| 19708 | 108 | 132-142 | 10.0 | S | L | NW-NE | 16 | 69 | 24 | K | BEDROCK | 132-142 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16898 | -32 | -0.05 | 780 | 540 | 7000 | 30.20 | 83 | 220 | 150 | 210 | 0 | 110 | -19 | 21 | -0.5 | 0 | -10 | 1.7 | 3300 | 35 | 200 | -1 | -10 | 27 | -2 | 170.0 | 19.5 | 0 | 3.16 |
| 16899 | 120 | -0.05 | 704 | 650 | 6700 | 32.50 | 130 | 120 | 110 | 250 | 0 | 95 | -11 | 20 | -0.5 | 0 | -10 | 1.7 | 2200 | 331 | 140 | 8 | -10 | 37 | -2 | 180.0 | 17.7 | 1 | 7.42 |
| 16900 | -38 | 0.10 | 864 | 680 | 6400 | 29.40 | 81 | 120 | 130 | 300 | 0 | 110 | -20 | 27 | -0.5 | 0 | -10 | 2.2 | 2200 | 434 | 210 | 10 | -10 | 39 | -2 | 200.0 | 23.3 | 0 | 2.52 |
| 16901 | 33 | 0.18 | 301 | 290 | 7700 | 19.60 | 130 | 200 | 120 | 120 | 0 | 11 | 13 | 7 | -0.5 | 0 | -10 | 2.0 | 500 | 149 | 33 | 4 | -10 | 23 | -2 | 30.0 | 7.0 | 6 | 30.80 |
| 16903 | 140 | 0.18 | 333 | 210 | 8500 | 21.50 | 190 | 280 | 200 | 120 | 0 | 37 | -14 | 8 | -0.5 | 0 | -10 | 0.5 | 300 | 192 | 48 | 5 | 10 | 21 | -2 | 41.0 | 11.4 | 3 | 51.50 |
| 16905 | -19 | 0.21 | 297 | 220 | 9000 | 20.20 | 190 | 310 | 220 | 120 | 0 | 28 | -10 | 7 | -0.5 | 0 | -10 | -0.4 | 200 | 180 | 42 | 4 | -10 | 18 | -2 | 40.0 | 9.0 | 5 | 51.80 |
| 16906 | 54 | 0.32 | 489 | 320 | 8900 | 27.90 | 250 | 290 | 180 | 130 | 0 | 34 | -10 | 6 | -0.5 | 0 | -10 | 0.4 | 100 | 278 | 62 | 5 | -10 | 22 | -2 | 61.0 | 14.6 | 4 | 26.90 |
| 16907 | -16 | 0.24 | 187 | 200 | 9800 | 19.60 | 170 | 280 | 210 | 100 | 0 | 37 | -10 | 7 | 0.5 | 0 | -10 | -0.4 | -300 | 107 | 21 | 6 | -10 | 13 | -2 | 22.0 | 6.1 | 3 | 14.50 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 16900 | 0.410 | 1.30 | 1100 | 150 | 24 | 200 | -1 | 4 | -0.5 | -1 | 0.2 |
| 16903 | 1.300 | 1.70 | 1800 | 230 | 45 | 260 | -1 | -1 | -0.5 | -1 | 0.7 |
| 16905 | 1.300 | 1.70 | 1800 | 270 | 78 | 280 | -1 | 2 | -0.5 | -1 | 0.8 |
| 16906 | 1.600 | 1.70 | 1700 | 260 | 37 | 310 | -1 | 1 | -0.5 | -1 | 0.7 |
| 16907 | 1.700 | 1.70 | 1100 | 310 | 120 | 270 | -1 | 3 | -0.5 | -1 | 0.5 |

-63um ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | V | CR | MN | FE % | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16895 | -1 | 150 | 98 | 630 | 4.1 | 25 | 49 | 30 | 99 | 9 | -1 | 4 | -0.5 | 1 | 2 | -1 | -1 | 1 | 21 | -1 | 4 | 18.2 |
| 16897 | 1 | 160 | 98 | 640 | 0.0 | 23 | 44 | 28 | 92 | 9 | 1 | 4 | -0.5 | 16 | 2 | -1 | -1 | 1 | 16 | -1 | 3 | 14.2 |
| 16897R | 0 | 0 | 68 | 0 | 0.0 | 0 | 0 | 0 | 88 | 7 | 1 | 3 | -0.5 | 1 | 2 | -1 | 0 | 1 | 0 | 0 | 0 | 0.0 |
| 16898 | -1 | 170 | 98 | 630 | 4.2 | 23 | 46 | 29 | 98 | 10 | 2 | 4 | -0.5 | 1 | 2 | -1 | -1 | 1 | 18 | -1 | 3 | 20.5 |
| 16899 | 1 | 160 | 98 | 620 | 3.9 | 23 | 45 | 28 | 96 | 10 | 2 | 4 | -0.5 | 1 | 2 | -1 | -1 | 1 | 20 | -1 | 3 | 24.9 |
| 16900 | -1 | 180 | 100 | 670 | 4.3 | 25 | 48 | 31 | 110 | 11 | 3 | 4 | -0.5 | 1 | 2 | -1 | -1 | 1 | 17 | -1 | 3 | 37.8 |
| 13838R | -1 | 190 | 110 | 590 | 3.9 | 21 | 47 | 30 | 100 | 9 | 1 | 5 | -0.5 | -1 | 2 | -1 | -1 | 1 | 15 | -1 | 3 | 43.5 |
| 16901 | -1 | 91 | 120 | 570 | 3.9 | 27 | 52 | 35 | 60 | 3 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | 1 | 11 | -1 | -1 | 32.1 |
| 16902 | -1 | 86 | 120 | 620 | 3.7 | 25 | 47 | 28 | 55 | 2 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 17 | -1 | -1 | 27.4 |
| 16903 | -1 | 92 | 120 | 610 | 3.8 | 25 | 48 | 31 | 54 | 2 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 13 | -1 | 1 | 34.5 |
| 16904 | -1 | 83 | 120 | 620 | 3.6 | 25 | 45 | 29 | 47 | 2 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | 2 | 15 | -1 | 1 | 32.3 |
| 16905 | -1 | 84 | 130 | 710 | 4.4 | 26 | 46 | 31 | 63 | 2 | -1 | 3 | -0.5 | 1 | -1 | -1 | -1 | 3 | 24 | -1 | 4 | 56.8 |
| 16906 | -1 | 87 | 120 | 640 | 3.7 | 26 | 47 | 31 | 57 | 3 | -1 | 2 | -0.5 | 1 | -1 | -1 | -1 | 3 | 14 | -1 | -1 | 48.4 |
| 16907 | -1 | 110 | 170 | 740 | 0.5 | 34 | 75 | 63 | 85 | 3 | -1 | 4 | -0.5 | 1 | 1 | -1 | -1 | 6 | 17 | -1 | 1 | 28.1 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19708 | -5 | -0.2 | -1.0 | 1900 | -5.0 | -10 | 120.0 | 1.0 | -50 | -10 | -2 | 3 | -100 | 1.4 | 56 | -0.5 | -2 | -50 | 30 | 5.90 | 6.2 | -10 | -5 | 3.40 | -1.0 | -30 | -1.0 | 6.8 | -200 | -2 | 0.6 | -5 | -200 | -500 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19708 | 20 | 15 | 42 | 302 | 1.2 | -10 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0 | 0.00 | 0 |

## Appendix 8-9A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-109

Drilling Completion Date 12/17/85

LOCATION (see map at right)

S-T-R SE¼-SE¼-16-69N-23W

County Koochiching

Quadrangle Ericsburg 7.5

Regional Survey Area Littlefork

HOLE PARAMETERS

Surface Elevation 1158 ft.

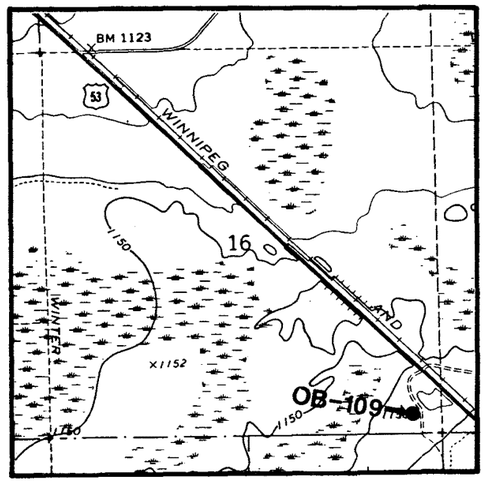
Total Depth 51 ft.

Elevation, Top of Precambrian Bedrock 1113 ft.

Drilling Method Rotasonic

Sample Diameter 3.5 inch

Sample Collection Method Core: Sleeved & Boxed




SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-45 | Des Moines Lobe Gl. Drift | G | A,B,C | |
| 45-51 | Bedrock | G,H | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Sillimanite-Bearing Hornblende-Biotite Paragneiss

Thin Section Description (or number): #13872 at 50.5 ft. Sillimanite-bearing hornblende-biotite paragneiss. Estimated mode (volume %): Plagioclase, 38; Quartz, 35; Biotite, 18; Hornblende, 7; Calcite, Tr to 1; Apatite, Tr to 1; Sillimanite, Tr; Opaques (pyrite), 1; Zircon, Tr. Rock is medium-grained (up to 1 mm), sillimanite-bearing gneiss. Biotite and hornblende are well foliated; quartz and twinned plagioclase are clean and granoblastic. Small amounts of sillimanite occur within plagioclase grains, and calcite occurs as a clean, granoblastic mineral of similar habit to quartz and feldspar. (by T. Boerboom, MGS)



## HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 16965CP | 22.1 | 0.6 | 21.5 | 126.8 | 123.1 | 3.7 | 2.5 | 1.2 | 0 | NA | P | 5 | 50 | 45 | NA | U | Y | Y | Y | B | B | TILL |
| -967CP | 26.4 | 0.5 | 25.9 | 92.2 | 89.3 | 2.9 | 2.0 | 0.9 | 0 | NA | P | 5 | 10 | 85 | NA | S | F/M | Y | Y | B | B | SAND&CLAY |
| -968 | 12.2 | 0.5 | 11.7 | 178.5 | 171.4 | 7.1 | 5.0 | 2.1 | 0 | NA | P | 5 | 10 | 85 | NA | S | F/M | Y | Y | B | B | SAND&CLAY |
| -969 | 10.1 | 0.3 | 9.8 | 83.2 | 81.3 | 1.9 | 1.5 | 0.4 | 0 | NA | P | 5 | 10 | 85 | NA | S | F/M | Y | Y | B | B | SAND&CLAY |

GOLD CLASSIFICATION

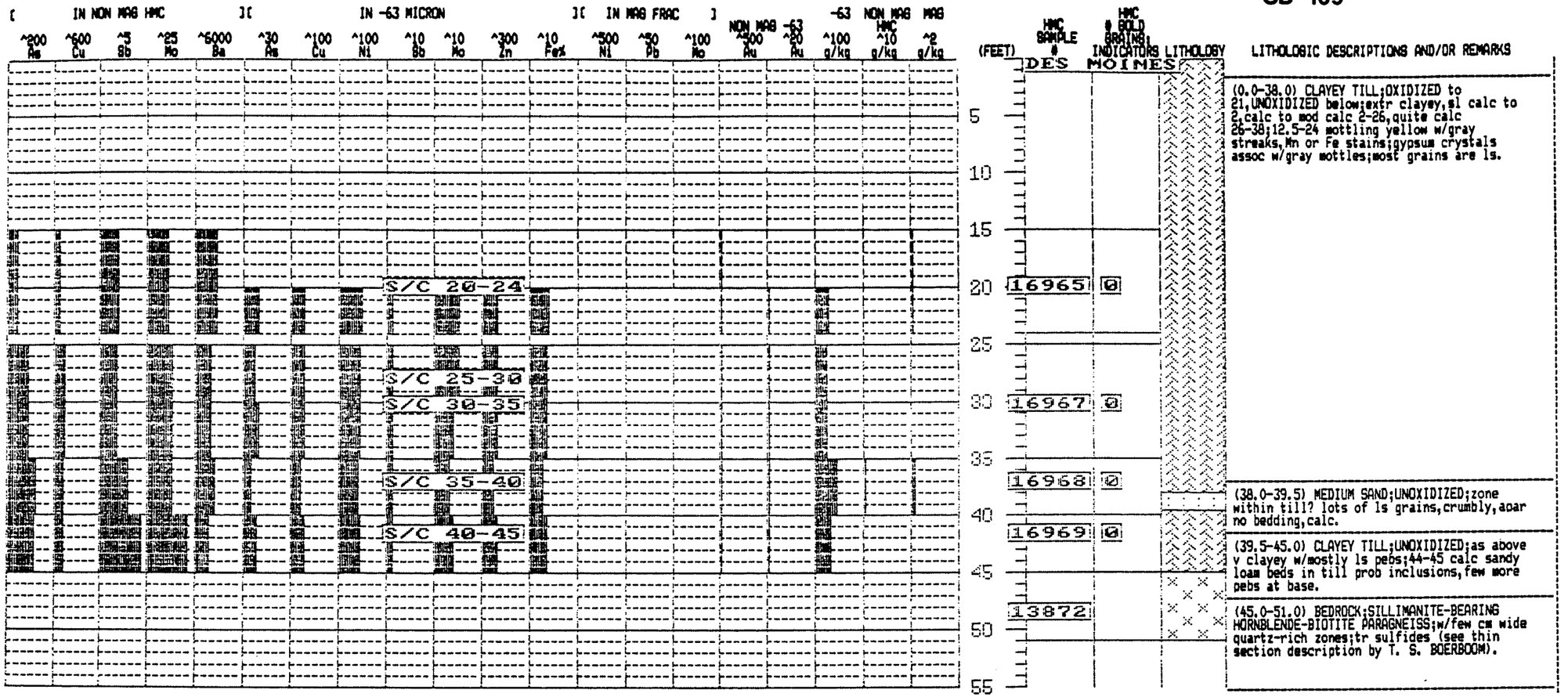
VISIBLE GOLD FROM SHAKING TABLE AND PANNING

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | NUMBER OF GRAINS: ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16965 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -967 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -968 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -969 | N | NO VISIBLE GOLD | | | | | | | | | | | |

SUMMARY OF G. MEYER LOG OB-109, ROTASONIC CORE

# OB-109

Appendix B-9B.







LITHOLOGIC DESCRIPTIONS AND/OR REMARKS

(0.0-38.0) CLAYEY TILL;OXIDIZED to 21,UNOXIDIZED below;extr clayey,sl calc to 2,calc to mod calc 2-26,quite calc 26-38;12.5-24 mottling yellow w/gray streaks,Mn or Fe stains;gypsum crystals assoc w/gray mottles;most grains are ls.

(38.0-39.5) MEDIUM SAND;UNOXIDIZED;zone within till? lots of ls grains,crumbly,apar no bedding,calc.

(39.5-45.0) CLAYEY TILL;UNOXIDIZED;as above v clayey w/mostly ls pebs;44-45 calc sandy loam beds in till prob inclusions,few more pebs at base.

(45.0-51.0) BEDROCK;SILLIMANITE-BEARING HORNBLENDE-BIOTITE PARAGNEISS;w/few cm wide quartz-rich zones;tr sulfides (see thin section description by T. S. BOERBOOM).

**Appendix 8-9C.**

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY DESC | LEGAL | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16963 | 109 | 10-15 | 5. | S | L | SE-SE | 16 | 69 | 23 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16964 | 109 | 15-20 | 5. | S | L | SE-SE | 16 | 69 | 23 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16965 | 109 | 20-24 | 4. | S | L | SE-SE | 16 | 69 | 23 | K | DML. CLAYEY TILL | 15-24 | 0.0 | 22100.0 | 600.0 | 2.5 | 1.2 | 21.1 | 725.0 | 3 | 3 | 94 | | |
| 16966 | 109 | 25-30 | 5. | S | L | SE-SE | 16 | 69 | 23 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 20.8 | 871.0 | 2 | -1 | -1 | | |
| 16967 | 109 | 30-35 | 5. | S | L | SE-SE | 16 | 69 | 23 | K | DML. CLAYEY TILL | 25-35 | 0.0 | 26400.0 | 500.0 | 2.0 | 0.9 | 23.9 | 954.0 | 3 | 2 | 95 | | |
| 16968 | 109 | 35-40 | 5. | S | L | SE-SE | 16 | 69 | 23 | K | DML. CLAYEY TILL | 35-40 | 0.0 | 12200.0 | 500.0 | 5.0 | 2.. | 35.2 | 771.0 | 5 | 4 | 91 | | |
| 16969 | 109 | 40-45 | 5. | S | L | SE-SE | 16 | 69 | 23 | K | DML. CLAYEY TILL | 40-45 | 0.0 | 10100.0 | 300.0 | 1.5 | 0.4 | 24.1 | 779.0 | 3 | 3 | 94 | | |
| 13872 | 109 | 45-51 | 6.0 | S | L | SE-SE | 16 | 69 | 23 | K | BEDROCK | 45-51 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16965 | -27 | 0.14 | 1150 | 880 | 7400 | 23.30 | 45 | 74 | 73 | 220 | 0 | 41 | -29 | 11 | -0.5 | 0 | -10 | 2.0 | 2700 | 631 | 310 | 14 | 10 | 13 | -2 | 250.0 | 31.1 | 0 | 2.68 |
| 16967 | 14 | 0.09 | 816 | 690 | 6900 | 24.80 | 64 | 100 | 140 | 360 | 0 | 86 | -10 | 13 | 0.5 | 0 | -10 | 1.9 | 2000 | 448 | 250 | 10 | 10 | 39 | -2 | 180.0 | 23.0 | 0 | 2.33 |
| 16968 | 21 | 0.12 | 782 | 700 | 6700 | 30.00 | 83 | 110 | 110 | 340 | 0 | 120 | -15 | 13 | 0.5 | 0 | -10 | 3.0 | 2500 | 448 | 270 | 10 | 10 | 37 | -2 | 230.0 | 27.9 | 0 | 5.21 |
| 16969 | 29 | 0.10 | 779 | 840 | 6100 | 28.90 | 85 | 160 | 120 | 510 | 0 | 110 | -14 | 21 | 0.5 | 0 | -10 | 4.4 | 1600 | 557 | 310 | 10 | -10 | 31 | -2 | 170.0 | 29.2 | 0 | 1.59 |

-63uM ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | V | CR | MN | FE % | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16965 | -1 | 160 | 92 | 610 | 3.9 | 22 | 46 | 29 | 98 | 10 | -1 | 5 | -0.5 | 1 | 2 | 1 | -1 | 1 | 16 | -1 | 3 | 23.1 |
| 16966 | -1 | 150 | 93 | 560 | 3.5 | 21 | 42 | 27 | 97 | 7 | -1 | 5 | -0.5 | 1 | 2 | 1 | -1 | 1 | 16 | -1 | 3 | 23.9 |
| 16967 | -1 | 160 | 93 | 570 | 3.8 | 22 | 43 | 26 | 96 | 10 | -1 | 4 | -0.5 | 1 | 2 | 1 | -1 | 1 | 15 | -1 | 3 | 25.1 |
| 16968 | -1 | 110 | 75 | 510 | 2.9 | 18 | 39 | 20 | 74 | 5 | 1 | 3 | -0.5 | -1 | 2 | -1 | -1 | -1 | 15 | -1 | 3 | 45.7 |
| 16969 | -1 | 180 | 92 | 580 | 3.8 | 22 | 45 | 28 | 99 | 9 | 1 | 4 | -0.5 | 1 | 2 | 1 | -1 | 1 | 15 | -1 | 3 | 30.9 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13872 | -8 | 0.4 | 1.1 | 0 | 0.0 | 0 | 58.0 | 0.0 | 280 | 23 | 0 | 3 | -50 | 4.2 | 33 | 0.0 | 0 | 0 | 0 | 0.00 | 0.0 | -5 | -2 | 2.50 | 0.0 | 0 | 0.0 | 8.4 | 0 | -3 | 4.5 | 0 | 200 | 0 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13872 | 0 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | -20 | 0 | 0 | -1 | 620 | -2.3 | 0 | 0.00 | 0 |

## Appendix 8-10A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-110

Drilling Completion Date 12/17/85

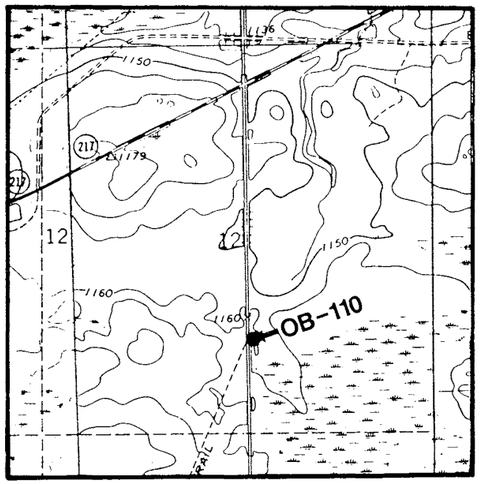
LOCATION (see map at right)

S-T-R NW¼-SE¼-12-68N-24W

County Koochiching

Quadrangle Ericsburg 7.5

Regional Survey Area Littlefork




HOLE PARAMETERS

Surface Elevation 1160 ft.

Total Depth 64 ft.

Elevation, Top of Precambrian Bedrock 1108 ft.

Drilling Method Rotasonic

Sample Diameter 3.5 inch

Sample Collection Method Core: Sleeved & Boxed

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-1 | Organic Sediments | | | |
| 1-37.5 | Des Moines Lobe Gl. Drift | G | A,B,C | |
| 37.5-52 | Rainy Lobe Gl. Drift | G | A,B,C | A = Au B = As |
| 52-64 | Bedrock | G,H | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Biotite Gneiss and Sheared Tonalite

Thin Section Description (or number): #19709 at 57 ft.; #19710 at 61.5 ft. #19709; Tonalitic Biotite Gneiss. Estimated mode (volume %): Chlorite, 13,; Biotite, 7; Muscovite, Tr; Plagioclase, 65; Quartz, 15; Orthoclase, Tr to 1. Moderately well-foliated biotite books are interleaved with and altered to chlorite. Feldspar consists dominantly of plagioclase, which is weakly sericitized and stained by very fine red hematitic dust. Minor orthoclase is present in quartz-feldspar (predominantly plagioclase) veins or segregations which parallel foliation. Most of the plagioclase twinning throughout has been eradicated due to sericitization. The quartz in both segregations and matrix is undulose and on the verge of mortar-textured recrystallization. Minor late, thin, brittle shear zones transect the rock at various angles. Grain size (other than leucocratic segregations) is less than 1 mm.



#19710; Sheared tonalite. Estimated mode (volume %): Quartz, 8; Biotite, 12; Chlorite, 26; Feldspar (plagioclase), 40; Epidote (? altered deep red-brown), Tr; Zircon, Tr; Opaques (pyrite), Tr; Apatite, Tr to 1; Leucoxene/sphene, Tr to 1; Calcite, 4; Sericite (not in feldspar), 8. Rock has a shear fabric defined by ribbon-like masses of chlorite and sericite, and broken feldspar grains. The chlorite, which anastomoses between the feldspar grains, contains fine-grained masses of opaque oxides, leucoxene, and sphene which line shear surfaces. Biotite grains are contorted and broken due to shear. The main foliation is transected by a second foliation at 40° and also cut by some late brittle fractures. Discontinuous veinlets of calcite are parallel to the primary foliation. Feldspar (plagioclase) shows some relict twinning, is stained by fine, red hematitic dust and is heavily sericitized. Fine-grained sericite is also intermixed with chlorite.
(by T. Boerboom, MGS)

## HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | M. I. CONC | | | | | | CLAST | | | | MATRIX | | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | GR | LS | DT | S/U | SD | ST | CY | COLOR SD | CY | |
| 16994CP | 11.4 | 0.7 | 10.7 | 96.3 | 89.0 | 7.3 | 5.3 | 2.0 | 0 | NA | P | 3 | 2 | 95 | NA | U | Y | Y | Y | B | B | TILL |
| -99cCP | 20.4 | 1.0 | 19.4 | 155.2 | 148.2 | 7.0 | 4.6 | 2.4 | 0 | NA | P | 3 | 2 | 95 | NA | U | Y | Y | Y | B | B | TILL |
| -998 | 7.2 | 2.2 | 5.0 | 103.5 | 79.4 | 24.1 | 18.2 | 5.9 | 0 | NA | P | 30 | 70 | TR | NA | U | Y | Y | Y | B | B | TILL |
| -999 | 11.9 | 2.9 | 9.0 | 68.8 | 35.0 | 33.8 | 25.5 | 8.3 | 1 | 113 | P | 40 | 60 | TR | NA | U | Y | Y | Y | B | B | TILL |

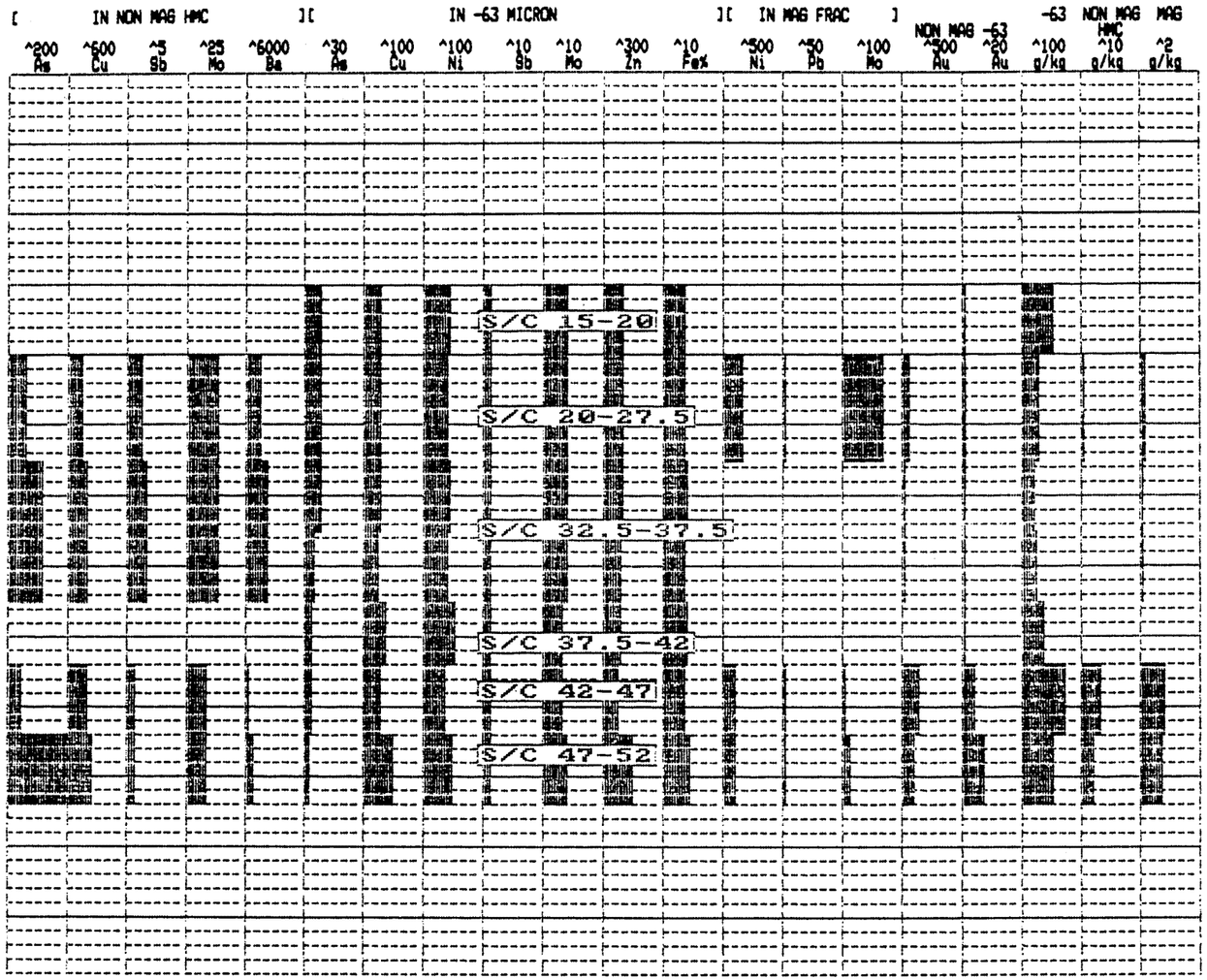
GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

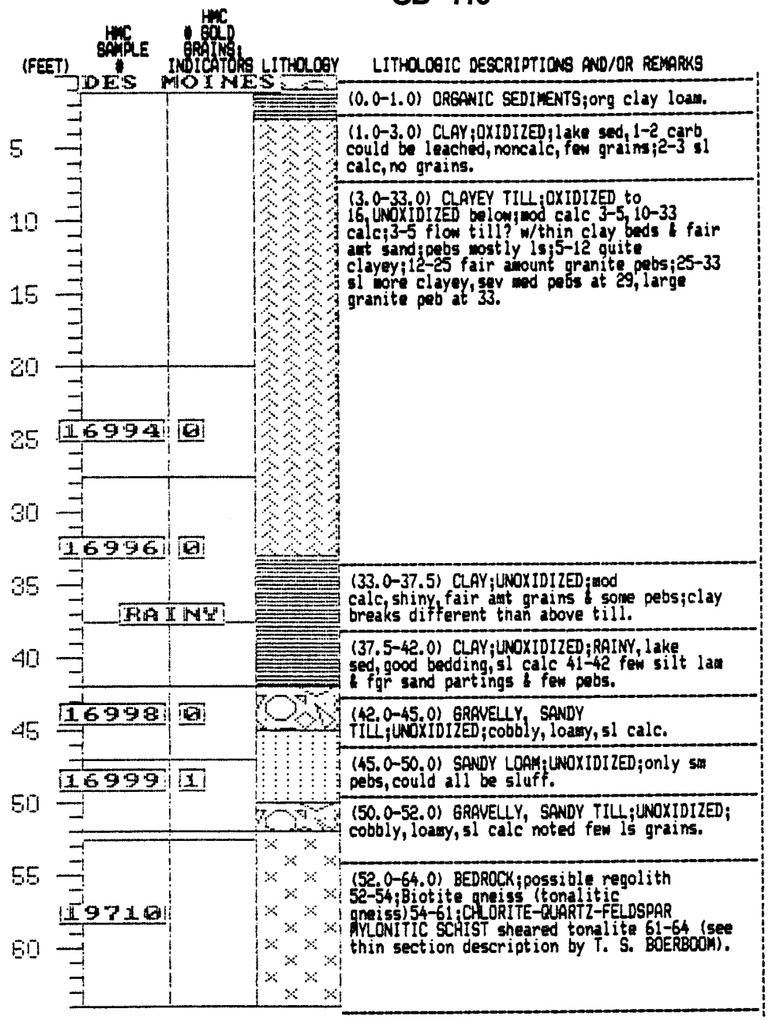
NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16994 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -996 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -998 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -999 | N | 75 X 175 | 25 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | TOTAL | 1 | 25.5 | 113 | |

SUMMARY OF G. MEYER LOG OB-110, ROTASONIC CORE




## OB-110




LITHOLOGIC DESCRIPTIONS AND/OR REMARKS

(0.0-1.0) ORGANIC SEDIMENTS;org clay loam.

(1.0-3.0) CLAY;OXIDIZED;lake sed,1-2 carb could be leached,noncalc,few grains;2-3 sl calc,no grains.

(3.0-33.0) CLAYEY TILL;OXIDIZED to 16,UNOXIDIZED below;mod calc 3-5,10-33 calc;3-5 flow till? w/thin clay beds & fair amt sand;pebs mostly ls;5-12 quite clayey;12-25 fair amount granite pebs;25-33 sl more clayey,sev med pebs at 29,large granite peb at 33.

(33.0-37.5) CLAY;UNOXIDIZED;mod calc,shiny,fair amt grains & some pebs;clay breaks different than above till.

(37.5-42.0) CLAY;UNOXIDIZED;RAINY,lake sed,good bedding,sl calc 41-42 few silt lam & fgr sand partings & few pebs.

(42.0-45.0) GRAVELLY, SANDY TILL;UNOXIDIZED;cobbly,loamy,sl calc.

(45.0-50.0) SANDY LOAM;UNOXIDIZED;only sm pebs,could all be sluff.

(50.0-52.0) GRAVELLY, SANDY TILL;UNOXIDIZED; cobbly,loamy,sl calc noted few ls grains.

(52.0-64.0) BEDROCK;possible regolith 52-54;Biotite gneiss (tonalitic gneiss)54-61;CHLORITE-QUARTZ-FELDSPAR MYLONITIC SCHIST sheared tonalite 61-64 (see thin section description by T. S. BOERBOOM).

Appendix 8-10B.

Appendix 8-10C.

## MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY DESC | LEGAL | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16991 | 110 | 10-15 | 5. | S | L | NW-SE | 12 | 68 | 24 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16992 | 110 | 15-20 | 5. | S | L | NW-SE | 12 | 68 | 24 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 22.3 | 437.0 | 5 | -1 | -1 | |
| 16993 | 110 | 20-25 | 5. | S | L | NW-SE | 12 | 68 | 24 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16994 | 110 | 25-27.5 | 2.5 | S | L | NW-SE | 12 | 68 | 24 | K | DML. CLAYEY TILL | 20-27.5 | 0.0 | 11400.0 | 700.0 | 5.3 | 2.0 | 25.7 | 872.0 | 3 | 6 | 91 | SII-631=20-27.5 |
| 16995 | 110 | 27.5-32.5 | 5. | S | L | NW-SE | 12 | 68 | 24 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 22.1 | 1048.0 | 2 | -1 | -1 | |
| 16996 | 110 | 32.5-37.5 | 5. | S | L | NW-SE | 12 | 68 | 24 | K | DML CLAY: GLACIAL LK | 27.5-37.5 | 0.0 | 20400.0 | 1000.0 | 4.6 | 2.4 | 26.8 | 1058.0 | 3 | 5 | 92 | |
| 16997 | 110 | 37.5-42 | 4.5 | S | L | NW-SE | 12 | 68 | 24 | K | RL. CLAY: GLACIAL LK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 21.9 | 600.0 | 4 | -1 | -1 | |
| 16998 | 110 | 42-47 | 5. | S | L | NW-SE | 12 | 68 | 24 | K | RL. SANDY GVL. TILL | 42-47 | 0.0 | 7200.0 | 2200.0 | 18.2 | 5.9 | 51.1 | 726.0 | 7 | 31 | 62 | |
| 16999 | 110 | 47-52 | 5. | S | L | NW-SE | 12 | 68 | 24 | K | RL. SANDY GVL. TILL | 47-52 | 1.0 | 11900.0 | 2900.0 | 25.5 | 8.3 | 47.3 | 909.0 | 5 | 24 | 71 | |
| 13839R | 110 | 47-52 | 5. | S | L | NW-SE | 12 | 68 | 24 | K | RL. SANDY GVL. TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 31.6 | 796.0 | 4 | -1 | -1 | |
| 19709 | 110 | 52.5-60 | 7.5 | S | L | NW-SE | 12 | 68 | 24 | K | BEDROCK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 19710 | 110 | 60-64 | 4.0 | S | L | NW-SE | 12 | 68 | 24 | K | BEDROCK | 52.5-64 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |

### NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16994 | 70 | 0.16 | 672 | 540 | 8700 | 24.70 | 88 | 120 | 150 | 210 | 0 | 58 | -10 | 13 | 0.5 | 0 | -10 | 1.2 | 1500 | 382 | 190 | 10 | 40 | 18 | 15 | 140.0 | 24.6 | 0 | 3.99 |
| 16996 | -29 | 0.11 | 851 | 660 | 7600 | 25.30 | 150 | 140 | 180 | 200 | 0 | 110 | -10 | 13 | 0.5 | 0 | -10 | 1.5 | 2200 | 340 | 190 | 7 | 80 | 18 | -2 | 180.0 | 24.4 | 0 | 4.74 |
| 16998 | 140 | 0.15 | 663 | 330 | 12000 | 19.90 | 240 | 210 | 190 | 120 | 0 | 41 | -16 | 8 | -0.5 | 0 | -10 | 0.6 | 200 | 280 | 88 | 10 | -10 | 18 | -2 | 120.0 | 16.5 | 3 | 13.30 |
| 16999 | 100 | 0.08 | 542 | 280 | 12000 | 22.70 | 230 | 270 | 240 | 130 | 0 | 240 | -18 | 8 | 0.5 | 0 | -10 | -0.7 | -800 | 258 | 83 | 7 | 40 | 29 | -2 | 110.0 | 17.1 | 2 | 19.10 |

### MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 16994 | 1.300 | 1.60 | 1300 | 160 | 90 | 230 | -1 | 68 | -0.5 | -1 | 0.2 |
| 16998 | 1.400 | 1.70 | 750 | 110 | 27 | 230 | -1 | 3 | -0.5 | -1 | 0.8 |
| 16999 | 1.200 | 1.70 | 780 | 110 | 27 | 220 | -1 | 12 | -0.5 | -1 | 0.7 |

### -63uM ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | V | CR | MN | FE % | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16992 | -1 | 160 | 100 | 520 | 3.7 | 21 | 43 | 26 | 93 | 9 | 1 | 4 | -0.5 | 1 | 2 | 1 | -1 | 1 | 22 | -1 | 4 | 51.0 |
| 16994 | -1 | 150 | 97 | 520 | 3.5 | 21 | 41 | 26 | 92 | 9 | -1 | 4 | -0.5 | 1 | 2 | 1 | -1 | 2 | 23 | -1 | 4 | 29.5 |
| 16995 | -1 | 140 | 86 | 640 | 4.1 | 24 | 45 | 28 | 93 | 9 | -1 | 4 | -0.5 | -1 | 2 | 1 | -1 | 1 | 21 | -1 | 4 | 21.1 |
| 16996 | -1 | 100 | 82 | 590 | 3.5 | 21 | 39 | 24 | 80 | 5 | -1 | 4 | -0.5 | -1 | 2 | 1 | -1 | 1 | 20 | -1 | 4 | 25.3 |
| 16997 | -1 | 110 | 110 | 550 | 4.1 | 25 | 50 | 36 | 87 | 4 | -1 | 3 | -0.5 | -1 | 2 | 1 | -1 | 1 | 24 | -1 | 3 | 36.5 |
| 16998 | 4 | 95 | 80 | 480 | 3.5 | 22 | 37 | 27 | 75 | 4 | -1 | 3 | -0.5 | 1 | 2 | 1 | -1 | 2 | 22 | -1 | 2 | 70.4 |
| 16999 | 7 | 110 | 110 | 600 | 4.3 | 26 | 47 | 47 | 140 | 3 | 2 | 4 | -0.5 | -1 | 2 | 1 | -1 | 3 | 22 | -1 | 4 | 52.0 |
| 13839R | -1 | 120 | 130 | 280 | 4.3 | 23 | 47 | 52 | 170 | 5 | -1 | 7 | -0.5 | -1 | 2 | -1 | -1 | 2 | 14 | -1 | 3 | 39.7 |

### BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19710 | -5 | -0.2 | -1.0 | 670 | -5.0 | -10 | 76.0 | 3.0 | 120 | 31 | -2 | 4 | -100 | 4.6 | 30 | -0.5 | -2 | 65 | 110 | 6.40 | 13.0 | -10 | -5 | 1.60 | -1.0 | -20 | -1.0 | 7.9 | -200 | -2 | 1.9 | -5 | -200 | -500 |

### BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19710 | 57 | 20 | 72 | 542 | 1.3 | -10 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0 | 0.00 | 0 |

## APPENDIX 8-11A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-10102

Drilling Completion Date 9/23/87

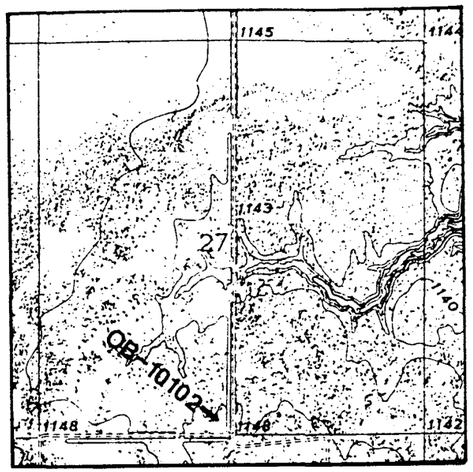
LOCATION (see map at right)

S-T-R SE¼-SW¼-27-157N-25W

County Koochiching

Quadrangle Lindford 7.5

Regional Survey Area Littlefork




HOLE PARAMETERS

Surface Elevation 1148 ft.

Total Depth 142 ft.

Elevation, Top of Precambrian Bedrock 1011.5 ft.

Drilling Method Air Rotary

Sample Diameter 6 inch

Sample Collection Method Slurry: Splitter & Buckets

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-119 | Des Moines Lobe Gl. Drift | | | |
| 119-136.5 | Rainy Lobe Gl. Drift | E,F | A,B,C | A = Ag,Au,Sb,Pb<br>B = Ni |
| 136.5-142 | Bedrock | E,F | I | F = W |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Quartz Biotite Schist

Thin Section Description:



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18872 | 9.4 | 0.6 | 8.8 | 363.4 | 261.6 | 101.8 | 86.5 | 15.3 | 1 | 4 | P | 5 | 95 | NA | NA | S | F | Y | Y | B | B | SAND |
| 18873 | 10.9 | 0.8 | 10.1 | 256.4 | 147.4 | 109.0 | 95.2 | 13.8 | 1 | 40 | P | 10 | 90 | NA | NA | S | F | Y | Y | B | B | SAND |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18872 | N | 50 X 75 | 13 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | | 1 | 86.5 | 4 | |
| 18873 | N | 125 X 150 | 27 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | | 1 | 95.2 | 40 | |

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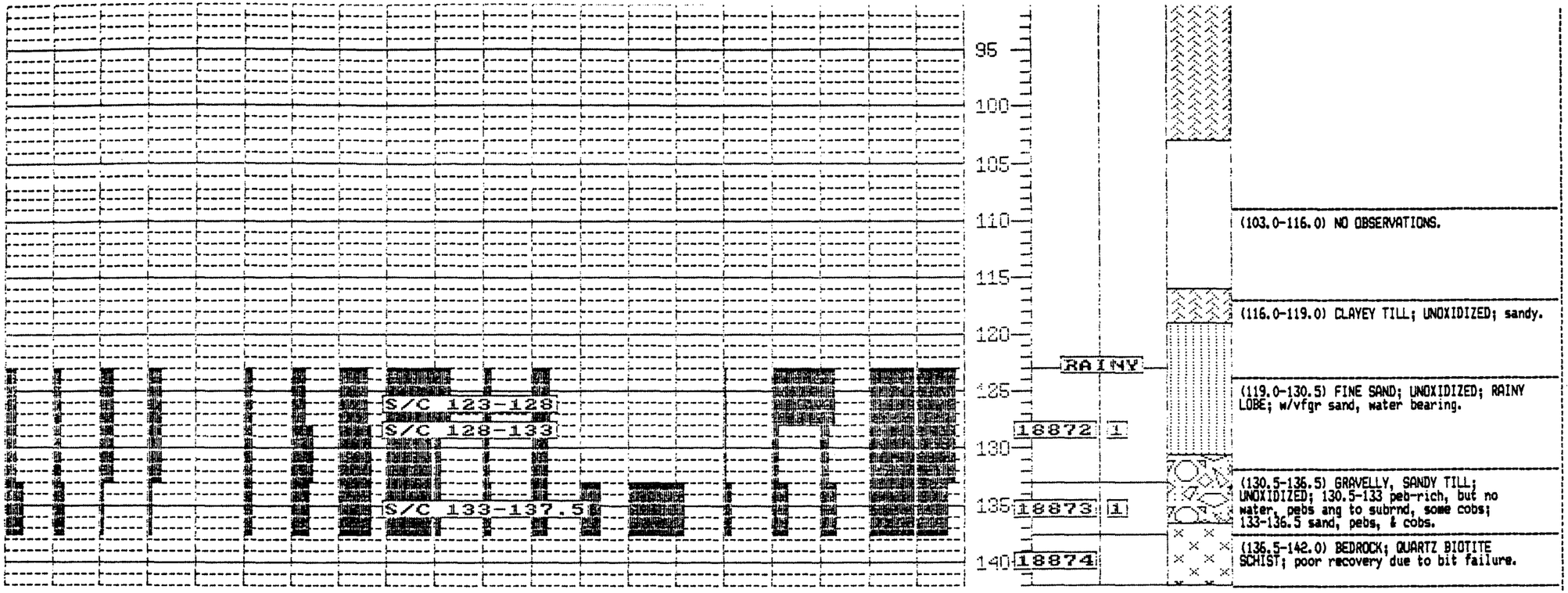
FIELDNOTE SUMMARY LOG OB-10102, AIR ROTARY

# OB-10102

Appendix 8-11B.

| [ IN NON MAG HMC | | | | | ][ IN -63 MICRON | | | | | | | | ][ IN MAG FRAC | | | NON MAG -63 | | -63 | NON MAG HMC | MAG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ^200 As | ^600 Cu | ^5 Sb | ^25 Mo | ^6000 Ba | ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 Fe% | ^500 Ni | ^50 Pb | ^100 Mo | ^500 Au | ^20 Au | ^100 g/kg | ^10 g/kg | ^2 g/kg |
| | | | | | | | | | | | | | | | | | | | |

| (FEET) | HMC SAMPLE # | HMC # GOLD GRAINS; INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|---|
| | | | | (0.0-4.0) GRAVEL; OXIDIZED; small pebs w/much clay. |
| 5 | | | | |
| 10 | | | | (4.0-15.0) CLAYEY TILL; OXIDIZED; buff color w/high clast content, mostly ls; oxidized transition 15-20. |
| 15 | | | | |
| 20 | | | | |
| 25 | | | | (15.0-103.0) CLAYEY TILL; UNOXIDIZED; gray w/rel high clast content, mostly ls; 40-50 w/higher clast content 40-50% (?) clasts; 50-55 clast lithol differs, mostly dark ms pebbles; 55-60 few pebs, some sand; 70-103 more sandy w/abund pebs. |
| 30 | | | | |
| 35 | | | | |
| 40 | | | | |
| 45 | | | | |
| 50 | | | | |
| 55 | | | | |
| 60 | | | | |
| 65 | | | | |
| 70 | | | | |
| 75 | | | | |
| 80 | | | | |
| 85 | | | | |
| 90 | | | | |


S/C 123-128
S/C 128-133
S/C 133-137.5
95
100
105
110
115
120
125
130
135
140
RAINY
18872 1
18873 1
18874
(103.0-116.0) NO OBSERVATIONS.
(116.0-119.0) CLAYEY TILL; UNOXIDIZED; sandy.
(119.0-130.5) FINE SAND; UNOXIDIZED; RAINY LOBE; w/vfgr sand, water bearing.
(130.5-136.5) GRAVELLY, SANDY TILL; UNOXIDIZED; 130.5-133 peb-rich, but no water, pebs ang to subrnd, some cobs; 133-136.5 sand, pebs, & cobs.
(136.5-142.0) BEDROCK; QUARTZ BIOTITE SCHIST; poor recovery due to bit failure.

**Appendix 8-11C.**

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT(g) MAG | WT (g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18871 | 10102 | 123-128 | 5.0 | A | L | SE-SW | 27 157 25 | | K | RL. F. TO V.F. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 48.0 | 1830.0 | 3 | -1 | -1 | |
| 18872 | 10102 | 128-133 | 5.0 | A | L | SE-SW | 27 157 25 | | K | RL. GVL. SAND | 123-133 | 1.0 | 9400.0 | 600.0 | 86.5 | 15.3 | 32.4 | 2002.0 | 2 | 6 | 92 | |
| 18873 | 10102 | 133-137.5 | 4.5 | A | L | SE-SW | 27 157 25 | | K | RL. GVL. SAND | 133-137.5 | 1.0 | 10900.0 | 800.0 | 95.2 | 13.8 | 82.2 | 2641.0 | 3 | 7 | 90 | |
| 18874 | 10102 | 137.5-142 | 4.5 | A | L | SE-SW | 27 157 25 | | K | BEDROCK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18872 | -17 | -0.50 | 1010 | 410 | 1120 | 24.00 | 160 | 170 | 88 | -200 | 56 | 41 | -10 | -7 | 0.6 | -5 | -200 | 1.4 | -100 | 590 | 120 | 9 | -24 | 22 | 0 | 147.0 | 35.0 | 9 | 68.19 |
| 18873 | 79 | -0.54 | 1190 | 310 | 1910 | 30.00 | 280 | 420 | 154 | -200 | 52 | 72 | -10 | -2 | 0.4 | -11 | -200 | 0.4 | -100 | 692 | 96 | 7 | -26 | 35 | 0 | 198.0 | 37.0 | 9 | 76.02 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18873 | 0.383 | 4.10 | 2721 | 194 | 54 | 309 | -5 | 16 | -0.5 | 266 | 1.3 |

-63uM ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | V | CR | MN | FE % | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18871 | 23 | 69 | 69 | 823 | 3.44 | 23 | 61 | 29 | 45 | -5 | -5 | 1 | 2.7 | -1 | -10 | 13 | -10 | -10 | 45 | 9 | -10 | 26.2 |
| 18872 | 2 | 75 | 63 | 694 | 3.10 | 25 | 67 | 43 | 41 | -5 | -5 | 1 | 2.7 | -1 | -10 | 9 | -10 | -10 | 43 | 5 | -10 | 16.2 |
| 18873 | 6 | 71 | 63 | 720 | 3.04 | 21 | 67 | 35 | 47 | -5 | -5 | 1 | 1.7 | -1 | -10 | 9 | -10 | -10 | 41 | -2 | -10 | 31.1 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18874 | -2 | 0.1 | -0.5 | 940 | 2.0 | -5 | 41.0 | 4.2 | 320 | 71 | -1 | 4 | -50 | 4.2 | 25 | -0.2 | 5 | 95 | 75 | 3.60 | 11.0 | -5 | -2 | 3.11 | 0.6 | -10 | -0.5 | 5.1 | -100 | 588 | 2.1 | -2 | -100 | -200 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18874 | 39 | 5 | 74 | 410 | -0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Appendix 8-12A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-10105

Drilling Completion Date 10/7/87

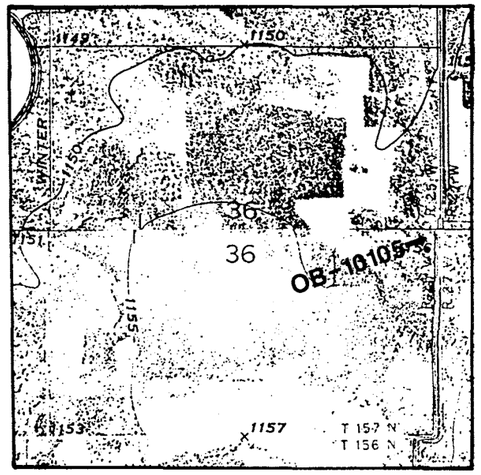
LOCATION (see map at right)

S-T-R SE¼-NE¼-36-157N-25W

County Koochiching

Quadrangle Lindford S.E. 7.5

Regional Survey Area Littlefork




HOLE PARAMETERS

Surface Elevation 1155 ft.

Total Depth 193 ft.

Elevation, Top of Precambrian Bedrock 965 ft.

Drilling Method Air Rotary

Sample Diameter 6 inch

Sample Collection Method Slurry: Splitter & Buckets

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-6 | Organic Sediments | | | |
| 6-145 | Des Moines Lobe Gl. Drift | | | |
| 145-190 | Rainy Lobe Gl. Drift | E,F | A,B,C | A = Au,Ag,Sb<br>B = Au,Sn |
| 190-193 | Bedrock | | | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: No Sample

Thin Section Description:



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18875 | 5.6 | 0.0 | 5.6 | 91.5 | 70.6 | 20.9 | 16.8 | 4.1 | 0 | | NA | TR | NA | NA | NA | NA | S | F | Y | Y | B | B | SAND |
| 18876 | 7.5 | 0.0 | 7.5 | 216.8 | 114.8 | 102.0 | 86.7 | 15.3 | 0 | | NA | TR | NA | NA | NA | NA | S | F | Y | Y | B | B | SAND |
| 18877 | 9.0 | 0.0 | 9.0 | 222.3 | 104.3 | 118.0 | 100.3 | 17.7 | 0 | | NA | TR | NA | NA | NA | NA | S | F | Y | Y | B | B | SAND |
| 18878 | 8.4 | 0.0 | 8.4 | 248.8 | 150.1 | 98.7 | 88.0 | 10.7 | 0 | | NA | TR | NA | NA | NA | NA | S | F | Y | Y | B | B | SAND |
| 18879 | 12.1 | 3.8 | 8.3 | 252.1 | 156.0 | 96.1 | 81.6 | 14.5 | 1 | | B | P | 10 | 90 | NA | NA | U | Y | Y | Y | B | B | TILL |
| 18881 | 10.6 | 2.4 | 8.2 | 210.5 | 117.8 | 92.7 | 79.2 | 13.5 | 4 | 228 | P | 5 | 95 | NA | NA | U | Y | Y | Y | B | B | | TILL |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18875 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18876 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18877 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18878 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18879 | N | 75 X 75 | 15 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | | 1 | 81.6 | 8 | |
| 18881 | Y | 25 X 75 | 10 C | | | | 1 | | | 1 | | | EST. 10% PYRITE |
| | | 75 X 125 | 20 C | 1 | | | | | | 1 | | | 0.1% ARSENOPYRITE |
| | | 125 X 175 | 29 C | 1 | | | | | | 1 | | | PHOTO MICROGRAPH |
| | | 150 X 250 | 38 C | 1 | | | | | | 1 | | | FILM REFERENCE #146 AVAILABLE |
| | | | | | | | | | | 4 | 79.2 | 228 | |

FIELDNOTE SUMMARY LOG OB-10105, AIR ROTARY

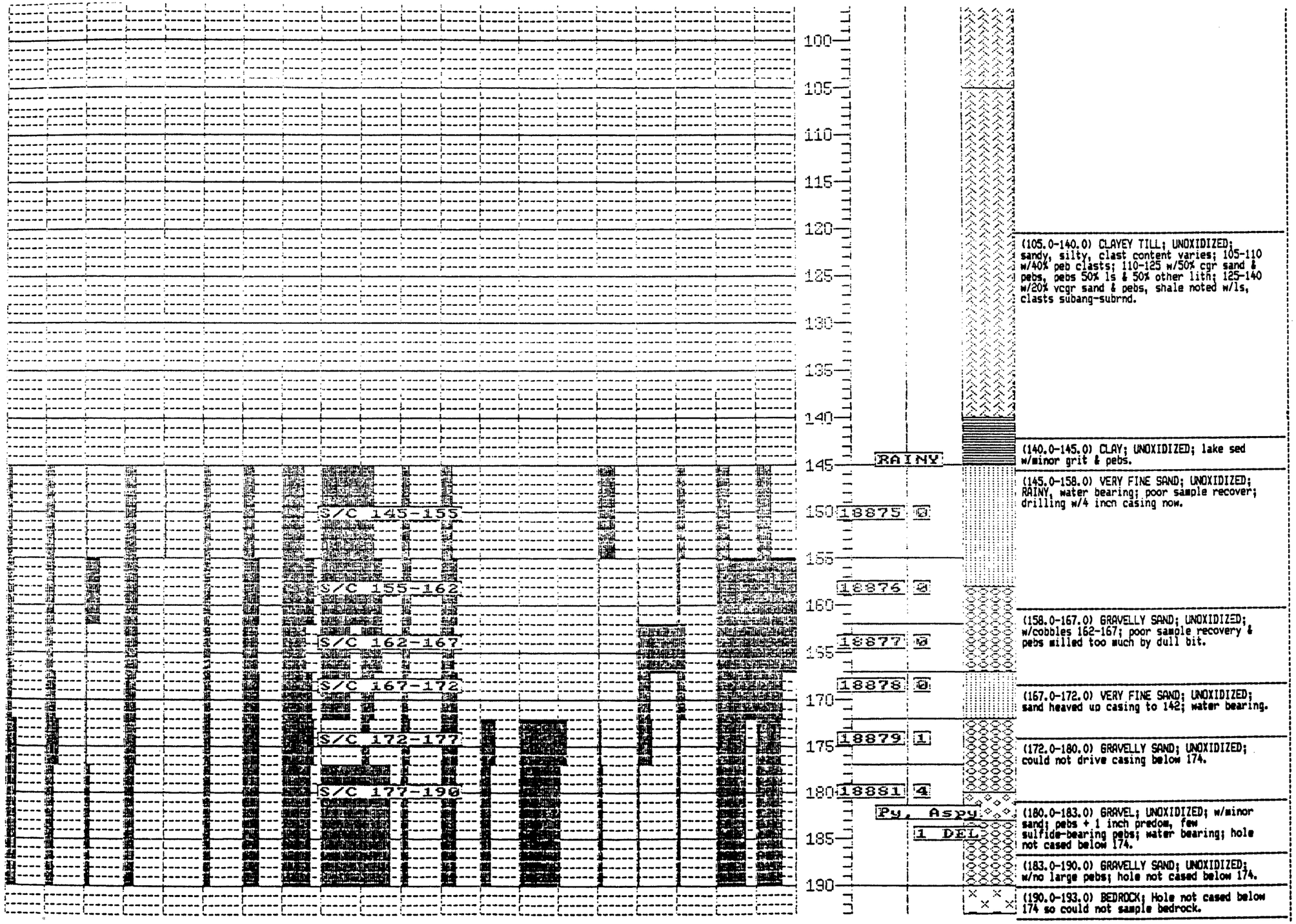
[ IN NON MAG HMC ]I[ IN -63 MICRON ]I[ IN MAG FRAC ]

| ^200 As | ^500 Cu | ^5 Sb | ^25 Mo | ^6000 Ba | ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 Fe% | ^500 Ni | ^50 Pb | ^100 Mo | NON MAG ^500 Au | -63 ^20 Au | -63 ^100 g/kg | NON MAG HMC ^10 g/kg | MAG ^2 g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

# OB-10105

| (FEET) | HMC SAMPLE # | HMC # GOLD GRAINS; INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|---|
| 5 | | | | (0.0-6.0) ORGANIC SEDIMENTS; and soil. |
| | | DES MOINES | | |
| 10 | | | | (6.0-15.0) CLAYEY TILL; OXIDIZED; buff w/15-25% sand/gravel; sand is mgr-cgr; ls pebs. |
| 15 | | | | |
| 20 | | | | |
| 25 | | | | |
| 30 | | | | |
| 35 | | | | (15.0-75.0) CLAYEY TILL; UNOXIDIZED; gray, sandy, w/variable gnl-peb content; 20-30 approx 30% sand content; 30-65 gravel clast content 40-60%, w/equal parts ls and dark lg-meta pebs; 65-75 has approx 30% gravel clasts. |
| 40 | | | | |
| 45 | | | | |
| 50 | | | | |
| 55 | | | | |
| 60 | | | | |
| 65 | | | | |
| 70 | | | | |
| 75 | | | | |
| 80 | | | | |
| 85 | | | | |
| 90 | | | | (75.0-105.0) CLAYEY TILL; UNOXIDIZED; silty, gray, w/up to 40% peb clasts; peb clasts are 60% ls. |
| 95 | | | | |

Appendix 8-12B.


100
105
110
115
120
125
130
135
140
145
150
155
160
165
170
175
180
185
190
S/C 145-155
S/C 155-162
S/C 162-167
S/C 167-172
S/C 172-177
S/C 177-190
RAINY
18875 0
18876 0
18877 0
18878 0
18879 1
18881 4
Py, Aspy
1 DEL
(105.0-140.0) CLAYEY TILL; UNOXIDIZED; sandy, silty, clast content varies; 105-110 w/40% peb clasts; 110-125 w/50% cgr sand & pebs, pebs 50% ls & 50% other lith; 125-140 w/20% vcgr sand & pebs, shale noted w/ls, clasts subang-subrnd.
(140.0-145.0) CLAY; UNOXIDIZED; lake sed w/minor grit & pebs.
(145.0-158.0) VERY FINE SAND; UNOXIDIZED; RAINY, water bearing; poor sample recover; drilling w/4 incn casing now.
(158.0-167.0) GRAVELLY SAND; UNOXIDIZED; w/cobbles 162-167; poor sample recovery & pebs milled too much by dull bit.
(167.0-172.0) VERY FINE SAND; UNOXIDIZED; sand heaved up casing to 142; water bearing.
(172.0-180.0) GRAVELLY SAND; UNOXIDIZED; could not drive casing below 174.
(180.0-183.0) GRAVEL; UNOXIDIZED; w/minor sand; pebs + 1 inch predom, few sulfide-bearing pebs; water bearing; hole not cased below 174.
(183.0-190.0) GRAVELLY SAND; UNOXIDIZED; w/no large pebs; hole not cased below 174.
(190.0-193.0) BEDROCK; Hole not cased below 174 so could not sample bedrock.

Appendix 8-12C.

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18875 | 10105 | 145-155 | 10.0 | A | L | SE-NE | 36 | 157 | 25 | K | RL. F. TO V.F. SAND | 145-155 | 0.0 | 5600.0 | 0.0 | 16.8 | 4.1 | 28.6 | 1516.0 | 2 | 0 | 98 | |
| 18876 | 10105 | 155-162 | 7.0 | A | L | SE-NE | 36 | 157 | 25 | K | RL. GVL. SAND | 155-162 | 0.0 | 7500.0 | 0.0 | 86.7 | 15.3 | 14.3 | 1767.0 | 1 | 0 | 99 | |
| 18877 | 10105 | 162-167 | 5.0 | A | L | SE-NE | 36 | 157 | 25 | K | RL. GVL. SAND | 162-167 | 0.0 | 9000.0 | 0.0 | 100.3 | 17.7 | 29.0 | 1476.0 | 2 | 0 | 98 | |
| 18878 | 10105 | 167-172 | 5.0 | A | L | SE-NE | 36 | 157 | 25 | K | RL. F. TO V.F. SAND | 167-172 | 0.0 | 8400.0 | 0.0 | 88.0 | 10.7 | 32.2 | 1570.0 | 2 | 0 | 98 | |
| 18879 | 10105 | 172-177 | 5.0 | A | L | SE-NE | 36 | 157 | 25 | K | RL. GVL. SAND | 172-177 | 1.0 | 12100.0 | 3800.0 | 81.6 | 14.5 | 15.2 | 2196.0 | 1 | 31 | 68 | |
| 18881 | 10105 | 177-190 | 13.0 | A | L | SE-NE | 36 | 157 | 25 | K | RL. GVL. SAND | 177-190 | 4.0 | 10600.0 | 2400.0 | 79.2 | 13.5 | 23.8 | 2399.0 | 1 | 23 | 76 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18875 | 220 | -0.60 | 1090 | 330 | 1856 | 25.00 | 170 | 280 | 108 | -200 | 65 | 27 | -10 | -7 | 0.2 | -14 | 390 | -0.2 | -200 | 565 | 86 | 5 | -30 | 30 | 0 | 166.0 | 34.0 | 3 | 11.95 |
| 18876 | 28 | -0.59 | 1180 | 350 | 1396 | 26.00 | 220 | 270 | 116 | -200 | 42 | 30 | -21 | -8 | -0.2 | -11 | 730 | 1.9 | -100 | 736 | 99 | 7 | -28 | 26 | 0 | 189.0 | 41.0 | 12 | 67.61 |
| 18877 | -17 | 0.85 | 1100 | 300 | 1272 | 25.00 | 210 | 230 | 106 | -200 | 56 | 28 | -10 | -8 | 0.4 | -5 | -200 | -0.2 | -100 | 640 | 87 | 6 | -26 | 58 | 0 | 165.0 | 37.0 | 11 | 79.71 |
| 18878 | -18 | -0.49 | 960 | 190 | 1968 | 21.00 | 190 | 300 | 152 | -200 | 106 | 24 | -10 | -7 | 0.4 | -5 | 300 | -0.2 | -100 | 557 | 86 | 6 | -24 | 30 | 0 | 163.0 | 34.0 | 10 | 70.20 |
| 18879 | 49 | -0.37 | 560 | 270 | 1862 | 25.00 | 240 | 360 | 186 | 200 | 134 | 51 | -10 | -7 | 0.2 | -5 | -200 | -0.2 | -100 | 320 | 56 | 6 | 25 | 24 | 0 | 105.0 | 19.0 | 7 | 66.06 |
| 18881 | 68 | 0.43 | 530 | 340 | 2210 | 25.00 | 190 | 260 | 109 | -200 | 117 | 47 | -10 | -6 | 0.2 | -5 | -200 | 0.5 | -100 | 260 | 60 | 7 | -22 | 19 | 0 | 85.5 | 16.0 | 7 | 61.74 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18879 | 0.906 | 4.68 | 1748 | 183 | 90 | 270 | -5 | 18 | -0.5 | 240 | 1.2 |
| 18881 | 0.721 | 4.75 | 1668 | 129 | 40 | 296 | -5 | 4 | -0.5 | 228 | 1.3 |

-63uM ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | V | CR | MN | FE % | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18875 | 1 | 44 | 49 | 616 | 2.84 | 15 | 55 | 29 | 57 | -5 | 14 | 3 | 0.9 | -1 | -10 | 11 | 13 | -10 | 47 | -2 | -10 | 18.9 |
| 18876 | 1 | 83 | 67 | 855 | 3.99 | 23 | 81 | 39 | 77 | -5 | -5 | 5 | 2.3 | -1 | -10 | 15 | -10 | -10 | 57 | 3 | -10 | 8.1 |
| 18877 | 40 | 55 | 55 | 748 | 3.08 | 19 | 61 | 35 | 57 | -5 | -5 | 5 | 1.7 | -1 | -10 | 7 | -10 | 21 | 47 | -2 | -10 | 19.6 |
| 18878 | 6 | 89 | 75 | 1002 | 3.92 | 29 | 75 | 39 | 51 | -5 | 5 | 3 | 3.7 | -1 | -10 | 7 | -10 | 13 | 49 | 7 | 19 | 20.5 |
| 18879 | 7 | 95 | 80 | 1000 | 4.00 | 27 | 80 | 41 | 55 | -5 | -5 | 2 | 1.0 | -1 | -10 | 5 | -10 | 10 | 45 | 5 | -10 | 6.9 |
| 18881 | 1 | 69 | 77 | 841 | 3.62 | 23 | 73 | 39 | 47 | -5 | -5 | 5 | 2.3 | -1 | -10 | 17 | -10 | 51 | 47 | 5 | -10 | 9.9 |

**Appendix 8-13A.** DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-10202

Drilling Completion Date 10/14/87

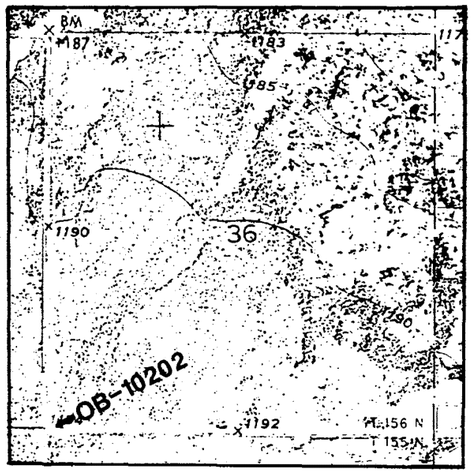
LOCATION (see map at right)

S-T-R SW¼-SW¼-36-156N-25W

County Koochiching

Quadrangle Lindford S.E. 7.5

Regional Survey Area Littlefork




HOLE PARAMETERS

Surface Elevation 1194 ft.

Total Depth 167 ft.

Elevation, Top of Precambrian Bedrock

Drilling Method Air Rotary

Sample Diameter 6 inch

Sample Collection Method Slurry: Splitter & Buckets

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-8 | Organic Sediments | | | |
| 8-124 | Des Moines Lobe Gl. Drift | E,F | A,B,C | |
| 124-167 | Rainy Lobe Gl. Drift | E,F | A,B,C | A = Au,Se,Ag,Sb,Pb<br>B = As,Sb |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type:

Thin Section Description:



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | M. I. CONC | | | | | | CLAST | | | | MATRIX | | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18857 | 9.2 | 2.8 | 6.4 | 35.9 | 20.3 | 15.6 | 9.9 | 5.7 | 0 | NA | P | 39 | 60 | 1 | NA | U | Y | Y | Y | B | B | TILL |
| 18861 | 8.6 | 2.5 | 6.1 | 62.6 | 45.3 | 17.3 | 9.9 | 7.4 | 0 | NA | P | 19 | 80 | 1 | NA | U | Y | Y | Y | B | B | TILL |
| 18863 | 11.4 | 2.8 | 8.6 | 119.7 | 87.7 | 32.0 | 22.3 | 9.7 | 0 | NA | P | 40 | 60 | NA | NA | U | Y | Y | Y | B | B | TILL |
| 18865 | 10.2 | 0.0 | 10.2 | 187.1 | 120.7 | 66.4 | 52.3 | 14.1 | 0 | NA | TR | NA | NA | NA | NA | S | M | Y | Y | B | B | SAND |
| 18867 | 10.0 | 1.2 | 8.8 | 289.2 | 210.4 | 78.8 | 61.0 | 17.8 | 0 | NA | P | 35 | 65 | NA | NA | S | F | Y | Y | B | B | SAND |
| 18869 | 11.6 | 1.6 | 10.0 | 243.3 | 172.5 | 70.8 | 55.0 | 15.8 | 0 | NA | P | 30 | 70 | NA | NA | U | Y | Y | Y | B | B | TILL |
| 18882 | 6.9 | 0.6 | 6.3 | 141.6 | 59.0 | 82.6 | 58.7 | 23.9 | 1 | 17 | P | 10 | 89 | 1 | NA | S | C | N | N | B | NA | SAND |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | NUMBER OF GRAINS ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18857 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18861 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18863 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18865 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18867 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18869 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18882 | Y | 75 X 100 | 18 C | 1 | | | | | | 1 | | | EST. 2% PYRITE 0.1% ARSENOPYRITE |
| | | | | | | | | | | 1 | 58.7 | 17 | |

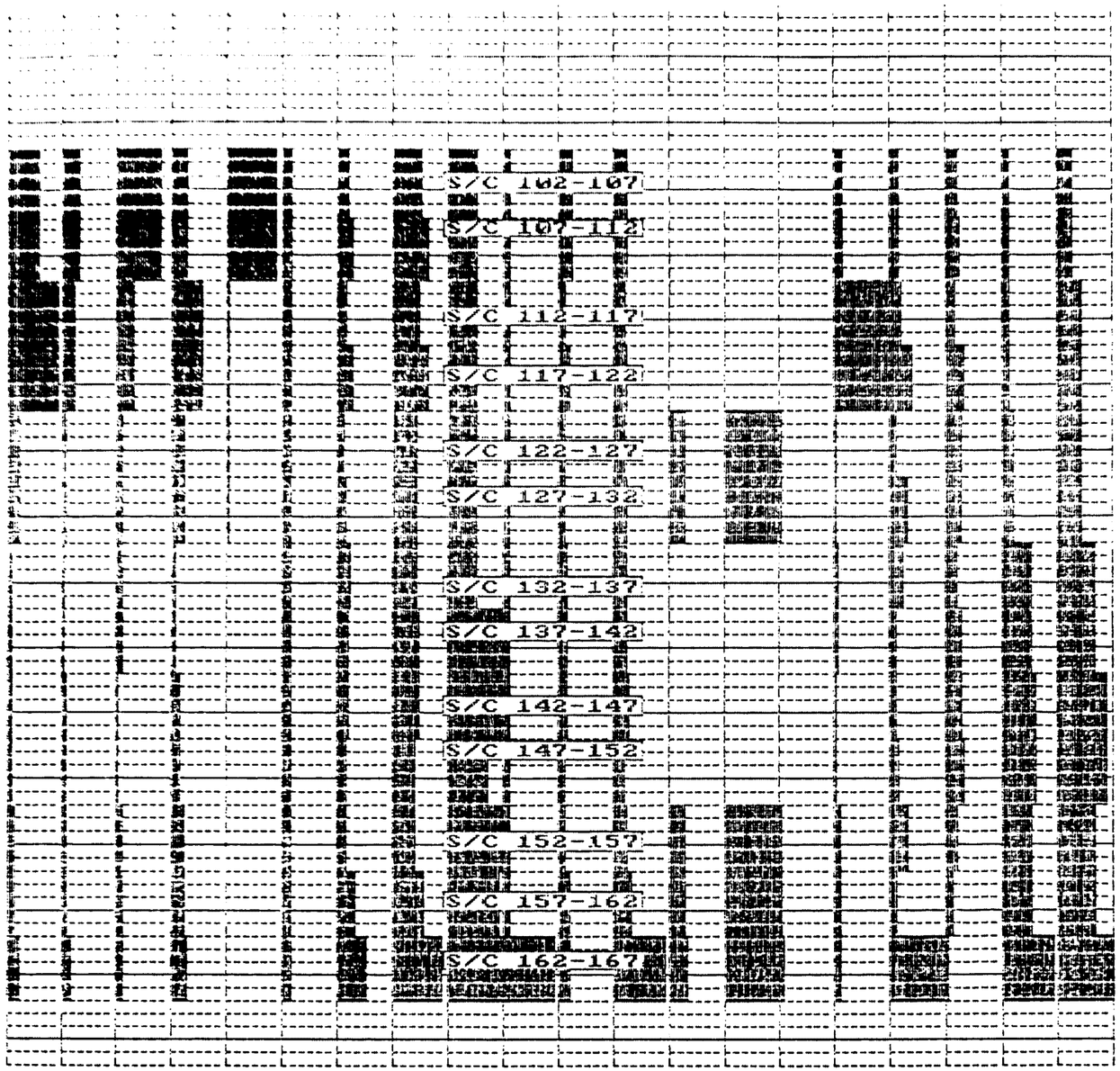
FIELDNOTE SUMMARY LOG OB-10202, AIR ROTARY

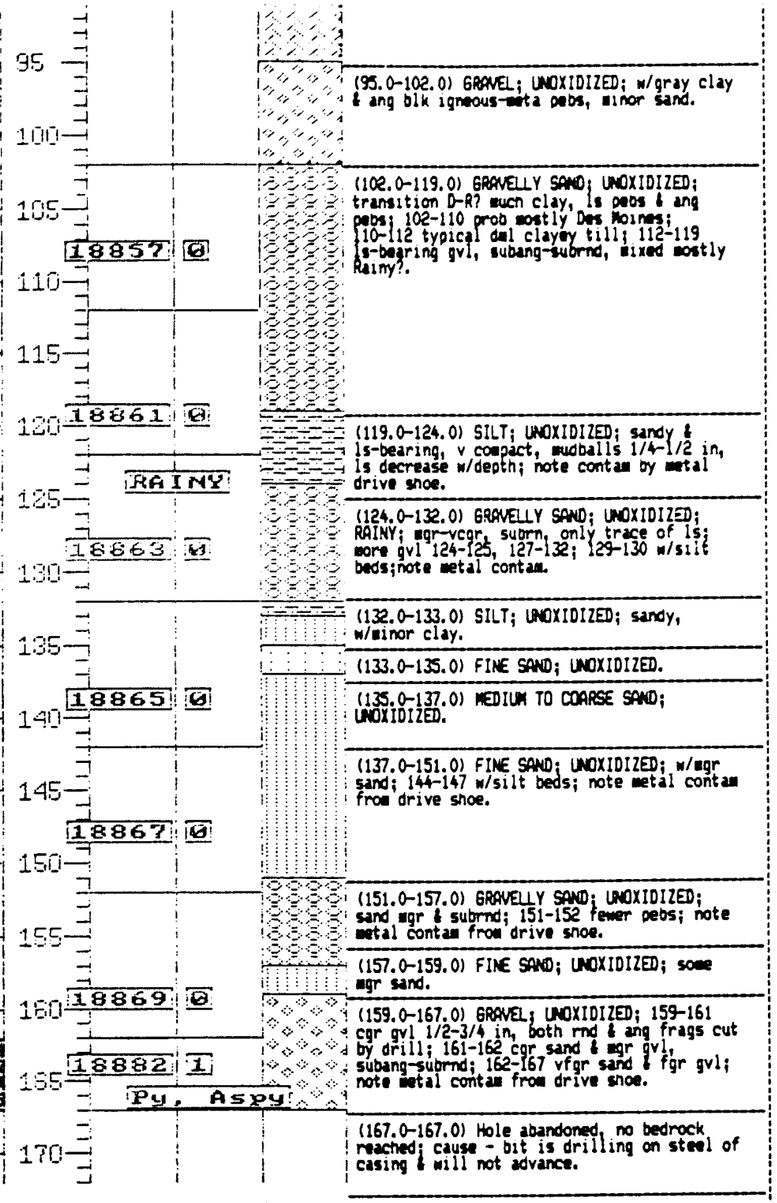
# OB-10202

Appendix 8-13B.

| IN NON MAG HMC | | | | | IN -63 MICRON | | | | | | | IN MAG FRAC | | | NON MAG -63 | | -63 NON MAG HMC | MAG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ^200 As | ^600 Cu | ^5 Sb | ^25 Mo | ^6000 Ba | ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 Fe% | ^500 Ni | ^50 Pb | ^100 Mo | ^500 Au | ^20 Au | ^100 g/kg | ^10 g/kg | ^2 g/kg |

| (FEET) | HMC SAMPLE # | HMC # GOLD GRAINS INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|---|
| 5 | | | | (0.0-8.0) ORGANIC SEDIMENTS; organics & soil; peat 0-5; peat & soil 5-7; soil 7-8; site is on man ditchbank. |
| 10 | | DES MOINES | | (8.0-65.0) CLAYEY TILL; UNOXIDIZED; 10-15 w +-20% cgr sand-gravel, ang-suban ls; 15-20 till w/an mgr-cgr sand; 20-62 sandy-gvl till w/ls, granite, volc pebs, approx 50-50% till-gvl, pebs ang, 50% of sand-gvl is ls; are pebs discrete layers or in till?. |
| 15 | | | | |
| 20 | | | | |
| 25 | | | | |
| 30 | | | | |
| 35 | | | | |
| 40 | | | | |
| 45 | | | | |
| 50 | | | | |
| 55 | | | | |
| 60 | | | | |
| 65 | | | | (65.0-95.0) CLAYEY TILL; UNOXIDIZED; ls pebs to 3/4 in, prob increase suban sh pebs & grains; some subrnd pebs to 1 in dia; 85-95 eq parts till & grv to 1 in, ls +-30% in gvl. |
| 70 | | | | |
| 75 | | | | |
| 80 | | | | |
| 85 | | | | |
| 90 | | | | |


S/C 102-107
S/C 107-112
S/C 112-117
S/C 117-122
S/C 122-127
S/C 127-132
S/C 132-137
S/C 137-142
S/C 142-147
S/C 147-152
S/C 152-157
S/C 157-162
S/C 162-167


95
100
105
110
115
120
125
130
135
140
145
150
155
160
165
170
18857 Ø
18861 Ø
RAINY
18863 Ø
18865 Ø
18867 Ø
18869 Ø
18882 I
Py, Aspy
(95.0-102.0) GRAVEL; UNOXIDIZED; w/gray clay & ang blk igneous-meta pebs, minor sand.
(102.0-119.0) GRAVELLY SAND; UNOXIDIZED; transition D-R? much clay, ls pebs & ang pebs; 102-110 prob mostly Des Moines; 110-112 typical dml clayey till; 112-119 ls-bearing gvl, subang-subrnd, mixed mostly Rainy?.
(119.0-124.0) SILT; UNOXIDIZED; sandy & ls-bearing, v compact, mudballs 1/4-1/2 in, ls decrease w/depth; note contam by metal drive shoe.
(124.0-132.0) GRAVELLY SAND; UNOXIDIZED; RAINY; mgr-vcgr, subrn, only trace of ls; more gvl 124-125, 127-132; 129-130 w/silt beds;note metal contam.
(132.0-133.0) SILT; UNOXIDIZED; sandy, w/minor clay.
(133.0-135.0) FINE SAND; UNOXIDIZED.
(135.0-137.0) MEDIUM TO COARSE SAND; UNOXIDIZED.
(137.0-151.0) FINE SAND; UNOXIDIZED; w/mgr sand; 144-147 w/silt beds; note metal contam from drive shoe.
(151.0-157.0) GRAVELLY SAND; UNOXIDIZED; sand mgr & subrnd; 151-152 fewer pebs; note metal contam from drive shoe.
(157.0-159.0) FINE SAND; UNOXIDIZED; some mgr sand.
(159.0-167.0) GRAVEL; UNOXIDIZED; 159-161 cgr gvl 1/2-3/4 in, both rnd & ang frags cut by drill; 161-162 cgr sand & mgr gvl, subang-subrnd; 162-167 vfgr sand & fgr gvl; note metal contam from drive shoe.
(167.0-167.0) Hole abandoned, no bedrock reached; cause - bit is drilling on steel of casing & will not advance.

**Appendix 8-13C.**

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18856 | 10202 | 102-107 | 5. | A | L | SW-SW | 36 | 156 | 25 | K | RL. GVL. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 36.9 | 1763.0 | 2 | -1 | -1 | |
| 18857 | 10202 | 107-112 | 5. | A | L | SW-SW | 36 | 156 | 25 | K | RL. GVL. SAND | 102-112 | 0.0 | 9200.0 | 2800.0 | 9.9 | 5.7 | 31.1 | 1365.0 | 2 | 30 | 68 | |
| 18858 | 10202 | 112 | -2.0 | A | L | SW-SW | 36 | 156 | 25 | K | RL. UNCLASS. SLUFF | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 26.2 | 1531.0 | 2 | -1 | -1 | SLUFF MAT'L |
| 18859 | 10202 | 112-117 | 5. | A | L | SW-SW | 36 | 156 | 25 | K | RL. GVL. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 27.4 | 1749.0 | 2 | -1 | -1 | |
| 18861 | 10202 | 117-122 | 5. | A | L | SW-SW | 36 | 156 | 25 | K | RL. SILTY SAND | 112-122 | 0.0 | 8600.0 | 2500.0 | 9.9 | 7.4 | 45.4 | 1489.0 | 3 | 29 | 68 | |
| 18862 | 10202 | 122-127 | 5. | A | L | SW-SW | 36 | 156 | 25 | K | RL. GVL. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 47.8 | 1742.0 | 3 | -1 | -1 | |
| 18863 | 10202 | 127-132 | 5. | A | L | SW-SW | 36 | 156 | 25 | K | RL. GVL. SAND | 122-132 | 0.0 | 11400.0 | 2800.0 | 22.3 | 9.7 | 47.5 | 1610.0 | 3 | 25 | 72 | |
| 18864 | 10202 | 132-137 | 5. | A | L | SW-SW | 36 | 156 | 25 | K | RL. SILTY SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 29.1 | 1541.0 | 2 | -1 | -1 | |
| 18865 | 10202 | 137-142 | 5. | A | L | SW-SW | 36 | 156 | 25 | K | RL. F. TO V.F. SAND | 132-142 | 0.0 | 10200.0 | 0.0 | 52.3 | 14.1 | 69.2 | 2518.0 | 3 | 0 | 97 | |
| 18866 | 10202 | 142-147 | 5. | A | L | SW-SW | 36 | 156 | 25 | K | RL. F. TO V.F. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 44.4 | 1508.0 | 3 | -1 | -1 | |
| 18867 | 10202 | 147-152 | 5.0 | A | L | SW-SW | 36 | 156 | 25 | K | RL. MED. TO C. SAND | 142-152 | 0.0 | 10000.0 | 1200.0 | 61.0 | 17.8 | 68.1 | 2089.0 | 3 | 12 | 85 | |
| 18868 | 10202 | 152-157 | 5.0 | A | L | SW-SW | 36 | 156 | 25 | K | RL. GVL. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 34.2 | 1703.0 | 2 | -1 | -1 | |
| 18869 | 10202 | 157-162 | 5.0 | A | L | SW-SW | 36 | 156 | 25 | K | RL. SANDY GVL. TILL | 152-162 | 0.0 | 11600.0 | 1600.0 | 55.0 | 15.8 | 17.9 | 1492.0 | 1 | 14 | 85 | |
| 18882 | 10202 | 162-167 | 5.0 | A | L | SW-SW | 36 | 156 | 25 | K | RL. GVL. SAND | 162-167 | 1.0 | 6900.0 | 600.0 | 58.7 | 23.9 | 10.1 | 1956.0 | 1 | 9 | 90 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18857 | 72 | -0.65 | 950 | 1000 | 2124 | 30.00 | 190 | 180 | 183 | -200 | 83 | 111 | -25 | 7 | 0.9 | -15 | -520 | 4.1 | 5200 | 530 | 334 | 14 | 69 | 47 | 0 | 286.0 | 41.0 | 1 | 7.21 |
| 18861 | 772 | -1.20 | 2470 | 790 | 2538 | 36.00 | 260 | 290 | 136 | -200 | 49 | 181 | -37 | -14 | 1.0 | -22 | -720 | 1.5 | -330 | 1530 | 261 | 22 | -49 | 51 | 0 | 761.0 | 47.0 | 1 | 6.74 |
| 18863 | 28 | -0.45 | 780 | 530 | 870 | 22.00 | 120 | 120 | 48 | -200 | 26 | 41 | -10 | -6 | -0.2 | -11 | -200 | 0.6 | 270 | 410 | 130 | 12 | -24 | 22 | 0 | 189.0 | 20.0 | 2 | 16.92 |
| 18865 | 34 | 0.40 | 360 | 460 | 740 | 20.00 | 90 | 93 | 26 | -200 | 20 | 17 | -10 | -2 | -0.2 | -5 | -200 | 0.5 | -100 | 150 | 99 | 9 | -16 | 8 | 0 | 70.6 | 12.0 | 5 | 39.84 |
| 18867 | -13 | 0.31 | 400 | 480 | 462 | 20.00 | 84 | 87 | 38 | -200 | 14 | 16 | -10 | -4 | -0.2 | -5 | -200 | 0.3 | -100 | 210 | 110 | 10 | -16 | 8 | 0 | 75.2 | 10.0 | 6 | 46.88 |
| 18869 | 55 | 0.60 | 840 | 470 | 1098 | 22.00 | 110 | 160 | 38 | -200 | 24 | 23 | -10 | -6 | -0.2 | -5 | -200 | 0.5 | -100 | 490 | 91 | 12 | -20 | 26 | 0 | 199.0 | 15.0 | 5 | 41.75 |
| 18882 | 52 | -0.55 | 1070 | 460 | 2484 | 25.00 | 120 | 170 | 88 | -200 | 34 | 38 | -10 | -7 | -0.2 | -5 | -200 | 0.6 | -100 | 654 | 65 | 9 | 42 | 22 | 0 | 285.0 | 15.0 | 9 | 46.62 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18863 | 0.599 | 5.93 | 1791 | 145 | 28 | 418 | -5 | 3 | -0.5 | 233 | 0.9 |
| 18869 | 0.712 | 6.66 | 1656 | 142 | 26 | 430 | -5 | 2 | -0.5 | 227 | 1.4 |
| 18882 | 0.429 | 4.65 | 1008 | 157 | 120 | 298 | -5 | 7 | -0.5 | 253 | 3.5 |

-63uM ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | V | CR | MN | FE % | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18856 | 3 | 82 | 33 | 549 | 2.24 | 11 | 53 | 21 | 71 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 35 | -2 | -10 | 20.9 |
| 18857 | 3 | 100 | 47 | 549 | 2.46 | 15 | 63 | 27 | 77 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 37 | -2 | -10 | 22.8 |
| 18858 | 28 | 58 | -1 | 569 | 2.62 | 13 | 57 | 21 | 51 | -5 | 45 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 105 | -2 | -10 | 17.1 |
| 18859 | 4 | 52 | 43 | 455 | 2.12 | 9 | 47 | 17 | 41 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 27 | -2 | -10 | 15.7 |
| 18861 | 8 | 62 | 43 | 539 | 2.56 | 13 | 63 | 27 | 61 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 37 | -2 | -10 | 30.5 |
| 18862 | 2 | 59 | 43 | 445 | 2.04 | 13 | 43 | 13 | 35 | -5 | 8 | 1 | 0.5 | -1 | -10 | -5 | -10 | -10 | 29 | -2 | -10 | 27.4 |
| 18863 | 6 | 66 | 49 | 483 | 2.28 | 13 | 45 | 15 | 41 | -5 | -5 | 1 | 0.5 | -1 | -10 | -5 | -10 | -10 | 29 | 5 | -10 | 29.5 |
| 18864 | 5 | 64 | 45 | 529 | 2.48 | 15 | 45 | 23 | 47 | -5 | -5 | 1 | 0.9 | -1 | -10 | 5 | -10 | -10 | 41 | -2 | -10 | 18.9 |
| 18865 | 2 | 63 | 61 | 539 | 2.58 | 15 | 47 | 21 | 47 | -5 | -5 | 1 | 0.9 | -1 | -10 | 15 | -10 | -10 | 49 | -2 | -10 | 27.5 |
| 18866 | 2 | 61 | 61 | 571 | 2.62 | 17 | 47 | 21 | 49 | -5 | -5 | 1 | 2.7 | -1 | -10 | 11 | -10 | -10 | 47 | -2 | -10 | 29.4 |
| 18867 | 3 | 59 | 49 | 471 | 2.16 | 15 | 39 | 17 | 39 | -5 | -5 | 1 | 1.5 | -1 | -10 | 7 | -10 | -10 | 41 | 5 | -10 | 32.6 |
| 18868 | 6 | 51 | 51 | 499 | 2.36 | 13 | 39 | 15 | 37 | -5 | -5 | 1 | 1.5 | -1 | -10 | 13 | -10 | -10 | 37 | -2 | -10 | 20.1 |
| 18869 | 2 | 61 | 59 | 612 | 3.00 | 17 | 55 | 33 | 57 | -5 | -5 | 1 | 1.5 | -1 | -10 | 9 | -10 | -10 | 43 | 7 | -10 | 12.0 |
| 18882 | 75 | 103 | 77 | 1496 | 9.09 | 23 | 87 | 51 | 59 | -5 | -5 | 9 | 1.7 | -1 | -10 | 19 | -10 | 352 | 53 | -2 | -10 | 5.2 |

## Appendix 8-14A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-10303

Drilling Completion Date 7/6/87

LOCATION (see map at right)

S-T-R SW¼-SW¼-31-69N-26W

County Koochiching

Quadrangle Littlefork N.W. 7.5

Regional Survey Area Littlefork

HOLE PARAMETERS

Surface Elevation 1119 ft.

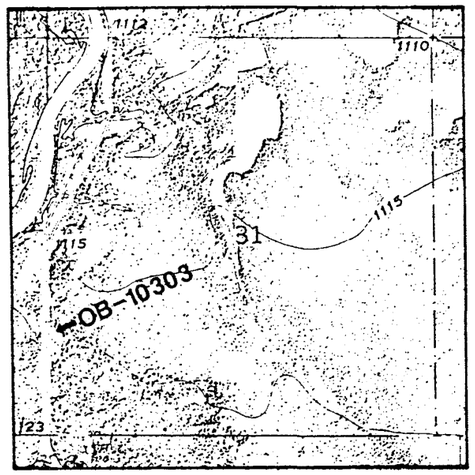
Total Depth 124 ft.

Elevation, Top of Precambrian Bedrock 1002 ft.

Drilling Method Air Rotary

Sample Diameter 6 inch

Sample Collection Method Slurry: Splitter & Buckets




SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-115 | Des Moines Lobe Gl. Drift | | | |
| 115-117 | Rainy Lobe Gl. Drift | E,F | A,B,C | A = Au,Cu,Pb<br>B = Cu,Ni,La,Th,U,Ag,Mo |
| 117-124 | Bedrock | E,F | I | C = Ni,Cu,Mo |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Quartz Biotite Schist

Thin Section Description:



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | MATRIX | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18812 | 11.1 | 3.6 | 7.5 | 74.3 | 50.3 | 24.0 | 19.1 | 4.9 | 0 | NA | CP | 99 | 1 | NA | NA | U | Y | Y | Y | GY | GY | TILL |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | NUMBER OF GRAINS ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18812 | N | NO VISIBLE GOLD | | | | | | | | | | | |

FIELDNOTE SUMMARY LOG OB-10303, AIR ROTARY

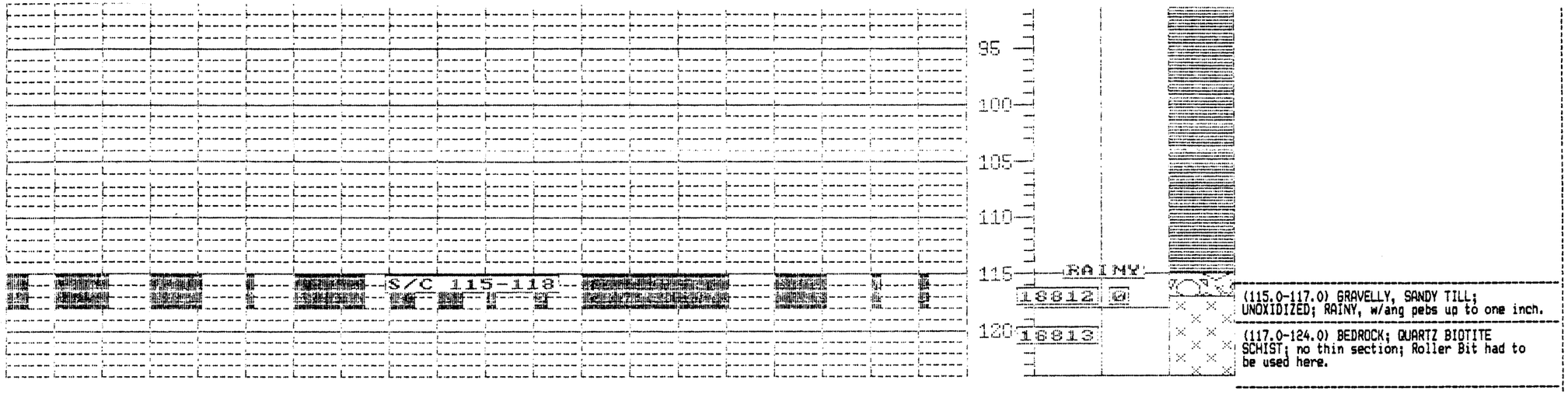
# OB-10303

Appendix 8-14B.

[ IN NON MAG HMC ][ IN -63 MICRON ][ IN MAG FRAC ]

| ^200 As | ^500 Cu | ^5 Sb | ^25 Mo | ^6000 Ba | ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 Fe% | ^500 Ni | ^50 Pb | ^100 Mo | NON MAG ^500 Au | -63 ^20 Au | -63 ^100 g/kg | NON MAG HMC ^10 g/kg | MAG ^2 g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| (FEET) | HMC SAMPLE # DES | HMC # BOLD GRAINS: INDICATORS MOIMES | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|---|
| 5 | | | | (0.0-5.0) CLAYEY TILL; OXIDIZED to 5 ft. |
| 10 | | | | (5.0-78.0) CLAYEY TILL; UNOXIDIZED; w/ls pebs; 30-37 w/more sand; 37-38 w/more pebs; 38-49 more clayey w/depth; 49-55 w/more pebs; 55-71 more sandy & more ls pebs; 71-78 more clayey w/depth. |
| 15 | | | | |
| 20 | | | | |
| 25 | | | | |
| 30 | | | | |
| 35 | | | | |
| 40 | | | | |
| 45 | | | | |
| 50 | | | | |
| 55 | | | | |
| 60 | | | | |
| 65 | | | | |
| 70 | | | | |
| 75 | | | | |
| 80 | | | | (78.0-115.0) CLAY; UNOXIDIZED; lake seds; 80-85 w/some ls pebs; 95-100 w/some ls gnls; 115 w/ang ls gnls & pebs. |
| 85 | | | | |
| 90 | | | | |


S/C 115-118
95
100
105
110
115
120
RAINY
18812
18813
(115.0-117.0) GRAVELLY, SANDY TILL; UNOXIDIZED; RAINY, w/ang pebs up to one inch.
(117.0-124.0) BEDROCK; QUARTZ BIOTITE SCHIST; no thin section; Roller Bit had to be used here.

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18812 | 10303 | 115-118 | 3. | A | L | SW-SW | 31 | 69 | 26 | K | RL. SANDY GVL. TILL | 115-118 | 0.0 | 11100.0 | 3600.0 | 19.1 | 4.9 | 22.7 | 3384.0 | 1 | 32 | 67 | |
| 18813 | 10303 | 118-124 | 6. | A | L | SW-SW | 31 | 69 | 26 | K | BEDROCK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18812 | -28 | -1.00 | 3620 | 300 | 859 | 30.00 | 580 | 650 | 1039 | -200 | 40 | 91 | -24 | 50 | 3.0 | -13 | -740 | 0.6 | 580 | 2150 | 99 | 4 | 120 | 89 | 0 | 903.0 | 186.0 | 2 | 12.76 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18812 | 1.500 | 3.84 | 1530 | 1210 | 532 | 181 | 1 | 150 | 0.6 | 244 | 0.4 |

-63uM ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | V | CR | MN | FE % | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18812 | 89 | 50 | 45 | 485 | 2.72 | 15 | 47 | 105 | 55 | 5 | -5 | 5 | 0.9 | -1 | -10 | -5 | -10 | 11 | 51 | 5 | -10 | 6.7 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18813 | -2 | -0.1 | 1.1 | 830 | 22.0 | -5 | 63.0 | 7.0 | 320 | 30 | -1 | 3 | -50 | 5.7 | 41 | 0.2 | -1 | 95 | 110 | 5.50 | 18.0 | -5 | -2 | 2.63 | 0.7 | -10 | 0.7 | 10.0 | -100 | 4 | 2.9 | -2 | 110 | 280 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18813 | 42 | 4 | 94 | 360 | 0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Appendix 8-15A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-10304

Drilling Completion Date 7/9/87

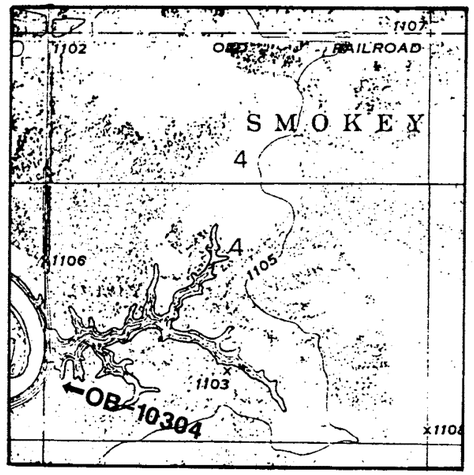
LOCATION (see map at right)

S-T-R SW¼-SW¼-4-69N-26W

County Koochiching

Quadrangle Littlefork N.W. 7.5

Regional Survey Area Littlefork




HOLE PARAMETERS

Surface Elevation 1103 ft.

Total Depth 142 ft.

Elevation, Top of Precambrian Bedrock 967 ft.

Drilling Method Air Rotary

Sample Diameter 6 inch

Sample Collection Method Slurry: Splitter & Buckets

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-2 | Organic Sediments | | | |
| 2-136 | Rainy Lobe Gl. Drift | E,F | A,B,C | A = Au<br>B = As |
| 136-142 | Bedrock | E,F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Metasediment w/Stringers on Monzonite

Thin Section Description:



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | MATRIX | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | GR | LS OT | S/U | SD | ST | CY | COLOR SD CY | |
| 18814 | 10.2 | 1.9 | 8.3 | 254.5 | 226.0 | 28.5 | 23.3 | 5.2 | 0 | NA | CP | 5 | 95 | NA NA | U | Y | Y | Y | GB GB | TILL |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | NUMBER OF GRAINS ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18814 | N | NO VISIBLE GOLD | | | | | | | | | | | |

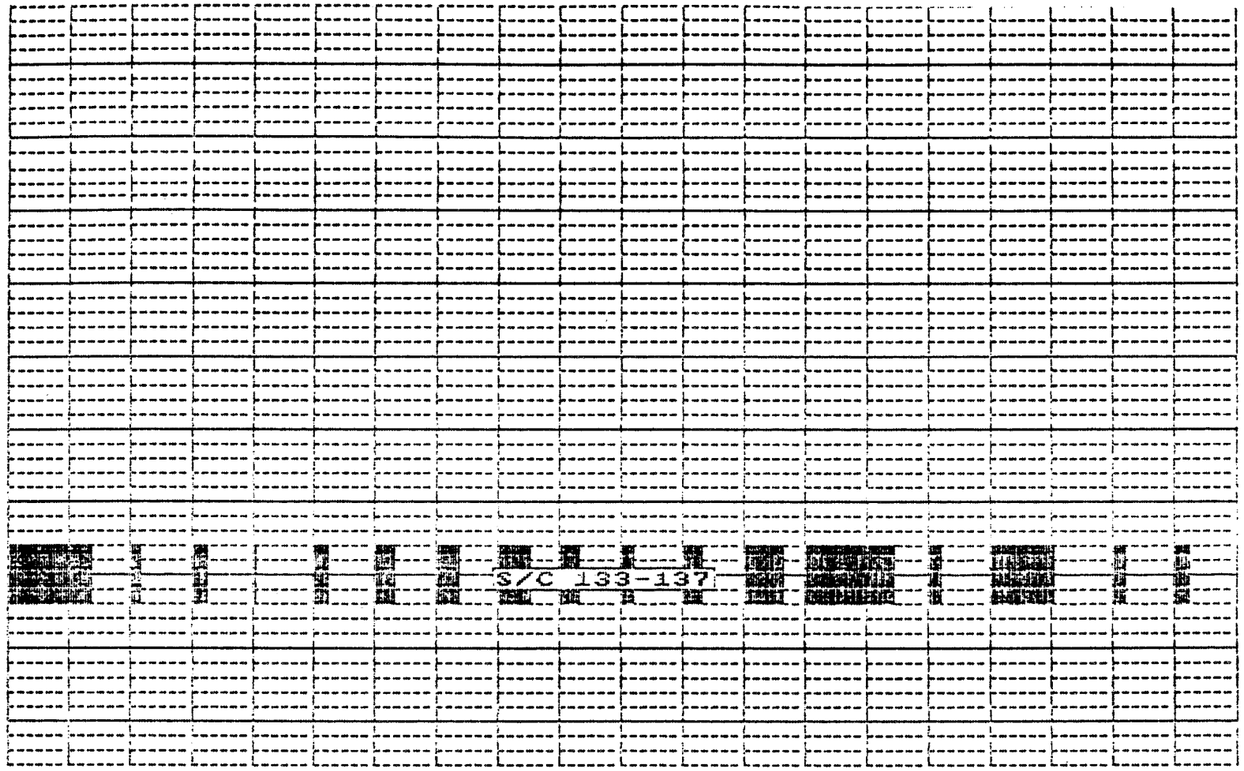
FIELDNOTE SUMMARY LOG OB-10304, AIR ROTARY

# OB-10304

Appendix 8-15B.

| IN NON MAG HMC ^200 As | ^600 Cu | ^5 Sb | ^25 Mo | ^6000 Ba | IN -63 MICRON ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 Fe% | IN MAG FRAC ^500 Ni | ^50 Pb | ^100 Mo | NON MAG -63 ^500 Au | ^20 Au | -63 ^100 g/kg | NON MAG HMC ^10 g/kg | MAG ^2 g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | |

| (FEET) | HMC SAMPLE # | HMC # GOLD GRAINS INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|---|
| | | | DES MOINES | |
| 5 | | | | (0.0-2.0) ORGANIC SEDIMENTS; w/clay. |
| | | | | (2.0-10.0) CLAY; OXIDIZED; lake sed, lt brown, no gnl or pebs. |
| 10 | | | | |
| 15 | | | | (10.0-41.0) CLAY; UNOXIDIZED; some ox 10-13 then gray only; 18-23 w/some sand and ls gnls; 39-41 w/some 1/2 inch, ang to subrnd pebs. |
| 20 | | | | |
| 25 | | | | |
| 30 | | | | |
| 35 | | | | |
| 40 | | | | |
| 45 | | | | (41.0-107.0) CLAYEY TILL; UNOXIDIZED; w/some sand & gnls, mostly ls; 41-81 seems sand & gnls increase w/depth, and maybe interbeds of lake clay; 80-90 w/some clasts 3/4 to 1 1/2 inch also. |
| 50 | | | | |
| 55 | | | | |
| 60 | | | | |
| 65 | | | | |
| 70 | | | | |
| 75 | | | | |
| 80 | | | | |
| 85 | | | | |
| 90 | | | | |
| 95 | | | | |




(107.0-133.0) CLAY; UNOXIDIZED; w/v few ls pebs or gnls.

(133.0-134.0) GRAVELLY SAND; UNOXIDIZED; RAINY; at 133 ang to subrnd pebs up to 3/8 inch in the sand; 133.5 more clasts less sand, pebs ang to rnd; possibly till.

(134.0-136.0) MEDIUM SAND; UNOXIDIZED; w/some fgr & cgr sand, few clasts; ang-subrnd; water bearing.

(136.0-142.0) BEDROCK; Metasediment w/stringers on monzonite.

**Appendix 8-15C.**

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY DESC | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18814 | 10304 | 133-137 | 4.0 | A | L | SW-SW | 4 | 69 | 26 | K | RL. SANDY GVL. TILL | 133-137 | 0.0 | 10200.0 | 1900.0 | 23.3 | 5.2 | 11.4 | 3258.0 | 0 | 19 | 81 | |
| 18815 | 10304 | 137-142 | 5. | A | L | SW-SW | 4 | 69 | 26 | K | BEDROCK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18814 | 100 | 0.53 | 340 | 290 | 1318 | 24.00 | 180 | 170 | 204 | 400 | 80 | 245 | -10 | 6 | 1.2 | -5 | -300 | 0.8 | 160 | 150 | 72 | 6 | 29 | 22 | 0 | 34.0 | 11.0 | 2 | 16.58 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18814 | 0.612 | 6.26 | 2131 | 312 | 79 | 233 | -1 | 42 | -0.5 | 252 | 0.5 |

-63uM ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | V | CR | MN | FE % | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18814 | 154 | 76 | 57 | 642 | 3.02 | 17 | 35 | 31 | 59 | 7 | -5 | 3 | -0.5 | -1 | -10 | -5 | -10 | -10 | 27 | 9 | -10 | 3.5 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18815 | -2 | 0.1 | -0.5 | 1300 | 3.5 | -5 | 7.6 | 4.5 | 110 | -5 | -1 | 2 | -50 | 1.3 | 7 | -0.2 | -1 | -20 | 59 | 1.00 | 1.9 | -5 | -2 | 4.50 | -0.5 | -10 | -0.5 | 1.1 | -100 | 3 | 0.9 | -2 | -100 | -200 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18815 | 4 | 3 | 47 | 180 | -0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Appendix 8-16A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-10401

Drilling Completion Date 6/18/87

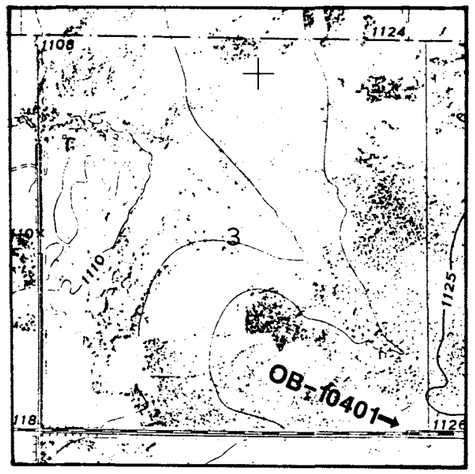
LOCATION (see map at right)

S-T-R SE¼-SE¼-3-68N-26W

County Koochiching

Quadrangle Littlefork N.W. 7.5

Regional Survey Area Littlefork




HOLE PARAMETERS

Surface Elevation 1122 ft.

Total Depth 186 ft.

Elevation, Top of Precambrian Bedrock 945 ft.

Drilling Method Air Rotary

Sample Diameter 6 inch

Sample Collection Method Slurry: Splitter & Buckets

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-9.5 | Organic Sediments | | | |
| 9.5-117 | Des Moines Lobe Gl. Drift | | | |
| 117-177 | Rainy Lobe Gl. Drift | E,F | A,B,C | A = Cu,As,Sb<br>B = Cu |
| 177-186 | Bedrock | E,F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Quartz-Biotite-Schist

Thin Section Description:



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18774 | 9.5 | 0.8 | 8.7 | 132.4 | 103.1 | 29.3 | 22.4 | 6.9 | 0 | NA | P | 60 | 40 | TR | NA | U | Y | Y | Y | B | B | TILL |
| 18776 | 8.7 | 0.6 | 8.1 | 164.6 | 101.4 | 63.2 | 51.1 | 12.1 | 0 | NA | CP | 70 | 30 | NA | NA | U | Y | Y | Y | GB | GB | TILL |
| 18778 | 9.6 | 0.7 | 8.9 | 207.3 | 186.2 | 21.1 | 15.2 | 5.9 | 0 | NA | P | 70 | 30 | TR | NA | U | Y | Y | Y | B | B | TILL |
| 18783 | 7.8 | 2.1 | 5.7 | 190.1 | 137.6 | 52.5 | 44.7 | 7.8 | 0 | NA | CP | 55 | 45 | TR | NA | U | Y | Y | Y | GB | GB | TILL |
| 18784 | 8.3 | 2.5 | 5.8 | 148.4 | 124.3 | 24.1 | 22.3 | 1.8 | 1 | 347 | C | NA | 100 | NA | NA | U | Y | Y | Y | GY | GY | TILL |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18774 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18776 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18778 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18783 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18784 | N | 125 X 225 | 34 C | 1 | | | | | | 1 | | | AVAILABLE PHOTO MICROGRAPH FILM REFERENCE #144 |
| | | | | | | | | | | 1 | 22.3 | 347 | |

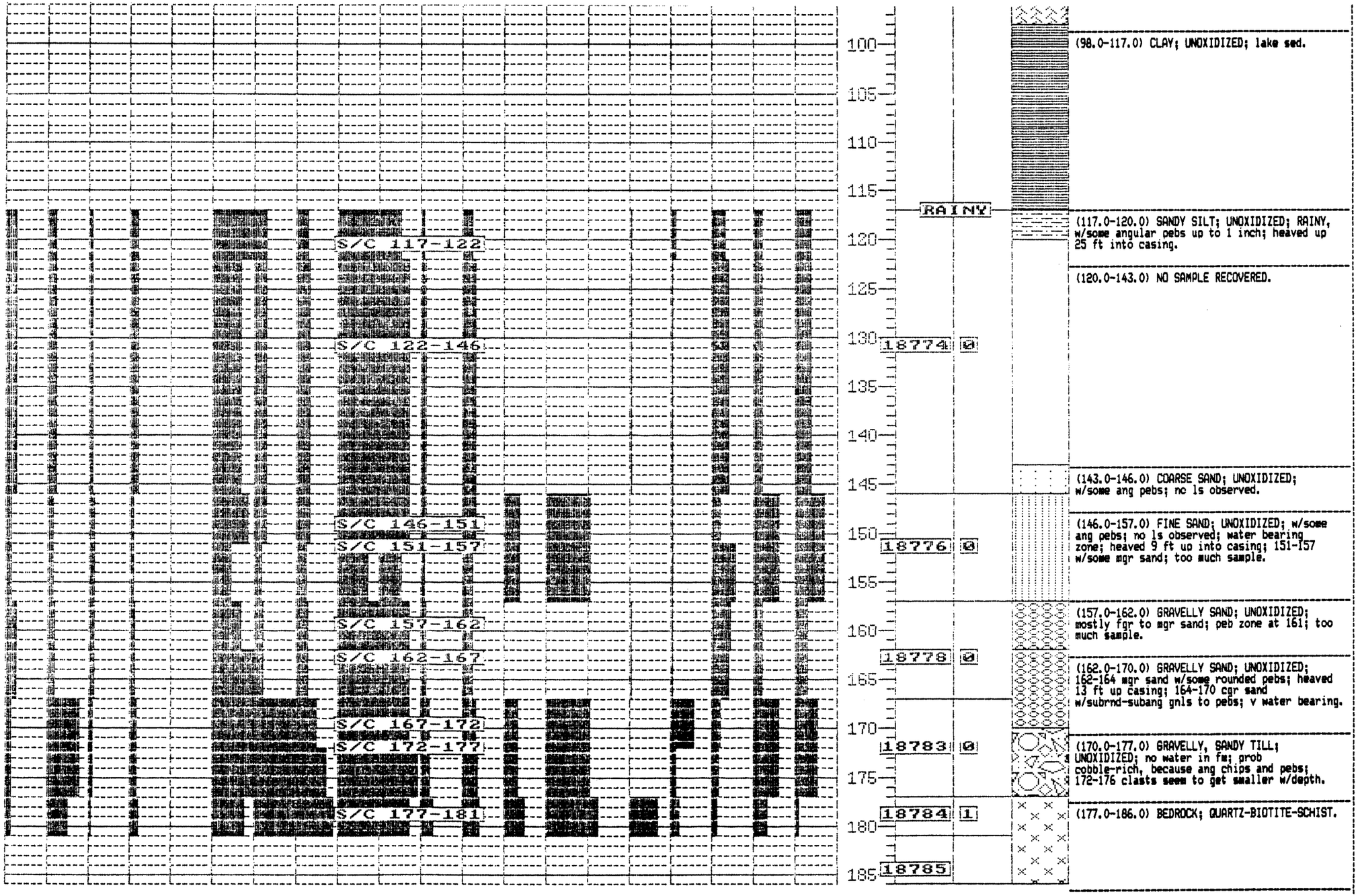
FIELDNOTE SUMMARY LOG OB-10401, AIR ROTARY

# OB-10401

Appendix 8-16B.

| IN NON MAG HMC | | | | | IN -63 MICRON | | | | | | | IN MAG FRAC | | | NON MAG -63 | | -63 NON MAG HMC | MAG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ^200 As | ^500 Cu | ^5 Sb | ^25 Mo | ^6000 Ba | ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 Fe% | ^500 Ni | ^50 Pb | ^100 Mo | ^500 Au | ^20 Au | ^100 g/kg | ^10 g/kg | ^2 g/kg |
| | | | | | | | | | | | | | | | | | | | |

| (FEET) | HMC SAMPLE # | HMC # GOLD GRAINS; INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|---|
| 5 | | | | (0.0-9.5) ORGANIC SEDIMENTS. |
| 10 | DES MOINES | | | |
| 15 | | | | (9.5-18.0) CLAY; OXIDIZED to 17; UNOXIDIZED below; lake sed. |
| 20 | | | | (18.0-28.0) CLAYEY TILL, UNOXIDIZED; w/sand & ls pebs. |
| 25 | | | | |
| 30 | | | | (28.0-30.0) GRAVELLY SAND; UNOXIDIZED; mostly ls gnls. |
| 35 | | | | (30.0-98.0) CLAYEY TILL; UNOXIDIZED; 30-32 w/more clay; 32-34 w/many 1/2 inch ls pebs; 43-45 w/many 1/2 inch ls pebs; 60-65 w/many gnls & 1/2 inch ls pebs; 65-98 less gritty. |
| 40 | | | | |
| 45 | | | | |
| 50 | | | | |
| 55 | | | | |
| 60 | | | | |
| 65 | | | | |
| 70 | | | | |
| 75 | | | | |
| 80 | | | | |
| 85 | | | | |
| 90 | | | | |
| 95 | | | | |


S/C 117-122
S/C 122-146
S/C 146-151
S/C 151-157
S/C 157-162
S/C 162-167
S/C 167-172
S/C 172-177
S/C 177-181
100
105
110
115
120
125
130
135
140
145
150
155
160
165
170
175
180
185
RAINY
18774
18776
18778
18783
18784
18785
(98.0-117.0) CLAY; UNOXIDIZED; lake sed.
(117.0-120.0) SANDY SILT; UNOXIDIZED; RAINY, w/some angular pebs up to 1 inch; heaved up 25 ft into casing.
(120.0-143.0) NO SAMPLE RECOVERED.
(143.0-146.0) COARSE SAND; UNOXIDIZED; w/some ang pebs; no ls observed.
(146.0-157.0) FINE SAND; UNOXIDIZED; w/some ang pebs; no ls observed; water bearing zone; heaved 9 ft up into casing; 151-157 w/some mgr sand; too much sample.
(157.0-162.0) GRAVELLY SAND; UNOXIDIZED; mostly fgr to mgr sand; peb zone at 161; too much sample.
(162.0-170.0) GRAVELLY SAND; UNOXIDIZED; 162-164 mgr sand w/some rounded pebs; heaved 13 ft up casing; 164-170 cgr sand w/subrnd-subang gnls to pebs; v water bearing.
(170.0-177.0) GRAVELLY, SANDY TILL; UNOXIDIZED; no water in fm; prob cobble-rich, because ang chips and pebs; 172-176 clasts seem to get smaller w/depth.
(177.0-186.0) BEDROCK; QUARTZ-BIOTITE-SCHIST.

Appendix 8-16C.

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18773 | 10401 | 117-122 | 5. | A | L | SE-SE | 3 | 68 | 26 | K | RL. SILTY SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 53.8 | 1653.0 | 3 | -1 | -1 | |
| 18774 | 10401 | 122-146 | 24. | A | L | SE-SE | 3 | 68 | 26 | K | RL. MED. TO C. SAND | 117-146 | 0.0 | 9500.0 | 800.0 | 22.4 | 6.9 | 69.8 | 1741.0 | 4 | 8 | 88 | |
| 18775 | 10401 | 146-151 | 5. | A | L | SE-SE | 3 | 68 | 26 | K | RL. F. TO V.F. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 47.9 | 2541.0 | 2 | -1 | -1 | |
| 18776 | 10401 | 151-157 | 6. | A | L | SE-SE | 3 | 68 | 26 | K | RL. F. TO V.F. SAND | 146-157 | 0.0 | 8700.0 | 600.0 | 51.1 | 12.1 | 164.1 | 2913.0 | 6 | 7 | 87 | |
| 18777 | 10401 | 157-162 | 5. | A | L | SE-SE | 3 | 68 | 26 | K | RL. GVL. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 137.4 | 3072.0 | 4 | -1 | -1 | |
| 18778 | 10401 | 162-167 | 5. | A | L | SE-SE | 3 | 68 | 26 | K | RL. GVL. SAND | 157-167 | 0.0 | 9600.0 | 700.0 | 15.2 | 5.9 | 118.0 | 2932.0 | 4 | 7 | 89 | |
| 18779 | 10401 | 167-172 | 5. | A | L | SE-SE | 3 | 68 | 26 | K | RL. GVL. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 67.5 | 3430.0 | 2 | -1 | -1 | |
| 18783 | 10401 | 172-177 | 5. | A | L | SE-SE | 3 | 68 | 26 | K | RL. SANDY GVL. TILL | 167-177 | 0.0 | 7800.0 | 2100.0 | 44.7 | 7.8 | 40.6 | 2587.0 | 2 | 27 | 71 | |
| 18784 | 10401 | 177-181 | 4. | A | L | SE-SE | 3 | 68 | 26 | K | RL. SANDY GVL. TILL | 177-181 | 1.0 | 8300.0 | 2500.0 | 22.3 | 1.8 | 25.9 | 1997.0 | 1 | 30 | 69 | |
| 18785 | 10401 | 181-186 | 5. | A | L | SE-SE | 3 | 68 | 26 | K | BEDROCK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18774 | -12 | -0.39 | 1420 | 420 | 599 | 24.00 | 190 | 140 | 109 | -200 | 20 | 50 | -10 | -5 | 1.5 | -5 | -370 | 0.4 | -100 | 767 | 150 | 8 | -17 | 15 | 0 | 201.0 | 44.0 | 2 | 15.66 |
| 18776 | 10 | 0.72 | 580 | 360 | 329 | 19.00 | 120 | 130 | 65 | -200 | 18 | 24 | -10 | 2 | 1.3 | -5 | -200 | 0.5 | -100 | 270 | 120 | 8 | -10 | 8 | 0 | 68.9 | 19.0 | 6 | 35.88 |
| 18778 | -12 | 0.65 | 740 | 500 | 464 | 25.00 | 210 | 190 | 99 | 210 | 30 | 46 | -10 | 3 | 1.4 | -5 | -270 | 0.5 | -100 | 370 | 170 | 10 | -18 | 17 | 0 | 119.0 | 23.0 | 2 | 10.22 |
| 18783 | -5 | 0.38 | 1090 | 370 | 631 | 25.00 | 150 | 130 | 462 | -200 | 25 | 23 | -10 | -4 | 0.9 | -5 | -280 | 0.4 | -100 | 604 | 75 | 6 | -14 | 27 | 0 | 180.0 | 47.0 | 6 | 30.81 |
| 18784 | 350 | -0.44 | 1560 | 270 | 1175 | 31.00 | 78 | 120 | 288 | -200 | 18 | 22 | -10 | -5 | 1.2 | -5 | -400 | -0.2 | -100 | 878 | 48 | 1 | -22 | 27 | 0 | 257.0 | 72.2 | 3 | 14.28 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18776 | 0.519 | 5.95 | 3098 | 175 | 23 | 319 | -1 | 3 | -0.5 | 329 | 1.4 |
| 18783 | 0.718 | 7.89 | 2455 | 160 | 31 | 325 | -1 | 3 | -0.5 | 236 | 1.0 |
| 18784 | 0.445 | 0.00 | 0 | 244 | 134 | 171 | 0 | 22 | -0.5 | 362 | 0.2 |

-63uM ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | V | CR | MN | FE % | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18773 | 2 | 105 | 51 | 545 | 2.39 | 15 | 29 | 29 | 29 | 31 | -5 | 5 | -0.5 | -1 | 15 | 13 | -10 | -10 | 30 | 5 | -10 | 32.5 |
| 18774 | -1 | 88 | 59 | 633 | 3.11 | 15 | 31 | 29 | 35 | 21 | -5 | 7 | -0.5 | -1 | -10 | 11 | -10 | -10 | 43 | -2 | -10 | 40.1 |
| 18775 | -1 | 105 | 51 | 619 | 3.27 | 15 | 33 | 29 | 39 | 25 | -5 | 7 | -0.5 | -1 | -10 | 11 | -10 | -10 | 39 | 3 | -10 | 18.9 |
| 18776 | -1 | 95 | 53 | 511 | 2.39 | 13 | 25 | 15 | 25 | 13 | -5 | 5 | -0.5 | -1 | -10 | 7 | -10 | -10 | 30 | 5 | -10 | 56.3 |
| 18777 | -1 | 101 | 59 | 523 | 2.51 | 13 | 27 | 19 | 31 | 21 | -5 | 7 | -0.5 | -1 | -10 | 19 | -10 | -10 | 30 | 9 | -10 | 44.7 |
| 18778 | 1 | 99 | 55 | 523 | 2.49 | 13 | 27 | 21 | 31 | 29 | -5 | 7 | -0.5 | -1 | -10 | 11 | -10 | -10 | 72 | -2 | -10 | 40.2 |
| 18779 | 11 | 119 | 67 | 593 | 3.15 | 19 | 47 | 201 | 65 | 45 | -5 | 7 | -0.5 | -1 | -10 | 11 | 14 | -10 | 57 | 3 | -10 | 19.7 |
| 18783 | 2 | 192 | 75 | 861 | 3.79 | 25 | 73 | 457 | 63 | 43 | -5 | 9 | -0.5 | 9 | -10 | 15 | -10 | -10 | 72 | -2 | -10 | 15.7 |
| 18784 | 4 | 174 | 97 | 841 | 4.07 | 33 | 89 | 119 | 89 | 23 | -5 | 7 | -0.5 | 4 | -10 | 13 | -10 | -10 | 68 | 9 | -10 | 13.0 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18785 | -2 | 0.1 | 1.1 | 1100 | 9.1 | -5 | 35.0 | 1.6 | 170 | 9 | -1 | -1 | -50 | 2.5 | 19 | -0.2 | 2 | -20 | 41 | 5.10 | 3.5 | -5 | -2 | 4.57 | -0.5 | -10 | 0.8 | 0.9 | -100 | 35 | 0.6 | -2 | -100 | -200 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18785 | 18 | 5 | 54 | 205 | 0.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Appendix 8-17A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-10403

Drilling Completion Date 8/19/87

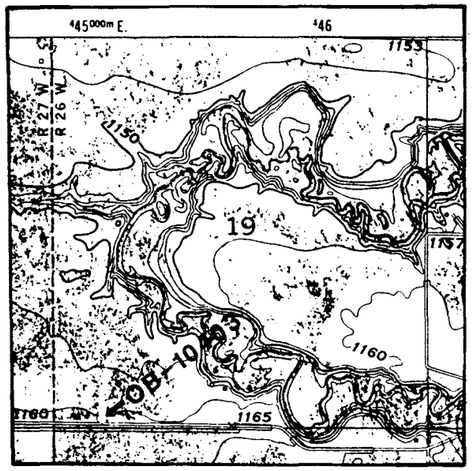
LOCATION (see map at right)

S-T-R SW¼-SW¼-19-68N-26W

County Koochiching

Quadrangle Littlefork S.W. 7.5

Regional Survey Area Littlefork




HOLE PARAMETERS

Surface Elevation 1160 ft.

Total Depth 104 ft.

Elevation, Top of Precambrian Bedrock 1062 ft.

Drilling Method Air Rotary

Sample Diameter 6 inch

Sample Collection Method Slurry: Splitter & Buckets

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-2 | Organic Sediments | | | |
| 2-92 | Des Moines Lobe Gl. Drift | | | |
| 92-98 | Rainy Lobe | E,F | A,B,C | B = Sn |
| 98-104 | Bedrock | E,F | I | C = Cu, Ni |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Quartz Biotite Schist w/Tonalite Segregation 100-103 ft.

Thin Section Description:



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18854 | 9.5 | 1.8 | 7.7 | 153.1 | 113.0 | 40.1 | 32.5 | 7.6 | 1 | 89 | P | 20 | 80 | NA | NA | U | Y | Y | Y | GB | GB | TILL |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18854 | N | 100 X 150 | 25 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | | 1 | | | |

FIELDNOTE SUMMARY LOG OB-10403, AIR ROTARY

[ IN NON MAG HMC ]

| ^200 As | ^600 Cu | ^5 Sb | ^25 Mo | ^6000 Ba | ^30 As |
|---|---|---|---|---|---|

[ IN -63 MICRON ]

| ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 Fe% |
|---|---|---|---|---|---|

[ IN MAG FRAC ]

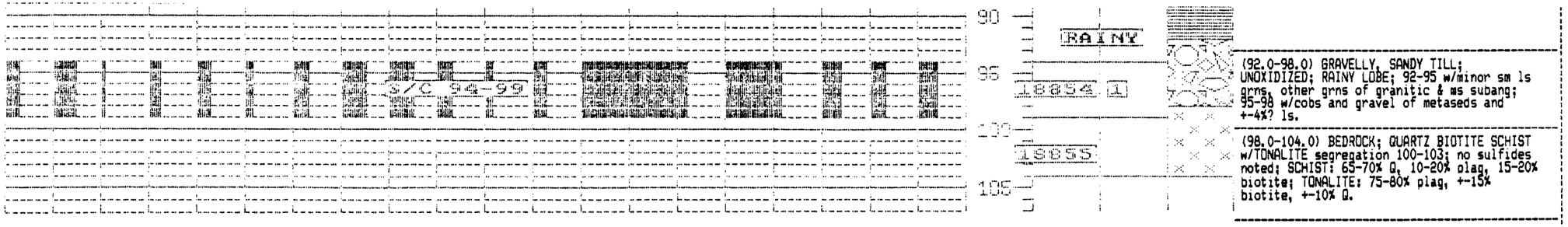
| ^500 Ni | ^50 Pb | ^100 Mo |
|---|---|---|

| NON MAG -63 ^500 Au | ^20 Au | -63 ^100 g/kg | NON MAG HMC ^10 g/kg | MAG ^2 g/kg |
|---|---|---|---|---|

# OB-10403

| (FEET) | HMC SAMPLE # | HMC # GOLD GRAINS INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|---|
| | | | DES MOINES | |
| 0 | | | | (0.0-2.0) ORGANIC SEDIMENTS; mostly soil. |
| 5 | | | | (2.0-10.0) CLAYEY TILL; OXIDIZED; buff color; ls pebs ang-subrnd; 5-10 more grayish color and more ls grns & pebs. |
| 10 | | | | (10.0-12.0) CLAYEY TILL; UNOXIDIZED; gray color. |
| 15 | | | | (12.0-15.0) FINE SAND; UNOXIDIZED; ang to subrnd grns of quartz, ls, mafic mins & red mins. |
| 20 | | | | |
| 25 | | | | (15.0-25.0) MEDIUM SAND; UNOXIDIZED; w/fgr sand and occ balls of brown-gray clay; water bearing. |
| 30 | | | | |
| 35 | | | | (25.0-40.0) FINE SAND; UNOXIDIZED; water bearing. |
| 40 | | | | |
| 45 | | | | (40.0-80.0) CLAYEY TILL; UNOXIDIZED; 40-45 sandy, brownish-gray; 45-55 w/fine sand, gray; 55-75 w/higher clast content, 30-50% clasts, clasts subang-subrnd and 50/50 ls/other, 75-88 more silt. |
| 50 | | | | |
| 55 | | | | |
| 60 | | | | |
| 65 | | | | |
| 70 | | | | |
| 75 | | | | |
| 80 | | | | (80.0-92.0) CLAY; UNOXIDIZED; lake sed, gray, w/sandy gravel interbeds?. |
| 85 | | | | |

Appendix 8-17B.




(92.0-98.0) GRAVELLY, SANDY TILL; UNOXIDIZED; RAINY LOBE; 92-95 w/minor sm ls grns, other grns of granitic & ms subang; 95-98 w/cobs and gravel of metaseds and +-4%? ls.

(98.0-104.0) BEDROCK; QUARTZ BIOTITE SCHIST w/TONALITE segregation 100-103; no sulfides noted; SCHIST: 65-70% Q, 10-20% plag, 15-20% biotite; TONALITE: 75-80% plag, +-15% biotite, +-10% Q.

Appendix 8-17C.

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18854 | 10403 | 94-99 | 5. | A | L | SW-SW | 19 | 68 | 26 | K | RL. SANDY GVL. TILL | 94-99 | 1.0 | 9500.0 | 1800.0 | 32.5 | 7.6 | 92.2 | 2209.0 | 4 | 19 | 77 | |
| 18855 | 10403 | 99-104 | 5. | A | L | SW-SW | 19 | 68 | 26 | K | BEDROCK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18854 | 1260 | 0.66 | 740 | 390 | 1542 | 26.00 | 310 | 310 | 295 | 270 | 43 | 58 | -10 | 6 | 0.6 | -12 | 410 | 0.4 | 1600 | 400 | 92 | 6 | 120 | 21 | 0 | 102.0 | 31.0 | 3 | 24.86 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18854 | 1.350 | 3.85 | 1852 | 540 | 428 | 306 | -5 | 18 | -0.5 | 247 | 0.8 |

-63uM ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | V | CR | MN | FE % | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18854 | 3 | 69 | 45 | 632 | 2.76 | 17 | 53 | 31 | 53 | -5 | 14 | 3 | 0.5 | -1 | -10 | 5 | -10 | 63 | 39 | -2 | -10 | 41.7 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18855 | -2 | -0.1 | -0.5 | 1600 | 18.0 | -5 | 36.0 | 3.6 | 150 | 10 | -1 | -1 | -50 | 2.6 | 19 | -0.2 | 2 | 30 | 72 | 4.50 | 6.5 | -5 | -2 | 4.19 | -0.5 | -10 | 0.7 | 1.9 | -100 | 4 | 1.4 | -2 | -100 | -200 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18855 | 10 | 5 | 54 | 270 | -0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Appendix 8-18A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-10404

Drilling Completion Date 9/3/87

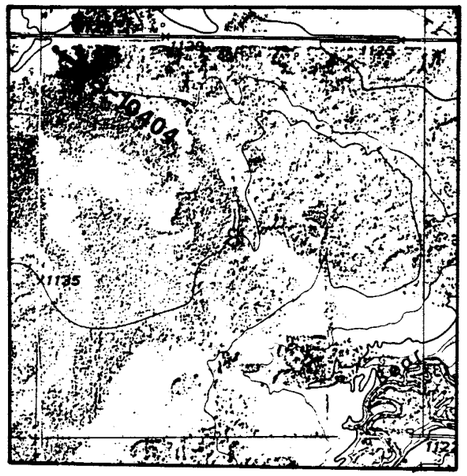
LOCATION (see map at right)

S-T-R NW¼-NW¼-8-68N-26W

County Koochiching

Quadrangle Littlefork N.W. 7.5

Regional Survey Area Littlefork




HOLE PARAMETERS

Surface Elevation 1125 ft.

Total Depth 141 ft.

Elevation, Top of Precambrian Bedrock 989.5 ft.

Drilling Method Air Rotary

Sample Diameter 6 inch

Sample Collection Method Slurry: Splitter & Buckets

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-63 | No Observations | | | |
| 63-135.5 | Des Moines Lobe Gl. Drift | | | |
| 135.5-141 | Bedrock | E,F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: 135.5-137 ft. Quartz-Muscovite Schist;
137-141 ft. Quartz Biotite Schist

Thin Section Description:



**No samples obtained for heavy mineral concentration.**

FIELDNOTE SUMMARY LOG OB-10404, AIR ROTARY

# OB-10404

Appendix 8-18B.

[ IN NON MAG HMC ]

| ^200 As | ^600 Cu | ^5 Sb | ^25 Mo | ^6000 Ba |
|---|---|---|---|---|

[ IN -63 MICRON ]

| ^30 As | ^100 Cu | ^100 Ni | ^10 Bi | ^10 Mo | ^300 Zn | ^10 Fe% |
|---|---|---|---|---|---|---|

[ IN MAG FRAC ]

| ^500 Ni | ^50 Pb | ^100 Mo |
|---|---|---|

NON MAG -63

| ^500 Au | ^20 Au |
|---|---|

-63

| ^100 g/kg |
|---|

NON MAG HMC

| ^10 g/kg |
|---|

MAG

| ^2 g/kg |
|---|

(FEET) 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90

| HMC SAMPLE # | HMC # BOLD GRAINS; INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|
| | | | (0.0-63.0) NO OBSERVATIONS; second rig drilling now. |
| | | DES MOINES | (63.0-68.0) CLAYEY TILL; w/a granitic cobble at 63, and ls pebs. |
| | | | (68.0-82.0) NO OBSERVATIONS. |

18870

(82.0-114.0) CLAY; UNOXIDIZED; lake sediment; v soft & this drill method reduces it to a thick souo; 100-107 w/minor vcgr sand & gnls.

(114.0-125.0) CLAYEY TILL; UNOXIDIZED; w/some vcgr sand and pebs; pebs approx 50% ls and 50% meta-ign; pebs up to 1/2-3/4 inch; and ang-subang.

(125.0-135.0) CLAY; UNOXIDIZED; silty lake sediments; w/some pebs.

(135.0-135.5) GRAVEL; UNOXIDIZED; prob only 3-4 inches thick; w/some clay.

(135.5-141.0) BEDROCK; 135.5-137 QUARTZ-MUSCOVITE SCHIST; 137-141 QUARTZ-BIOTITE SCHIST; w/10% plagioclase feldspar, 2% other mafic silicates, and trace dissem sulfides w/biotite.

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18870 | 10404 | 136-141 | 5.0 | A | L | NW-NW | 8 | 68 | 26 | K | BEDROCK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18870 | -2 | -0.1 | -0.5 | 1100 | 2.9 | -5 | 96.0 | 4.4 | 230 | 25 | -1 | 4 | -50 | 4.8 | 53 | 0.2 | -1 | 65 | 79 | 8.20 | 14.0 | -5 | -2 | 2.64 | 0.6 | -10 | 0.8 | 20.6 | -100 | 4 | 2.8 | -2 | -100 | -200 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18870 | 30 | 5 | 86 | 330 | -0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Appendix 8-19A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-10501

Drilling Completion Date 6/3/87

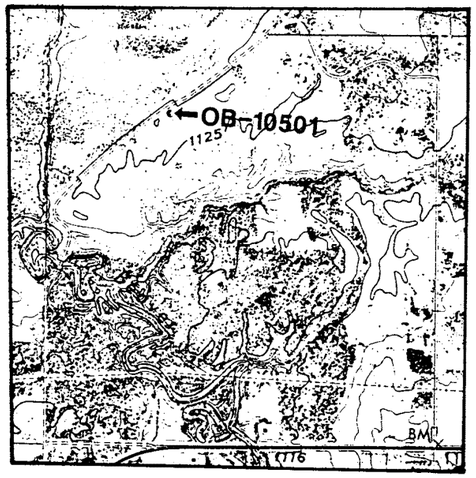
LOCATION (see map at right)

S-T-R NE¼-NW¼-2-68N-25W

County Koochiching

Quadrangle Littlefork 7.5

Regional Survey Area Littlefork




HOLE PARAMETERS

Surface Elevation 1125 ft.

Total Depth 85 ft.

Elevation, Top of Precambrian Bedrock 1044 ft.

Drilling Method Air Rotary

Sample Diameter 6 inch

Sample Collection Method Slurry: Splitter & Buckets

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-62 | Des Moines Lobe Gl. Drift | | | |
| 62-81 | Rainy Lobe Gl. Drift | E,F | A,B,C | A = Au, W<br>B = Au, W, Ag |
| 81-85 | Bedrock | E,F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Paragneiss

Thin Section Description:



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18763 | 12.1 | 3.1 | 9.0 | 304.8 | 244.5 | 60.3 | 44.9 | 15.4 | 3 | 277 | P | 50 | 50 | TR | NA | S | C | Y | N | B | NA | GRAVEL |
| 18765 | 10.7 | 5.2 | 5.5 | 174.3 | 118.5 | 55.8 | 38.6 | 17.2 | 1 | 17 | P | 45 | 55 | NA | NA | U | Y | Y | Y | B | B | TILL |

## GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18763 | Y | 25 X 50 | 8 C | | 1 | | | | | 1 | | | EST. 5% PYRITE |
| | | 100 X 150 | 25 C | 1 | | | | | | 1 | | | PHOTO MICROGRAPH |
| | | 175 X 200 | 36 C | 1 | | | | | | 1 | | | FILM REFERENCE #144 AVAILABLE |
| | | | | | | | | | | 3 | 44.9 | 277 | |
| 18765 | N | 75 X 75 | 15 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | | 1 | 38.6 | 17 | |

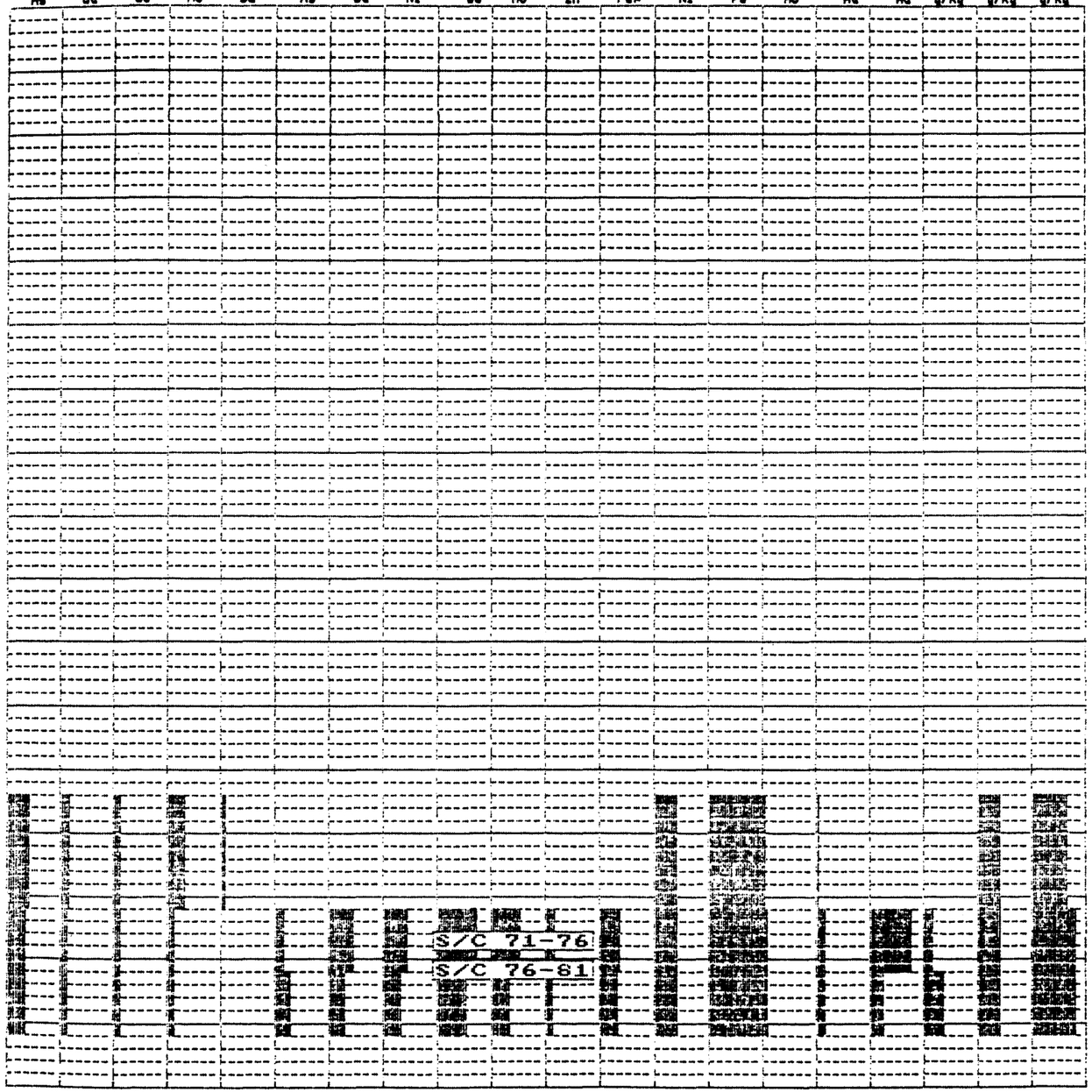
FIELDNOTE SUMMARY LOG OB-10501, AIR ROTARY

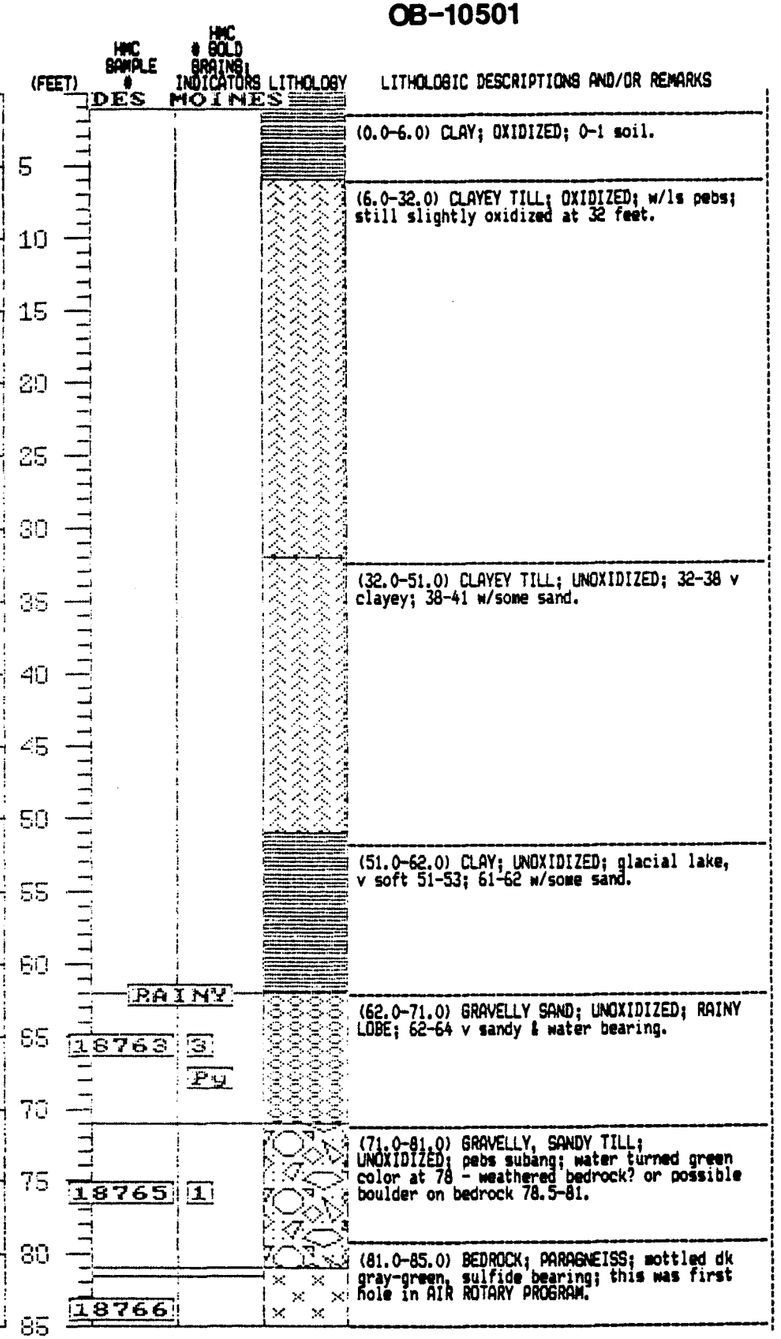
# OB-10501

Appendix 8-19B.

[ IN NON MAG HMC ]I[ IN -63 MICRON ]I[ IN MAG FRAC ]

| ^200 As | ^600 Cu | ^5 Sb | ^25 Mo | ^6000 Ba | ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 Fe% | ^500 Ni | ^50 Pb | ^100 Mo | NON MAG ^500 Au | -63 ^20 Au | -63 ^100 g/kg | NON MAG HMC ^10 g/kg | MAG ^2 g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|




| (FEET) | HMC SAMPLE # | HMC # GOLD GRAINS INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|---|
| | | DES MOINES | | |
| 0–6 | | | | (0.0–6.0) CLAY; OXIDIZED; 0–1 soil. |
| 6–32 | | | | (6.0–32.0) CLAYEY TILL; OXIDIZED; w/ls pebs; still slightly oxidized at 32 feet. |
| 32–51 | | | | (32.0–51.0) CLAYEY TILL; UNOXIDIZED; 32–38 v clayey; 38–41 w/some sand. |
| 51–62 | | | | (51.0–62.0) CLAY; UNOXIDIZED; glacial lake, v soft 51–53; 61–62 w/some sand. |
| 62 | | | RAINY | |
| 62–71 | 18763 | 3 Py | | (62.0–71.0) GRAVELLY SAND; UNOXIDIZED; RAINY LOBE; 62–64 v sandy & water bearing. |
| 71–81 | 18765 | 1 | | (71.0–81.0) GRAVELLY, SANDY TILL; UNOXIDIZED; pebs subang; water turned green color at 78 - weathered bedrock? or possible boulder on bedrock 78.5–81. |
| 81–85 | 18766 | | | (81.0–85.0) BEDROCK; PARAGNEISS; mottled dk gray-green, sulfide bearing; this was first hole in AIR ROTARY PROGRAM. |

**Appendix 8-19C.**

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18762 | 10501 | 62-71 | 9. | A | L | NE-NW | 2 | 68 | 25 | K | RL. GVL. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 10.6 | 1782.0 | 1 | -1 | -1 | |
| 18763 | 10501 | 62-71 | 9. | A | L | NE-NW | 2 | 68 | 25 | K | REDRILLED | 62-71 | 3.0 | 12100.0 | 3100.0 | 44.9 | 15.4 | -1.0 | -1.0 | -1 | 26 | -1 | REDRILLED |
| 18764 | 10501 | 71-76 | 5. | A | L | NE-NW | 2 | 68 | 25 | K | RL. SANDY GVL. TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 27.4 | 1892.0 | 1 | -1 | -1 | |
| 18765 | 10501 | 76-81 | 5. | A | L | NE-NW | 2 | 68 | 25 | K | RL. SANDY GVL. TILL | 71-81 | 1.0 | 10700.0 | 5200.0 | 38.6 | 17.2 | 73.8 | 2032.0 | 4 | 49 | 47 | |
| 18766 | 10501 | 81.5-85 | 3.5 | A | L | NE-NW | 2 | 68 | 25 | K | BEDROCK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18763 | 30 | 0.34 | 200 | 370 | 1270 | 26.00 | 230 | 170 | 91 | -200 | 44 | 82 | -10 | 8 | 2.0 | -5 | -200 | 0.7 | 370 | 100 | 33 | 8 | 22 | 27 | 0 | 35.0 | 6.7 | 4 | 31.57 |
| 18765 | 71 | 0.28 | 380 | 460 | 360 | 26.00 | 210 | 140 | 73 | -200 | 54 | 64 | -10 | 3 | 1.9 | -5 | 230 | 0.6 | -100 | 180 | 92 | 11 | 466 | 17 | 0 | 57.1 | 12.0 | 4 | 27.29 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18763 | 0.926 | 7.59 | 2393 | 194 | 30 | 383 | 2 | 3 | -0.5 | 233 | 1.3 |
| 18765 | 0.550 | 8.09 | 2777 | 196 | 18 | 355 | 1 | 6 | -0.5 | 262 | 1.6 |

-63uM ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | V | CR | MN | FE % | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18762 | 122 | 126 | 61 | 675 | 4.03 | 15 | 41 | 39 | 93 | -5 | -5 | 3 | -0.5 | -1 | 35 | -5 | -10 | -10 | 19 | -2 | -10 | 5.9 |
| 18764 | 15 | 104 | 63 | 643 | 3.47 | 19 | 43 | 43 | 53 | -5 | -5 | 5 | -0.5 | -1 | -10 | 7 | -10 | 91 | 26 | 3 | -10 | 14.5 |
| 18765 | 5 | 113 | 65 | 621 | 3.07 | 15 | 31 | 27 | 33 | 9 | -5 | 3 | -0.5 | -1 | -10 | -5 | -10 | 45 | 10 | -2 | -10 | 36.3 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18766 | -2 | 0.3 | 1.6 | 260 | -2.0 | -5 | 18.0 | 1.0 | 210 | 54 | -1 | 3 | -50 | 7.6 | 11 | 0.2 | -1 | 110 | 22 | 3.30 | 30.1 | -5 | -2 | 1.70 | -0.5 | -10 | 0.9 | 1.7 | -100 | 115 | 0.4 | -2 | -100 | 330 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18766 | 82 | 5 | 46 | 200 | 0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Appendix 8-20A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-10503

Drilling Completion Date 7/24/87

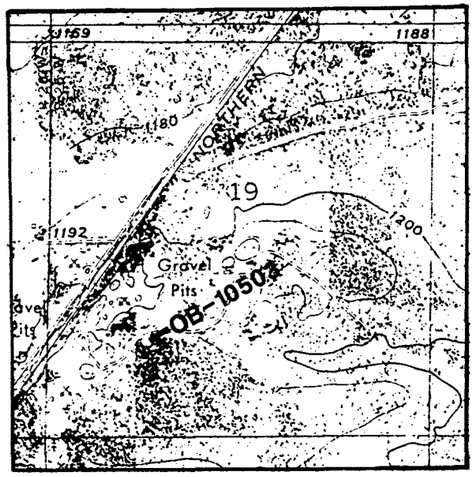
LOCATION (see map at right)

S-T-R SE¼-SW¼-19-68N-25W

County Koochiching

Quadrangle Littlefork S.E. 7.5

Regional Survey Area Littlefork




HOLE PARAMETERS

Surface Elevation 1210 ft.

Total Depth 77 ft.

Elevation, Top of Precambrian Bedrock 1139 ft.

Drilling Method Air Rotary

Sample Diameter 6 inch

Sample Collection Method Slurry: Splitter & Buckets

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-71 | Rainy Lobe Gl. Drift | E,F | A,B,C | |
| 71-77 | Bedrock | E,F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Quartz Biotite Gneiss

Thin Section Description:



## HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.MET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18824 | 9.4 | 0.5 | 8.9 | 218.0 | 155.6 | 62.4 | 49.7 | 12.7 | 0 | NA | P | 0 | 100 | NA | C | U | Y | Y | Y | B | B | TILL |
| 18826 | 10.8 | 0.4 | 10.4 | 206.5 | 129.4 | 77.1 | 60.3 | 16.8 | 0 | NA | P | 5 | 95 | NA | C | U | Y | Y | Y | B | B | TILL |
| 18828 | 10.1 | 0.6 | 9.5 | 158.8 | 102.7 | 56.1 | 43.1 | 13.0 | 0 | NA | P | 5 | 95 | NA | NA | U | Y | Y | Y | B | B | TILL |
| 18830 | 8.0 | 4.5 | 3.5 | 100.9 | 79.9 | 21.0 | 16.2 | 4.8 | 0 | NA | P | 20 | 80 | NA | NA | U | Y | Y | Y | B | B | TILL |
| 18832 | 7.2 | 1.9 | 5.3 | 127.0 | 98.6 | 28.4 | 21.9 | 6.5 | 0 | NA | P | 15 | 85 | NA | NA | U | Y | Y | Y | B | B | TILL |
| 18834 | 9.1 | 5.2 | 3.9 | 97.8 | 74.2 | 23.6 | 17.9 | 5.7 | 0 | NA | P | 20 | 80 | NA | NA | S | CM | Y | N | B | NA | GRAVEL |
| 18836 | 11.2 | 5.8 | 5.4 | 153.6 | 100.4 | 53.2 | 41.4 | 11.8 | 1 | 51 | P | 60 | 40 | NA | NA | U | Y | Y | Y | GB | GB | TILL |
| 18837 | 11.0 | 5.2 | 5.8 | 231.5 | 189.4 | 42.1 | 34.1 | 8.0 | 2 | 399 | PC | 5 | 95 | NA | NA | S | M | Y | Y | GY | GY | GRAVEL |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABRADED T | ABRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18824 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18826 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18828 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18830 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18832 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18834 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18836 | N | 100 X 125 | 22 C | 1 | | | | | | 1 | | | PHOTO MICROGRAPH AVAILABLE FILM REFERENCE #144 |
| | | | | | | | | | | 1 | 41.4 | 51 | |
| 18837 | Y | 25 X 25 | 5 C | | | 1 | | | | 1 | | | EST. 10% PYRITE |
| | | 175 X 250 | 40 C | 1 | | | | | | 1 | | | 100 GRAINS ARSENOPYRITE PHOTO MICROGRAPH AVAILABLE |
| | | | | | | | | | | 2 | 34.1 | 399 | FILM REFERENCE #144 and #145 |

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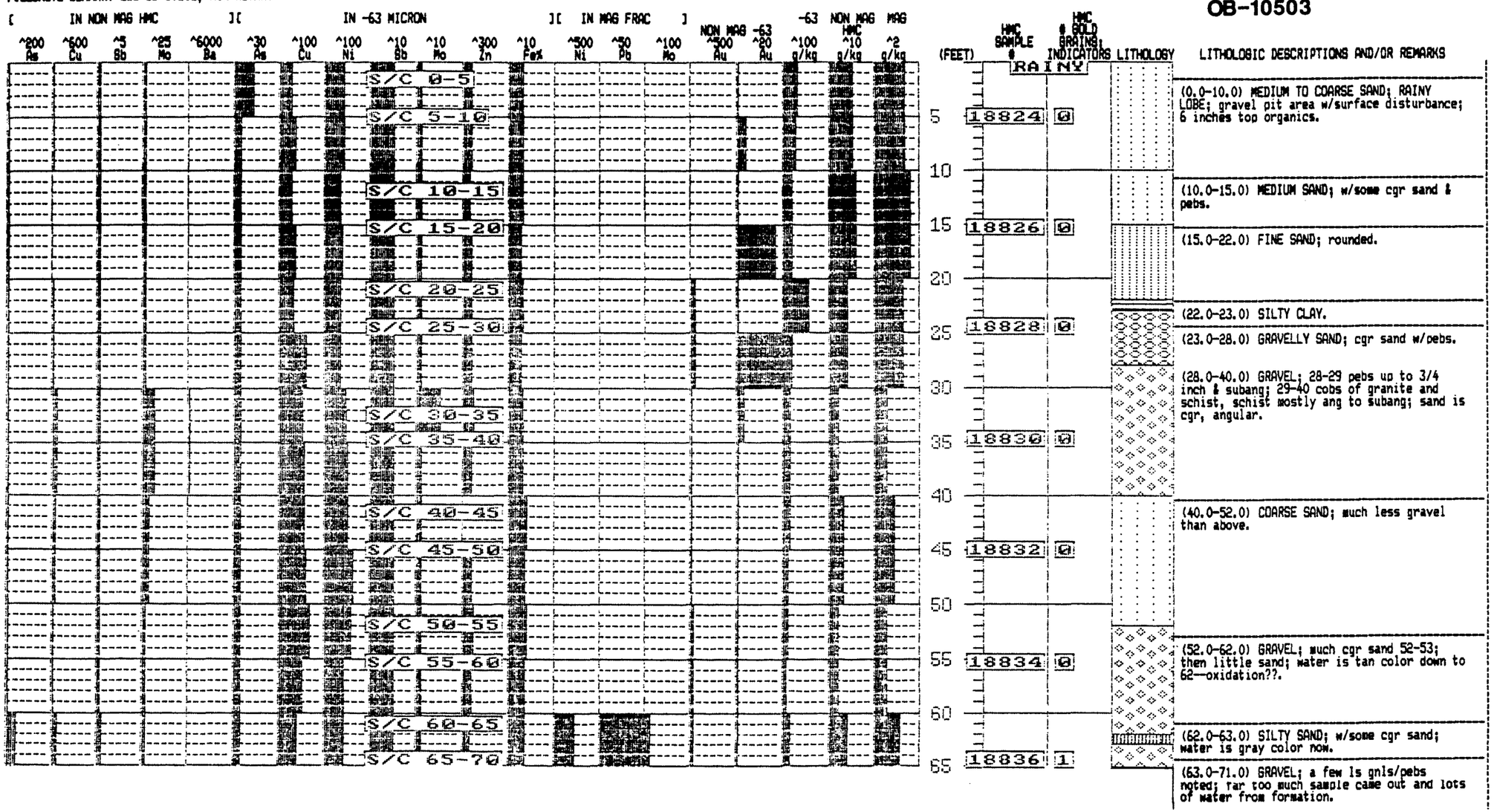
FIELDNOTE SUMMARY LOG OB-10503, AIR ROTARY




## OB-10503




LITHOLOGIC DESCRIPTIONS AND/OR REMARKS

(0.0–10.0) MEDIUM TO COARSE SAND; RAINY LOBE; gravel pit area w/surface disturbance; 6 inches top organics.

(10.0–15.0) MEDIUM SAND; w/some cgr sand & pebs.

(15.0–22.0) FINE SAND; rounded.

(22.0–23.0) SILTY CLAY.

(23.0–28.0) GRAVELLY SAND; cgr sand w/pebs.

(28.0–40.0) GRAVEL; 28–29 pebs up to 3/4 inch & subang; 29–40 cobs of granite and schist, schist mostly ang to subang; sand is cgr, angular.

(40.0–52.0) COARSE SAND; much less gravel than above.

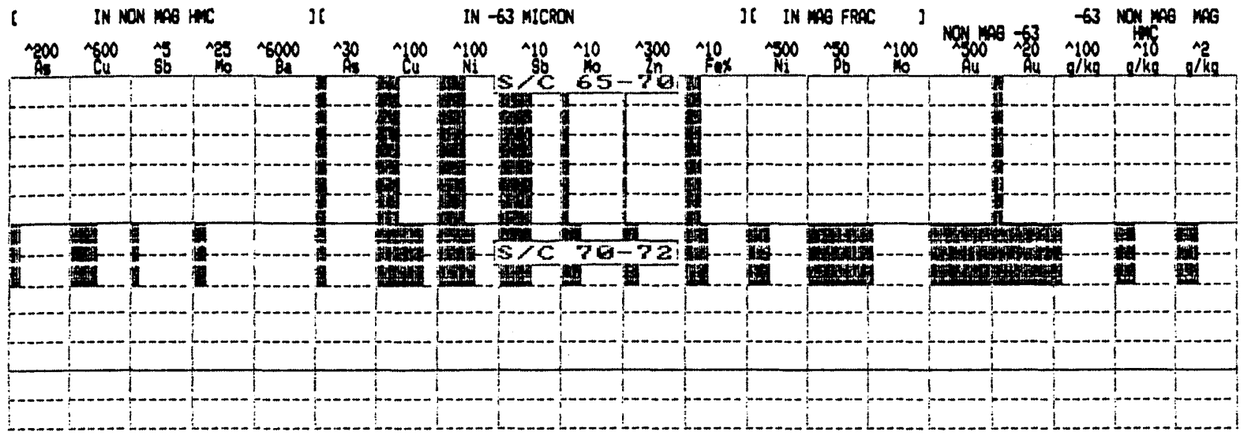
(52.0–62.0) GRAVEL; much cgr sand 52–53; then little sand; water is tan color down to 62—oxidation??.

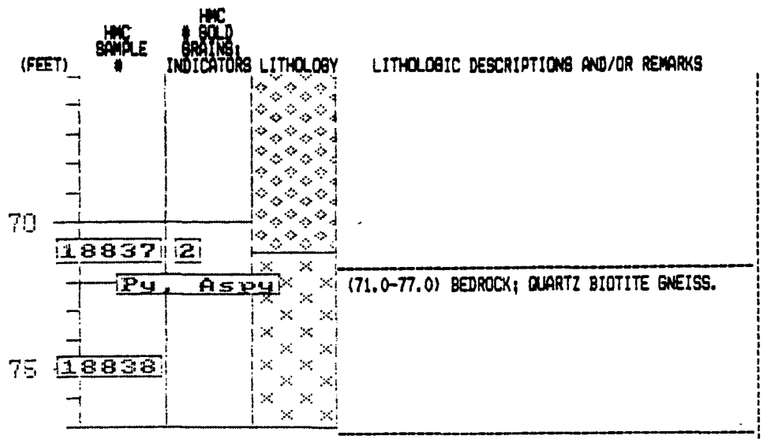
(62.0–63.0) SILTY SAND; w/some cgr sand; water is gray color now.

(63.0–71.0) GRAVEL; a few ls gnls/pebs noted; far too much sample came out and lots of water from formation.

Appendix 8-20B.

FIELDNOTE SUMMARY LOG OB-10503, AIR ROTARY




LITHOLOGIC DESCRIPTIONS AND/OR REMARKS

(71.0-77.0) BEDROCK; QUARTZ BIOTITE GNEISS.

## MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | BOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18823 | 10503 | 0-5 | 5. | A | L | SE-SW | 19 | 68 | 25 | K | RL. MED. TO C. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 52.3 | 1648.0 | 3 | -1 | -1 | |
| 18824 | 10503 | 5-10 | 5. | A | L | SE-SW | 19 | 68 | 25 | K | RL. MED. TO C. SAND | 0-10 | 0.0 | 9400.0 | 500.0 | 49.7 | 12.7 | 52.9 | 1928.0 | 3 | 5 | 92 | |
| 18825 | 10503 | 10-15 | 5. | A | L | SE-SW | 19 | 68 | 25 | K | RL. MED. TO C. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 41.3 | 1992.0 | 2 | -1 | -1 | |
| 18826 | 10503 | 15-20 | 5. | A | L | SE-SW | 19 | 68 | 25 | K | RL. F. TO V.F. SAND | 10-20 | 0.0 | 10800.0 | 400.0 | 60.3 | 16.8 | 62.2 | 2999.0 | 2 | 4 | 94 | |
| 18827 | 10503 | 20-25 | 5. | A | L | SE-SW | 19 | 68 | 25 | K | RL. F. TO V.F. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 127.6 | 2288.0 | 6 | -1 | -1 | |
| 18828 | 10503 | 25-30 | 5. | A | L | SE-SW | 19 | 68 | 25 | K | RL. GRAVEL | 20-30 | 0.0 | 10100.0 | 600.0 | 43.1 | 13.0 | 48.7 | 2543.0 | 2 | 6 | 92 | |
| 18829 | 10503 | 30-35 | 5. | A | L | SE-SW | 19 | 68 | 25 | K | RL. GRAVEL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 30.9 | 2188.0 | 1 | -1 | -1 | |
| 18830 | 10503 | 35-40 | 5. | A | L | SE-SW | 19 | 68 | 25 | K | RL. GRAVEL | 30-40 | 0.0 | 8000.0 | 4500.0 | 16.2 | 4.8 | 50.2 | 2810.0 | 2 | 56 | 42 | |
| 18831 | 10503 | 40-45 | 5. | A | L | SE-SW | 19 | 68 | 25 | K | RL. MED. TO C. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 31.5 | 1855.0 | 2 | -1 | -1 | |
| 18832 | 10503 | 45-50 | 5. | A | L | SE-SW | 19 | 68 | 25 | K | RL. MED. TO C. SAND | 40-50 | 0.0 | 7200.0 | 1900.0 | 21.9 | 6.5 | 23.8 | 2027.0 | 1 | 26 | 73 | |
| 18833 | 10503 | 50-55 | 5. | A | L | SE-SW | 19 | 68 | 25 | K | RL. GRAVEL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 44.8 | 3372.0 | 1 | -1 | -1 | |
| 18834 | 10503 | 55-60 | 5. | A | L | SE-SW | 19 | 68 | 25 | K | RL. GRAVEL | 50-60 | 0.0 | 9100.0 | 5200.0 | 17.9 | 5.7 | 23.1 | 2893.0 | 1 | 57 | 42 | |
| 18835 | 10503 | 60-65 | 5. | A | L | SE-SW | 19 | 68 | 25 | K | RL. GRAVEL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 57.1 | 3318.0 | 2 | -1 | -1 | |
| 18836 | 10503 | 65-70 | 5. | A | L | SE-SW | 19 | 68 | 25 | K | RL. GRAVEL | 60-70 | 1.0 | 11200.0 | 5800.0 | 41.4 | 11.8 | 3.7 | 3921.0 | 0 | 52 | 48 | |
| 18837 | 10503 | 70-72 | 2. | A | L | SE-SW | 19 | 68 | 25 | K | RL. GRAVEL | 70-72 | 2.0 | 11000.0 | 5200.0 | 34.1 | 8.0 | 29.3 | 2929.0 | 1 | 47 | 52 | |
| 18838 | 10503 | 72-77 | 5. | A | L | SE-SW | 19 | 68 | 25 | K | BEDROCK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |

## NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18824 | -5 | 0.30 | 330 | 440 | 298 | 21.00 | 75 | 79 | 22 | -200 | 16 | 4 | -10 | -2 | 0.4 | -5 | -200 | 0.4 | -100 | 170 | 63 | 7 | -11 | 6 | 0 | 51.9 | 10.0 | 5 | 35.34 |
| 18826 | -5 | 0.41 | 420 | 440 | 228 | 21.00 | 70 | 97 | 11 | -200 | 10 | 5 | -10 | -2 | 0.3 | -5 | -200 | 0.4 | -100 | 220 | 66 | 7 | -10 | 5 | 0 | 64.7 | 12.0 | 6 | 43.41 |
| 18828 | 62 | 0.52 | 710 | 490 | 345 | 21.00 | 62 | -50 | 13 | -200 | 11 | 5 | -10 | -2 | 0.5 | -5 | -200 | 0.4 | -100 | 390 | 120 | 8 | -13 | 8 | 0 | 113.0 | 23.0 | 4 | 31.14 |
| 18830 | -12 | -0.35 | 590 | 440 | 284 | 25.00 | 130 | 66 | 81 | -200 | 23 | 8 | -10 | 7 | 0.7 | -5 | -200 | 0.4 | 140 | 300 | 67 | 8 | 54 | 11 | 0 | 94.6 | 16.0 | 2 | 10.90 |
| 18832 | -11 | 0.28 | 530 | 430 | 301 | 23.00 | 100 | 77 | 40 | -200 | 10 | 6 | -10 | 4 | 0.4 | -5 | -200 | 0.4 | -100 | 270 | 66 | 11 | -17 | 7 | 0 | 90.8 | 16.0 | 3 | 15.03 |
| 18834 | 31 | -0.33 | 600 | 400 | 210 | 21.00 | 100 | 130 | 32 | -200 | 14 | 6 | -10 | -2 | 0.7 | -5 | -200 | 0.4 | -100 | 310 | 79 | 11 | 23 | 4 | 0 | 111.0 | 20.0 | 2 | 12.72 |
| 18836 | 47 | -0.23 | 370 | 380 | 374 | 21.00 | 150 | 160 | 68 | -200 | 127 | 38 | -10 | 2 | 0.6 | -5 | -200 | 0.6 | -100 | 200 | 71 | 9 | -14 | 10 | 0 | 66.9 | 14.0 | 4 | 28.16 |
| 18837 | 1360 | -0.31 | 710 | 320 | 478 | 22.00 | 240 | 270 | 258 | -200 | 43 | 33 | -10 | 5 | 1.7 | -5 | -200 | 0.5 | -100 | 380 | 76 | 6 | -15 | 20 | 0 | 132.0 | 18.0 | 3 | 25.05 |

## MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18836 | 0.702 | 7.21 | 2633 | 216 | 40 | 307 | 2 | 10 | -0.5 | 224 | 1.1 |
| 18837 | 1.110 | 6.26 | 2016 | 185 | 45 | 231 | -1 | 7 | -0.5 | 197 | 0.7 |

## -63uM ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | V | CR | MN | FE % | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18823 | -1 | 76 | 59 | 598 | 3.28 | 17 | 45 | 29 | 57 | 13 | -5 | -1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 21 | 5 | -10 | 31.7 |
| 18824 | 4 | 61 | 63 | 606 | 3.36 | 17 | 43 | 37 | 65 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 25 | 9 | -10 | 27.4 |
| 18825 | -1 | 51 | 57 | 579 | 3.02 | 13 | 37 | 29 | 53 | -5 | -5 | 1 | -0.5 | 6 | -10 | -5 | -10 | -10 | 15 | 3 | -10 | 20.7 |
| 18826 | 17 | 51 | 57 | 531 | 2.80 | 15 | 39 | 37 | 59 | -5 | -5 | -1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 7 | -2 | -10 | 20.7 |
| 18827 | -1 | 54 | 63 | 598 | 3.04 | 15 | 35 | 31 | 59 | -5 | 5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 25 | 11 | -10 | 55.8 |
| 18828 | 20 | 56 | 59 | 597 | 2.90 | 13 | 35 | 59 | 61 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 11 | 3 | -10 | 19.2 |
| 18829 | 3 | 48 | 55 | 575 | 3.34 | 17 | 47 | 53 | 73 | -5 | -5 | 5 | -0.5 | -1 | -10 | -5 | -10 | 43 | 15 | 5 | -10 | 14.1 |
| 18830 | -1 | 52 | 57 | 600 | 3.36 | 17 | 51 | 57 | 63 | -5 | -5 | 1 | -0.5 | 6 | -10 | -5 | -10 | 23 | 13 | -2 | -10 | 17.9 |
| 18831 | -1 | 68 | 75 | 728 | 3.99 | 19 | 53 | 57 | -1 | -5 | -5 | -1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 7 | 11 | -10 | 17.0 |
| 18832 | -1 | 64 | 65 | 734 | 3.46 | 19 | 63 | 59 | 63 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 11 | -2 | -10 | 11.7 |
| 18833 | -1 | 70 | 73 | 1144 | 4.01 | 23 | 59 | 67 | 71 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 7 | 3 | -10 | 13.3 |
| 18834 | -1 | 61 | 63 | 762 | 3.48 | 17 | 45 | 53 | 55 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 17 | 3 | -10 | 8.0 |
| 18835 | -1 | 72 | 69 | 660 | 3.54 | 17 | 43 | 41 | 53 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 17 | 5 | -10 | 17.2 |
| 18836 | 3 | 78 | 47 | 447 | 2.36 | 13 | 45 | 35 | 15 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | -5 | 3 | -10 | 0.9 |
| 18837 | 26 | 67 | 83 | 587 | 3.76 | 23 | 61 | 77 | 71 | -5 | -5 | 3 | -0.5 | -1 | -10 | -5 | -10 | -10 | -5 | -2 | -10 | 10.0 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18838 | -2 | -0.1 | -0.5 | 1300 | -2.0 | -5 | 59.0 | 2.6 | 240 | 22 | -1 | 3 | -50 | 3.9 | 32 | -0.2 | 3 | 95 | 91 | 5.30 | 10.0 | -5 | -2 | 2.92 | 0.6 | -10 | -0.5 | 10.0 | -100 | 3 | 1.8 | -2 | -100 | -200 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18838 | 29 | 5 | 87 | 335 | -0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Appendix 8-21A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-10505

Drilling Completion Date 6/27/87

LOCATION (see map at right)

S-T-R SE¼-SE¼-26-68N-25W

County Koochiching

Quadrangle Littlefork S.E. 7.5

Regional Survey Area Littlefork

HOLE PARAMETERS

Surface Elevation 1140 ft.

Total Depth 72.5 ft

Elevation, Top of Precambrian Bedrock 1073 ft.

Drilling Method Air Rotary

Sample Diameter 6 inch

Sample Collection Method Slurry: Splitter & Buckets

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-5 | Organic Sediments | | | |
| 5-67 | Des Moines Lobe Gl. Drift | | | |
| 67-72.5 | Bedrock | E,F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Quartz Biotite Paragneiss

Thin Section Description:



**No samples obtained for heavy mineral concentration.**

FIELDNOTE SUMMARY LOG OB-10505, AIR ROTARY

| [ IN NON MAG HMC ] | | | | | [ IN -63 MICRON | | | | | | | [ IN MAG FRAC ] | | | NON MAG -63 | | -63 | NON MAG HMC | MAG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ^200 As | ^600 Cu | ^5 Sb | ^25 Mo | ^6000 Ba | ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 Fe% | ^500 Ni | ^50 Pb | ^100 Mo | ^500 Au | ^20 Au | ^100 g/kg | ^10 g/kg | ^2 g/kg |
| | | | | | | | | | | | | | | | | | | | |

# OB-10505

| (FEET) | HMC SAMPLE # | HMC # GOLD GRAINS; INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|---|
| | | | | (0.0-5.0) ORGANIC SEDIMENTS. |
| 5 | | DES MOINES | | (5.0-17.0) CLAYEY TILL; OXIDIZED; increasing gnls & ls pebs w/depth. |
| 10 | | | | |
| 15 | | | | |
| 20 | | | | (17.0-33.0) CLAYEY TILL; UNOXIDIZED; v clayey 17-22. |
| 25 | | | | |
| 30 | | | | |
| 35 | | | | (33.0-36.0) CLAY; UNOXIDIZED; glacial lake; w/few pebs. |
| 40 | | | | (36.0-41.0) CLAYEY TILL; UNOXIDIZED; v gritty at 41. |
| 45 | | | | (41.0-67.0) CLAY; UNOXIDIZED; glacial lake; at bedrock some ls gnls & pebs; no apparent Rainy Lobe. |
| 50 | | | | |
| 55 | | | | |
| 60 | | | | |
| 65 | | | | |
| 70 | 18811 | | | (67.0-72.5) BEDROCK; QUARTZ BIOTITE PARAGNEISS; sulfide bearing; 69-71 w/vcgr size for quartz; contamination in sample from weld on discharge hose coupling; also some ls pebs from above in sample. |

Appendix 8-21B.

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY DESC | LEGAL | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18811 | 10505 | 67-72.5 | 5.5 | A | L | SE-SE | 26 | 68 | 25 | K | BEDROCK | | -1.0 | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | ABR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18811 | -2 | -0.1 | 0.7 | 640 | 3.7 | -5 | 34.0 | 2.9 | 280 | 18 | -1 | 3 | -50 | 3.4 | 20 | -0.2 | 1 | 49 | 65 | 3.40 | 10.0 | -5 | -2 | 2.66 | -0.5 | -10 | -0.5 | 4.6 | -100 | 5 | 1.7 | -2 | -100 | -200 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18811 | 24 | 5 | 62 | 320 | 0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Appendix 8-22A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-10601

Drilling Completion Date 7/21/87

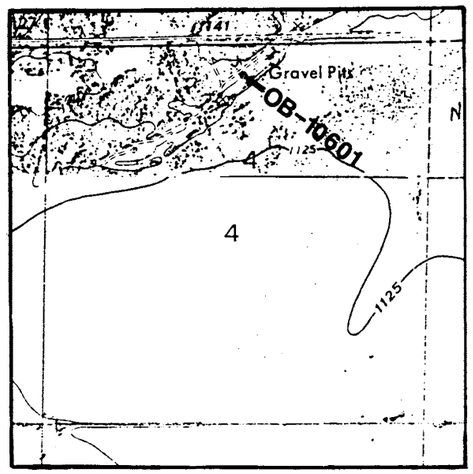
LOCATION (see map at right)

S-T-R NE¼-NW¼-4-69N-25W

County Koochiching

Quadrangle Pelland 7.5

Regional Survey Area Littlefork




HOLE PARAMETERS

Surface Elevation 1138 ft.

Total Depth 50 ft.

Elevation, Top of Precambrian Bedrock 1094.5 ft.

Drilling Method Air Rotary

Sample Diameter 6 inch

Sample Collection Method Slurry: Splitter & Buckets

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpre-tation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-32.5 | Des Moines Lobe Gl. Drift | | | |
| 32.5-43.5 | Rainy Lobe Gl. Drift | E,F | A,B,C | B = As |
| 43.5-50 | Bedrock | E,F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Metagraywacke w/possible Tonalite Stringers

Thin Section Description:



## HEAVY MINERAL CONCENTRATE REPORT

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18819 | 8.9 | 2.5 | 6.4 | 188.3 | 147.3 | 41.0 | 32.6 | 8.4 | 0 | NA | P | 80 | 20 | NA | C | U | Y | Y | Y | GB | GB | TILL |

GOLD CLASSIFICATION

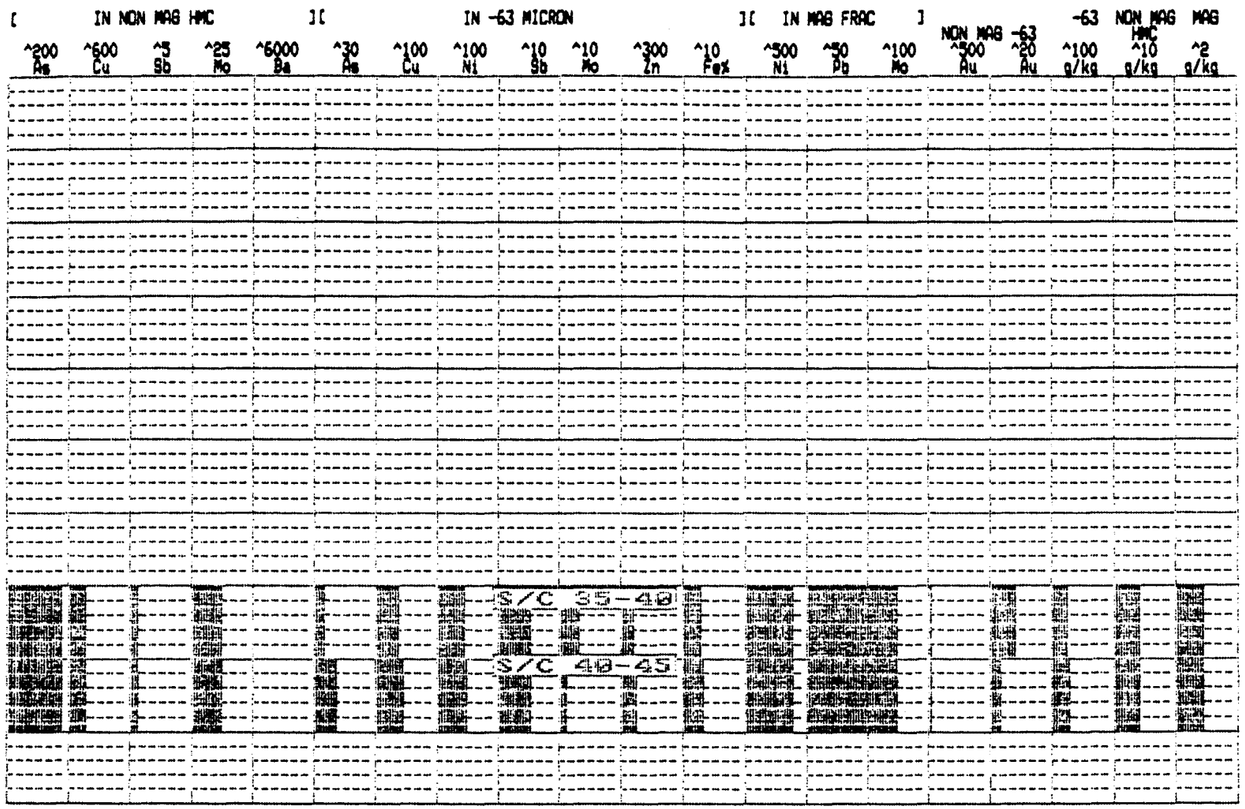
VISIBLE GOLD FROM SHAKING TABLE AND PANNING

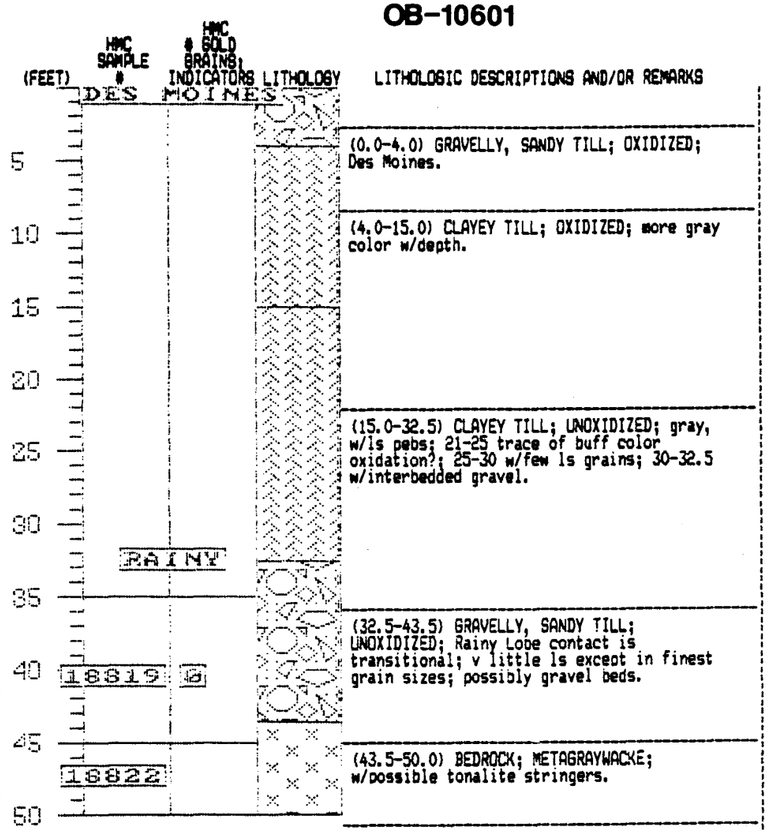
| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | NUMBER OF GRAINS: ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18819 | N | NO VISIBLE GOLD | | | | | | | | | | | |

FIELDNOTE SUMMARY LOG OB-10601, AIR ROTARY

# OB-10601

Appendix 8-22B.




LITHOLOGIC DESCRIPTIONS AND/OR REMARKS

(0.0-4.0) GRAVELLY, SANDY TILL; OXIDIZED; Des Moines.

(4.0-15.0) CLAYEY TILL; OXIDIZED; more gray color w/depth.

(15.0-32.5) CLAYEY TILL; UNOXIDIZED; gray, w/ls pebs; 21-25 trace of buff color oxidation?; 25-30 w/few ls grains; 30-32.5 w/interbedded gravel.

(32.5-43.5) GRAVELLY, SANDY TILL; UNOXIDIZED; Rainy Lobe contact is transitional; v little ls except in finest grain sizes; possibly gravel beds.

(43.5-50.0) BEDROCK; METAGRAYWACKE; w/possible tonalite stringers.

Appendix 8-22C.

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18818 | 10601 | 35-40 | 5. | A | L | NE-NW | 4 | 69 | 25 | K | RL. SANDY GVL. TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 47.2 | 2053.0 | 2 | -1 | -1 | |
| 18819 | 10601 | 40-45 | 5. | A | L | NE-NW | 4 | 69 | 25 | K | RL. SANDY GVL. TILL | 35-45 | 0.0 | 8900.0 | 2500.0 | 32.6 | 8.4 | 78.3 | 2805.0 | 3 | 28 | 69 | |
| 18822 | 10601 | 45-50 | 5. | A | L | NE-NW | 4 | 69 | 25 | K | BEDROCK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18819 | 23 | 0.43 | 410 | 300 | 419 | 22.00 | 220 | 210 | 161 | 210 | 77 | 177 | -10 | 12 | 0.8 | -5 | -200 | 0.7 | -100 | 190 | 100 | 9 | 53 | 23 | 0 | 45.0 | 13.0 | 4 | 22.79 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18819 | 0.534 | 4.35 | 2846 | 382 | 89 | 230 | -1 | 46 | -0.5 | 221 | 0.9 |

-63uM ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | V | CR | MN | FE % | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18818 | 8 | 81 | 65 | 610 | 2.98 | 17 | 45 | 35 | 63 | -5 | -5 | 3 | -0.5 | -1 | -10 | -5 | -10 | -10 | 27 | -2 | -10 | 23.0 |
| 18819 | 3 | 74 | 65 | 668 | 3.22 | 19 | 47 | 45 | 73 | 11 | -5 | 1 | 0.7 | -1 | -10 | 5 | -10 | -10 | 33 | 11 | -10 | 27.9 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18822 | -2 | 0.1 | 0.8 | 640 | 3.6 | -5 | 44.0 | 4.4 | 150 | 18 | -1 | 3 | -50 | 3.4 | 27 | -0.2 | 3 | 59 | 77 | 4.20 | 10.0 | -5 | -2 | 2.60 | 0.8 | -10 | -0.5 | 7.1 | -100 | 3 | 2.8 | -2 | -100 | -200 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18822 | 33 | 7 | 71 | 390 | 0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Appendix 8-23A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-10602

Drilling Completion Date 6/25/87

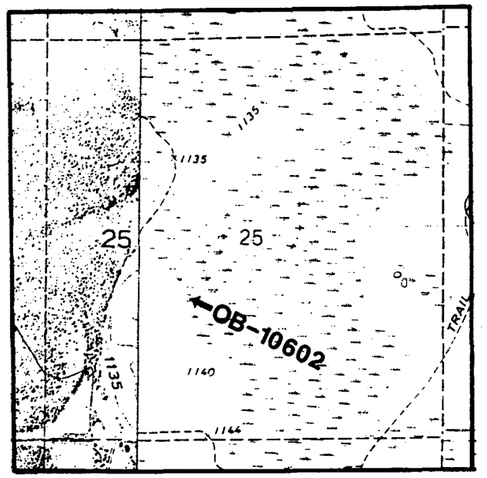
LOCATION (see map at right)

S-T-R NE¼-SW¼-25-69N-25W

County Koochiching

Quadrangle Ericsburg N.W. 7.5

Regional Survey Area Littlefork




HOLE PARAMETERS

Surface Elevation 1137 ft.

Total Depth 73 ft.

Elevation, Top of Precambrian Bedrock 1070 ft.

Drilling Method Air Rotary

Sample Diameter 6 inch

Sample Collection Method Slurry: Splitter & Buckets

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-50 | Des Moines Lobe Gl. Drift | | | |
| 50-67 | Rainy Lobe Gl. Drift | E,F | A,B,C | A = Au |
| 67-73 | Bedrock | E,F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Quartz Biotite Schist

Thin Section Description:



# HEAVY MINERAL CONCENTRATE REPORT

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR | | |
| | | | | | | | | | | | | | | | | | | | | SD | CY | |
| 18806 | 4.7 | 0.0 | 4.7 | 121.7 | 61.6 | 60.1 | 52.7 | 7.4 | 0 | NA | TR | NA | NA | NA | NA | S | MF | Y | N | B | NA | SAND |
| 18808 | 8.0 | 1.3 | 6.7 | 135.3 | 80.6 | 54.7 | 42.6 | 12.1 | 1 | 3289 | CP | 2 | 98 | NA | NA | U | Y | Y | Y | GB | GB | TILL |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18806 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18808 | N | 325 X 650 | 79 C | 1 | | | | | | 1 | | | AVAILABLE PHOTO MICROGRAPH FILM REFERENCE #144 |
| | | | | | | | | | | 1 | 42.6 | 3289 | |

FIELDNOTE SUMMARY LOG OB-10602, AIR ROTARY

# OB-10602

Appendix 8

[ IN NON MAG HMC ]

| ^200 As | ^500 Cu | ^5 Sb | ^25 Mo | ^6000 Ba |
|---|---|---|---|---|

[ IN -63 MICRON ]

| ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 Fe% |
|---|---|---|---|---|---|---|

[ IN MAG FRAC ]

| ^500 Ni | ^50 Pb | ^100 Mo |
|---|---|---|

NON MAG -63

| ^500 Au | ^20 Au |
|---|---|

-63

| ^100 g/kg |
|---|

NON MAG HMC

| ^10 g/kg |
|---|

MAG

| ^2 g/kg |
|---|

S/C 52-62

S/C 62-67

S/C 67-68

| (FEET) | HMC SAMPLE # | HMC # GOLD GRAINS; INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|---|
| | DES | MOINES | | |
| 5 | | | | (0.0-37.0) CLAYEY TILL; OXIDIZED; w/ls pebs & gnls abundant; UNOXIDIZED between 14-16; no sample 19-37. |
| 10 | | | | |
| 15 | | | | |
| 20 | | | | |
| 25 | | | | |
| 30 | | | | |
| 35 | | | | |
| 40 | | | | (37.0-50.0) CLAY; UNOXIDIZED; lake sediments w/few ls pebs; at 48-50 fgr sand w/lake clay. |
| 45 | | | | |
| 50 | | RAINY | | |
| 55 | 18806 | 0 | | (50.0-62.0) FINE SAND; UNOXIDIZED; few ls pebs 50-52; at 53 sand heaved up in casing; 53-60 some ang pebs up to 1 inch and few sm ls pebs & gnls. |
| 60 | | | | |
| 65 | 18808 | 1 | | (62.0-67.0) GRAVELLY, SANDY TILL?; UNOXIDIZED; subangular clasts. |
| 70 | 18809 | | | (67.0-73.0) BEDROCK; QUARTZ-BIOTITE SCHIST; 80% quartz, cleary & milky w/trace of white vein quartz; 15% biotite; 5% plag, no sulfides or obvious accessories; tried hammer & foam, but no good. |
| 75 | | | | |

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | B | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63um | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18806 | 10602 | 52-62 | 10. | A | L | NE-SW | 25 | 69 | 25 | K | RL. MED. TO C. SAND | 52-62 | 0.0 | 4700.0 | 0.0 | 52.7 | 7.4 | 172.7 | 2710.0 | 6 | 0 | 94 | |
| 18807 | 10602 | 62-67 | 5. | A | L | NE-SW | 25 | 69 | 25 | K | RL. SANDY GVL. TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 52.3 | 2330.0 | 2 | -1 | -1 | |
| 18808 | 10602 | 67-68 | 1. | A | L | NE-SW | 25 | 69 | 25 | K | BEDROCK | 62-68 | 1.0 | 8000.0 | 1300.0 | 42.6 | 12.1 | 76.0 | 2434.0 | 3 | 16 | 81 | |
| 18809 | 10602 | 68-73 | 5. | A | L | NE-SW | 25 | 69 | 25 | K | BEDROCK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18806 | 25 | 0.46 | 470 | 270 | 616 | 22.00 | 200 | 190 | 179 | -200 | 38 | 23 | -10 | 4 | 1.1 | -5 | -200 | 0.4 | -100 | 240 | 74 | 7 | -11 | 15 | 0 | 50.9 | 15.0 | 11 | 37.07 |
| 18808 | 2840 | 0.23 | 340 | 410 | 365 | 23.00 | 210 | 180 | 99 | 220 | 18 | 27 | -10 | 6 | 0.6 | -5 | -200 | 0.5 | -100 | 170 | 77 | 8 | 110 | 15 | 0 | 46.0 | 15.0 | 5 | 25.86 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18808 | 0.653 | 7.72 | 2790 | 252 | 49 | 382 | -1 | 3 | -0.5 | 289 | 1.5 |

-63uM ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | V | CR | MN | FE % | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18806 | 99 | 68 | 63 | 712 | 2.96 | 19 | 39 | 45 | 61 | -5 | -5 | 1 | 0.9 | -1 | -10 | -5 | -10 | -10 | 35 | 11 | -10 | 63.7 |
| 18807 | 41 | 71 | 69 | 662 | 3.14 | 17 | 37 | 37 | 59 | 7 | -5 | 1 | 1.1 | -1 | -10 | 5 | -10 | -10 | 33 | 11 | -10 | 22.4 |
| 18808 | 175 | 67 | 59 | 640 | 3.04 | 15 | 31 | 33 | 53 | -5 | -5 | 1 | 0.5 | 1 | -10 | -5 | -10 | -10 | 39 | 39 | 11 | -10 | 31.0 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | ABR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18809 | -2 | 0.2 | -0.5 | 760 | -2.0 | -5 | 45.0 | 3.3 | 270 | 25 | -1 | 4 | -50 | 4.5 | 28 | -0.2 | -1 | 73 | 69 | 3.90 | 12.0 | -5 | -2 | 2.63 | 0.6 | -10 | 0.6 | 6.8 | -100 | 7 | 2.5 | -2 | -100 | 210 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18809 | 34 | 6 | 80 | 420 | 0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Appendix 8-24A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-10603

Drilling Completion Date 6/10/87

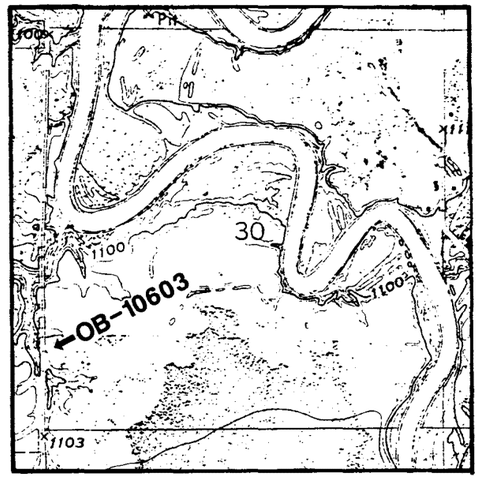
LOCATION (see map at right)

S-T-R SW¼-SW¼-30-69N-25W

County Koochiching

Quadrangle Littlefork 7.5

Regional Survey Area Littlefork




HOLE PARAMETERS

Surface Elevation 1102 ft.

Total Depth 100 ft.

Elevation, Top of Precambrian Bedrock 1003 ft.

Drilling Method Air Rotary

Sample Diameter 6 inch

Sample Collection Method Slurry: Splitter & Buckets

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-95 | Des Moines Lobe Gl. Drift | | | |
| 95-99 | Rainy Lobe Gl. Drift | E,F | A,B,C | A = Au<br>B = Cu,Zn,La |
| 99-100 | Bedrock | E,F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Quartz Biotite Schist

Thin Section Description:



# HEAVY MINERAL CONCENTRATE REPORT

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | MATRIX | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | GR | LS | OT | S/U | SD | ST | CY | COLOR SD | CY | |
| 18816 | 7.4 | 2.2 | 5.2 | 162.6 | 130.9 | 31.7 | 25.5 | 6.2 | 1 | | 3 CP | 80 | 20 | NA | NA | U | Y | Y | Y | GB | GB | TILL |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18816 | Y | 25 X 50 | 8 C | | 1 | | | | | 1 | | | EST. 10% PYRITE 200 GRAINS |
| | | | | | | | | | | 1 | 25.5 | 3 | ARSENOPYRITE |

FIELDNOTE SUMMARY LOG OB-10603, AIR ROTARY

# OB-10603

Appendix 8-24B.

| IN NON MAG HMC ^200 Ag | ^600 Cu | ^5 Sb | ^25 Mo | ^5000 Ba | IN -63 MICRON ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 Fe% | IN MAG FRAC ^500 Ni | ^50 Pb | ^100 Mo | NON MAG -63 ^500 Au | ^20 Au | -63 ^100 g/kg | NON MAG HMC ^10 g/kg | MAG ^2 g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | |

| (FEET) | HMC SAMPLE # | HMC # GOLD GRAINS/ INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|---|
| | | DES MOINES | | |
| 5 | | | | |
| 10 | | | | (0.0-18.0) CLAYEY TILL; OXIDIZED; ox trans 16-18; roots at 18. |
| 15 | | | | |
| 20 | | | | |
| 25 | | | | |
| 30 | | | | |
| 35 | | | | |
| 40 | | | | (18.0-76.0) CLAYEY TILL; UNOXIDIZED; w/variable sand & peb content; 18-21 w/rounded ls pebs; 21-45 w/ls pebs up to 1 inch; 48-55 w/ang ls pebs up to 3/4 inch; 55-76 w/cgr-vcgr sand, grnls, & pebs of ls up to 1/2 inch. |
| 45 | | | | |
| 50 | | | | |
| 55 | | | | |
| 60 | | | | |
| 65 | | | | |
| 70 | | | | |
| 75 | | | | |
| 80 | | | | |
| 85 | | | | (76.0-95.0) CLAY; UNOXIDIZED; lake sed, w/v few gnls, some large pebs + 1 inch. |
| 90 | | | | |
| 95 | | RAINY | | (95.0-96.5) GRAVEL; UNOXIDIZED; RAINY; sandy, ang pebs water bearing. |
| | 18816 | 1 | | (96.5-99.0) GRAVEL; UNOXIDIZED; w/v little sand, coarsening downward, clasts up to 1 inch; 98-99 w/some sand, biotite rich fines. |
| 100 | | Py, Aspy | | |
| | 18817 | | | (99.0-104.0) BEDROCK; QUARTZ BIOTITE SCHIST; coarse grained, prob migmatized. |

S/C 95-100

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY DESC | LEGAL | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18816 | 10603 | 95-100 | 5.0 | A | L | SW-SW | 30 | 69 | 25 | K | RL. SANDY GVL. TILL | 95-100 | 1.0 | 7400.0 | 2200.0 | 25.5 | 6.2 | 22.2 | 2551.0 | 1 | 30 | 69 | |
| 18817 | 10603 | 100-104 | 4.0 | A | L | SW-SW | 30 | 69 | 25 | K | BEDROCK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18816 | 27 | 0.71 | 2600 | 260 | 745 | 24.00 | 380 | 310 | 534 | -200 | 45 | 120 | -10 | -7 | 1.7 | -5 | -500 | -0.2 | -100 | 1440 | 98 | 5 | 51 | 30 | 0 | 346.0 | 103.0 | 3 | 17.66 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18816 | 0.998 | 3.42 | 1605 | 282 | 183 | 120 | -1 | 65 | -0.5 | 199 | 0.8 |

-63uM ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | V | CR | MN | FE % | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18816 | 82 | 71 | 63 | 565 | 3.14 | 17 | 49 | 57 | 61 | -5 | -5 | 3 | 0.5 | -1 | -10 | -5 | -10 | -10 | 27 | 9 | -10 | 8.7 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18817 | -2 | -0.1 | 1.1 | 520 | 7.4 | -5 | 36.0 | 4.8 | 250 | 18 | -1 | 3 | -50 | 3.4 | 24 | -0.2 | 2 | 66 | 74 | 3.50 | 10.0 | -5 | -2 | 2.61 | 1.2 | -10 | -0.5 | 5.2 | -100 | 24 | 2.4 | -2 | -100 | -200 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FED % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18817 | 24 | 5 | 70 | 335 | 0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Appendix 8-25A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-10700

Drilling Completion Date 6/24/87

LOCATION (see map at right)

S-T-R NE¼-SE¼-29-68N-24W

County Koochiching

Quadrangle Ericsburg S.W. 7.5

Regional Survey Area Littlefork

HOLE PARAMETERS

Surface Elevation 1148 ft.

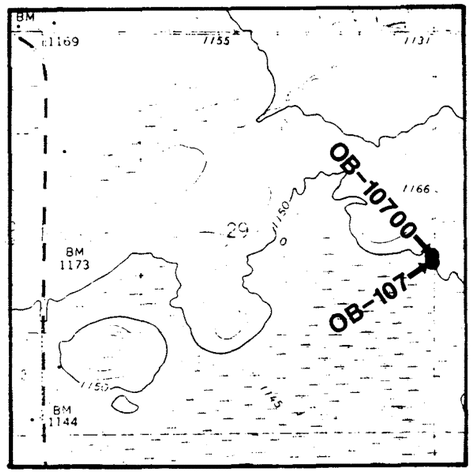
Total Depth 147 ft.

Elevation, Top of Precambrian Bedrock 1005 ft.

Drilling Method Air Rotary

Sample Diameter 6 inch

Sample Collection Method Slurry: Splitter & Buckets




SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-62 | No Observations | | | |
| 62-143 | Rainy Lobe Gl. Drift | E,F | A,B,C | A = Au,Mo,Cd,W,Pb |
| 143-147 | Bedrock | E,F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Biotite Paragneiss

Thin Section Description:



# HEAVY MINERAL CONCENTRATE REPORT

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18789 | 7.4 | 0.0 | 7.4 | 186.2 | 141.0 | 45.2 | 36.5 | 8.7 | 0 | NA | TR | NA | NA | NA | NA | S | CM | Y | N | B | NA | SAND |
| 18791 | 5.4 | 0.2 | 5.2 | 114.4 | 83.6 | 30.8 | 26.1 | 4.7 | 0 | NA | P | 40 | 60 | NA | NA | S | CM | Y | N | B | NA | SAND |
| 18793 | 8.5 | 0.0 | 8.5 | 290.0 | 218.9 | 71.1 | 59.4 | 11.7 | 0 | NA | TR | NA | NA | NA | NA | S | CM | Y | N | B | NA | SAND |
| 18795 | 10.5 | 0.0 | 10.5 | 242.6 | 153.1 | 89.5 | 74.9 | 14.6 | 0 | NA | TR | NA | NA | NA | NA | S | CM | Y | N | B | NA | SAND |
| 18797 | 9.5 | 0.0 | 9.5 | 213.5 | 100.2 | 113.3 | 88.6 | 24.7 | 0 | NA | TR | NA | NA | NA | NA | S | MF | Y | N | B | NA | SAND |
| 18799 | 5.3 | 0.0 | 5.3 | 137.6 | 73.4 | 64.2 | 48.1 | 16.1 | 0 | NA | TR | NA | NA | NA | NA | S | MF | Y | N | B | NA | SAND |
| 18803 | 6.5 | 0.0 | 6.5 | 168.4 | 90.5 | 77.9 | 63.3 | 14.6 | 0 | NA | TR | NA | NA | NA | NA | S | MF | Y | N | B | NA | SAND |
| 18804 | 7.2 | 0.6 | 6.6 | 166.2 | 109.0 | 57.2 | 45.2 | 12.0 | 0 | NA | C | 1 | 99 | NA | NA | U | Y | Y | Y | GB | GB | TILL |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | NUMBER OF GRAINS ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18789 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18791 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18793 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18795 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18797 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18799 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18803 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18804 | N | NO VISIBLE GOLD | | | | | | | | | | | |

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FIELDNOTE SUMMARY LOG OB-10700, AIR ROTARY

# OB-10700

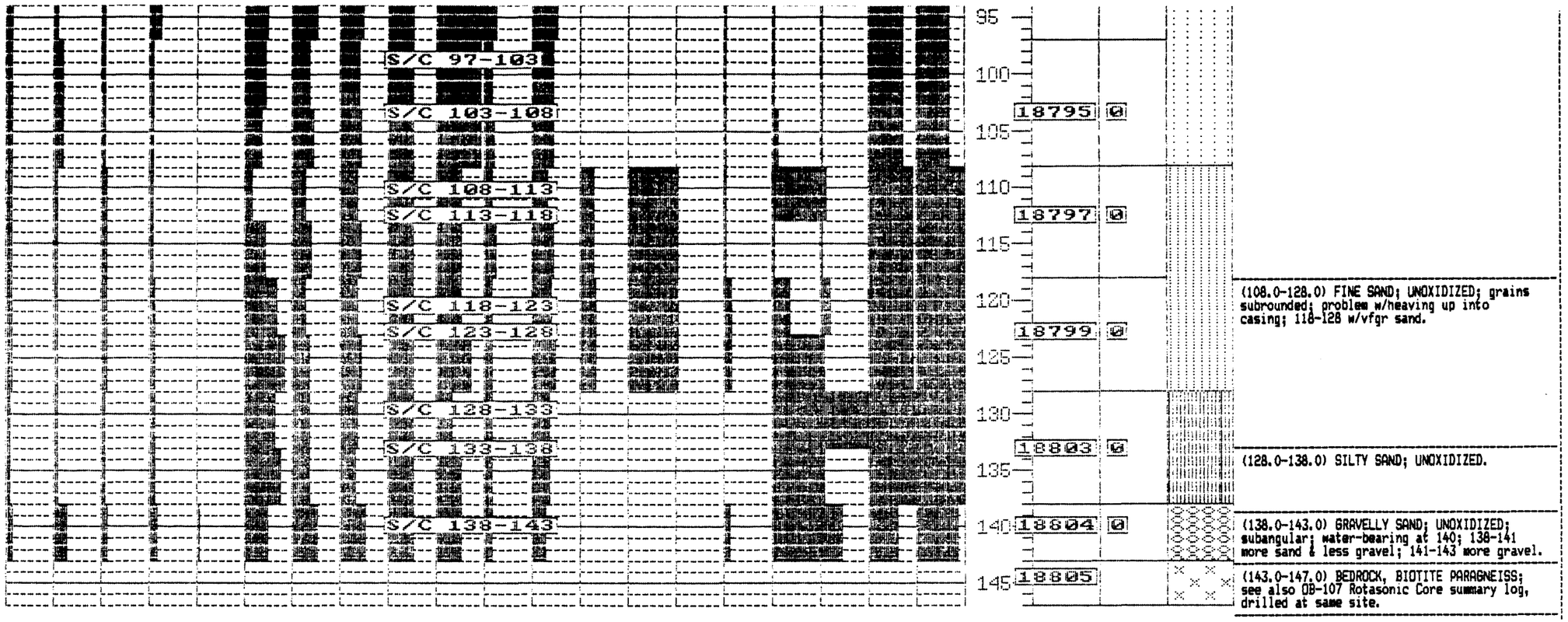
Appendix 8-25B.

[ IN NON MAG HMC ][ IN -63 MICRON ][ IN MAG FRAC ]

| ^200 As | ^600 Cu | ^5 Sb | ^25 Mo | ^6000 Ba | ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 FeX | ^500 Ni | ^50 Pb | ^100 Mo | NON MAG ^500 Au | -63 ^20 Au | -63 ^100 g/kg | NON MAG HMC ^10 g/kg | MAG ^2 g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| (FEET) | HMC SAMPLE # | HMC # GOLD GRAINS; INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|---|
| 5 | | | | |
| 10 | | | | |
| 15 | | | | |
| 20 | | | | |
| 25 | | | | (0.0-62.0) NO OBSERVATIONS; see OB-107 ROTASONIC CORE summary log, drilled at same site. |
| 30 | | | | |
| 35 | | | | |
| 40 | | | | |
| 45 | | | | |
| 50 | | | | |
| 55 | | | | |
| 60 | | | | |
| 65 | RAINY | | | |
| 70 | 18789 | 0 | | |
| 75 | | | | |
| 80 | 18791 | 0 | | |
| 85 | | | | (62.0-108.0) MEDIUM TO COARSE SAND; UNOXIDIZED; RAINY; 62-72 grains subround; 82-87 grains subrnd & granules present; 87-97 grains subrnd; problem w/heaving up into casing. |
| 90 | 18793 | 0 | | |

S/C 62-67
S/C 67-72
S/C 72-77
S/C 77-87
S/C 87-92
S/C 92-97


S/C 97-103
S/C 103-108
S/C 108-113
S/C 113-118
S/C 118-123
S/C 123-128
S/C 128-133
S/C 133-138
S/C 138-143
95
100
105
110
115
120
125
130
135
140
145
18795
18797
18799
18803
18804
18805
(108.0-128.0) FINE SAND; UNOXIDIZED; grains subrounded; problem w/heaving up into casing; 118-128 w/vfgr sand.
(128.0-138.0) SILTY SAND; UNOXIDIZED.
(138.0-143.0) GRAVELLY SAND; UNOXIDIZED; subangular; water-bearing at 140; 138-141 more sand & less gravel; 141-143 more gravel.
(143.0-147.0) BEDROCK, BIOTITE PARAGNEISS; see also OB-107 Rotasonic Core summary log, drilled at same site.

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63um | WT (g) -63FEED | WT % -63um | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18788 | 10700 | 62-67 | 5. | A | L | NE-SE | 29 | 68 | 24 | K | RL. MED. TO C. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 3.1 | 2730.0 | 0 | -1 | -1 | |
| 18789 | 10700 | 67-72 | 5. | A | L | NE-SE | 29 | 68 | 24 | K | RL. MED. TO C. SAND | 62-72 | 0.0 | 7400.0 | 0.0 | 36.5 | 8.7 | 2.4 | 2003.0 | 0 | 0 | 100 | |
| 18790 | 10700 | 72-77 | 5. | A | L | NE-SE | 29 | 68 | 24 | K | RL. MED. TO C. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 2.2 | 2229.0 | 0 | -1 | -1 | |
| 18791 | 10700 | 77-87 | 10. | A | L | NE-SE | 29 | 68 | 24 | K | RL. MED. TO C. SAND | 72-87 | 0.0 | 5400.0 | 200.0 | 26.1 | 4.7 | 6.6 | 2194.0 | 0 | 4 | 96 | |
| 18792 | 10700 | 87-92 | 5. | A | L | NE-SE | 29 | 68 | 24 | K | RL. MED. TO C. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 22.6 | 2204.0 | 1 | -1 | -1 | |
| 18793 | 10700 | 92-97 | 5. | A | L | NE-SE | 29 | 68 | 24 | K | RL. MED. TO C. SAND | 87-97 | 0.0 | 8500.0 | 0.0 | 59.4 | 11.7 | 8.7 | 2498.0 | 0 | 0 | 100 | |
| 18794 | 10700 | 97-103 | 6. | A | L | NE-SE | 29 | 68 | 24 | K | RL. MED. TO C. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 10.9 | 2266.0 | 0 | -1 | -1 | |
| 18795 | 10700 | 103-108 | 5. | A | L | NE-SE | 29 | 68 | 24 | K | RL. MED. TO C. SAND | 97-108 | 0.0 | 10500.0 | 0.0 | 74.9 | 14.6 | 11.4 | 2597.0 | 0 | 0 | 100 | |
| 18796 | 10700 | 108-113 | 5. | A | L | NE-SE | 29 | 68 | 24 | K | RL. F. TO V.F. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 31.3 | 2630.0 | 1 | -1 | -1 | |
| 18797 | 10700 | 113-118 | 5. | A | L | NE-SE | 29 | 68 | 24 | K | RL. F. TO V.F. SAND | 108-118 | 0.0 | 9500.0 | 0.0 | 88.6 | 24.7 | 11.5 | 1966.0 | 1 | 0 | 99 | |
| 18798 | 10700 | 118-123 | 5. | A | L | NE-SE | 29 | 68 | 24 | K | RL. F. TO V.F. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 46.7 | 2492.0 | 2 | -1 | -1 | |
| 18799 | 10700 | 123-128 | 5. | A | L | NE-SE | 29 | 68 | 24 | K | RL. F. TO V.F. SAND | 118-128 | 0.0 | 5300.0 | 0.0 | 48.1 | 16.1 | 17.0 | 2340.0 | 1 | 0 | 99 | |
| 18802 | 10700 | 128-133 | 5. | A | L | NE-SE | 29 | 68 | 24 | K | RL. SILTY SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 28.6 | 2311.0 | 1 | -1 | -1 | |
| 18803 | 10700 | 133-138 | 5. | A | L | NE-SE | 29 | 68 | 24 | K | RL. SILTY SAND | 128-138 | 0.0 | 6500.0 | 0.0 | 63.3 | 14.6 | 20.2 | 2291.0 | 1 | 0 | 99 | |
| 18804 | 10700 | 138-143 | 5. | A | L | NE-SE | 29 | 68 | 24 | K | RL. GVL. SAND | 138-143 | 0.0 | 7200.0 | 600.0 | 45.2 | 12.0 | 101.7 | 2401.0 | 4 | 8 | 88 | |
| 18805 | 10700 | 143-147 | 4. | A | L | NE-SE | 29 | 68 | 24 | K | BEDROCK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18789 | -5 | 0.29 | 180 | 310 | 490 | 22.00 | 130 | 120 | 54 | -200 | 19 | 24 | -10 | 4 | 1.2 | -5 | -200 | 0.4 | -100 | 89 | 41 | 6 | -11 | 10 | 0 | 29.0 | 6.3 | 5 | 25.62 |
| 18791 | -5 | 0.21 | 160 | 340 | 468 | 22.00 | 120 | 140 | 43 | -200 | 27 | 27 | -10 | 6 | 0.9 | -5 | 210 | 0.5 | -100 | 70 | 26 | 5 | -14 | 6 | 0 | 24.0 | 3.2 | 5 | 17.82 |
| 18793 | 29 | 0.24 | 200 | 330 | 405 | 23.00 | 120 | 120 | 43 | -200 | 28 | 22 | -10 | 6 | 1.1 | -5 | -200 | 0.4 | -100 | 92 | 34 | 7 | -11 | 8 | 0 | 25.0 | 6.6 | 7 | 42.65 |
| 18795 | 27 | 0.28 | 190 | 320 | 438 | 21.00 | 120 | 110 | 116 | -200 | 28 | 21 | -10 | 2 | 0.6 | -5 | -200 | 0.4 | -100 | 87 | 33 | 6 | -9 | 8 | 0 | 24.0 | 6.1 | 7 | 52.43 |
| 18797 | 11 | 0.34 | 310 | 360 | 340 | 22.00 | 120 | 85 | 52 | -200 | 17 | 25 | -10 | 2 | 0.4 | -5 | -200 | 0.5 | -100 | 140 | 77 | 9 | -9 | 6 | 0 | 39.0 | 12.0 | 9 | 63.16 |
| 18799 | 73 | 0.40 | 380 | 420 | 372 | 24.00 | 120 | 120 | 52 | -200 | 20 | 21 | -10 | 3 | 0.2 | -5 | -200 | 0.6 | -100 | 190 | 110 | 10 | -11 | 8 | 0 | 57.0 | 14.0 | 9 | 34.34 |
| 18803 | -5 | 0.41 | 340 | 390 | 364 | 22.00 | 110 | 100 | 38 | -200 | 24 | 17 | -10 | 3 | 0.8 | -5 | -200 | 0.4 | -100 | 170 | 87 | 8 | -10 | 7 | 0 | 44.0 | 12.0 | 10 | 45.39 |
| 18804 | 56 | -0.34 | 1260 | 390 | 408 | 23.00 | 220 | 210 | 156 | -200 | 25 | 21 | -10 | -4 | 0.8 | -5 | -200 | 0.5 | 130 | 729 | 120 | 9 | 21 | 16 | 0 | 245.0 | 25.0 | 6 | 31.83 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18797 | 0.466 | 8.99 | 2785 | 150 | 12 | 361 | -1 | 2 | -0.5 | 340 | 2.6 |
| 18799 | 0.481 | 8.11 | 2948 | 162 | 11 | 385 | -1 | 3 | -0.5 | 324 | 3.0 |

-63um ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | V | CR | MN | FE % | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18788 | 2 | 142 | 65 | 785 | 4.37 | 19 | 47 | 63 | 69 | 29 | -5 | 7 | -0.5 | 3 | -10 | 9 | -10 | -10 | 61 | 9 | -10 | 1.1 |
| 18789 | -10 | 118 | 63 | 973 | 6.29 | 17 | 45 | 65 | 99 | 25 | -5 | 13 | -0.5 | 16 | -10 | 7 | 10 | 41 | 59 | -2 | -10 | 1.2 |
| 18790 | -10 | 92 | 55 | 853 | 5.13 | 17 | 41 | 61 | 73 | 19 | -5 | 9 | -0.5 | 7 | -10 | -5 | -10 | 97 | 41 | -2 | -10 | 1.0 |
| 18791 | -1 | 101 | 69 | 1213 | 10.00 | 15 | 47 | 97 | 123 | 23 | 19 | 47 | -0.5 | 53 | -10 | 5 | -10 | -10 | 70 | -2 | -10 | 3.0 |
| 18792 | -1 | 104 | 63 | 1077 | 7.83 | 17 | 51 | 81 | 93 | 19 | -5 | 23 | -0.5 | 39 | -10 | 7 | -10 | 23 | 59 | -2 | -10 | 10.3 |
| 18793 | -1 | 106 | 65 | 853 | 5.37 | 17 | 47 | 51 | 75 | 15 | -5 | 11 | -0.5 | 17 | -10 | 5 | -10 | 53 | 32 | -2 | -10 | 3.5 |
| 18794 | -1 | 124 | 61 | 761 | 4.33 | 17 | 41 | 37 | 53 | 13 | -5 | 9 | -0.5 | 83 | 29 | -5 | -10 | 27 | 24 | 3 | -10 | 4.8 |
| 18795 | 2 | 154 | 63 | 761 | 4.27 | 15 | 43 | 45 | 61 | 11 | -5 | 9 | -0.5 | 13 | -10 | -5 | -10 | 33 | 21 | -2 | -10 | 4.4 |
| 18796 | 39 | 138 | 59 | 655 | 3.39 | 13 | 35 | 27 | 47 | 5 | 15 | 5 | -0.5 | -1 | 31 | -5 | -10 | -10 | 15 | -2 | -10 | 11.9 |
| 18797 | -1 | 178 | 89 | 875 | 4.57 | 21 | 45 | 41 | 63 | 13 | -5 | 5 | -0.5 | -1 | -10 | -5 | -10 | -10 | 24 | -2 | -10 | 5.8 |
| 18798 | 7 | 184 | 75 | 755 | 4.03 | 19 | 35 | 29 | 47 | 21 | -5 | 5 | -0.5 | -1 | -10 | -5 | -10 | -10 | 30 | -2 | -10 | 18.7 |
| 18799 | 105 | 193 | 91 | 905 | 4.99 | 23 | 43 | 37 | 53 | 25 | -5 | 7 | 0.5 | 3 | -10 | -5 | -10 | -10 | 26 | -2 | -10 | 7.3 |
| 18802 | 42 | 165 | 73 | 747 | 3.67 | 17 | 37 | 35 | 49 | 19 | -5 | 3 | -0.5 | -1 | -10 | -5 | 12 | -10 | 21 | -2 | -10 | 12.4 |
| 18803 | 26 | 146 | 67 | 731 | 3.67 | 17 | 33 | 37 | 51 | 23 | -5 | 5 | -0.5 | 2 | -10 | -5 | -10 | -10 | 32 | -2 | -10 | 8.8 |
| 18804 | 23 | 72 | 39 | 509 | 2.98 | 15 | 53 | 53 | 45 | 15 | -5 | 5 | -0.5 | -1 | -10 | -5 | -10 | -10 | -5 | -2 | -10 | 42.4 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | BE | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18805 | -2 | 0.1 | -0.5 | 750 | 5.5 | -5 | 47.0 | 4.4 | 340 | 23 | -1 | 3 | -50 | 4.0 | 27 | -0.2 | 2 | 61 | 81 | 4.10 | 12.0 | -5 | -2 | 2.61 | 1.0 | -10 | -0.5 | 5.6 | -100 | 12 | 1.8 | -2 | -100 | -200 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FED % | VIR | SR | NB | MCR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18805 | 35 | 5 | 70 | 390 | 0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Appendix 8-26A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-10704

Drilling Completion Date 6/8/87

LOCATION (see map at right)

S-T-R SW¼-SW¼-17-68N-24W

County Koochiching

Quadrangle Ericsburg N.W. 7.5

Regional Survey Area Littlefork

HOLE PARAMETERS

Surface Elevation 1140 ft.

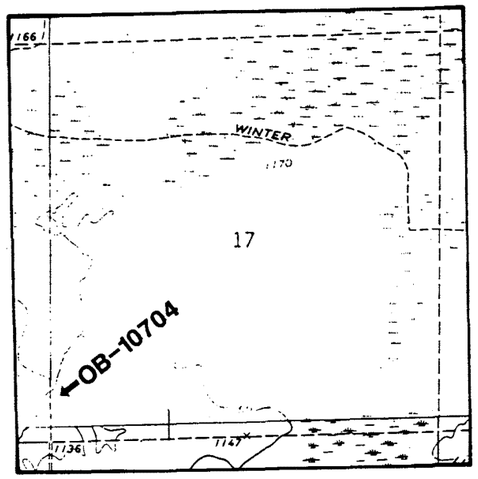
Total Depth 111 ft.

Elevation, Top of Precambrian Bedrock 1034.5 ft.

Drilling Method Air Rotary

Sample Diameter 6 inch

Sample Collection Method Slurry: Splitter & Buckets




SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-92 | Des Moines Lobe Gl. Drift | | | |
| 92-105.5 | Rainy Lobe Gl. Drift | E,F | A,B,C | A = Sn |
| 105.5-111 | Bedrock | E,F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: 105.5-107 ft. K-spar Rich Pegmatite; 107-111 ft. v. little K-spar

Thin Section Description:



# HEAVY MINERAL CONCENTRATE REPORT

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18768 | 9.5 | 0.4 | 9.1 | 173.3 | 138.1 | 35.2 | 28.0 | 7.2 | 0 | NA | P | 10 | 90 | NA | NA | U | Y | Y | Y | GB | GB | TILL |
| 18771 | 8.1 | 0.6 | 7.5 | 112.8 | 77.5 | 35.3 | 27.4 | 7.9 | 0 | NA | P | 40 | 60 | NA | NA | U | Y | Y | Y | GY | GY | TILL |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | NUMBER OF GRAINS: ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18768 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18771 | N | NO VISIBLE GOLD | | | | | | | | | | | |

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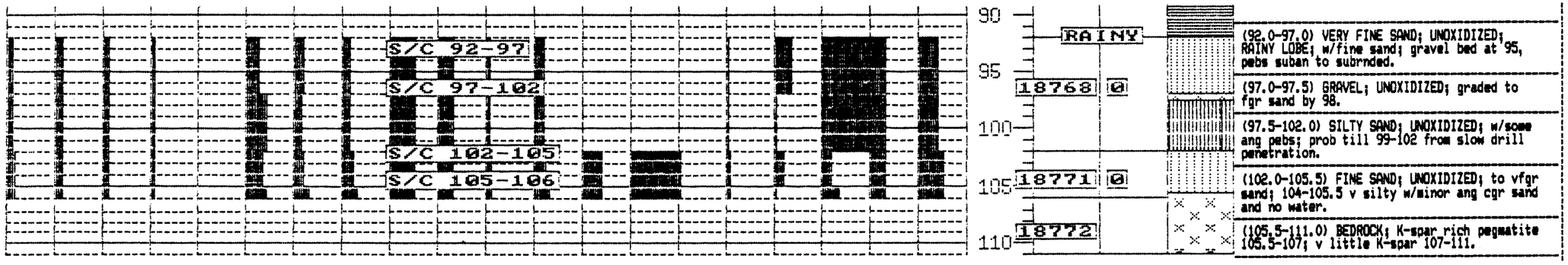
FIELDNOTE SUMMARY LOG OB-10704, AIR ROTARY

# OB-10704

Appendix 8-26B.

| IN NON MAG HMC | | | | | IN -63 MICRON | | | | | | | IN MAG FRAC | | | NON MAG -63 | | -63 NON MAG HMC | MAG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ^200 As | ^600 Cu | ^5 Sb | ^25 Mo | ^6000 Ba | ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 Fe% | ^500 Ni | ^50 Pb | ^100 Mo | ^500 Au | ^20 Au | ^100 g/kg | ^10 g/kg | ^2 g/kg |
| | | | | | | | | | | | | | | | | | | | |

| (FEET) | HMC SAMPLE # | HMC # GOLD GRAINS INDICATORS DES | HMC # GOLD GRAINS INDICATORS MOIMES | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|---|---|
| 5 | | | | | (0.0-8.0) CLAY; OXIDIZED; lake sediment; 6 inches clayey fill at 5-5.5. |
| 10 | | | | | |
| 15 | | | | | (8.0-19.0) CLAYEY TILL; OXIDIZED; 14-15.5 w/more grit and cgr; more sand w/depth; gradual change 12-19 to UNOXIDIZED. |
| 20 | | | | | |
| 25 | | | | | |
| 30 | | | | | |
| 35 | | | | | |
| 40 | | | | | (19.0-59.0) CLAYEY TILL; UNOXIDIZED; 19-23 sandy; 26-33 decreasing sand, some pebs up to 3/4 inch ; 56-59 v clayey, trans to lake clay. |
| 45 | | | | | |
| 50 | | | | | |
| 55 | | | | | |
| 60 | | | | | |
| 65 | | | | | |
| 70 | | | | | |
| 75 | | | | | |
| 80 | | | | | (59.0-92.0) CLAY; UNOXIDIZED; lake sed; at 66 some sand; at 70 vcgr sand, mostly ls; 84-89 w/some ls gnls & pebs; 90 w/wood fragments. |
| 85 | | | | | |


S/C 92-97
S/C 97-102
S/C 102-105
S/C 105-106
90
95
100
105
110
RAINY
18768
18771
18772
(92.0-97.0) VERY FINE SAND; UNOXIDIZED; RAINY LOBE; w/fine sand; gravel bed at 95, pebs suban to subrnded.
(97.0-97.5) GRAVEL; UNOXIDIZED; graded to fgr sand by 98.
(97.5-102.0) SILTY SAND; UNOXIDIZED; w/some ang pebs; prob till 99-102 from slow drill penetration.
(102.0-105.5) FINE SAND; UNOXIDIZED; to vfgr sand; 104-105.5 v silty w/minor ang cgr sand and no water.
(105.5-111.0) BEDROCK; K-spar rich pegmatite 105.5-107; v little K-spar 107-111.

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY DESC | LEGAL | | | COUNTY | DRIFT TYPE | ASSAY FTS | GOLD GRAINS | WT (g) HVC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63um | WT (g) -63FEED | WT % -63um | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18767 | 10704 | 92-97 | 5. | A | L | SW-SW | 17 | 68 | 24 | K | RL. F. TO V.F. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 214.8 | 1174.0 | 18 | -1 | -1 | |
| 18768 | 10704 | 97-102 | 5. | A | L | SW-SW | 17 | 68 | 24 | K | RL. GVL. SAND | 92-102 | 0.0 | 9500.0 | 400.0 | 28.0 | 7.2 | 284.8 | 2130.0 | 13 | 4 | 83 | |
| 18769 | 10704 | 102-105 | 3. | A | L | SW-SW | 17 | 68 | 24 | K | RL. F. TO V.F. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 57.8 | 2739.0 | 2 | -1 | -1 | |
| 18771 | 10704 | 105-106 | 1. | A | L | SW-SW | 17 | 68 | 24 | K | RL. SANDY GVL. TILL | 102-106 | 0.0 | 8100.0 | 500.0 | 27.4 | 7.9 | 79.2 | 2133.0 | 4 | 7 | 89 | |
| 18772 | 10704 | 106-111 | 5. | A | L | SW-SW | 17 | 68 | 24 | K | BEDROCK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | PB | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18768 | 15 | 0.35 | 730 | 340 | 395 | 20.00 | 120 | 130 | 94 | 210 | 28 | 27 | -10 | -2 | 1.0 | -5 | 210 | 0.5 | -100 | 390 | 140 | 8 | 24 | 11 | 0 | 94.5 | 23.0 | 3 | 20.16 |
| 18771 | 32 | 0.25 | 740 | 370 | 408 | 23.00 | 160 | 140 | 102 | 230 | 30 | 31 | -10 | -2 | 1.4 | -5 | 210 | 0.5 | -100 | 390 | 140 | 9 | 85 | 11 | 0 | 105.0 | 22.0 | 3 | 19.37 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18771 | 0.328 | 6.74 | 3383 | 197 | 14 | 406 | 2 | 3 | -0.5 | 360 | 1.0 |

-63um ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | V | CR | MN | FE % | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18767 | 7 | 87 | 39 | 423 | 1.91 | 9 | 17 | 19 | 29 | 9 | -5 | 3 | -0.5 | -1 | 199 | -5 | -10 | -10 | 15 | 3 | -10 | 183.0 |
| 18768 | 1 | 95 | 37 | 477 | 2.07 | 9 | 17 | 17 | 25 | 13 | -5 | 3 | -0.5 | -1 | -10 | 5 | -10 | -10 | 17 | 5 | -10 | 133.7 |
| 18769 | 4 | 98 | 41 | 545 | 2.37 | 11 | 23 | 21 | 31 | 11 | -5 | 3 | -0.5 | -1 | -10 | 5 | -10 | -10 | 17 | -2 | -10 | 21.1 |
| 18771 | -1 | 125 | 51 | 629 | 3.03 | 17 | 31 | 33 | 39 | 13 | -5 | 3 | -0.5 | -1 | -10 | -5 | -10 | 47 | 17 | 5 | -10 | 37.1 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18772 | 4 | 0.2 | 1.9 | 800 | 2.9 | -5 | 83.0 | 5.1 | 330 | 32 | 1 | 5 | -50 | 5.3 | 52 | 0.2 | -1 | 99 | 110 | 7.10 | 18.0 | -5 | -2 | 2.20 | 1.1 | -10 | 0.8 | 11.0 | -100 | 3 | 3.1 | -2 | 120 | 400 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FED % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18772 | 15 | 4 | 126 | 250 | 0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Appendix 8-27A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-10901

Drilling Completion Date 7/30/87

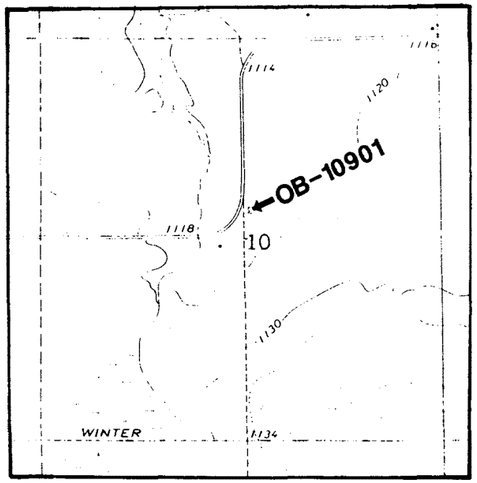
LOCATION (see map at right)

S-T-R SW¼-NE¼-10-69N-23W

County Koochiching

Quadrangle Ericsburg 7.5

Regional Survey Area Littlefork




HOLE PARAMETERS

Surface Elevation 1118 ft.

Total Depth 140 ft.

Elevation, Top of Precambrian Bedrock 984 ft.

Drilling Method Air Rotary

Sample Diameter 6 inch

Sample Collection Method Slurry: Splitter & Buckets

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-10 | Organic Sediments | | | |
| 10-113 | Des Moines Lobe Gl. Drift | | | |
| 113-134 | Rainy Lobe Gl. Drift | E,F | A,B,C | A = Au<br>B = Au |
| 134-140 | Bedrock | E,F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Metagraywacke

Thin Section Description:



# HEAVY MINERAL CONCENTRATE REPORT

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18842 | 9.1 | 0.2 | 8.9 | 58.8 | 26.4 | 32.4 | 23.6 | 8.8 | 0 | NA | P | 5 | 95 | NA | NA | S | FM | Y | Y | G | G | SAND |
| 18844 | 7.4 | 0.7 | 6.7 | 150.4 | 72.2 | 78.2 | 62.4 | 15.8 | 0 | NA | P | 5 | 95 | NA | NA | S | FM | Y | Y | G | G | SAND |
| 18845 | 9.4 | 1.3 | 8.1 | 239.6 | 139.5 | 100.1 | 80.3 | 19.8 | 0 | NA | P | 10 | 90 | NA | NA | U | Y | Y | Y | G | G | TILL |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

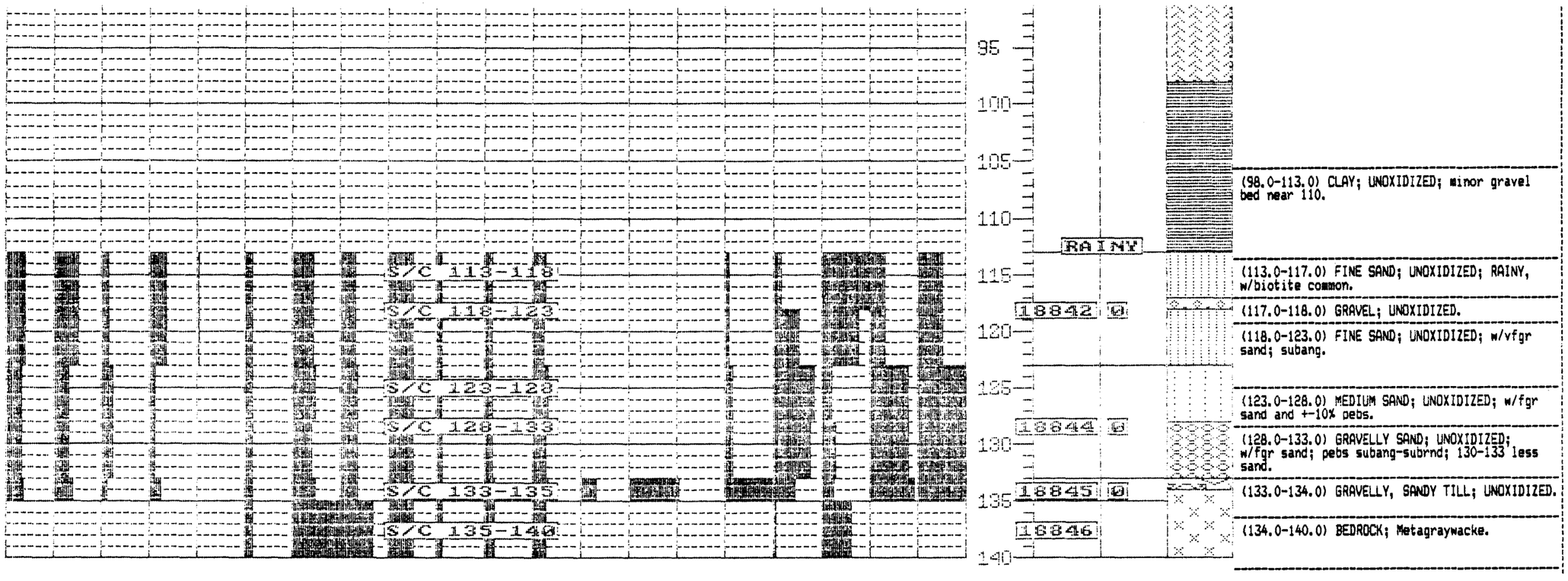
| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18842 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18844 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18845 | N | NO VISIBLE GOLD | | | | | | | | | | | |

FIELDNOTE SUMMARY LOG OB-10901, AIR ROTARY

# OB-10901

Appendix 8-27B.

| [ IN NON MAG HMC | | | | | ][ IN -63 MICRON | | | | | | | ][ IN MAG FRAC | | | ] NON MAG -63 | | -63 NON MAG HMC | MAG | (FEET) | HMC SAMPLE # | HMC # GOLD GRAINS; INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ^200 As | ^600 Cu | ^5 Sb | ^25 Mo | ^6000 Ba | ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 Fe% | ^500 Ni | ^50 Pb | ^100 Mo | ^500 Au | ^20 Au | ^100 g/kg | ^10 g/kg | ^2 g/kg | | | | | |
| | | | | | | | | | | | | | | | | | | | | 0 | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | (0.0-10.0) ORGANIC SEDIMENTS; w/wood fragments. |
| | | | | | | | | | | | | | | | | | | | | 10 | | DES MOINES | | |
| | | | | | | | | | | | | | | | | | | | | | | | | (10.0-15.0) CLAY; OXIDIZED; 10-12 trans from peat to buff clay; w/minor sm pebs, some ls; 14-15 trans to UNOXIDIZED. |
| | | | | | | | | | | | | | | | | | | | | 15 | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | (15.0-19.0) CLAY; UNOXIDIZED; occ small ls clasts. |
| | | | | | | | | | | | | | | | | | | | | 20 | | | | |
| | | | | | | | | | | | | | | | | | | | | 25 | | | | |
| | | | | | | | | | | | | | | | | | | | | 30 | | | | |
| | | | | | | | | | | | | | | | | | | | | 35 | | | | |
| | | | | | | | | | | | | | | | | | | | | 40 | | | | |
| | | | | | | | | | | | | | | | | | | | | 45 | | | | |
| | | | | | | | | | | | | | | | | | | | | 50 | | | | |
| | | | | | | | | | | | | | | | | | | | | 55 | | | | |
| | | | | | | | | | | | | | | | | | | | | 60 | | | | |
| | | | | | | | | | | | | | | | | | | | | 65 | | | | |
| | | | | | | | | | | | | | | | | | | | | 70 | | | | |
| | | | | | | | | | | | | | | | | | | | | 75 | | | | |
| | | | | | | | | | | | | | | | | | | | | 80 | | | | |
| | | | | | | | | | | | | | | | | | | | | 85 | | | | |
| | | | | | | | | | | | | | | | | | | | | 90 | | | | (19.0-98.0) CLAYEY TILL; UNOXIDIZED; w/minor sand & ls pebs; 62-98 increasing clay content, v clayey w/less sand and smaller pebs than above. |


S/C 113-118
S/C 118-123
S/C 123-128
S/C 128-133
S/C 133-135
S/C 135-140
95
100
105
110
115
120
125
130
135
140
RAINY
18842 0
18844 0
18845 0
18846
(98.0-113.0) CLAY; UNOXIDIZED; minor gravel bed near 110.
(113.0-117.0) FINE SAND; UNOXIDIZED; RAINY, w/biotite common.
(117.0-118.0) GRAVEL; UNOXIDIZED.
(118.0-123.0) FINE SAND; UNOXIDIZED; w/vfgr sand; subang.
(123.0-128.0) MEDIUM SAND; UNOXIDIZED; w/fgr sand and +-10% pebs.
(128.0-133.0) GRAVELLY SAND; UNOXIDIZED; w/fgr sand; pebs subang-subrnd; 130-133 less sand.
(133.0-134.0) GRAVELLY, SANDY TILL; UNOXIDIZED.
(134.0-140.0) BEDROCK; Metagraywacke.

**Appendix 8-27C.**

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63um | WT (g) -63FEED | WT % -63um | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18839 | 10901 | 113-118 | 5. | A | L | SW-NE | 10 | 69 | 23 | K | RL. F. TO V.F. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 200.8 | 2037.0 | 10 | -1 | -1 | |
| 18842 | 10901 | 118-123 | 5. | A | L | SW-NE | 10 | 69 | 23 | K | RL. F. TO V.F. SAND | 113-123 | 0.0 | 9100.0 | 200.0 | 23.6 | 8.8 | 214.8 | 2891.0 | 7 | 2 | 91 | |
| 18843 | 10901 | 123-128 | 5. | A | L | SW-NE | 10 | 69 | 23 | K | RL. F. TO V.F. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 60.7 | 2773.0 | 2 | -1 | -1 | |
| 18844 | 10901 | 128-133 | 5. | A | L | SW-NE | 10 | 69 | 23 | K | RL. GVL. SAND | 123-133 | 0.0 | 7400.0 | 700.0 | 62.4 | 15.8 | 100.7 | 3633.0 | 3 | 9 | 88 | |
| 18845 | 10901 | 133-135 | 2. | A | L | SW-NE | 10 | 69 | 23 | K | RL. GVL. SAND | 133-135 | 0.0 | 9400.0 | 1300.0 | 80.3 | 19.8 | 94.5 | 4099.0 | 2 | 14 | 84 | |
| 18846 | 10901 | 135-140 | 5. | A | L | SW-NE | 10 | 69 | 23 | K | BEDROCK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 99.3 | 1676.0 | 6 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18842 | 48 | -0.59 | 900 | 360 | 874 | 26.00 | 280 | 260 | 315 | -200 | 80 | 82 | -22 | -9 | 0.5 | -15 | -470 | 0.9 | -230 | 512 | 190 | 13 | -31 | 35 | 0 | 166.0 | 40.0 | 3 | 17.90 |
| 18844 | 84 | -0.29 | 390 | 220 | 1156 | 24.00 | 220 | 200 | 203 | -200 | 71 | 61 | -10 | 3 | 0.6 | -5 | -200 | 1.2 | -100 | 180 | 86 | 10 | -24 | 20 | 0 | 56.3 | 18.0 | 8 | 47.60 |
| 18845 | 1800 | -0.27 | 320 | 250 | 1634 | 25.00 | 240 | 220 | 233 | -200 | 63 | 68 | -10 | -6 | 0.5 | -5 | -200 | 0.7 | -100 | 150 | 66 | 10 | -23 | 22 | 0 | 44.0 | 15.0 | 9 | 61.22 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18845 | 0.567 | 3.20 | 1974 | 170 | 86 | 306 | -5 | 4 | -0.5 | 255 | 2.1 |

-63um ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | V | CR | MN | FE % | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18839 | 3 | 56 | 55 | 600 | 2.72 | 13 | 33 | 45 | 47 | -5 | -5 | -1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 11 | 5 | -10 | 98.6 |
| 18842 | 10 | 51 | 47 | 557 | 2.54 | 11 | 31 | 43 | 45 | -5 | -5 | -1 | -0.5 | -1 | -10 | -5 | -10 | -10 | -5 | 3 | -10 | 74.3 |
| 18843 | 17 | 64 | 59 | 620 | 3.00 | 13 | 35 | 47 | 47 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 5 | -2 | -10 | 21.9 |
| 18844 | 15 | 52 | 51 | 551 | 2.72 | 13 | 35 | 41 | 45 | -5 | -5 | -1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 5 | -2 | -10 | 27.7 |
| 18845 | 9 | 71 | 57 | 606 | 3.06 | 15 | 37 | 47 | 55 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 11 | -2 | -10 | 23.1 |
| 18846 | -1 | 54 | 51 | 447 | 2.96 | 33 | 69 | 103 | 63 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | 45 | 21 | 3 | -10 | 59.2 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18846 | -2 | 0.2 | 0.7 | 1200 | 4.0 | -5 | 80.0 | 4.4 | 220 | 25 | -1 | 4 | -50 | 4.2 | 41 | -0.2 | 2 | 89 | 94 | 5.90 | 9.1 | -5 | -2 | 3.39 | 0.6 | -10 | -0.5 | 7.7 | -100 | 27 | 2.6 | -2 | -100 | 230 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18846 | 29 | 4 | 86 | 410 | -0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Appendix 8-28A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-10902

Drilling Completion Date 8/3/87

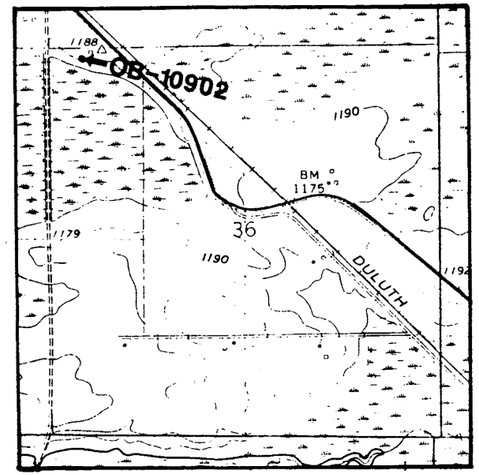
LOCATION (see map at right)

S-T-R NW¼-NW¼-36-69N-23W

County Koochiching

Quadrangle Ray 7.5

Regional Survey Area Littlefork




HOLE PARAMETERS

Surface Elevation 1175 ft.

Total Depth 62.5 ft.

Elevation, Top of Precambrian Bedrock 118.5 ft.

Drilling Method Air Rotary

Sample Diameter 6 inch

Sample Collection Method Slurry: Splitter & Buckets

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-9 | Organic Sediments | | | |
| 9-56 | Des Moines Lobe Gl. Drift | | | |
| 56-56.5 | Rainy Lobe | E,F | A,B,C | |
| 56.5-62.5 | Bedrock | E,F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Granitic Migmatite

Thin Section Description:



# HEAVY MINERAL CONCENTRATE REPORT

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

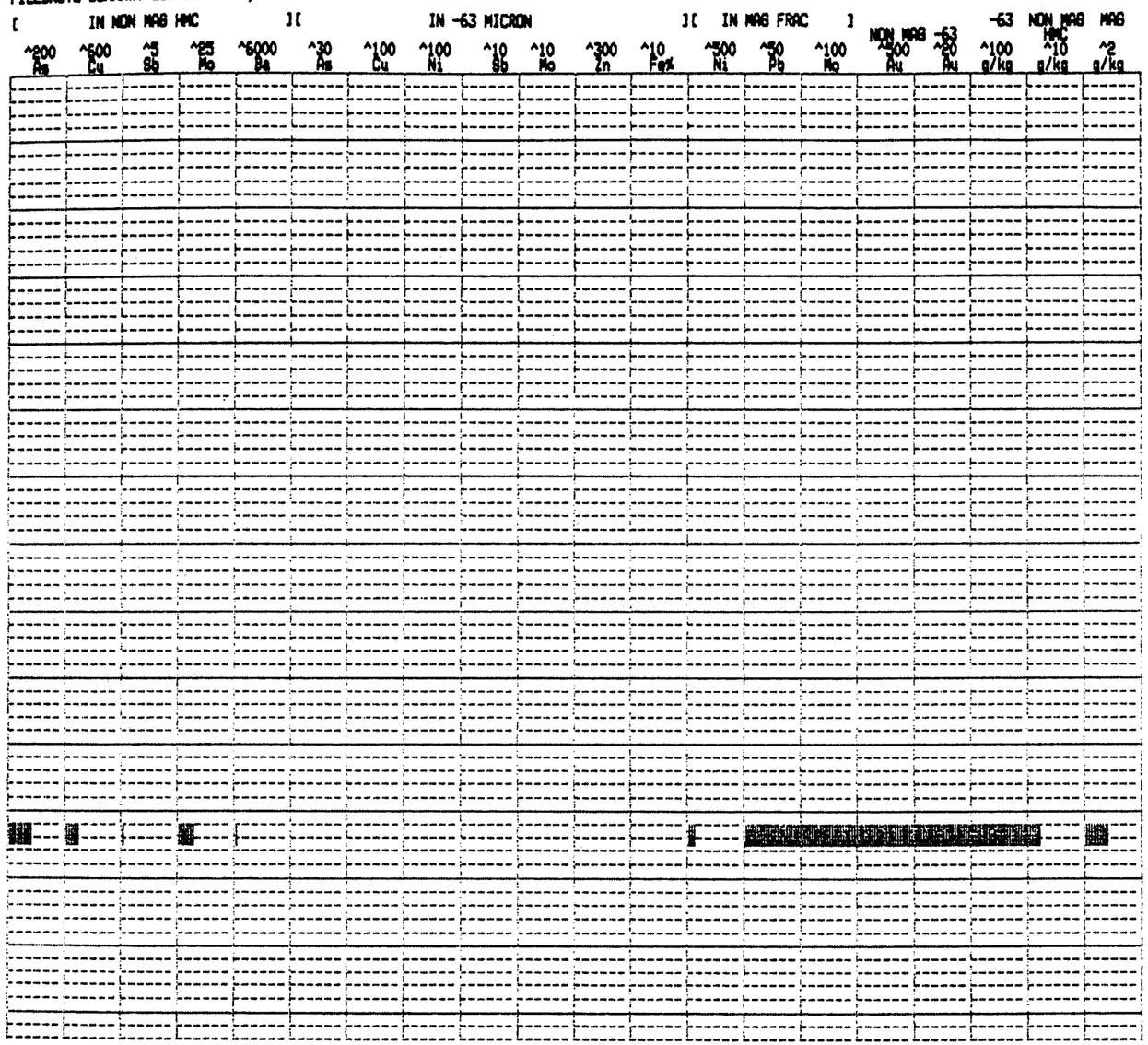
| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | MATRIX | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18847 | 12.8 | 2.9 | 9.9 | 117.0 | 88.4 | 28.6 | 18.1 | 10.5 | 0 | NA | P | 1 | 99 | NA | NA | U | Y | Y | Y | G | G | TILL |

GOLD CLASSIFICATION

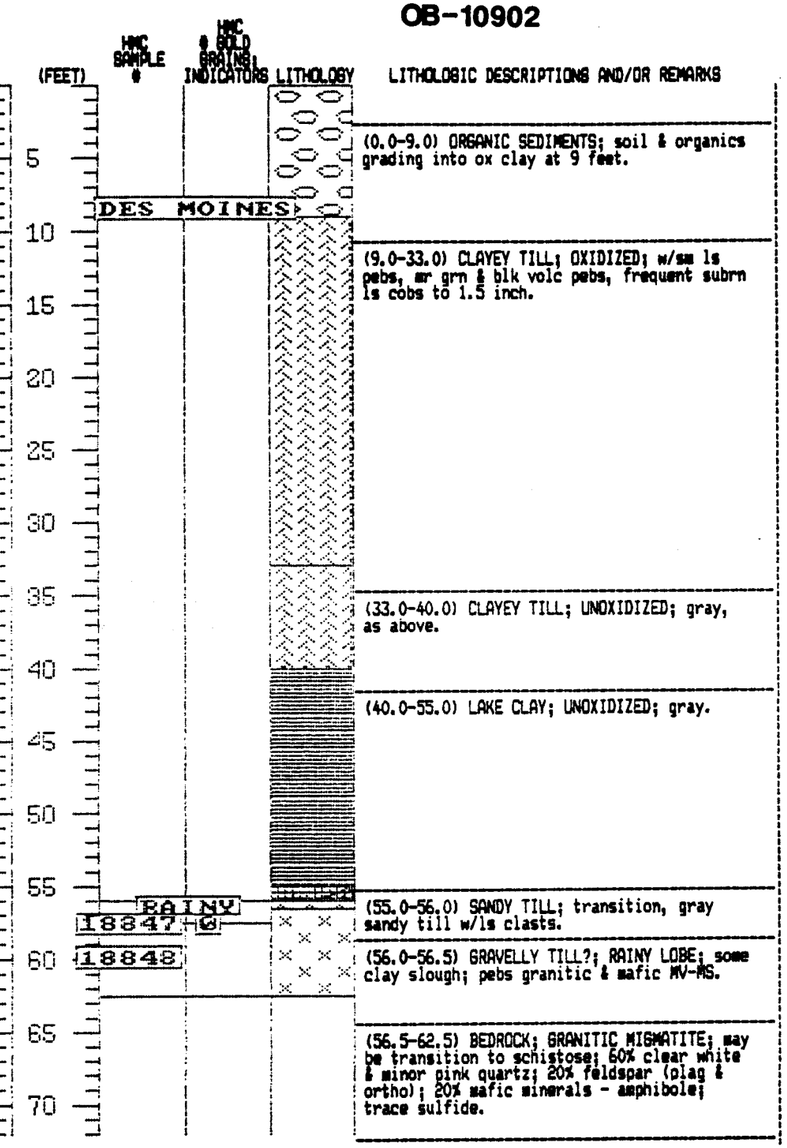
VISIBLE GOLD FROM SHAKING TABLE AND PANNING

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | NUMBER OF GRAINS: ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18847 | N | NO VISIBLE GOLD | | | | | | | | | | | |

FIELDNOTE SUMMARY LOG OB-10902, AIR ROTARY




# OB-10902




LITHOLOGIC DESCRIPTIONS AND/OR REMARKS

(0.0-9.0) ORGANIC SEDIMENTS; soil & organics grading into ox clay at 9 feet.

(9.0-33.0) CLAYEY TILL; OXIDIZED; w/ss ls pebs, mr grn & blk volc pebs, frequent subrn ls cobs to 1.5 inch.

(33.0-40.0) CLAYEY TILL; UNOXIDIZED; gray, as above.

(40.0-55.0) LAKE CLAY; UNOXIDIZED; gray.

(55.0-56.0) SANDY TILL; transition, gray sandy till w/ls clasts.

(56.0-56.5) GRAVELLY TILL?; RAINY LOBE; some clay slough; pebs granitic & mafic MV-MS.

(56.5-62.5) BEDROCK; GRANITIC MIGMATITE; may be transition to schistose; 60% clear white & minor pink quartz; 20% feldspar (plag & ortho); 20% mafic minerals - amphibole; trace sulfide.

Appendix 8-28B.

**Appendix 8-28C.**

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18847 | 10902 | 56-57.5 | 1.5 | A | L | NW-NW | 36 | 69 | 23 | K | RL. SANDY GVL. TILL | 56-57.5 | 0.0 | 12800.0 | 2900.0 | 18.1 | 10.5 | -1.0 | -1.0 | -1.0 | -1 | 23 | -1 | |
| 18848 | 10902 | 57.5-62.5 | 5. | A | L | NW-NW | 36 | 69 | 23 | K | BEDROCK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18847 | 120 | -0.57 | 1080 | 330 | 818 | 27.00 | 170 | 98 | 155 | 300 | 84 | 79 | -10 | -7 | 0.2 | -14 | -410 | -0.2 | -210 | 591 | 170 | 16 | 110 | 25 | 0 | 230.0 | 36.0 | 1 | 13.16 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18847 | 0.326 | 2.93 | 677 | 56 | 32 | 243 | -5 | -1 | -0.5 | 260 | 0.8 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18848 | -2 | -0.1 | -0.5 | 1900 | -2.0 | -5 | 130.0 | 4.0 | 150 | 25 | 2 | 4 | -50 | 3.8 | 63 | -0.2 | -1 | 120 | 100 | 11.00 | 7.0 | -5 | -2 | 2.75 | 0.6 | -10 | 1.0 | 10.0 | -100 | 13 | 2.4 | -2 | -100 | 330 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18848 | 4 | 4 | 66 | 320 | -0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**Appendix 8-29A.** DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-11006

Drilling Completion Date 8/6/87

LOCATION (see map at right)

S-T-R NW¼-SE¼-9-68N-24W

County Koochiching

Quadrangle Ericsburg N.W. 7.5

Regional Survey Area Littlefork

HOLE PARAMETERS

Surface Elevation 1158 ft.

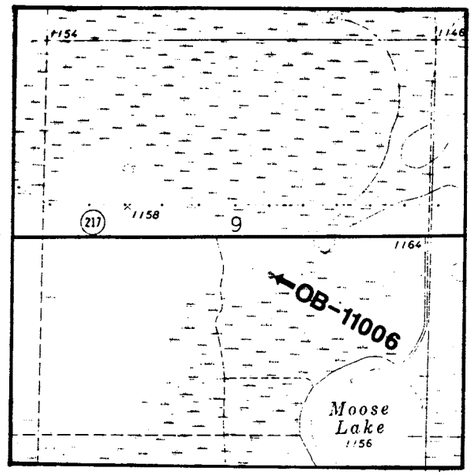
Total Depth 51 ft.

Elevation, Top of Precambrian Bedrock 1113 ft.

Drilling Method Air Rotary

Sample Diameter 6 inch

Sample Collection Method Slurry: Splitter & Buckets




SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-8 | Organic Sediments | | | |
| 8-39 | Des Moines Lobe Gl. Drift | | | |
| 39-45 | Rainy Lobe Gl. Drift | E,F | A,B,C | B = As |
| 45-51 | Bedrock | E,F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Schist-Rich Migmatite

Thin Section Description:



# HEAVY MINERAL CONCENTRATE REPORT

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18851 | 9.7 | 4.2 | 5.5 | 65.2 | 42.6 | 22.6 | 14.5 | 8.1 | 0 | NA | P | 10 | 90 | NA | NA | U | Y | Y | Y | B | B | TILL |
| 18852 | 10.4 | 2.4 | 8.0 | 160.7 | 113.5 | 47.2 | 36.8 | 10.4 | 0 | NA | P | 30 | 70 | NA | NA | U | Y | Y | Y | B | B | TILL |

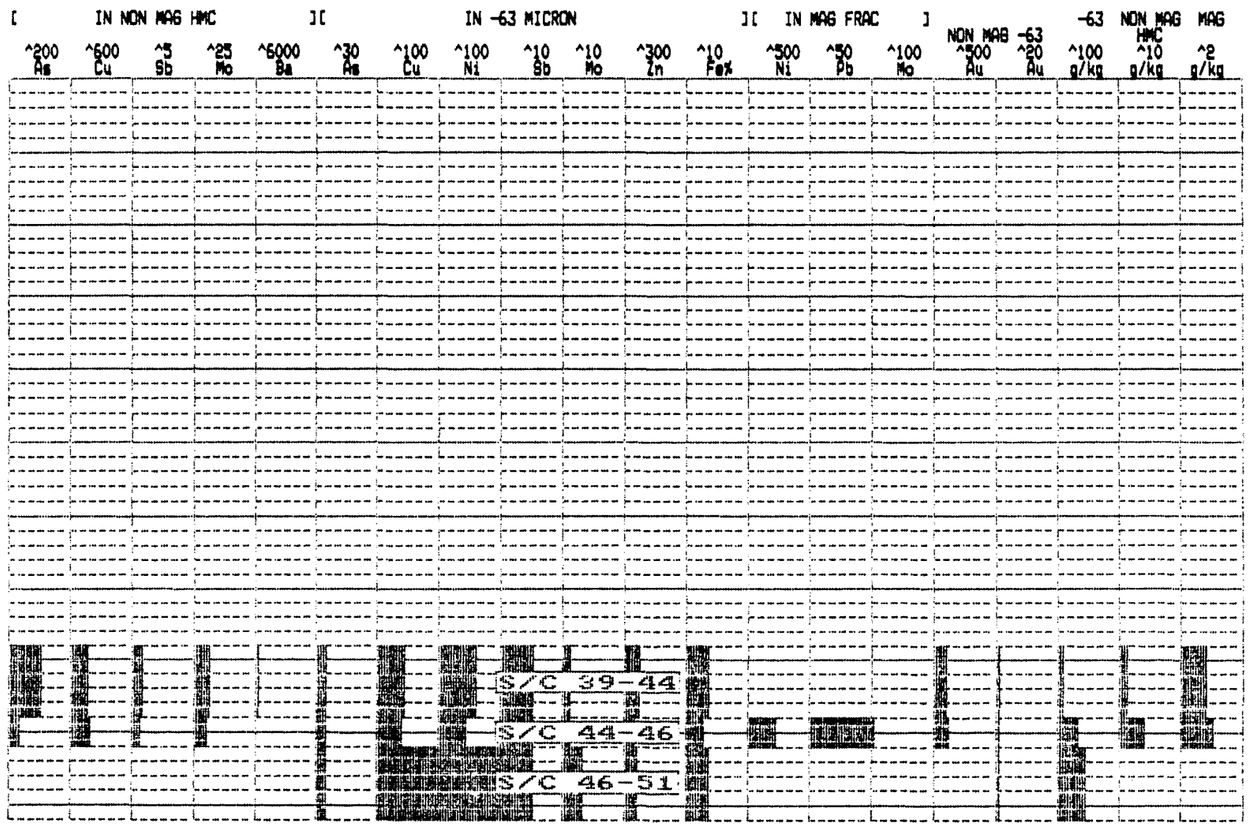
GOLD CLASSIFICATION

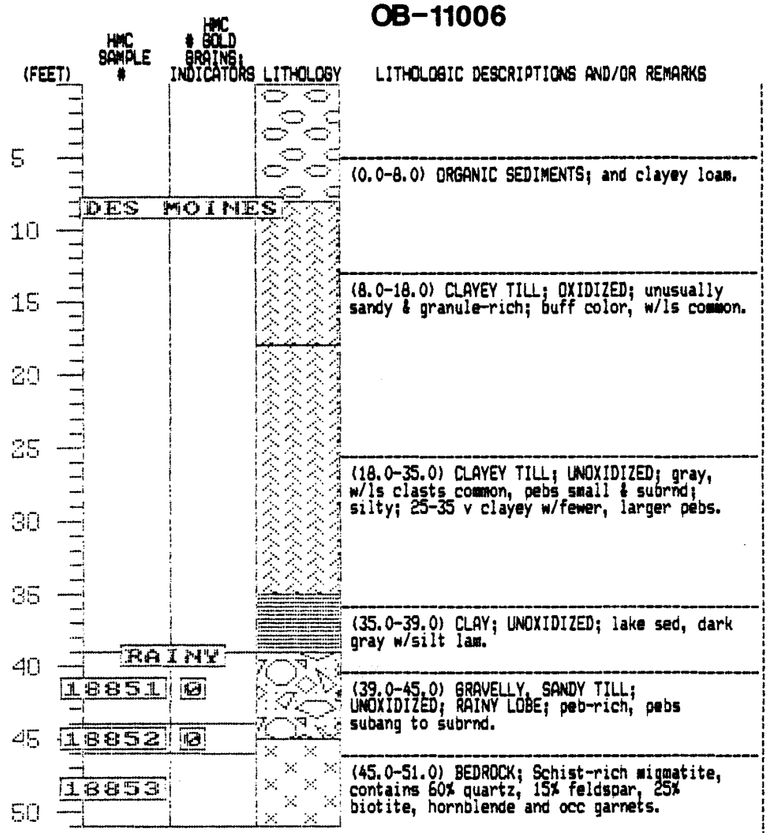
VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18851 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18852 | N | NO VISIBLE GOLD | | | | | | | | | | | |

FIELDNOTE SUMMARY LOG OB-11006, AIR ROTARY




Appendix 8-30B.

**Appendix 8-29C.**

MASTER FILE

| SAMPLE NUMBER | JOB NUMBER | SAMPLE INTERVAL | ST | D | B | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18851 | 11006 | 39-44 | 5. | A | L | NW-SE | 9 | 68 | 24 | K | RL. SANDY GVL. TILL | 39-44 | 0.0 | 9700.0 | 4200.0 | 14.5 | 8.1 | 19.0 | 2362.0 | 1 | 43 | 56 | |
| 18852 | 11006 | 44-46 | 2. | A | L | NW-SE | 9 | 68 | 24 | K | RL. SANDY GVL. TILL | 44-46 | 0.0 | 10400.0 | 2400.0 | 36.8 | 10.4 | 72.5 | 2284.0 | 3 | 23 | 74 | |
| 18853 | 11006 | 46-51 | 5. | A | L | NW-SE | 9 | 68 | 24 | K | BEDROCK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 100.3 | 2351.0 | 4 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | SE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18851 | 99 | -0.34 | +10 | 440 | 1044 | 25.00 | 230 | 130 | 166 | -200 | 22 | 105 | -10 | -6 | -0.2 | -11 | -200 | 0.9 | 340 | 210 | 84 | 9 | 140 | 18 | 0 | 92.8 | 13.0 | 1 | 11.18 |
| 18852 | 120 | -0.35 | 620 | 330 | 1134 | 26.00 | 260 | 340 | 194 | -200 | 49 | 30 | -10 | -5 | 0.2 | -11 | -200 | 0.5 | -100 | 330 | 79 | 9 | 57 | 20 | 0 | 92.8 | 13.0 | 4 | 28.28 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18852 | 0.601 | 5.54 | 1755 | 218 | 98 | 370 | -5 | 3 | -0.5 | 244 | 1.0 |

-63uM ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | V | CR | MN | FE % | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18851 | 1 | 99 | 73 | 690 | 3.76 | 15 | 59 | 45 | 67 | -5 | 10 | 1 | -0.5 | -1 | -10 | -5 | -10 | 13 | 11 | 5 | -10 | 8.0 |
| 18852 | -1 | 67 | 57 | 696 | 2.88 | 15 | 45 | 41 | 45 | -5 | -5 | -1 | -0.5 | -1 | -10 | -5 | -10 | -10 | -5 | -2 | -10 | 31.7 |
| 18853 | -1 | 64 | 69 | 1257 | 3.78 | 31 | 111 | 123 | 63 | 5 | -5 | 3 | -0.5 | -1 | -10 | -5 | -10 | -10 | 15 | 3 | -10 | 42.7 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SR % | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18853 | -2 | -0.1 | -0.5 | 460 | 6.2 | -5 | 59.0 | 2.8 | 230 | 30 | -1 | 4 | -50 | 5.0 | 30 | -0.2 | -1 | 93 | 84 | 5.50 | 17.0 | -5 | -2 | 2.65 | 0.6 | -10 | 0.7 | 5.3 | -100 | -1 | 1.1 | -2 | -100 | 260 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FED % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18853 | 41 | 4 | 82 | 180 | -0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Appendix 8-30A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-11102

Drilling Completion Date 8/4/87

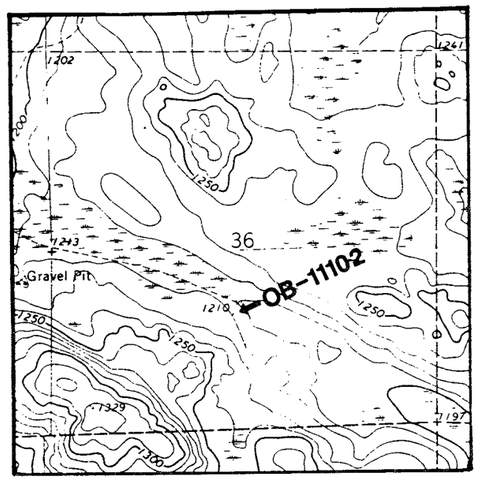
LOCATION (see map at right)

S-T-R NE¼-SW¼-36-68N-23W

County Koochiching

Quadrangle Ray S.W. 7.5

Regional Survey Area Littlefork




HOLE PARAMETERS

Surface Elevation 1213 ft.

Total Depth 43 ft.

Elevation, Top of Precambrian Bedrock 1176 ft.

Drilling Method Air Rotary

Sample Diameter 6 inch

Sample Collection Method Slurry: Splitter & Buckets

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-15 | Soil & Organic Seds. | | | |
| 15-35 | Des Moines Lobe Gl. Drift | | | |
| 35-37 | Rainy Lobe Gl. Drift | E,F | A,B,C | B = Cu |
| 37-43 | Bedrock | E,F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Granite-Rich Migmatite

Thin Section Description:



# HEAVY MINERAL CONCENTRATE REPORT

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | MATRIX | | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18849 | 8.1 | 1.3 | 6.8 | 47.0 | 32.4 | 14.6 | 9.8 | 4.8 | 0 | NA | P | 5 | 95 | NA | NA | U | Y | Y | Y | B | B | TILL |

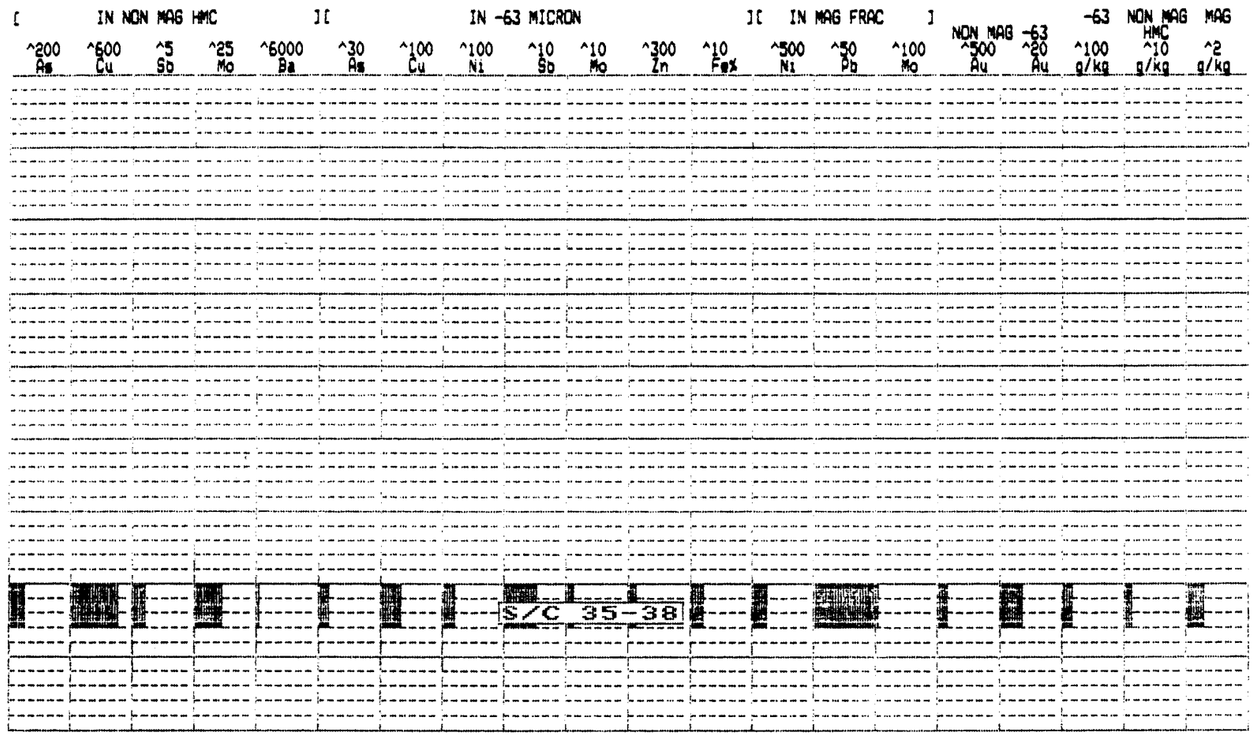
GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

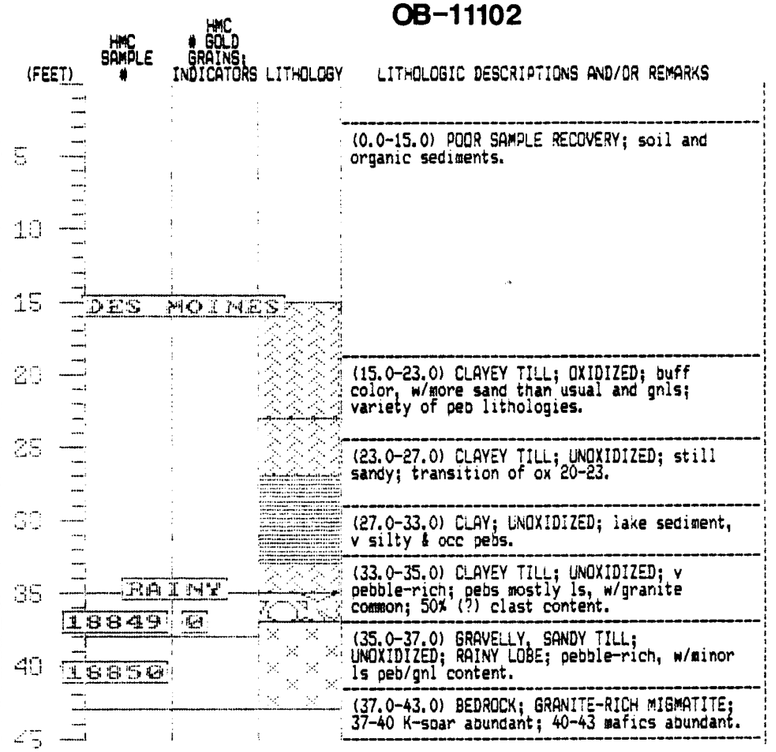
NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 849 | N | NO VISIBLE GOLD | | | | | | | | | | | |

FIELDNOTE SUMMARY LOG OB-11102, AIR ROTARY




## OB-11102




LITHOLOGIC DESCRIPTIONS AND/OR REMARKS

(0.0-15.0) POOR SAMPLE RECOVERY; soil and organic sediments.

(15.0-23.0) CLAYEY TILL; OXIDIZED; buff color, w/more sand than usual and gnls; variety of peb lithologies.

(23.0-27.0) CLAYEY TILL; UNOXIDIZED; still sandy; transition of ox 20-23.

(27.0-33.0) CLAY; UNOXIDIZED; lake sediment, v silty & occ pebs.

(33.0-35.0) CLAYEY TILL; UNOXIDIZED; v pebble-rich; pebs mostly ls, w/granite common; 50% (?) clast content.

(35.0-37.0) GRAVELLY, SANDY TILL; UNOXIDIZED; RAINY LOBE; pebble-rich, w/minor ls peb/gnl content.

(37.0-43.0) BEDROCK; GRANITE-RICH MIGMATITE; 37-40 K-spar abundant; 40-43 mafics abundant.

**Appendix 8-29B.**

**Appendix 8-30C.**

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY DESC | LEGAL | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18849 | 11102 | 35-38 | 3. | A | L | NE-SW | 36 | 68 | 23 | K | RL. SANDY GVL. TILL | 35-38 | 0.0 | 8100.0 | 1300.0 | 9.8 | 4.8 | 39.3 | 2203.0 | 2 | 16 | 82 | |
| 18850 | 11102 | 38-43 | 5. | A | L | NE-SW | 36 | 68 | 23 | K | BEDROCK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18849 | 72 | -0.92 | 2110 | 530 | 1050 | 24.00 | 260 | -83 | 450 | -200 | 50 | 44 | -31 | -11 | 0.6 | -17 | -550 | 1.0 | -290 | 1200 | 229 | 12 | 544 | 50 | 0 | 520.0 | 37.0 | 1 | 7.66 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18849 | 0.286 | 1.91 | 1032 | 114 | 100 | 238 | -5 | 2 | -0.5 | 264 | 0.6 |

-63uM ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | V | CR | MN | FE % | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18849 | 7 | 40 | 31 | 384 | 1.97 | 7 | 19 | 31 | 31 | -5 | -5 | -1 | -0.5 | -1 | -10 | -5 | -10 | 15 | 7 | 5 | -10 | 17.8 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | ABR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18850 | -2 | -0.1 | -0.5 | 1400 | -2.0 | -5 | 78.0 | 1.1 | 180 | 7 | -1 | 4 | -50 | 1.7 | 37 | -0.2 | -1 | 21 | 95 | 5.40 | 3.9 | -5 | -2 | 2.86 | -0.5 | -10 | -0.5 | 12.0 | -100 | 4 | 1.0 | -2 | -100 | -200 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18850 | 16 | 4 | 45 | 140 | 0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**Appendix 8-31A.** DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-202

Drilling Completion Date 12/13/85

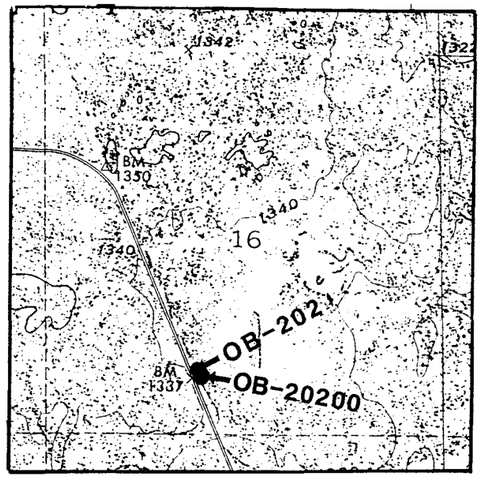
LOCATION (see map at right)

S-T-R SE¼-SW¼-16-63N-23W

County Koochiching

Quadrangle Deer Lake N.E. 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1338 ft.

Total Depth 128 ft.

Elevation, Top of Precambrian Bedrock 1215 ft.

Drilling Method Rotasonic

Sample Diameter 3.5 inch

Sample Collection Method Core: Sleeved & Boxed

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-69.5 | Des Moines Lobe Gl. Drift | G | A,B,C | |
| 69.5-123 | Rainy Lobe Gl. Drift | G | A,B,C | A = Au,W<br>B = Au,Cr |
| 123-128 | Bedrock | G,H | I | C = Ag,Zn |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Dacite Crystal Tuff

Thin Section Description: #13858 at 122 ft. boulder. Lamprophyre with biotite phenocrysts (relatively quartz-rich). Estimated mode (volume %): Biotite, 17; Chlorite, 13; Calcite, 20; Epidote, 1; Quartz, 10 or less; Feldspar, 39 or more; Opaques (martite), Tr; Pyrite, Tr. Rock consists of subhedral green biotite phenocrysts up to 5 mm long in a fine-grained matrix of quartz and feldspar (plagioclase + ?), calcite, biotite, chlorite, and epidote. The feldspar is heavily altered to the calcite-biotite-chlorite-epidote assemblage but shows remnant albite twinning and possible zonation. Some of the feldspar may be potassic but cannot ascertain. Very thin, needly inclusions of actinolite (?) are common within the feldspar. The hydrous nature of the constituent minerals and the high degree of deuteric alteration/saussuritization indicate that this rock has crystallized from a volatile-rich magma.



#13860 at 126 ft. Dacite crystal tuff. Estimated mode (volume %): Sericite, 9; Biotite (green), 1; Quartz phenocrysts, 3; Plagioclase phenocrysts, less than 1; Quartzo-feldspathic matrix, 87. Rock consists of 0.5 to 2 mm embayed unit-quartz crystals and less abundant 1 mm blocky plagioclase crystals in a fine-grained quartzofeldspathic matrix, which also contains foliated sericite and biotite. The matrix ranges from very fine-grained and cherty in appearance to 0.1 mm weakly granoblastic recrystallized grains. The unit-quartz phenocrysts are weakly strained and undulose, and the plagioclase crystals are moderately saussuritized. The sericite has a pale green pleochroism and possibly is Cr or V bearing. (By T. Boerboom, MGS)

## HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 16801 | 7.9 | 0.4 | 7.5 | 49.5 | 45.9 | 3.6 | 2.5 | 1.1 | 0 | NA | P/C | 55 | 10 | 30 | 5 | S | F | Y | Y | B | B | SAND |
| -804CP | 12.3 | 0.6 | 11.7 | 90.5 | 86.5 | 4.0 | 2.9 | 1.1 | 0 | NA | P | 60 | 10 | 20 | 10 | S | F | Y | Y | B | B | SAND |
| -816CP | 11.9 | 1.6 | 10.3 | 166.9 | 132.4 | 34.5 | 27.3 | 7.2 | 1 | 587 | P | 75 | 10 | 10 | 5 | U | Y | Y | Y | B | B | TILL |
| -818CP | 26.0 | 5.4 | 20.6 | 201.0 | 184.3 | 16.7 | 11.2 | 5.5 | 6 | 628 | C/P | 50 | 50 | NA | TR | U | Y | Y | Y | B | B | TILL |
| -820CP | 19.2 | 4.3 | 14.9 | 119.9 | 75.5 | 44.4 | 34.3 | 10.1 | 0 | NA | P/C | 60 | 40 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -822CP | 29.7 | 5.1 | 24.6 | 208.1 | 157.0 | 51.1 | 39.1 | 12.0 | 2 | 207 | P/C | 60 | 40 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -824CP | 29.3 | 3.7 | 25.6 | 218.6 | 149.3 | 69.3 | 51.3 | 18.0 | 1 | 56 | P/C | 60 | 40 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -825 | 7.9 | 1.5 | 6.4 | 90.4 | 66.9 | 23.5 | 19.3 | 4.2 | 0 | NA | P/C | 60 | 40 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -826 | 12.8 | 1.7 | 11.1 | 185.4 | 157.2 | 28.2 | 22.5 | 5.7 | 1 | 219 | P/C | 65 | 35 | NA | NA | U | Y | Y | Y | B | B | TILL |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABRADED T | ABRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16801 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -804 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -816 | N | 150 X 300 | 42 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | TOTAL | 1 | 27.3 | 587 | |
| -818 | Y | 50 X 75 | 13 C | 1 | | | | | | 1 | | | EST: 2% PYRITE |
| | | 75 X 100 | 18 C | 2 | 1 | | | | | 3 | | | |
| | | 75 X 150 | 22 C | | 1 | | | | | 1 | | | |
| | | 100 X 100 | 20 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | TOTAL | 6 | 11.2 | 628 | |
| -820 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -822 | N | 50 X 75 | 13 C | 1 | | | | | | 1 | | | |
| | | 150 X 200 | 34 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | TOTAL | 2 | 39.1 | 207 | |
| -824 | N | 100 X 150 | 25 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | TOTAL | 1 | 51.3 | 56 | |
| -825 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -826 | N | 100 X 200 | 29 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | TOTAL | 1 | 22.5 | 219 | |

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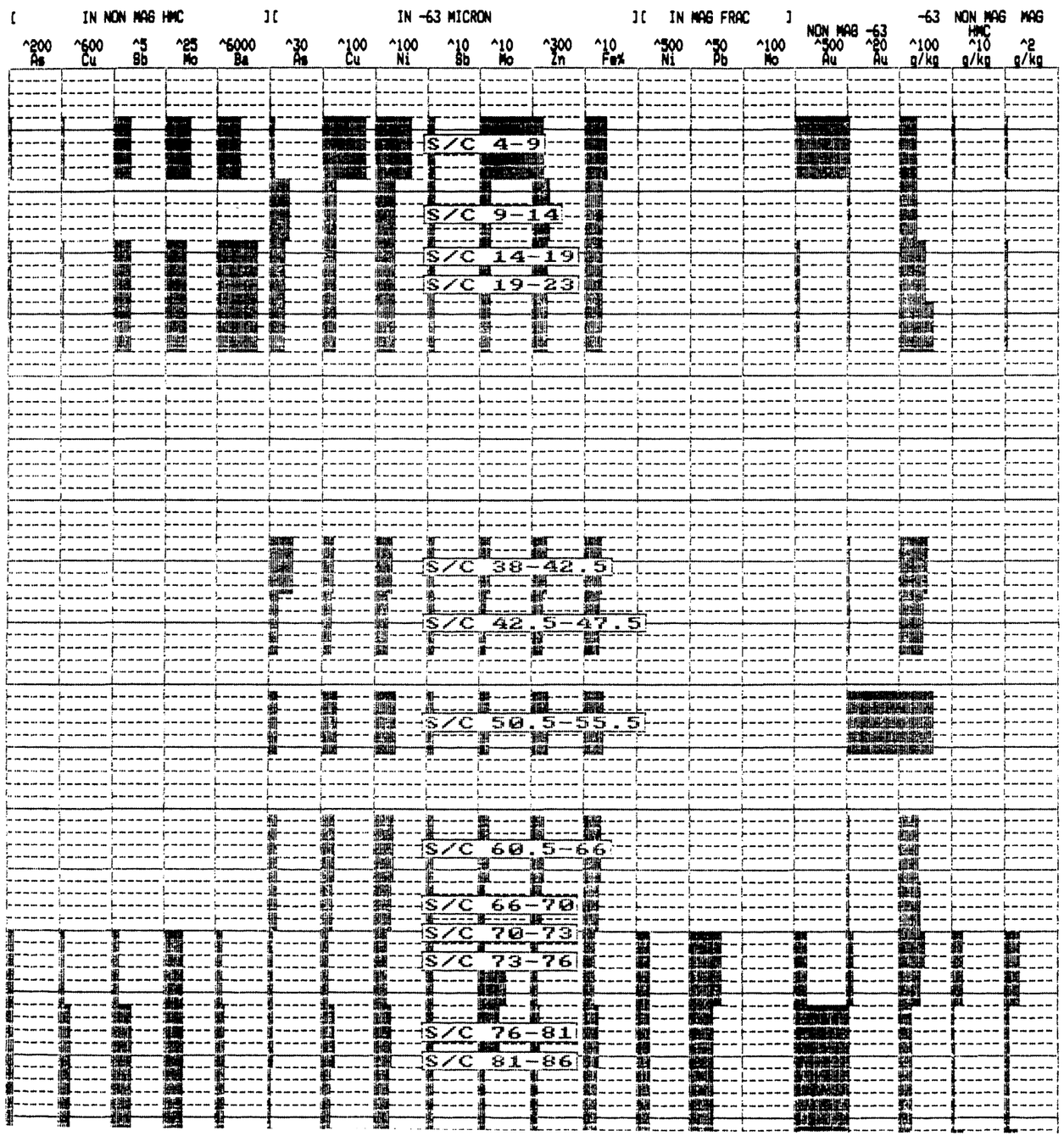
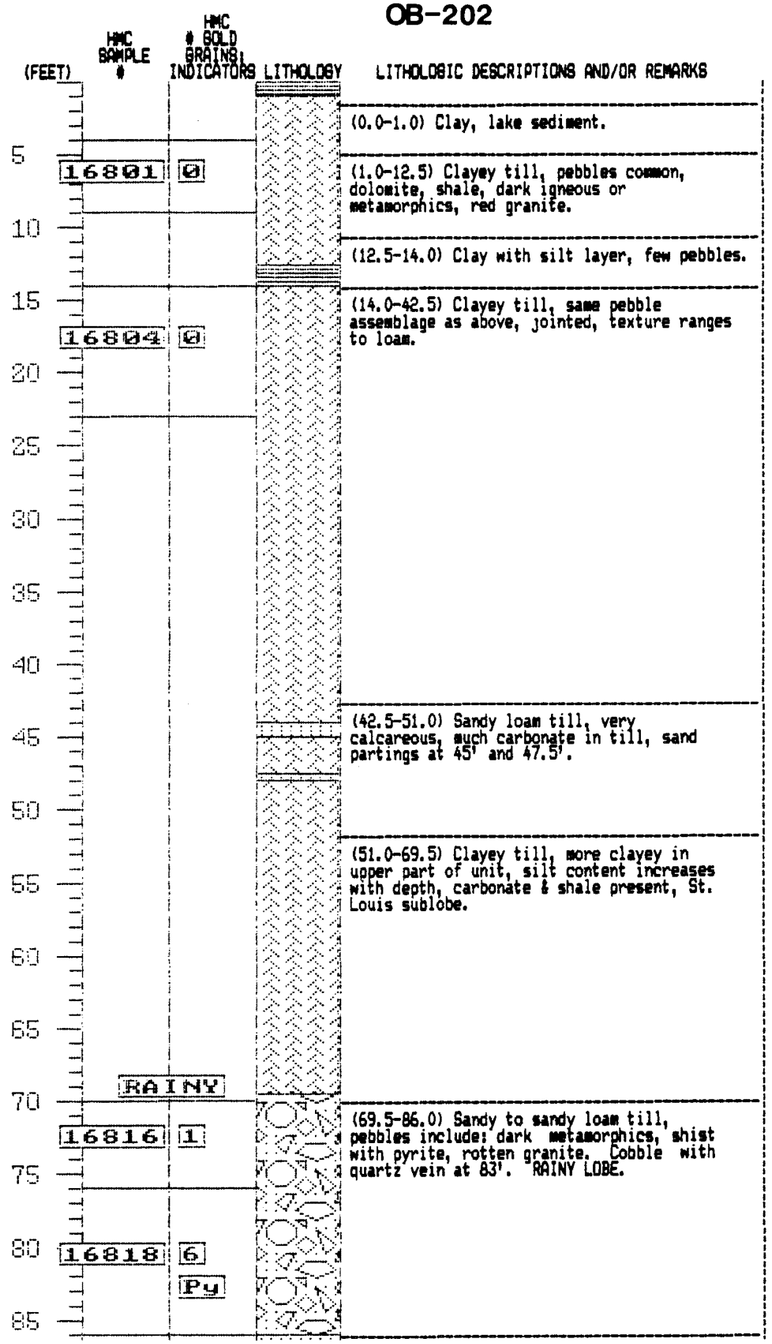
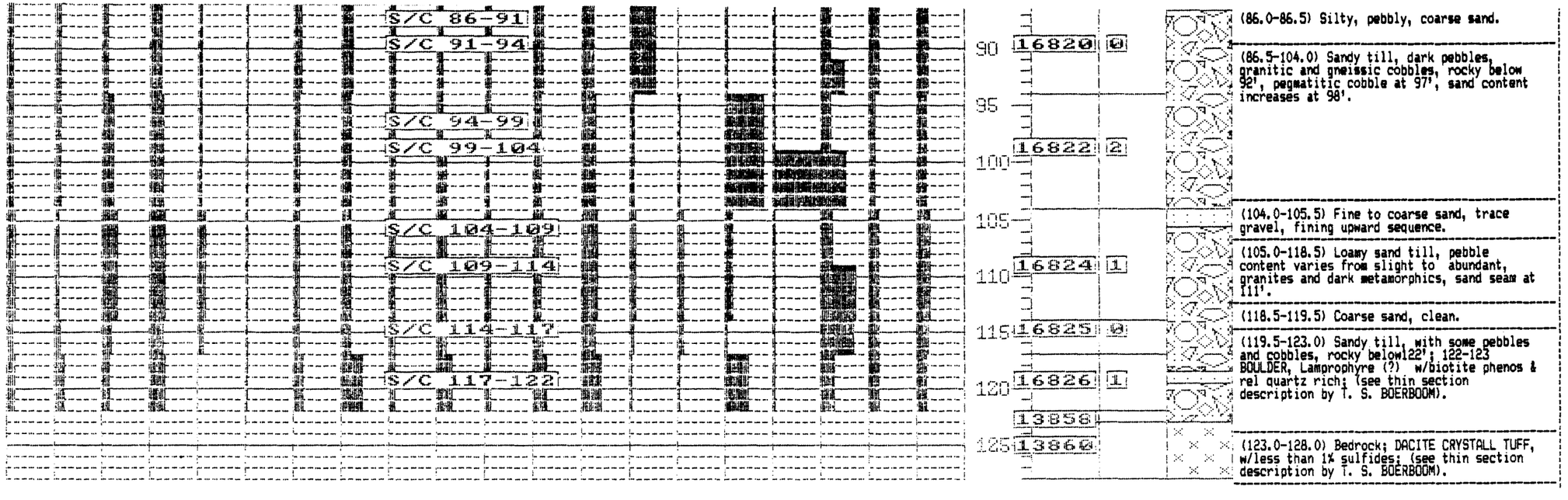
SUMMARY OF G. MEYER LOG OB-202, ROTASONIC CORE

# OB-202




S/C 86-91
S/C 91-94
S/C 94-99
S/C 99-104
S/C 104-109
S/C 109-114
S/C 114-117
S/C 117-122
90
95
100
105
110
115
120
125
16820 0
16822 2
16824 1
16825 0
16826 1
13858
13860
(86.0-86.5) Silty, pebbly, coarse sand.
(86.5-104.0) Sandy till, dark pebbles, granitic and gneissic cobbles, rocky below 92', pegmatitic cobble at 97', sand content increases at 98'.
(104.0-105.5) Fine to coarse sand, trace gravel, fining upward sequence.
(105.0-118.5) Loamy sand till, pebble content varies from slight to abundant, granites and dark metamorphics, sand seam at 111'.
(118.5-119.5) Coarse sand, clean.
(119.5-123.0) Sandy till, with some pebbles and cobbles, rocky below122'; 122-123 BOULDER, Lamprophyre (?) w/biotite phenos & rel quartz rich; (see thin section description by T. S. BOERBOOM).
(123.0-128.0) Bedrock; DACITE CRYSTALL TUFF, w/less than 1% sulfides; (see thin section description by T. S. BOERBOOM).

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16801 | 202 | 4-9 | 5. | S | D | SE-SW | 16 | 63 | 23 | K | DML. CLAYEY TILL | 4-9 | 0.0 | 7900.0 | 400.0 | 2.5 | 1.1 | 22.6 | 724.0 | 3 | 5 | 92 | |
| 16802 | 202 | 9-14 | 5. | S | D | SE-SW | 16 | 63 | 23 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 22.0 | 731.0 | 3 | -1 | -1 | |
| 16803 | 202 | 14-19 | 5. | S | D | SE-SW | 16 | 63 | 23 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 22.1 | 456.0 | 5 | -1 | -1 | |
| 16804 | 202 | 19-23 | 4. | S | D | SE-SW | 16 | 63 | 23 | K | DML. CLAYEY TILL | 14-23 | 0.0 | 12300.0 | 600.0 | 2.9 | 1.1 | 22.0 | 345.0 | 6 | 5 | 89 | |
| 16805 | 202 | 23-28 | 5. | S | D | SE-SW | 16 | 63 | 23 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16806 | 202 | 28-33 | 5. | S | D | SE-SW | 16 | 63 | 23 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16807 | 202 | 33-38 | 5. | S | D | SE-SW | 16 | 63 | 23 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16808 | 202 | 38-42.5 | 4.5 | S | D | SE-SW | 16 | 63 | 23 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 24.2 | 449.0 | 5 | -1 | -1 | |
| 16809 | 202 | 42.5-47.5 | 5. | S | D | SE-SW | 16 | 63 | 23 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 22.8 | 537.0 | 4 | -1 | -1 | |
| 16810 | 202 | 47.5-50.5 | 3. | S | D | SE-SW | 16 | 63 | 23 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16811 | 202 | 50.5-55.5 | 5. | S | D | SE-SW | 16 | 63 | 23 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 27.3 | 418.0 | 7 | -1 | -1 | |
| 16812 | 202 | 55.5-60.5 | 5. | S | D | SE-SW | 16 | 63 | 23 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16813 | 202 | 60.5-66 | 5.5 | S | D | SE-SW | 16 | 63 | 23 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 33.0 | 918.0 | 4 | -1 | -1 | |
| 13840R | 202 | 60.5-66 | 5.5 | S | D | SE-SW | 16 | 63 | 23 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 24.5 | 868.0 | 3 | -1 | -1 | |
| 16814 | 202 | 66-70 | 4. | S | D | SE-SW | 16 | 63 | 23 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 34.7 | 883.0 | 4 | -1 | -1 | |
| 16815 | 202 | 70-73 | 3. | S | D | SE-SW | 16 | 63 | 23 | K | RL. SANDY GVL. TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 24.5 | 500.0 | 5 | -1 | -1 | |
| 16816 | 202 | 73-76 | 3. | S | D | SE-SW | 16 | 63 | 23 | K | RL. SANDY GVL. TILL | 70-76 | 1.0 | 11900.0 | 1600.0 | 27.3 | 7.2 | 25.5 | 662.0 | 4 | 13 | 83 | |
| 16817 | 202 | 76-81 | 5. | S | D | SE-SW | 16 | 63 | 23 | K | RL. SANDY GVL. TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 27.4 | 1119.0 | 2 | -1 | -1 | |
| 16817R | 202 | 76-81 | 5.0 | S | D | SE-SW | 16 | 63 | 23 | K | RL. SANDY GVL. TILL | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 16818 | 202 | 81-86 | 5. | S | D | SE-SW | 16 | 63 | 23 | K | RL. SANDY GVL. TILL | 76-86 | 6.0 | 25000.0 | 5400.0 | 11.2 | 5.5 | 42.0 | 1830.0 | 2 | 21 | 77 | |
| 16819 | 202 | 86-91 | 5. | S | D | SE-SW | 16 | 63 | 23 | K | RL. SANDY GVL. TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 24.3 | 1116.0 | 2 | -1 | -1 | |
| 16820 | 202 | 91-94 | 3. | S | D | SE-SW | 16 | 63 | 23 | K | RL. SANDY GVL. TILL | 86-94 | 0.0 | 19200.0 | 4300.0 | 34.3 | 10.1 | 23.1 | 488.0 | 5 | 22 | 73 | |
| 16821 | 202 | 94-99 | 5. | S | D | SE-SW | 16 | 63 | 23 | K | RL. SANDY GVL. TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 28.3 | 1296.0 | 2 | -1 | -1 | |
| 16822 | 202 | 99-104 | 5. | S | D | SE-SW | 16 | 63 | 23 | K | RL. SANDY GVL. TILL | 94-104 | 2.0 | 29700.0 | 5100.0 | 39.1 | 12.0 | 47.4 | 906.0 | 5 | 17 | 78 | |
| 16822R | 202 | 99-104 | 5.0 | S | D | SE-SW | 16 | 63 | 23 | K | RL. SANDY GVL. TILL | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 16823 | 202 | 104-109 | 5. | S | D | SE-SW | 16 | 63 | 23 | K | RL. SANDY GVL. TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 29.2 | 1272.0 | 2 | -1 | -1 | |
| 16824 | 202 | 109-114 | 5. | S | D | SE-SW | 16 | 63 | 23 | K | RL. SANDY GVL. TILL | 104-114 | 1.0 | 29300.0 | 3700.0 | 51.3 | 18.0 | 79.2 | 1073.0 | 7 | 13 | 80 | |
| 13841R | 202 | 109-114 | 5. | S | D | SE-SW | 16 | 63 | 23 | K | RL. SANDY GVL. TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 22.8 | 994.0 | 2 | -1 | -1 | |
| 16825 | 202 | 114-117 | 3. | S | D | SE-SW | 16 | 63 | 23 | K | RL. SANDY GVL. TILL | 114-117 | 0.0 | 7900.0 | 1500.0 | 19.3 | 4.2 | 36.3 | 543.0 | 7 | 19 | 74 | |
| 16826 | 202 | 117-122 | 5. | S | D | SE-SW | 16 | 63 | 23 | K | RL. SANDY GVL. TILL | 117-122 | 1.0 | 12800.0 | 1700.0 | 22.5 | 5.7 | 23.5 | 686.0 | 3 | 13 | 84 | |
| 13858 | 202 | 122 | -2.0 | S | D | SE-SW | 16 | 63 | 23 | K | PEBBLES/BOULDERS | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | SAMP. BOULDER AT 122 |
| 13859 | 202 | 123-125 | 2.0 | S | D | SE-SW | 16 | 63 | 23 | K | BEDROCK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 13860 | 202 | 125-128 | 3.0 | S | D | SE-SW | 16 | 63 | 23 | K | BEDROCK | 123-128 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16801 | 640 | 0.06 | 993 | 1000 | 7600 | 25.10 | 31 | 63 | 24 | 160 | 0 | 10 | -26 | 12 | -0.5 | 0 | 40 | 1.5 | 2600 | 606 | 350 | 9 | 10 | 88 | -2 | 260.0 | 27.8 | 0 | 2.58 |
| 16804 | 40 | 0.06 | 884 | 990 | 7400 | 27.20 | 28 | 52 | 22 | 160 | 0 | -6 | -10 | 10 | -0.5 | 0 | 10 | 1.7 | 4600 | 526 | 300 | 9 | -10 | 49 | -2 | 240.0 | 24.7 | 0 | 3.07 |
| 16816 | 120 | 0.22 | 1070 | 670 | 12000 | 29.80 | 92 | 130 | 56 | 150 | 0 | 26 | -24 | 9 | -0.5 | 0 | -10 | -0.6 | 600 | 629 | 120 | 19 | 30 | 25 | -2 | 260.0 | 28.6 | 2 | 19.90 |
| 16818 | 700 | 0.18 | 1030 | 370 | 16000 | 25.00 | 170 | 170 | 110 | 120 | 0 | 24 | -50 | 9 | -0.5 | 0 | -10 | 1.8 | -1000 | 497 | 51 | 11 | 30 | 88 | -2 | 300.0 | 17.0 | 0 | 8.61 |
| 16820 | -25 | 0.21 | 985 | 510 | 14000 | 26.10 | 95 | 150 | 75 | 150 | 0 | 27 | -12 | 6 | -0.5 | 0 | -10 | -0.6 | -500 | 608 | 83 | 17 | 20 | 51 | -2 | 250.0 | 22.7 | 2 | 26.40 |
| 16822 | 410 | 0.20 | 1160 | 710 | 13000 | 29.70 | 99 | 140 | 64 | 150 | 0 | 26 | -10 | 7 | -0.5 | 0 | -10 | 1.2 | 500 | 760 | 93 | 15 | -10 | 37 | -2 | 320.0 | 25.7 | 1 | 30.30 |
| 16824 | 78 | 0.14 | 1000 | 590 | 13000 | 27.50 | 88 | 130 | 49 | 140 | 0 | 35 | -24 | 8 | -0.5 | 0 | -10 | 1.5 | 900 | 684 | 90 | 16 | 20 | 37 | -2 | 290.0 | 27.6 | 2 | 39.60 |
| 16825 | -30 | 0.16 | 675 | 440 | 12000 | 17.40 | 100 | 130 | 63 | 150 | 0 | 21 | -19 | 7 | -0.5 | 0 | -10 | 1.0 | 600 | 325 | 59 | 8 | 10 | 62 | -2 | 180.0 | 16.5 | 2 | 15.40 |
| 16826 | 250 | 0.21 | 717 | 4400 | 12000 | 19.00 | 150 | 190 | 130 | 180 | 0 | 35 | -10 | 8 | -0.5 | 0 | -10 | 0.9 | -100 | 266 | 68 | 10 | -10 | 40 | -2 | 150.0 | 11.9 | 2 | 17.30 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 16816 | 1.000 | 5.30 | 1200 | 120 | 23 | 450 | -1 | -1 | 1.0 | 30 | 0.6 |
| 16818 | 0.930 | 5.20 | 910 | 130 | 81 | 410 | -1 | -1 | 0.5 | 22 | 0.2 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 16820 | 1.100 | 5.30 | 1100 | 120 | 26 | 420 | -1 | -1 | 0.5 | 26 | 0.5 |
| 16822 | 0.710 | 1.70 | 830 | 140 | 35 | 570 | -1 | 3 | -0.5 | 4 | 0.4 |
| 16824 | 0.780 | 1.70 | 1600 | 160 | 32 | 430 | -1 | 13 | -0.5 | 6 | 0.6 |
| 16825 | 0.630 | 1.70 | 1000 | 140 | 20 | 420 | -1 | 13 | -0.5 | 4 | 0.5 |
| 16826 | 0.680 | 1.70 | 950 | 200 | 68 | 350 | -1 | 3 | -0.5 | -1 | 0.4 |

-63um ANALYSIS (PPM)

| SAMPLE | AU | V | CR | MN | FE | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NUMBER | PPB | | | | % | | | | | | | | | | | | | | | | | g/kg |
| 13840R | 8 | 97 | 92 | 520 | 3.4 | 18 | 38 | 25 | 77 | 5 | -1 | 3 | -0.5 | -1 | 5 | -1 | -1 | -1 | 12 | -1 | 2 | 28.2 |
| 13841R | -1 | 52 | 63 | 340 | 2.0 | 13 | 21 | 13 | 37 | 2 | -1 | 1 | -0.5 | -1 | 9 | -1 | -1 | 3 | 9 | -1 | -1 | 22.9 |
| 16801 | -1 | 110 | 210 | 330 | 4.2 | 26 | 68 | 79 | 55 | 2 | -1 | 10 | -0.5 | 1 | 1 | -1 | -1 | 7 | 13 | -1 | -1 | 31.2 |
| 16802 | -1 | 160 | 87 | 560 | 3.3 | 17 | 37 | 24 | 92 | 11 | 2 | 2 | -0.5 | -1 | 4 | -1 | -1 | -1 | 24 | -1 | 3 | 30.1 |
| 16803 | -1 | 140 | 81 | 430 | 3.2 | 15 | 34 | 23 | 85 | 9 | 1 | 2 | -0.5 | -1 | 4 | -1 | -1 | 1 | 17 | -1 | 3 | 48.5 |
| 16804 | -1 | 140 | 87 | 490 | 3.1 | 16 | 36 | 24 | 88 | 9 | -1 | 2 | -0.5 | -1 | 3 | -1 | -1 | -1 | 16 | -1 | 3 | 63.8 |
| 16808 | -1 | 120 | 77 | 480 | 3.0 | 15 | 32 | 20 | 80 | 13 | -1 | 2 | -0.5 | 1 | 5 | -1 | -1 | -1 | 15 | -1 | 3 | 53.9 |
| 16809 | -1 | 91 | 64 | 450 | 2.7 | 13 | 25 | 15 | 58 | 5 | -1 | 1 | -0.5 | -1 | 3 | -1 | -1 | -1 | 13 | -1 | 2 | 42.5 |
| 16811 | 51 | 140 | 98 | 560 | 3.5 | 19 | 41 | 28 | 91 | 5 | -1 | 2 | -0.5 | -1 | 5 | -1 | -1 | 1 | 18 | -1 | 3 | 65.3 |
| 16813 | 1 | 88 | 86 | 500 | 3.3 | 17 | 36 | 24 | 72 | 5 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 15 | -1 | 2 | 35.9 |
| 16814 | -1 | 80 | 84 | 460 | 2.9 | 15 | 32 | 21 | 59 | 5 | 1 | 1 | -0.5 | -1 | 2 | -1 | -1 | -1 | 15 | -1 | 2 | 39.2 |
| 16815 | 2 | 53 | 72 | 360 | 2.0 | 13 | 24 | 13 | 36 | 2 | -1 | -1 | -0.5 | -1 | 2 | -1 | -1 | 1 | 11 | -1 | -1 | 49.0 |
| 16816 | 2 | 64 | 98 | 360 | 2.0 | 13 | 24 | 13 | 36 | 3 | -1 | 5 | -0.5 | -1 | 2 | -1 | -1 | 3 | 17 | -1 | 2 | 38.0 |
| 16817 | -1 | 60 | 120 | 410 | 2.8 | 15 | 33 | 25 | 52 | 2 | -1 | 4 | -0.5 | -1 | 1 | -1 | -1 | 11 | 12 | -1 | -1 | 24.5 |
| 16817R | 0 | 0 | 98 | 0 | 0.0 | 0 | 0 | 0 | 52 | 2 | 1 | 5 | -0.5 | -1 | 1 | -1 | 0 | 10 | 0 | 0 | 0 | 0.0 |
| 16818 | -1 | 51 | 80 | 370 | 2.3 | 14 | 26 | 17 | 35 | 1 | -1 | 1 | -0.5 | -1 | 1 | -1 | -1 | 7 | 12 | -1 | -1 | 23.0 |
| 16819 | -1 | 52 | 73 | 350 | 2.2 | 13 | 24 | 16 | 37 | 1 | -1 | -1 | -0.5 | -1 | 1 | -1 | -1 | 5 | 10 | -1 | -1 | 21.8 |
| 16820 | 1 | 53 | 69 | 330 | 2.1 | 13 | 24 | 14 | 40 | 1 | -1 | 1 | -0.5 | -1 | 1 | -1 | -1 | 2 | 14 | -1 | -1 | 47.3 |
| 16821 | -1 | 43 | 62 | 250 | 1.8 | 12 | 19 | 11 | 33 | 1 | 2 | -1 | -0.5 | -1 | 1 | -1 | -1 | 5 | 16 | -1 | -1 | 21.8 |
| 16822 | 28 | 46 | 58 | 300 | 1.8 | 11 | 19 | 10 | 30 | 1 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | 3 | 18 | -1 | -1 | 52.3 |
| 16822R | 0 | 0 | 48 | 0 | 0.0 | 0 | 0 | 0 | 31 | 1 | 1 | 2 | -0.5 | -1 | -1 | -1 | 0 | 3 | 0 | 0 | 0 | 0.0 |
| 16823 | -1 | 54 | 62 | 400 | 2.2 | 13 | 20 | 12 | 33 | 1 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | 3 | 14 | -1 | -1 | 22.8 |
| 16824 | 1 | 49 | 58 | 320 | 1.8 | 11 | 19 | 12 | 33 | 1 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | 3 | 13 | -1 | -1 | 73.8 |
| 16825 | 1 | 52 | 63 | 370 | 2.2 | 13 | 19 | 12 | 35 | 1 | -1 | 2 | -0.5 | 1 | -1 | -1 | -1 | 2 | 15 | -1 | -1 | 66.9 |
| 16826 | 1 | 64 | 150 | 410 | 2.7 | 17 | 43 | 19 | 42 | 1 | -1 | 3 | -0.5 | -1 | -1 | -1 | -1 | 2 | 12 | -1 | -1 | 26.5 |

BEDROCK ANALYSIS (PPM)

| SAMPLE | AU | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NUMBER | PPB | | | | | | | | | | | | | % | | | | | | | | | | % | | | | | | | | | | |
| 13858 | -9 | -0.2 | 1.4 | 0 | 0.0 | 0 | 35.0 | 0.0 | 290 | 32 | 0 | 2 | -50 | 6.1 | 15 | 0.0 | 0 | 9 | 0 | 0.00 | 0.0 | -5 | -2 | 2.60 | 0.0 | 0 | 0.0 | 1.7 | 0 | -3 | -1.0 | 0 | 100 | 0 |
| 13860 | -8 | -0.2 | -1.0 | 300 | 0.0 | -1 | 69.0 | 0.0 | 220 | 8 | 0 | 10 | -50 | 1.5 | 33 | 0.0 | -1 | 10 | 55 | 0.00 | 0.0 | -5 | -2 | 2.20 | -8.0 | -10 | 0.0 | 2.5 | -10 | 4 | 1.8 | 0 | -100 | 0 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 | NA | MG | AL | SIO2 | S | CL | K | CA | FEO | NIR | SR | NB | MOR | BAR | TAR | BI | LOI | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NUMBER | | | | | | | | | % | | | % | % | | | | | % | | | | | | | | % | |
| 13858 | 0 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | -340 | 0 | 0 | -3 | 730 | -2.2 | 0 | 0.00 | 0 |
| 13860 | 12 | 7 | 30 | 350 | 0.5 | 0 | 10 | 2 | 0.71 | 24000 | 3800 | 1.19 | 75.7 | 0.00 | -50 | 15000 | 12000 | 1.1 | -300 | 72 | 17 | -3 | 400 | -2.3 | -2 | 1.85 | 13000 |

**Appendix 8-32A.** DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-204

Drilling Completion Date 12/12/85

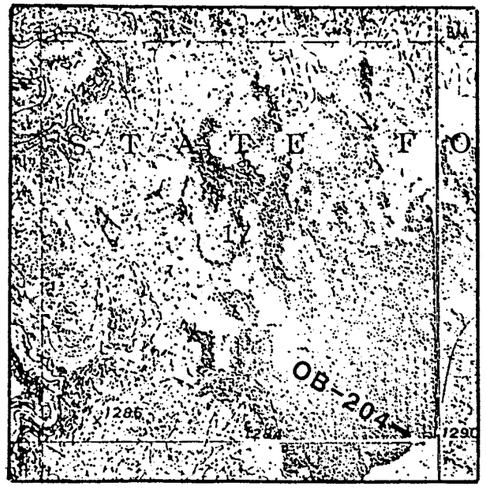
LOCATION (see map at right)

S-T-R SE¼-SE¼-17-63N-22W

County Koochiching

Quadrangle Rauch 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1289 ft.

Total Depth 102 ft.

Elevation, Top of Precambrian Bedrock 1194 ft.

Drilling Method Rotasonic

Sample Diameter 3.5 inch

Sample Collection Method Core: Sleeved & Boxed

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-1 | Organic Sediments | | | |
| 1-80 | Des Moines Lobe Gl. Drift | G | A,B,C | |
| 80-95 | Rainy Lobe Gl. Drift | G | A,B,C | C = Mo |
| 95-102 | Bedrock | G,H | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Hornblende-Biotite Schist (Metagraywacke)

Thin Section Description: #13866 at 96 ft. Hornblende-biotite schist (metagraywacke) Estimated mode (volume %): Quartz, 33; Feldspar, 34; Biotite, 27; Hornblende, 4; Epidote, Tr; Calcite (vein), Tr; Opaques (pyrite + Fe-oxides), 2; Apatite, Tr; Rock has 3% to 4% quartz clasts (0.3 to 0.5 mm across) and 2% to 3% feldspar clasts in a fine-grained matrix. Several larger quartz grains are non-undulose and possibly volcanic, but no primary volcanic grain features can be seen due to recrystallization of grain borders. The macroscopically visible lighter colored layers on the thin section are zones of biotite altered to chlorite. The biotite is fresh, yellow-brown to red-brown, pleochroic. Foliation is well defined by biotite and hornblende; no second foliation is visible. (By T. Boerboom, MGS)

## HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | MATRIX | | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 16856CP | 12.1 | 0.6 | 11.5 | 103.0 | 99.2 | 3.8 | 2.7 | 1.1 | 0 | NA | C | 30 | 70 | NA | NA | S | Y | Y | Y | B | B | SAND |
| -862CP | 19.9 | 0.7 | 19.2 | 96.9 | 81.5 | 15.4 | 10.9 | 4.5 | 0 | NA | C | 30 | 70 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -863 | 8.6 | 0.7 | 7.9 | 63.8 | 55.7 | 8.1 | 6.2 | 1.9 | 0 | NA | C | 30 | 70 | TR | NA | U | Y | Y | Y | B | B | TILL |
| 16864 | 8.8 | 1.6 | 7.2 | 141.5 | 134.0 | 7.5 | 6.3 | 1.2 | 0 | NA | P,C | 80 | 20 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -865 | 9.6 | 2.2 | 7.4 | 137.5 | 115.8 | 21.7 | 17.8 | 3.9 | 2 | 93 | P,C | 60 | 40 | NA | NA | U | Y | Y | Y | B | GG | TILL |
| -866 | 7.0 | 2.5 | 4.5 | 92.3 | 70.7 | 21.6 | 18.4 | 3.2 | 0 | NA | P,C | 90 | 10 | NA | NA | U | Y | Y | Y | B | GY | TILL |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | NUMBER OF GRAINS ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16856 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -862 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -863 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 16864 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -865 | N | 50 X 100 | 15 C | 1 | | | | | | 1 | | | |
| | | 75 X 100 | 18 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | TOTAL | 2 | 17.8 | 93 | |
| -866 | N | NO VISIBLE GOLD | | | | | | | | | | | |

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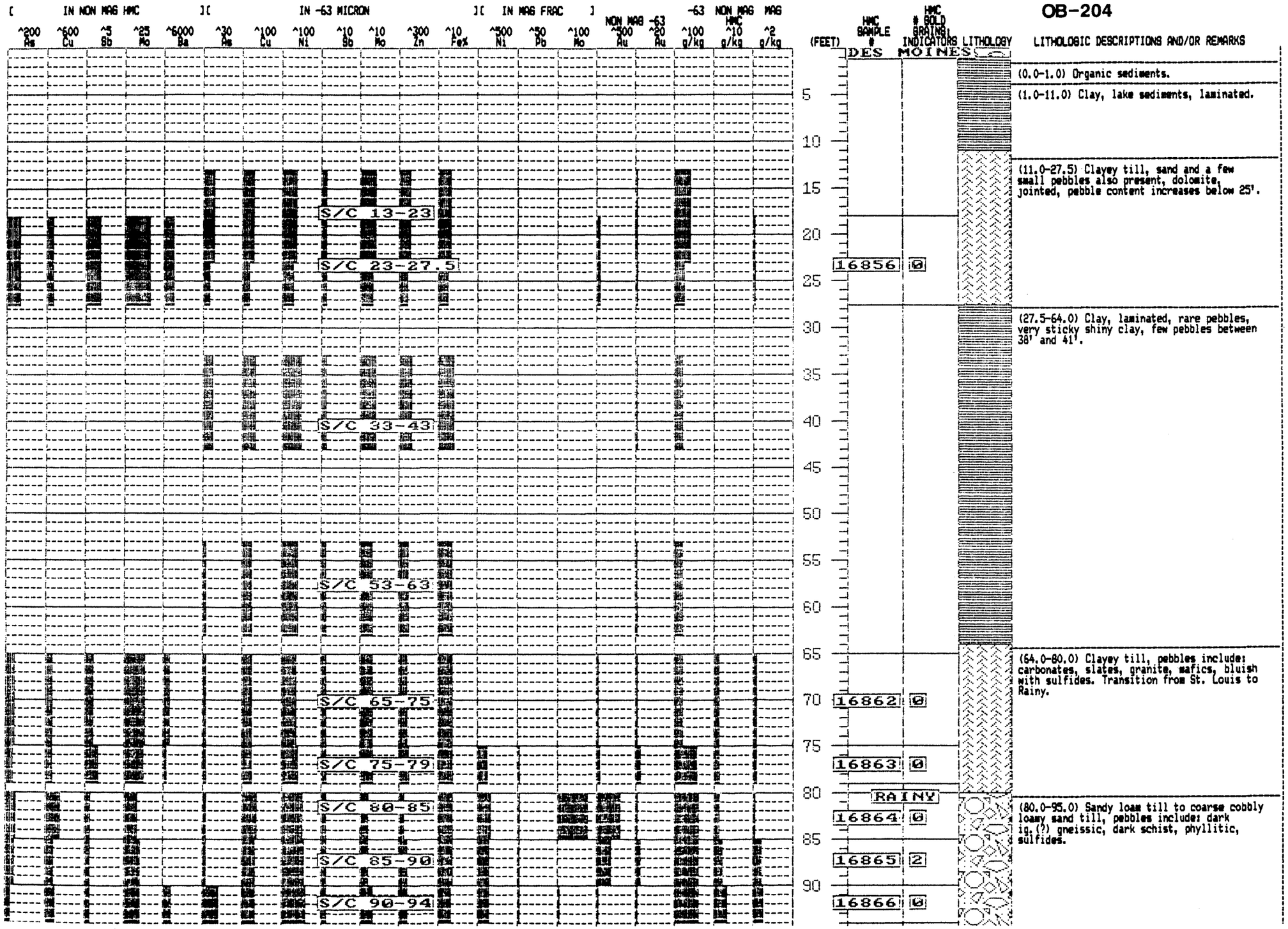
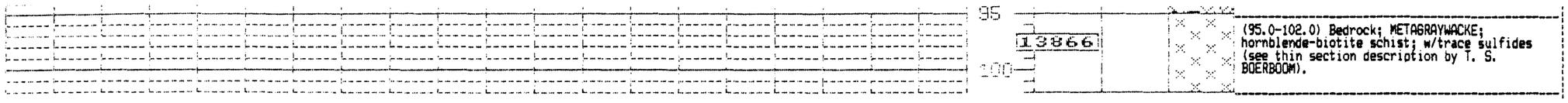
SUMMARY OF B. MEYER LOG OB-204, ROTASONIC CORE

# OB-204

Appendix B-32B.






(95.0-102.0) Bedrock; METAGRAYWACKE; hornblende-biotite schist; w/trace sulfides (see thin section description by T. S. BOERBOOM).

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16854 | 204 | 13-18 | 5. | S | D | SE-SE | 17 | 63 | 22 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16855 | 204 | 18-23 | 5. | S | D | SE-SE | 17 | 63 | 22 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 23.5 | 595.0 | 4 | -1 | -1 | SII-63I=13-23 |
| 16856 | 204 | 23-27.5 | 4.5 | S | D | SE-SE | 17 | 63 | 22 | K | DML. CLAYEY TILL | 18-27.5 | 0.0 | 12100.0 | 600.0 | 2.7 | 1.1 | 20.5 | 859.0 | 2 | 5 | 93 | |
| 16857 | 204 | 33-38 | 5. | S | D | SE-SE | 17 | 63 | 22 | K | DML CLAY: GLACIAL LK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16858 | 204 | 38-43 | 5. | S | D | SE-SE | 17 | 63 | 22 | K | DML CLAY: GLACIAL LK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 23.3 | 1242.0 | 2 | -1 | -1 | SII-63I=33-43 |
| 16859 | 204 | 53-58 | 5. | S | D | SE-SE | 17 | 63 | 22 | K | DML CLAY: GLACIAL LK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16860 | 204 | 58-63 | 5. | S | D | SE-SE | 17 | 63 | 22 | K | DML CLAY: GLACIAL LK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 31.9 | 1626.0 | 2 | -1 | -1 | SII-63I=53-63 |
| 16861 | 204 | 63-70 | 5. | S | D | SE-SE | 17 | 63 | 22 | K | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16862 | 204 | 70-75 | 5. | S | D | SE-SE | 17 | 63 | 22 | K | DML. CLAYEY TILL | 65-75 | 0.0 | 19900.0 | 700.0 | 10.9 | 4.5 | 39.8 | 2141.0 | 2 | 4 | 94 | SII-63I=65-75 |
| 16863 | 204 | 75-79 | 4. | S | D | SE-SE | 17 | 63 | 22 | K | DML. CLAYEY TILL | 75-79 | 0.0 | 6600.0 | 700.0 | 6.2 | 1.9 | 44.3 | 810.0 | 5 | 8 | 87 | |
| 16864 | 204 | 80-85 | 5. | S | D | SE-SE | 17 | 63 | 22 | K | RL. SANDY GVL. TILL | 80-85 | 0.0 | 8800.0 | 1600.0 | 6.3 | 1.2 | 46.1 | 781.0 | 6 | 18 | 76 | |
| 16865 | 204 | 85-90 | 5. | S | D | SE-SE | 17 | 63 | 22 | K | RL. SANDY GVL. TILL | 85-90 | 2.0 | 9600.0 | 2200.0 | 17.8 | 3.9 | 53.1 | 657.0 | 6 | 23 | 71 | |
| 13842R | 204 | 85-90 | 5. | S | D | SE-SE | 17 | 63 | 22 | K | RL. SANDY GVL. TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 41.0 | 726.0 | 5 | -1 | -1 | |
| 16866 | 204 | 90-94 | 4. | S | D | SE-SE | 17 | 63 | 22 | K | RL. SANDY GVL. TILL | 90-94 | 0.0 | 7000.0 | 2500.0 | 18.4 | 3.2 | 34.7 | 387.0 | 6 | 36 | 58 | |
| 13865 | 204 | 95-102 | 9.0 | S | D | SE-SE | 17 | 63 | 22 | K | BEDROCK | 95-102 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16856 | -40 | 0.09 | 794 | 800 | 6100 | 28.60 | 75 | 100 | 100 | 200 | 0 | 61 | -12 | 16 | -0.5 | 0 | 10 | 1.8 | 1500 | 491 | 250 | 8 | 20 | 29 | -2 | 250.0 | 23.8 | 0 | 2.77 |
| 16862 | -28 | 0.22 | 917 | 720 | 8400 | 28.70 | 96 | 120 | 92 | 150 | 0 | 42 | -10 | 13 | -0.5 | 0 | -10 | 1.1 | 900 | 484 | 230 | 9 | 20 | 55 | -2 | 230.0 | 25.6 | 1 | 7.91 |
| 16863 | -35 | 0.12 | 863 | 530 | 8600 | 25.00 | 98 | 140 | 97 | 150 | 0 | 35 | -19 | 12 | -0.5 | 0 | -10 | 1.6 | 500 | 454 | 160 | 12 | -10 | 48 | -2 | 190.0 | 35.1 | 1 | 4.70 |
| 16864 | 300 | 0.31 | 580 | 880 | 15000 | 29.10 | 150 | 180 | 210 | 150 | 0 | 49 | -10 | 8 | -0.5 | 0 | -10 | -0.7 | 100 | 306 | 58 | 5 | 20 | 27 | -2 | 130.0 | 12.9 | 1 | 4.68 |
| 16865 | 190 | 0.22 | 709 | 1000 | 15000 | 23.30 | 150 | 180 | 130 | 150 | 0 | 41 | -10 | 10 | -0.5 | 0 | -10 | -0.7 | -100 | 329 | 71 | 11 | -10 | 27 | -2 | 160.0 | 16.8 | 2 | 13.10 |
| 16866 | -30 | 0.12 | 594 | 930 | 14000 | 20.50 | 190 | 250 | 150 | 150 | 0 | 21 | -16 | 10 | -0.5 | 0 | -10 | -0.7 | 1100 | 268 | 63 | 7 | 30 | 27 | -2 | 110.0 | 17.3 | 3 | 13.70 |

-63um ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | V | CR | MN | FE % | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13842R | -1 | 92 | 180 | 530 | 3.3 | 23 | 58 | 32 | 52 | 2 | -1 | 1 | -0.5 | -1 | 11 | -1 | -1 | 1 | 9 | -1 | -1 | 56.5 |
| 16855 | 1 | 120 | 92 | 590 | 3.4 | 18 | 36 | 26 | 84 | 9 | 1 | 4 | -0.5 | -1 | 1 | -1 | -1 | -1 | 15 | -1 | 3 | 39.5 |
| 16856 | -1 | 97 | 71 | 480 | 2.3 | 14 | 27 | 17 | 58 | 5 | -1 | 3 | -0.5 | -1 | -1 | -1 | -1 | 1 | 12 | -1 | 2 | 23.9 |
| 16858 | -1 | 140 | 110 | 660 | 4.0 | 23 | 46 | 32 | 96 | 7 | -1 | 4 | -0.5 | -1 | 1 | -1 | -1 | -1 | 14 | -1 | 3 | 18.8 |
| 16860 | 1 | 89 | 97 | 590 | 3.5 | 20 | 39 | 24 | 68 | 3 | 2 | 3 | -0.5 | -1 | -1 | -1 | -1 | -1 | 14 | -1 | 2 | 19.6 |
| 16862 | -1 | 81 | 100 | 560 | 3.5 | 20 | 36 | 24 | 65 | 3 | -1 | 3 | -0.5 | -1 | -1 | -1 | -1 | -1 | 14 | -1 | 2 | 18.6 |
| 16863 | 2 | 73 | 100 | 580 | 3.7 | 21 | 38 | 25 | 68 | 3 | 1 | 3 | -0.5 | -1 | -1 | -1 | -1 | -1 | 15 | -1 | 2 | 54.7 |
| 16864 | -1 | 56 | 140 | 560 | 3.7 | 25 | 52 | 36 | 38 | 2 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | -1 | 14 | -1 | -1 | 59.0 |
| 16865 | 2 | 62 | 170 | 600 | 3.7 | 24 | 57 | 33 | 62 | 2 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | -1 | 14 | -1 | 1 | 61.2 |
| 16866 | 1 | 96 | 190 | 530 | 3.4 | 25 | 58 | 32 | 65 | 12 | 2 | 3 | -0.5 | -1 | 2 | -1 | -1 | 3 | 12 | -1 | -1 | 59.1 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 16863 | 0.630 | 1.70 | 1300 | 130 | 21 | 250 | -1 | -1 | -0.5 | -1 | 0.2 |
| 16864 | 0.750 | 1.70 | 1300 | 170 | 95 | 320 | -1 | 74 | -0.5 | -1 | 0.1 |
| 16865 | 0.660 | 1.70 | 1000 | 140 | 29 | 360 | -1 | -1 | -0.5 | -1 | 0.4 |
| 16866 | 0.610 | 1.70 | 1200 | 140 | 28 | 370 | -1 | 3 | -0.5 | -1 | 0.5 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13866 | -8 | -0.2 | -1.1 | 380 | 0.0 | 1 | 61.0 | 0.0 | 230 | 25 | 0 | 3 | -50 | 4.4 | 32 | 0.0 | 1 | 84 | 76 | 0.00 | 0.0 | -5 | -5 | 2.60 | -8.0 | -10 | 0.0 | 7.5 | -10 | -3 | 1.6 | 0 | -100 | 0 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13866 | 60 | 16 | 96 | 790 | 5.0 | 0 | 26 | 2 | 0.07 | 29000 | 22000 | 4.87 | 63.2 | 0.10 | -50 | 16000 | 22000 | 5.0 | -310 | 270 | 6 | -4 | 630 | -2.0 | -2 | 1.31 | 46000 |

## Appendix 8-33A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-206

Drilling Completion Date 12/8/85

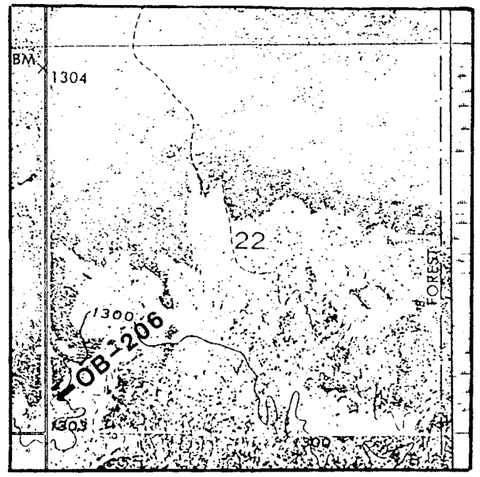
LOCATION (see map at right)

S-T-R SW¼-SW¼-22-63N-21W

County St. Louis

Quadrangle Silverdale 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1301 ft.

Total Depth 112.5 ft.

Elevation, Top of Precambrian Bedrock 1193 ft.

Drilling Method Rotasonic

Sample Diameter 3.5 inch

Sample Collection Method Core: Sleeved & Boxed

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-94.5 | Des Moines Lobe Gl. Drift | G | A,B,C | |
| 94.5-108 | Rainy Lobe Gl. Drift | G | A,B,C | |
| 108-112.5 | Bedrock | G,H | I | I = Au |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Amphibolite

Thin Section Description: #13867 at 111.5 ft. Thinly layered fine-grained amphibolite. Estimated mode (volume %): Hornblende, 60; Cummingtonite, 15; Plagioclase (oligoclase-andesine), 23 (may include some quartz); Quartz, Tr?; Chlorite, Tr; Epidote, Tr; Calcite, Tr; Pyrite, 1 or less; Magnetite, 1 or more. Hornblende-cummingtonite amphibolite containing minor disseminated pyrite and magnetite. The pale green layers visible on a macroscopic scale are, on a microscopic scale, as rich in amphibole as the dark green layers but consist dominantly of cummingtonite (optically (+), fine polysynthetic twinning) instead of hornblende. Microveinlets of plagioclase randomly crosscut the well-defined foliation. One larger foliation-parallel vein consists (core to rim) of quartz, cummingtonite (?), and the alteration minerals chlorite, calcite, and epidote. (By T. Boerboom, MGS)

## HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | MATRIX | | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 16919 | 14.0 | 0.7 | 13.3 | 259.5 | 253.7 | 5.8 | 4.2 | 1.6 | 0 | NA | P | 5 | 25 | 70 | NA | U | Y | Y | Y | B | B | TILL |
| -923CP | 14.5 | 1.5 | 13.0 | 267.6 | 245.3 | 22.3 | 17.8 | 4.5 | 0 | NA | P | 30 | 70 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -926CP | 14.1 | 0.2 | 13.9 | 64.9 | 63.9 | 1.0 | 0.7 | 0.3 | 0 | NA | P | 30 | 70 | NA | NA | S | N | Y | Y | NA | B | SILT&CLAY |
| -928CP | 13.2 | 0.7 | 12.5 | 227.4 | 198.9 | 28.5 | 24.2 | 4.3 | 0 | NA | P | 60 | 40 | NA | NA | U | Y | Y | Y | GB | GB | TILL |

GOLD CLASSIFICATION

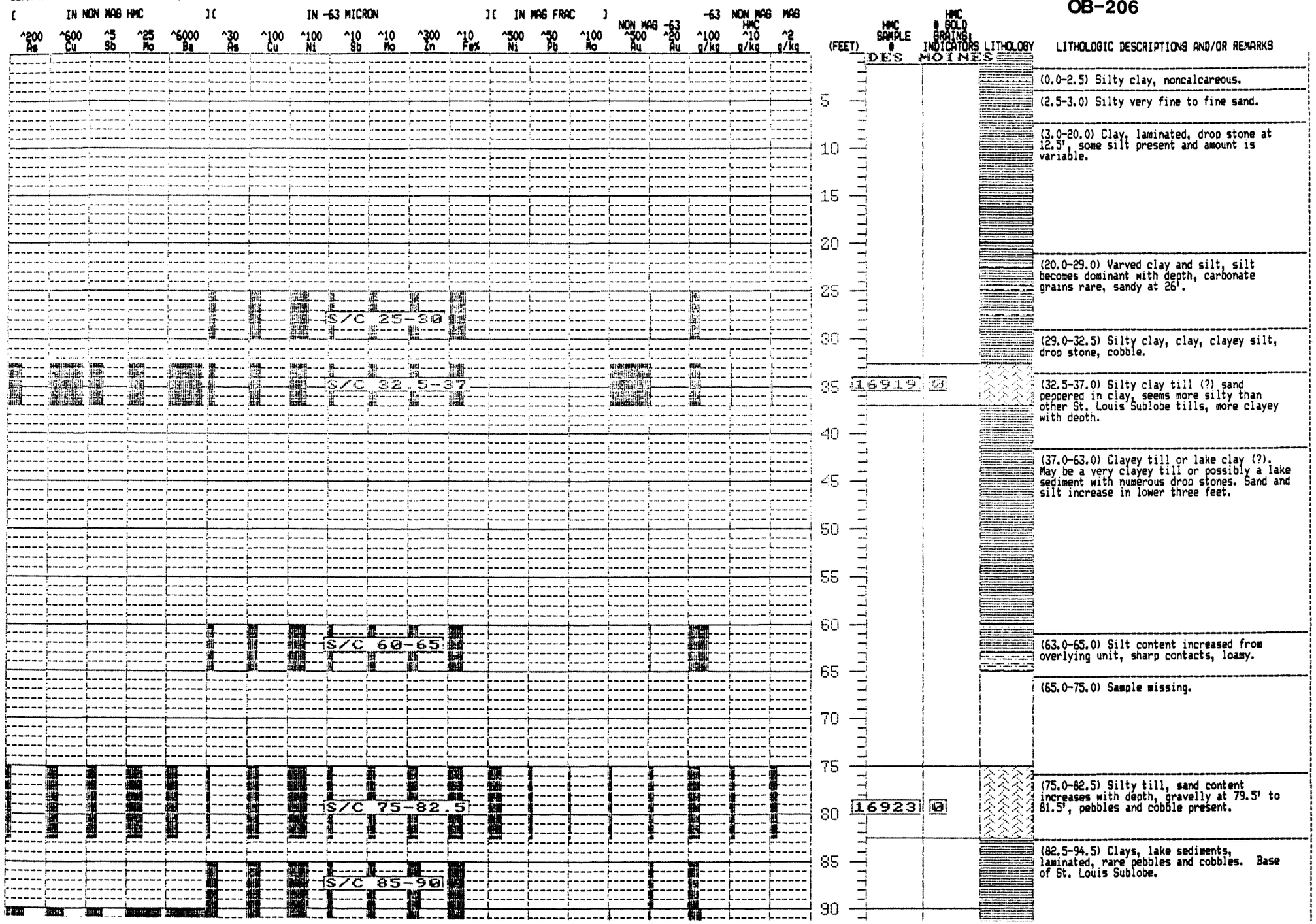
VISIBLE GOLD FROM SHAKING TABLE AND PANNING

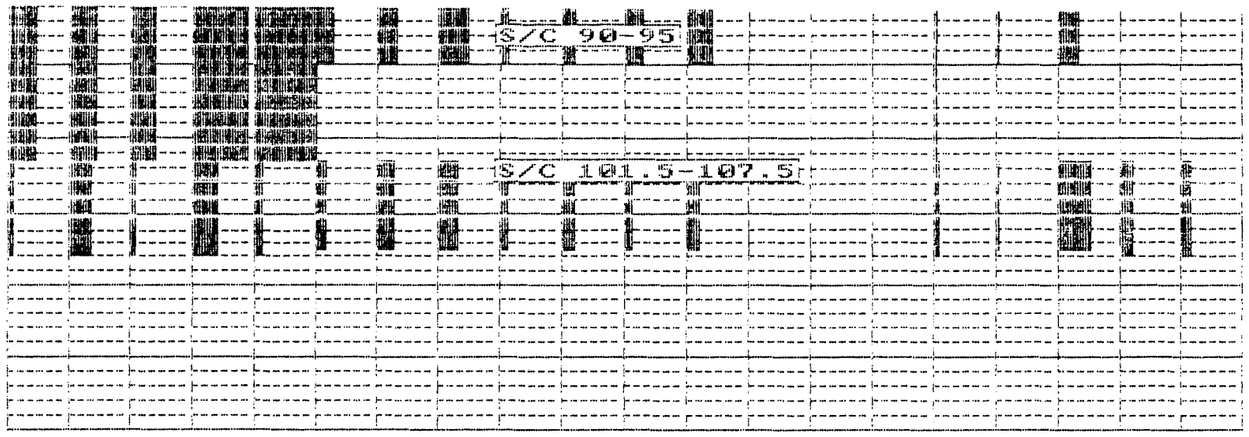
| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | NUMBER OF GRAINS ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16919 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -923 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -926 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -928 | N | NO VISIBLE GOLD | | | | | | | | | | | |

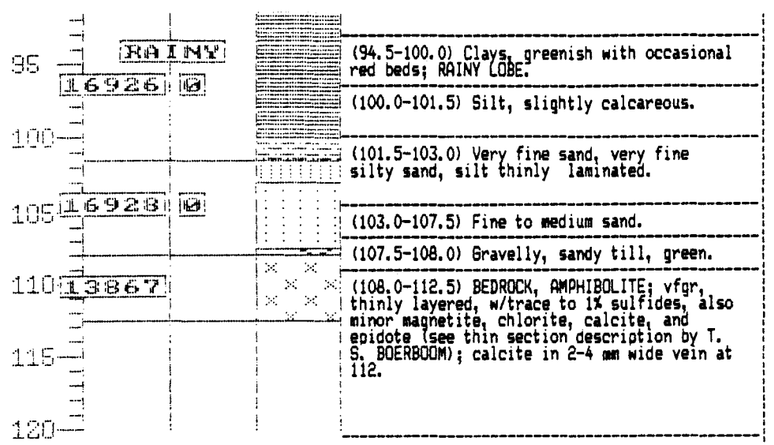
SUMMARY OF G. MEYER LOG OB-206, ROTASONIC CORE

# OB-206

Appendix 8-33B.






(94.5-100.0) Clays, greenish with occasional red beds; RAINY LOBE.

(100.0-101.5) Silt, slightly calcareous.

(101.5-103.0) Very fine sand, very fine silty sand, silt thinly laminated.

(103.0-107.5) Fine to medium sand.

(107.5-108.0) Gravelly, sandy till, green.

(108.0-112.5) BEDROCK, AMPHIBOLITE; vfgr, thinly layered, w/trace to 1% sulfides, also minor magnetite, chlorite, calcite, and epidote (see thin section description by T. S. BOERBOOM); calcite in 2-4 mm wide vein at 112.

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16917 | 206 | 20-25 | 5. | S | O | SW-SW | 22 | 63 | 21 | SL | DML CLAY: GLACIAL LK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16918 | 206 | 25-30 | 5. | S | O | SW-SW | 22 | 63 | 21 | SL | DML. SILT | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 23.8 | 1041.0 | 2 | -1 | -1 | |
| 16919 | 206 | 32.5-37 | 4.5 | S | O | SW-SW | 22 | 63 | 21 | SL | DML. CLAYEY TILL | 32.5-37 | 0.0 | 14000.0 | 700.0 | 4.2 | 1.6 | 32.1 | 1159.0 | 3 | 5 | 92 | |
| 16920 | 206 | 55-60 | 5. | S | O | SW-SW | 22 | 63 | 21 | SL | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16921 | 206 | 60-65 | 5. | S | O | SW-SW | 22 | 63 | 21 | SL | DML CLAY: GLACIAL LK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 38.2 | 779.0 | 5 | -1 | -1 | |
| 16922 | 206 | 75-80 | 5. | S | O | SW-SW | 22 | 63 | 21 | SL | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 13843R | 206 | 75-80 | 5. | S | O | SW-SW | 22 | 63 | 21 | SL | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 28.4 | 791.0 | 4 | -1 | -1 | |
| 16923 | 206 | 80-82.5 | 2.5 | S | O | SW-SW | 22 | 63 | 21 | SL | DML. CLAYEY TILL | 75-82.5 | 0.0 | 14500.0 | 1500.0 | 17.8 | 4.5 | 40.6 | 1503.0 | 3 | 10 | 87 | SIE-63=75-82.5 |
| 16924 | 206 | 85-90 | 5. | S | O | SW-SW | 22 | 63 | 21 | SL | DML CLAY: GLACIAL LK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 17.4 | 754.0 | 2 | -1 | -1 | |
| 16925 | 206 | 90-95 | 5. | S | O | SW-SW | 22 | 63 | 21 | SL | DML CLAY: GLACIAL LK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 18.4 | 580.0 | 3 | -1 | -1 | |
| 16926 | 206 | 95-101.5 | 6.5 | S | O | SW-SW | 22 | 63 | 21 | SL | RL. CLAY: GLACIAL LK | 90-101.5 | 0.0 | 14100.0 | 200.0 | 0.7 | 0.3 | -1.0 | -1.0 | -1 | 1 | -1 | |
| 16927 | 206 | 101.5-107.5 | 6. | S | O | SW-SW | 22 | 63 | 21 | SL | RL. F. TO V.F. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 50.9 | 951.0 | 5 | -1 | -1 | |
| 16928 | 206 | 107.5-108 | 0.5 | S | O | SW-SW | 22 | 63 | 21 | SL | RL. SANDY GVL. TILL | 101.5-108 | 0.0 | 13200.0 | 700.0 | 24.2 | 4.3 | -1.0 | -1.0 | -1 | 5 | -1 | |
| 13867 | 206 | 108-112.5 | 4.5 | S | O | SW-SW | 22 | 63 | 21 | SL | BEDROCK | 108-112.5 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16919 | 1400 | 0.19 | 776 | 530 | 9200 | 25.90 | 73 | 120 | 500 | 180 | 0 | 60 | -10 | 10 | 0.5 | 0 | -10 | 1.9 | 5000 | 433 | 180 | 10 | -10 | 16 | -2 | 220.0 | 28.7 | 0 | 4.59 |
| 16923 | 47 | 0.14 | 525 | 350 | 12000 | 20.90 | 76 | 150 | 170 | 360 | 0 | 27 | -10 | 10 | -0.5 | 0 | -10 | 1.2 | 1600 | 327 | 75 | 8 | 20 | 24 | -2 | 120.0 | 11.8 | 1 | 13.10 |
| 16926 | -30 | 0.34 | 653 | 420 | 6900 | 27.60 | 240 | 130 | 260 | 180 | 0 | 91 | -25 | 22 | 0.5 | 0 | 20 | 2.0 | 88000 | 412 | 71 | 8 | 1700 | -5 | -2 | 120.0 | 13.7 | 0 | 0.70 |
| 16928 | 33 | 0.18 | 608 | 250 | 11000 | 19.90 | 170 | 270 | 220 | 160 | 0 | 16 | -10 | 10 | 1.0 | 0 | -10 | -0.4 | 600 | 419 | 61 | 6 | 20 | 20 | 2 | 150.0 | 15.6 | 2 | 18.30 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 16923 | 1.700 | 1.70 | 1100 | 170 | 37 | 290 | -1 | 2 | -0.5 | 4 | 0.3 |

-63uM ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | V | CR | MN | FE % | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13843R | 1 | 100 | 110 | 470 | 3.2 | 19 | 41 | 25 | 76 | 4 | -1 | 2 | -0.5 | -1 | 11 | -1 | -1 | -1 | 13 | -1 | 2 | 35.9 |
| 16918 | -1 | 99 | 110 | 650 | 3.9 | 25 | 46 | 28 | 77 | 5 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | 4 | 21 | -1 | 2 | 22.9 |
| 16919 | -1 | 97 | 100 | 600 | 3.7 | 22 | 42 | 27 | 74 | 5 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | -1 | 18 | -1 | 2 | 27.7 |
| 16921 | -1 | 98 | 110 | 580 | 3.7 | 22 | 42 | 25 | 71 | 5 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 18 | -1 | 2 | 49.0 |
| 16923 | 2 | 95 | 110 | 570 | 3.6 | 22 | 46 | 28 | 72 | 3 | -1 | 2 | -0.5 | 1 | -1 | -1 | -1 | -1 | 21 | -1 | 2 | 27.0 |
| 16924 | 2 | 150 | 130 | 660 | 4.2 | 25 | 52 | 33 | 100 | 9 | -1 | 2 | -0.5 | 1 | 1 | -1 | -1 | -1 | 22 | -1 | 3 | 23.1 |
| 16925 | 1 | 150 | 140 | 600 | 4.0 | 24 | 49 | 33 | 89 | 9 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 21 | -1 | 2 | 31.7 |
| 16927 | -1 | 58 | 95 | 290 | 2.2 | 17 | 31 | 26 | 33 | 5 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | -1 | 10 | -1 | -1 | 53.5 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13867 | 18 | 0.4 | -1.0 | 340 | -5.0 | -10 | 22.0 | -1.0 | -50 | 48 | -2 | -2 | -100 | 10.0 | 6 | -0.5 | -2 | -50 | 59 | 4.40 | 34.0 | -10 | -5 | 1.00 | -1.0 | -20 | 2.0 | -0.5 | -200 | -2 | -0.5 | -5 | -200 | -500 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13867 | 157 | 21 | 123 | 1823 | 1.1 | -10 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 |

**Appendix 8-34A.** DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-207

Drilling Completion Date 12/10/85

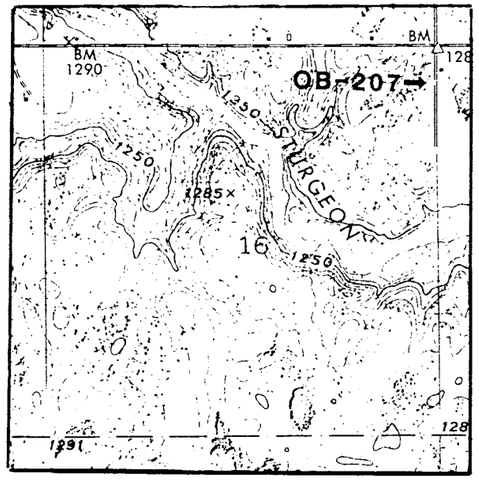
LOCATION (see map at right)

S-T-R NE¼-NE¼-16-62N-21W

County St. Louis

Quadrangle Bear River 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1283 ft.

Total Depth 116 ft.

Elevation, Top of Precambrian Bedrock 1175 ft.

Drilling Method Rotasonic

Sample Diameter 3.5 inch

Sample Collection Method Core: Sleeved & Boxed

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-70.5 | Des Moines Lobe Gl. Drift | | | |
| 70.5-108 | Rainy Lobe Gl. Drift | G | A,B,C | |
| 108-116 | Bedrock | G,H | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Pyroxene Syenite/Syenitic Gneiss

Thin Section Description: #13856 at 112.5 ft. Pyroxene syenite/syenitic gneiss. Estimated mode (volume %): Diopside, 20; Perthite, 74; Sphene, less than 1; Quartz, less than 1; Apatite, less than 1; Biotite, 3; Oxides, 1. Grass-green euhedral to subhedral foliated prismatic diopside shows weak pleochroism in cross sections. Perthite grains are subhedral to anhedral, tabular and foliated, up to 7 mm in length. Irregular masses and books of biotite are green to brown green in pleochroic color. Feldspar contains abundant fine needles of rutile. See Linden Pluton chapter in Centennial Volume for further discussion of rock type. (By T. Boerboom, MGS)



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 17028CP | 23.4 | 0.8 | 22.6 | 140.4 | 75.9 | 64.5 | 56.6 | 7.9 | 0 | NA | P | 40 | 60 | NA | NA | U | Y | Y | Y | GB | GB | TILL |
| -029 | 4.2 | 1.0 | 3.2 | 120.4 | 68.5 | 51.9 | 46.3 | 5.6 | 0 | NA | P | 40 | 60 | NA | NA | U | Y | Y | Y | BN | BN | TILL |
| -030 | 7.7 | 0.8 | 6.9 | 222.5 | 51.4 | 171.1 | 146.9 | 24.2 | 0 | NA | P | 40 | 60 | NA | NA | U | Y | Y | Y | BN | BN | TILL |
| -031 | 9.3 | 2.6 | 6.7 | 249.2 | 34.9 | 214.3 | 168.7 | 45.6 | 0 | NA | P | 30 | 70 | NA | NA | U | Y | Y | Y | BN | BN | TILL |
| -032 | 6.7 | 2.8 | 3.9 | 196.0 | 34.0 | 162.0 | 113.6 | 48.4 | 0 | NA | C | 10 | 90 | NA | NA | U | Y | Y | Y | BN | BN | TILL |
| 17033 | 3.1 | 1.7 | 1.4 | 161.2 | 62.9 | 98.3 | 81.9 | 16.4 | 0 | NA | C | 10 | 90 | TR | NA | U | Y | Y | Y | BN | BN | TILL |

**GOLD CLASSIFICATION**

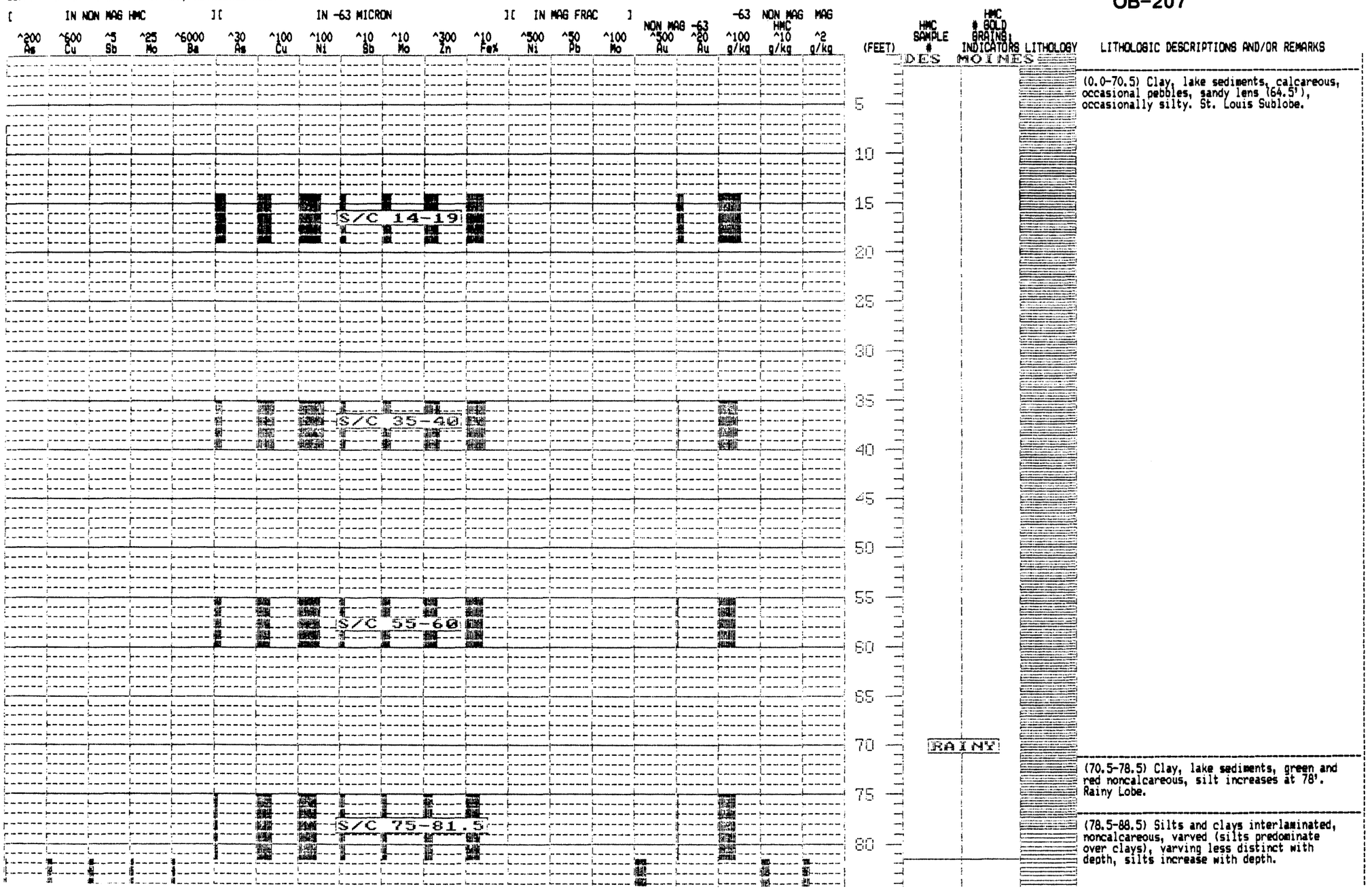
VISIBLE GOLD FROM SHAKING TABLE AND PANNING

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | NUMBER OF GRAINS: ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17028 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -029 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -030 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -031 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -032 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 17033 | N | NO VISIBLE GOLD | | | | | | | | | | | |

SUMMARY OF G. MEYER LOG OB-207, ROTASONIC CORE

# OB-207

Appendix 8-34B.

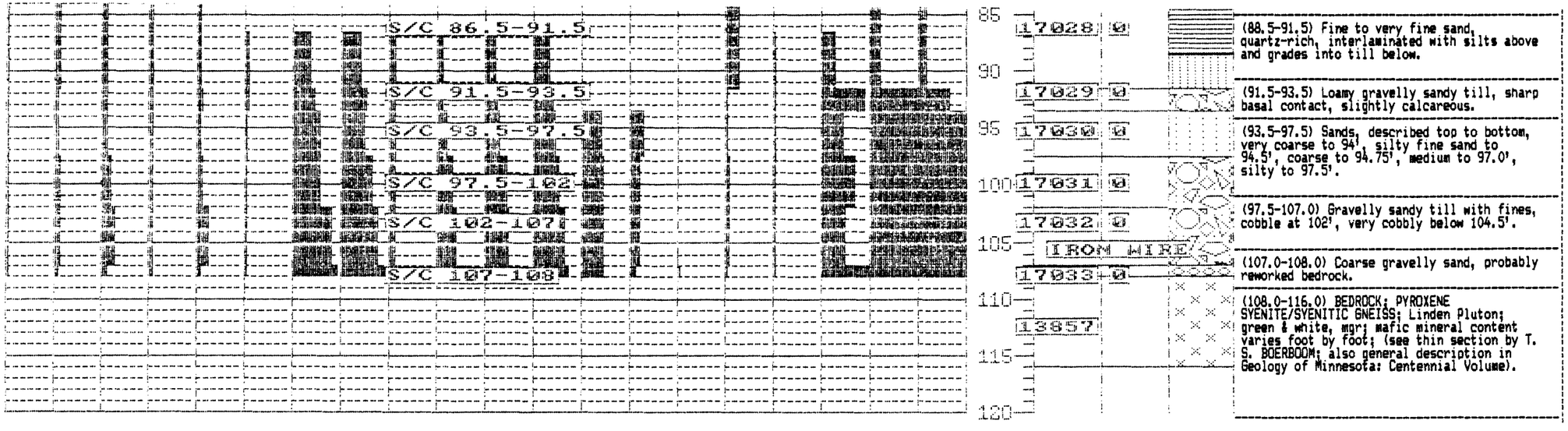



LITHOLOGIC DESCRIPTIONS AND/OR REMARKS

(0.0-70.5) Clay, lake sediments, calcareous, occasional pebbles, sandy lens (64.5'), occasionally silty. St. Louis Sublobe.

(70.5-78.5) Clay, lake sediments, green and red noncalcareous, silt increases at 78'. Rainy Lobe.

(78.5-88.5) Silts and clays interlaminated, noncalcareous, varved (silts predominate over clays), varving less distinct with depth, silts increase with depth.


S/C 86.5-91.5
S/C 91.5-93.5
S/C 93.5-97.5
S/C 97.5-102
S/C 102-107
S/C 107-108
85
90
95
100
105
110
115
120
17028
17029
17030
17031
17032
IRON WIRE
17033
13857
(88.5-91.5) Fine to very fine sand, quartz-rich, interlaminated with silts above and grades into till below.
(91.5-93.5) Loamy gravelly sandy till, sharp basal contact, slightly calcareous.
(93.5-97.5) Sands, described top to bottom, very coarse to 94', silty fine sand to 94.5', coarse to 94.75', medium to 97.0', silty to 97.5'.
(97.5-107.0) Gravelly sandy till with fines, cobble at 102', very cobbly below 104.5'.
(107.0-108.0) Coarse gravelly sand, probably reworked bedrock.
(108.0-116.0) BEDROCK; PYROXENE SYENITE/SYENITIC GNEISS; Linden Pluton; green & white, mgr; mafic mineral content varies foot by foot; (see thin section by T. S. BOERBOOM; also general description in Geology of Minnesota: Centennial Volume).

Appendix 8-34C.

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17020 | 207 | 9-14 | 5. | S | O | NE-NE | 16 | 62 | 21 | SL | DML CLAY: GLACIAL LK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 17021 | 207 | 14-19 | 5. | S | O | NE-NE | 16 | 62 | 21 | SL | DML CLAY: GLACIAL LK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 19.6 | 380.0 | 5 | -1 | -1 | |
| 17022 | 207 | 30-35 | 5. | S | O | NE-NE | 16 | 62 | 21 | SL | DML CLAY: GLACIAL LK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 17023 | 207 | 35-40 | 5. | S | O | NE-NE | 16 | 62 | 21 | SL | DML CLAY: GLACIAL LK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 23.1 | 544.0 | 4 | -1 | -1 | |
| 17024 | 207 | 50-55 | 5. | S | O | NE-NE | 16 | 62 | 21 | SL | DML CLAY: GLACIAL LK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 17025 | 207 | 55-60 | 5. | S | O | NE-NE | 16 | 62 | 21 | SL | DML CLAY: GLACIAL LK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 23.0 | 599.0 | 4 | -1 | -1 | |
| 17026 | 207 | 75-81.5 | 6.5 | S | O | NE-NE | 16 | 62 | 21 | SL | RL. CLAY: GLACIAL LK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 33.3 | 836.0 | 4 | -1 | -1 | |
| 17027 | 207 | 81.5-86.5 | 5. | S | O | NE-NE | 16 | 62 | 21 | SL | RL. CLAY: GLACIAL LK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 17028 | 207 | 86.5-91.5 | 5. | S | O | NE-NE | 16 | 62 | 21 | SL | RL. SILTY SAND | 81.5-91.5 | 0.0 | 23400.0 | 800.0 | 56.6 | 7.9 | 35.2 | 1271.0 | 3 | 3 | 94 | |
| 17029 | 207 | 91.5-93.5 | 2. | S | O | NE-NE | 16 | 62 | 21 | SL | RL. SANDY GVL. TILL | 91.5-93.5 | 0.0 | 4200.0 | 1000.0 | 46.3 | 5.6 | 29.0 | 336.0 | 9 | 24 | 67 | |
| 17030 | 207 | 93.5-97.5 | 4. | S | O | NE-NE | 16 | 62 | 21 | SL | RL. SILTY SAND | 93.5-97.5 | 0.0 | 7700.0 | 800.0 | 146.9 | 24.2 | 23.3 | 555.0 | 4 | 10 | 86 | |
| 17031 | 207 | 97.5-102 | 4.5 | S | O | NE-NE | 16 | 62 | 21 | SL | RL. SANDY GVL. TILL | 97.5-102 | 0.0 | 9300.0 | 2600.0 | 168.7 | 45.6 | 34.5 | 497.0 | 7 | 28 | 65 | |
| 13844R | 207 | 97.5-102 | 4.5 | S | O | NE-NE | 16 | 62 | 21 | SL | RL. SANDY GVL. TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 26.9 | 451.0 | 6 | -1 | -1 | |
| 17032 | 207 | 102-107 | 5. | S | O | NE-NE | 16 | 62 | 21 | SL | RL. SANDY GVL. TILL | 102-107 | 0.0 | 6700.0 | 2800.0 | 113.6 | 48.4 | 27.3 | 580.0 | 5 | 42 | 53 | |
| 17033 | 207 | 107-108 | 2. | S | O | NE-NE | 16 | 62 | 21 | SL | RL. GVL. SAND | 107-109 | 0.0 | 3100.0 | 1700.0 | 81.9 | 16.4 | 21.7 | 229.0 | 9 | 55 | 36 | |
| 13855 | 207 | 108-113 | 5.0 | S | O | NE-NE | 16 | 62 | 21 | SL | BEDROCK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 13857 | 207 | 113-116 | 3.0 | S | O | NE-NE | 16 | 62 | 21 | SL | BEDROCK | 108-116 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17028 | 150 | 0.68 | 647 | 180 | 3800 | 9.80 | 51 | 110 | 74 | 170 | 0 | 9 | -10 | 2 | -0.5 | 0 | -10 | 0.5 | 500 | 328 | 28 | 4 | -10 | 23 | -2 | 36.0 | 6.1 | 2 | 41.80 |
| 17029 | -18 | 0.77 | 674 | 170 | 4000 | 10.50 | 46 | 100 | 50 | 170 | 0 | -4 | -10 | 2 | -0.5 | 0 | -10 | 0.5 | 600 | 320 | 25 | 5 | -10 | 18 | -2 | 30.0 | 2.9 | 11 | 33.80 |
| 17030 | -20 | 0.72 | 756 | 190 | 3800 | 11.40 | 57 | 100 | 57 | 150 | 0 | -4 | -10 | 2 | -0.5 | 0 | -10 | 0.6 | 400 | 395 | 30 | 5 | -10 | 19 | -2 | 43.0 | 5.9 | 19 | 105.00 |
| 17031 | -31 | 0.82 | 1000 | 280 | 3000 | 11.90 | 61 | 100 | 67 | 150 | 0 | -7 | -14 | 2 | -0.5 | 0 | -10 | 1.0 | 600 | 522 | 31 | 4 | -10 | 15 | -2 | 33.0 | 5.0 | 18 | 121.00 |
| 17032 | -39 | 0.80 | 1510 | 250 | 2500 | 12.30 | 63 | 110 | 63 | 160 | 0 | -8 | 36 | 2 | -0.5 | 0 | -10 | 1.4 | 1400 | 729 | 37 | 4 | -10 | 15 | -2 | 30.0 | -4.0 | 17 | 82.60 |
| 17033 | -30 | 0.86 | 881 | 220 | 2700 | 10.40 | 46 | 96 | 51 | 170 | 0 | -6 | -10 | 2 | -0.5 | 0 | -10 | -0.6 | 500 | 449 | 18 | 4 | -10 | 10 | -2 | 19.0 | 0.9 | 25 | 60.80 |

-63uM ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | V | CR | MN | FE % | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13844R | 1 | 130 | 180 | 790 | 5.6 | 37 | 70 | 63 | 160 | 2 | -1 | 4 | -0.5 | 1 | 12 | -1 | -1 | 5 | 18 | -1 | 1 | 59.6 |
| 17021 | 3 | 170 | 130 | 620 | 4.2 | 26 | 53 | 33 | 100 | 7 | -1 | 2 | -0.5 | -1 | 2 | -1 | -1 | 1 | 24 | -1 | 3 | 51.6 |
| 17023 | 1 | 190 | 140 | 730 | 4.6 | 30 | 59 | 38 | 110 | 5 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 21 | -1 | 3 | 42.5 |
| 17025 | -1 | 180 | 130 | 590 | 4.2 | 24 | 50 | 33 | 100 | 5 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | 1 | 19 | -1 | 3 | 38.4 |
| 17026 | -1 | 100 | 130 | 400 | 3.1 | 20 | 43 | 35 | 64 | 2 | -1 | 1 | -0.5 | 1 | 1 | -1 | -1 | -1 | 16 | -1 | 1 | 39.8 |
| 17028 | -1 | 97 | 110 | 460 | 3.1 | 21 | 40 | 34 | 61 | 2 | -1 | 1 | -0.5 | -1 | 1 | -1 | -1 | -1 | 15 | -1 | 1 | 27.7 |
| 17029 | -1 | 110 | 110 | 600 | 4.1 | 27 | 51 | 45 | 76 | 3 | -1 | 1 | -0.5 | -1 | 2 | -1 | -1 | -1 | 16 | -1 | 1 | 86.3 |
| 17030 | 1 | 120 | 130 | 690 | 4.5 | 30 | 49 | 56 | 82 | 1 | -1 | 2 | -0.5 | -1 | 2 | -1 | -1 | 1 | 17 | -1 | 1 | 42.0 |
| 17031 | 1 | 150 | 120 | 760 | 5.4 | 36 | 64 | 54 | 130 | 1 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | 6 | 18 | -1 | 2 | 69.4 |
| 17032 | 1 | 170 | 140 | 890 | 6.6 | 43 | 75 | 79 | 150 | 1 | -1 | 4 | -0.5 | 1 | 2 | -1 | -1 | 2 | 20 | 1 | 2 | 47.1 |
| 17033 | -1 | 160 | 180 | 1000 | 7.0 | 47 | 86 | 90 | 160 | 1 | 3 | 6 | -0.5 | 1 | 2 | -1 | -1 | 2 | 21 | -1 | 2 | 94.8 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 17030 | 1.700 | 1.30 | 1400 | 200 | 37 | 150 | -1 | -1 | -0.5 | 14 | 3.1 |
| 17031 | 1.700 | 1.10 | 1700 | 220 | 39 | 120 | -1 | -1 | -0.5 | 10 | 4.9 |
| 17032 | 1.700 | 1.10 | 1700 | 230 | 47 | 110 | -1 | -1 | -0.5 | 10 | 7.2 |
| 17033 | 1.700 | 0.92 | 1500 | 230 | 83 | 110 | -1 | 2 | -0.5 | 6 | 5.3 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13857 | -10 | -0.2 | -1.3 | 4000 | 0.0 | 2 | 245.0 | 0.0 | 180 | 23 | 0 | 2 | -50 | 5.2 | 133 | 0.0 | 1 | 94 | 140 | 0.00 | 0.0 | -6 | -3 | 2.30 | -8.0 | -10 | 0.0 | 3.2 | -10 | -2 | -1.2 | 0 | 100 | 0 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FED % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13857 | 100 | 21 | 150 | 1000 | 3.0 | 0 | 14 | 3 | 0.72 | 28000 | 27000 | 5.04 | 53.7 | 0.00 | 150 | 59000 | 52000 | 3.1 | -350 | 2600 | 7 | -4 | 4000 | -2.8 | -2 | 1.70 | 55000 |

**Appendix 8-35A.** DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-208

Drilling Completion Date 12/10/85

LOCATION (see map at right)

S-T-R SE¼-SW¼-27-62N-20W

County St. Louis

Quadrangle Meadowbrook 7.5

Regional Survey Area Orr

HOLE PARAMETERS

Surface Elevation 1298 ft.

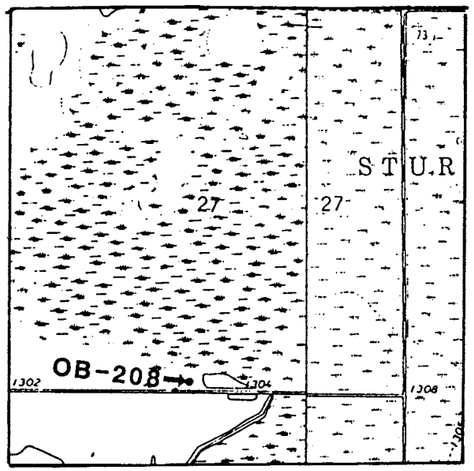
Total Depth 122 ft.

Elevation, Top of Precambrian Bedrock 1185 ft.

Drilling Method Rotasonic

Sample Diameter 3.5 inch

Sample Collection Method Core: Sleeved & Boxed




SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-1 | Organic Sediments | | | |
| 1-113 | Rainy Lobe Gl. Drift | G | A,B,C | A = Au,As<br>B = As |
| 113-122 | Bedrock | G | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Quartz-Biotite Schist w/Ptygmatic Quartz Veins

Thin Section Description:



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | DESCRIPTION | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | CLAST | | | | | MATRIX | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 16840CP | 7.8 | 1.8 | 6.0 | 176.5 | 149.8 | 26.7 | 21.0 | 5.7 | 0 | NA | P | 80 | 20 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -842CP | 14.8 | 0.0 | 14.8 | 168.3 | 111.8 | 56.5 | 39.6 | 16.9 | 0 | NA | TR | NA | NA | NA | NA | U | Y | Y | Y | B | B | TILL |
| -844CP | 17.9 | 0.0 | 17.9 | 369.0 | 265.4 | 103.6 | 77.9 | 25.7 | 0 | NA | TR | NA | NA | NA | 1 | S | F | Y | Y | B | B | SAND |
| -846CP | 20.7 | 0.0 | 20.7 | 199.5 | 111.5 | 88.0 | 66.0 | 22.0 | 0 | NA | TR | NA | NA | NA | 1 | U | Y | Y | Y | B | B | TILL |
| -848CP | 22.0 | 0.0 | 22.0 | 131.4 | 88.0 | 43.4 | 32.3 | 11.1 | 0 | NA | TR | NA | NA | NA | 1 | U | Y | Y | Y | B | B | TILL |
| -850CP | 13.1 | 0.0 | 13.1 | 105.0 | 75.9 | 29.1 | 22.6 | 6.5 | 0 | NA | TR | NA | NA | NA | 1 | U | Y | Y | Y | B | B | TILL |
| -852CP | 16.6 | 0.0 | 16.6 | 145.7 | 124.8 | 20.9 | 15.9 | 5.0 | 0 | NA | TR | NA | NA | NA | 1 | S | F | Y | Y | B | B | SAND |
| 853 | 3.8 | 1.9 | 1.9 | 73.5 | 66.0 | 7.5 | 6.2 | 1.3 | 0 | NA | C | 70 | 30 | NA | NA | U | Y | Y | Y | B | B | TILL |
| 17573R | 5.2 | 1.3 | 3.9 | 93.7 | 47.2 | 46.5 | 43.0 | 3.5 | 0 | NA | P | 40 | 60 | NA | NA | U | Y | Y | Y | GB | GB | TILL |

GOLD CLASSIFICATION

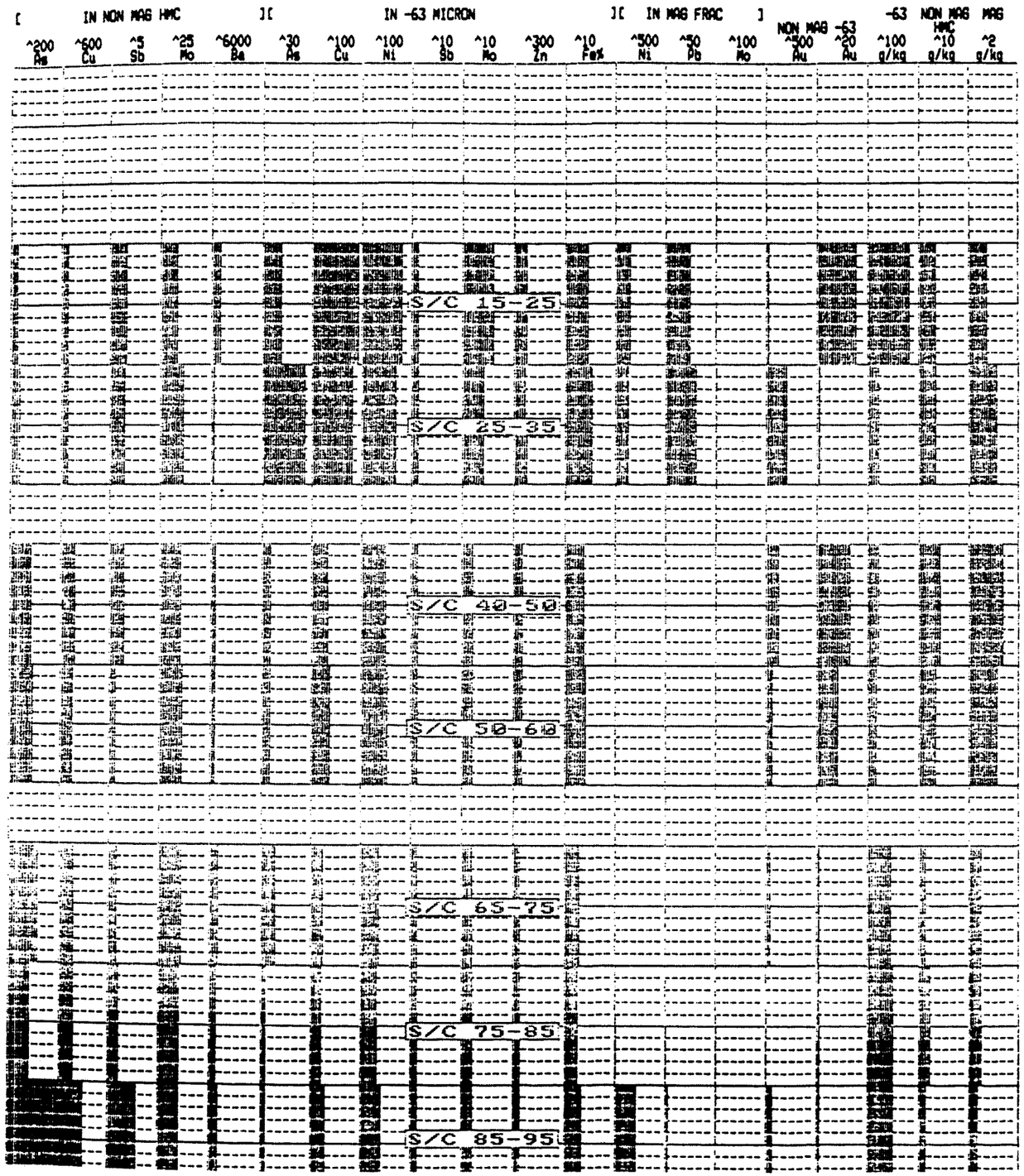
VISIBLE GOLD FROM SHAKING TABLE AND PANNING

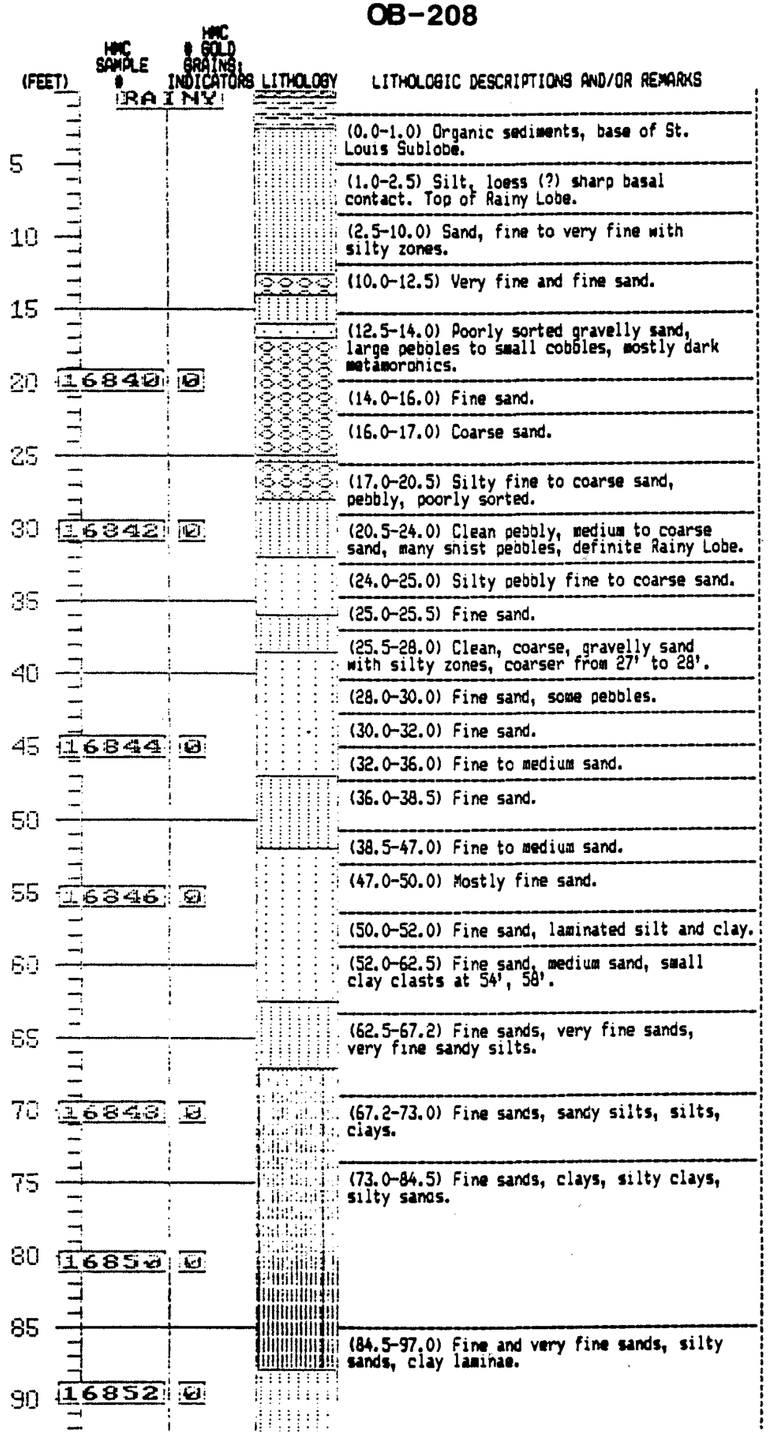
| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | NUMBER OF GRAINS: ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16840 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -842 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -844 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -846 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -848 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -850 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -852 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -853 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 17573R | N | NO VISIBLE GOLD | | | | | | | | | | | |

SUMMARY OF B. MEYER LOG OB-208, ROTASONIC CORE

# OB-208

Appendix 8-35B.




LITHOLOGIC DESCRIPTIONS AND/OR REMARKS

(0.0-1.0) Organic sediments, base of St. Louis Sublobe.

(1.0-2.5) Silt, loess (?) sharp basal contact. Top of Rainy Lobe.

(2.5-10.0) Sand, fine to very fine with silty zones.

(10.0-12.5) Very fine and fine sand.

(12.5-14.0) Poorly sorted gravelly sand, large peboles to small cobbles, mostly dark metamorphics.

(14.0-16.0) Fine sand.

(16.0-17.0) Coarse sand.

(17.0-20.5) Silty fine to coarse sand, pebbly, poorly sorted.

(20.5-24.0) Clean pebbly, medium to coarse sand, many snist pebbles, definite Rainy Lobe.

(24.0-25.0) Silty pebbly fine to coarse sand.

(25.0-25.5) Fine sand.

(25.5-28.0) Clean, coarse, gravelly sand with silty zones, coarser from 27' to 28'.

(28.0-30.0) Fine sand, some pebbles.

(30.0-32.0) Fine sand.

(32.0-36.0) Fine to medium sand.

(36.0-38.5) Fine sand.

(38.5-47.0) Fine to medium sand.

(47.0-50.0) Mostly fine sand.

(50.0-52.0) Fine sand, laminated silt and clay.

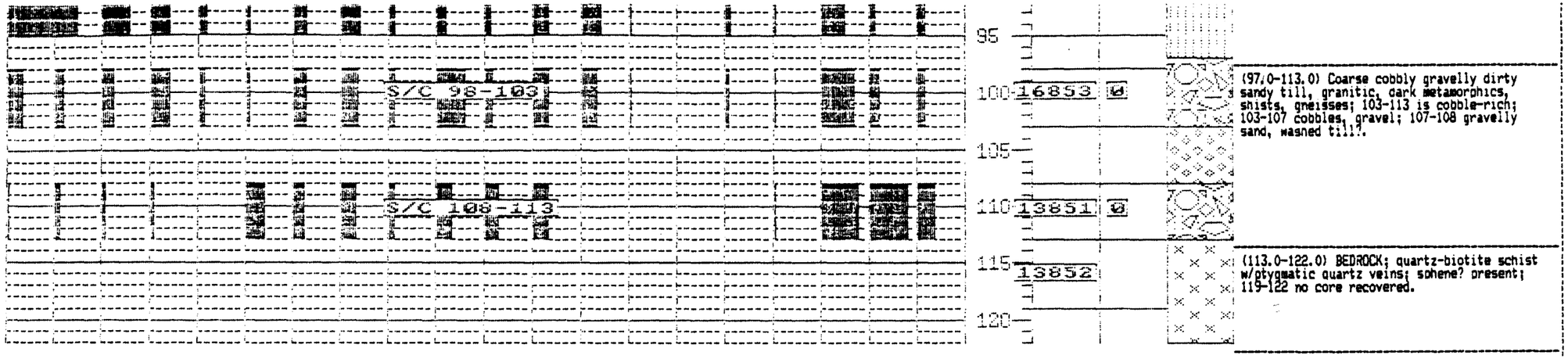
(52.0-62.5) Fine sand, medium sand, small clay clasts at 54', 58'.

(62.5-67.2) Fine sands, very fine sands, very fine sandy silts.

(67.2-73.0) Fine sands, sandy silts, silts, clays.

(73.0-84.5) Fine sands, clays, silty clays, silty sands.

(84.5-97.0) Fine and very fine sands, silty sands, clay laminae.


S/C 98-103
S/C 108-113
95
100
105
110
115
120
16853
13851
13852
(97.0-113.0) Coarse cobbly gravelly dirty sandy till, granitic, dark metamorphics, shists, gneisses; 103-113 is cobble-rich; 103-107 cobbles, gravel; 107-108 gravelly sand, washed till?.
(113.0-122.0) BEDROCK; quartz-biotite schist w/ptygmatic quartz veins; sphene? present; 119-122 no core recovered.

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16839 | 208 | 15-20 | 5. | S | O | SE-SW | 27 | 62 | 20 | SL | RL. MED. TO C. SAND | | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16840 | 208 | 20-25 | 5. | S | O | SE-SW | 27 | 62 | 20 | SL | RL. MED. TO C. SAND | | 15-25 | 0.0 | 7800.0 | 1800.0 | 21.0 | 5.7 | 50.5 | 631.0 | 8 | 23 | 69 | SI(-63)=15-25 |
| 16840R | 208 | 20-25 | 5.0 | S | O | SE-SW | 27 | 62 | 20 | SL | RL. MED. TO C. SAND | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 16841 | 208 | 25-30 | 5. | S | O | SE-SW | 27 | 62 | 20 | SL | RL. GVL. SAND | | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16842 | 208 | 30-35 | 5. | S | O | SE-SW | 27 | 62 | 20 | SL | RL. F. TO V.F. SAND | | 25-35 | 0.0 | 14800.0 | 0.0 | 39.6 | 16.9 | 21.6 | 1050.0 | 2 | 0 | 98 | SI(-63)=25-35 |
| 16842R | 208 | 30-35 | 5.0 | S | O | SE-SW | 27 | 62 | 20 | SL | RL. F. TO V.F. SAND | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 16843 | 208 | 40-45 | 5. | S | O | SE-SW | 27 | 62 | 20 | SL | RL. F. TO V.F. SAND | | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16844 | 208 | 45-50 | 5. | S | O | SE-SW | 27 | 62 | 20 | SL | RL. F. TO V.F. SAND | | 40-50 | 0.0 | 17900.0 | 0.0 | 77.9 | 25.7 | 22.5 | 1246.0 | 2 | 0 | 98 | SI(-63)=40-50 |
| 16845 | 208 | 50-55 | 5. | S | O | SE-SW | 27 | 62 | 20 | SL | RL. F. TO V.F. SAND | | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16846 | 208 | 55-60 | 5. | S | O | SE-SW | 27 | 62 | 20 | SL | RL. F. TO V.F. SAND | | 50-60 | 0.0 | 20700.0 | 0.0 | 66.0 | 22.0 | 22.5 | 1369.0 | 2 | 0 | 98 | SI(-63)=50-60 |
| 16847 | 208 | 65-70 | 5. | S | O | SE-SW | 27 | 62 | 20 | SL | RL. F. TO V.F. SAND | | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16848 | 208 | 70-75 | 5. | S | O | SE-SW | 27 | 62 | 20 | SL | RL. F. TO V.F. SAND | | 65-75 | 0.0 | 22000.0 | 0.0 | 32.3 | 11.1 | 67.1 | 1577.0 | 4 | 0 | 96 | SI(-63)=65-75 |
| 16849 | 208 | 75-80 | 5. | S | O | SE-SW | 27 | 62 | 20 | SL | RL. F. TO V.F. SAND | | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16850 | 208 | 80-85 | 5. | S | O | SE-SW | 27 | 62 | 20 | SL | RL. SILTY SAND | | 75-85 | 0.0 | 13100.0 | 0.0 | 22.5 | 6.5 | 51.0 | 1086.0 | 5 | 0 | 95 | SI(-63)=75-85 |
| 16851 | 208 | 85-90 | 5. | S | O | SE-SW | 27 | 62 | 20 | SL | RL. SILT | | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16852 | 208 | 90-95 | 5. | S | O | SE-SW | 27 | 62 | 20 | SL | RL. F. TO V.F. SAND | | 85-95 | 0.0 | 16600.0 | 0.0 | 15.9 | 5.0 | 57.7 | 1187.0 | 5 | 0 | 95 | SI(-63)=85-95 |
| 16853 | 208 | 98-103 | 5. | S | O | SE-SW | 27 | 62 | 20 | SL | RL. SANDY GVL. TILL | | 98-103 | 0.0 | 3800.0 | 1900.0 | 6.2 | 1.3 | 19.8 | 293.0 | 7 | 50 | 43 | |
| 13345R | 208 | 98-103 | 5. | S | O | SE-SW | 27 | 62 | 20 | SL | RL. SANDY GVL. TILL | | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 23.6 | 320.0 | 7 | -1 | -1 | |
| 13851 | 208 | 108-113 | 5. | S | O | SE-SW | 27 | 62 | 20 | SL | PRE-WISCONSIN TILL | | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 24.7 | 329.0 | 8 | -1 | -1 | |
| 17573 | 208 | 108-113 | 5.0 | S | O | SE-SW | 27 | 62 | 20 | SL | PRE-WISCONSIN TILL | | 108-113 | 0.0 | 5200.0 | 1300.0 | 43.0 | 3.5 | -1.0 | -1.0 | -1 | 25 | -1 | |
| 13852 | 208 | 113-119 | 5.0 | S | O | SE-SW | 27 | 62 | 20 | SL | BEDROCK | | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16840 | 19 | 0.32 | 594 | 570 | 10000 | 19.10 | 98 | 97 | 63 | 130 | 0 | 23 | -11 | 8 | -0.5 | 0 | -10 | 1.5 | 900 | 253 | 39 | 6 | -10 | 41 | -2 | 120.0 | 6.7 | 3 | 16.70 |
| 16842 | 200 | 0.30 | 1450 | 860 | 12000 | 29.50 | 79 | 100 | 64 | 140 | 0 | 32 | -38 | 11 | -0.5 | 0 | -10 | 1.4 | -300 | 922 | 140 | 22 | -10 | 61 | -2 | 330.0 | 24.2 | 3 | 30.50 |
| 16844 | 120 | 0.22 | 991 | 500 | 11000 | 23.80 | 210 | 270 | 170 | 160 | 0 | 78 | -10 | 10 | -0.5 | 0 | -10 | 1.4 | 500 | 646 | 110 | 13 | -10 | 40 | -2 | 240.0 | 20.9 | 4 | 59.60 |
| 16846 | 69 | 0.78 | 1020 | 480 | 8600 | 24.00 | 210 | 220 | 140 | 150 | 0 | 87 | -14 | 11 | -0.5 | 0 | -10 | 0.5 | 500 | 663 | 100 | 13 | -10 | 27 | -2 | 250.0 | 23.7 | 3 | 50.60 |
| 16848 | 37 | 0.40 | 1000 | 490 | 8700 | 23.10 | 220 | 220 | 170 | 160 | 0 | 110 | -19 | 11 | -0.5 | 0 | -10 | 0.8 | 900 | 607 | 130 | 9 | -10 | 32 | -2 | 270.0 | 20.9 | 1 | 17.20 |
| 16850 | -5 | 0.29 | 1030 | 750 | 9000 | 27.00 | 220 | 230 | 170 | 160 | 0 | 76 | 22 | 10 | -0.5 | 0 | -10 | 1.0 | 700 | 556 | 110 | 9 | 10 | 30 | -2 | 250.0 | 21.4 | 2 | 12.00 |
| 16852 | 52 | 0.23 | 1000 | 1100 | 8200 | 26.00 | 240 | 260 | 280 | 160 | 0 | 190 | 20 | 10 | -0.5 | 0 | -10 | 2.9 | 1000 | 610 | 140 | -5 | -10 | 44 | 2 | 270.0 | 17.8 | 1 | 12.40 |
| 16853 | 40 | 0.38 | 660 | 440 | 8500 | 23.50 | 190 | 180 | 120 | 150 | 0 | 61 | -14 | 10 | -0.5 | 0 | -10 | 1.3 | 700 | 327 | 50 | 10 | -10 | 25 | -2 | 160.0 | 14.4 | 2 | 5.18 |
| 17573 | -5 | 0.48 | 300 | 350 | 289 | 13.00 | 100 | 120 | 66 | 400 | 15 | 8 | -10 | -2 | -0.1 | -5 | -200 | 0.4 | -100 | 140 | 18 | 4 | -12 | 7 | 0 | 55.0 | 6.2 | 8 | 32.21 |

-63uM ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | V | CR | MN | FE % | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13845R | -1 | 92 | 130 | 400 | 3.1 | 18 | 38 | 31 | 55 | 2 | -1 | 6 | -0.5 | -1 | 9 | -1 | -1 | 4 | 12 | -1 | -1 | 73.8 |
| 13851 | -1 | 170 | 87 | 400 | 3.2 | 15 | 32 | 23 | 84 | 12 | -1 | 3 | -0.5 | -1 | 6 | -1 | -1 | -1 | 15 | -1 | 2 | 75.1 |
| 16840 | 15 | 110 | 170 | 650 | 4.6 | 35 | 78 | 90 | 70 | 11 | -1 | 6 | -0.5 | -1 | 1 | -1 | -1 | 2 | 14 | -1 | -1 | 80.0 |
| 16840R | 0 | 0 | 160 | 0 | 0.0 | 0 | 0 | 0 | 80 | 8 | -1 | 5 | -0.5 | 1 | 1 | -1 | 0 | 2 | 0 | 0 | 0 | 0.0 |
| 16842 | -1 | 110 | 140 | 520 | 5.1 | 35 | 66 | 80 | 61 | 25 | -1 | 4 | -0.5 | -1 | 1 | -1 | -1 | 1 | 21 | -1 | 1 | 20.6 |
| 16842R | 0 | 0 | 130 | 0 | 0.0 | 0 | 0 | 0 | 67 | 14 | 1 | 3 | -0.5 | -1 | 1 | -1 | 0 | 1 | 0 | 0 | 0 | 0.0 |
| 16844 | 13 | 82 | 130 | 540 | 3.6 | 24 | 46 | 33 | 46 | 5 | -1 | 2 | -0.5 | 1 | -1 | -1 | -1 | -1 | 12 | -1 | -1 | 18.1 |
| 16846 | 8 | 89 | 140 | 630 | 4.1 | 28 | 51 | 37 | 53 | 5 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | -1 | 14 | -1 | 1 | 16.4 |
| 16848 | -1 | 63 | 91 | 450 | 2.7 | 18 | 34 | 23 | 36 | 9 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | -1 | 9 | -1 | -1 | 42.5 |
| 16850 | 1 | 60 | 90 | 400 | 2.5 | 17 | 31 | 21 | 37 | 3 | -1 | 2 | -0.5 | 1 | -1 | -1 | -1 | -1 | 11 | -1 | -1 | 47.0 |
| 16852 | -1 | 73 | 100 | 440 | 3.0 | 20 | 41 | 28 | 42 | 3 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | -1 | 10 | -1 | -1 | 48.6 |
| 16853 | 1 | 76 | 120 | 450 | 3.1 | 19 | 36 | 29 | 51 | 3 | -1 | 6 | -0.5 | -1 | 1 | -1 | -1 | 2 | 12 | -1 | -1 | 67.6 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 16840 | 1.400 | 3.30 | 2100 | 140 | 31 | 310 | -1 | -1 | 0.5 | 24 | 0.7 |
| 16842 | 1.000 | 4.00 | 1900 | 130 | 25 | 360 | -1 | -1 | 0.5 | 30 | 1.1 |
| 16852 | 0.710 | 1.70 | 2400 | 210 | 36 | 370 | -1 | -1 | -0.5 | -1 | 0.3 |
| 16853 | 0.810 | 1.70 | 1200 | 160 | 100 | 290 | 1 | -1 | -0.5 | -1 | 0.3 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13852 | -8 | -0.2 | 1.3 | 0 | 0.0 | 0 | 59.0 | 0.0 | 310 | 28 | 0 | 3 | -50 | 4.8 | 33 | 0.0 | 0 | 0 | 0 | 0.00 | 0.0 | -5 | -2 | 1.90 | 0.0 | 0 | 0.0 | 7.4 | 0 | -3 | 2.6 | 0 | 100 | 0 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FED % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13852 | 0 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | -270 | 0 | 0 | -3 | 540 | -1.4 | 0 | 0.00 | 0 |

## LEGEND

ST = Sample interval length (feet)
D = Drilling method for this hole:
S = Rotasonic
M = Mud Rotary
A = Air Rotary
G = Area name: L = Little Fork
O = Orr
FORTY = Forty acre location, i.e. SE 1/4-NW1/4
LEGAL DESC = Section-Township(N)-Range(W)
COUNTY: K = Koochiching
SL = St. Louis
DRIFT TYPE: DML = Des Moines Lobe
RL = Rainy Lobe
ASSAY FTG = Assayed Footage Composite, for HMC or bedrock
GOLD GRAINS = # of gold grains counted by ODM in Heavy Mineral Concentrate
WT (g) HMC FEED = Feed weight (grams) for heavy mineral concentrate sample
WT (g) +10 FEED = Weight (grams) of +10 mesh in feed weight
WT (g) NONMAG = Weight (grams) of nonmagnetic heavy mineral conc from feed
WT (g) MAG = Weight (grams) of magnetic heavy mineral conc from feed
WT (g) -63uM = Weight (grams) of -63 micron screen fraction
WT (g) -63 FEED = Weight (grams) of feed for -63 micron screening
WT % -63uM = Wt% -63 micron fraction, dry screen from feed
WT % +10 = Wt% +10 mesh fraction from HMC flowsheet
WT % SAND = Wt% by difference of -63um and +10 mesh

REMARKS = SI Sample Interval of -63um

WT g/kg = Weight of this fraction divided wt of feed in kg x 1000
-1 (in Master File only) = Analysis not performed on this sample
-2 (in Master File only) = Not applicable for this sample
Sample Number Suffix (example 18808R)
R = Replicate split of same sample number
S = An analytical standard sample: Lab result
V = An analytical standard sample: certified values
C = Recleaned the +10M fraction that was found to contain silty-clay lumps
A or B = Two separate samples if extremely large sample wt, i.e. mudpit

## Appendix 8-36A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-209

Drilling Completion Date 12/11/85

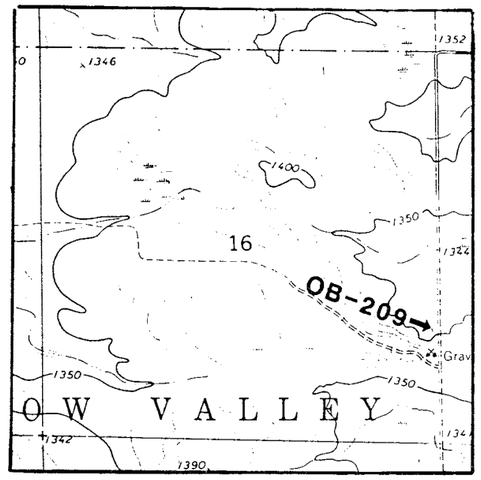
LOCATION (see map at right)

S-T-R NE¼-SE¼-16-63N-20W

County St. Louis

Quadrangle Gheen N.W. 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1346 ft.

Total Depth 113 ft.

Elevation, Top of Precambrian Bedrock 1241 ft.

Drilling Method Rotasonic

Sample Diameter 3.5 inch

Sample Collection Method Core: Sleeved & Boxed

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-1 | Organic Sediments | | | |
| 1-39.5 | Des Moines Lobe Gl. Drift | | | |
| 39.5-105 | Rainy Lobe Gl. Drift | G | A,B,C | B = Au,Co,Se |
| 105-113 | Bedrock | G,H | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Layered Hornblende-Biotite Schist/Gneiss at 107-111.5 ft., Biotite Schist (Metagraywacke) at 111.5-113 ft, with veins of Meta-granite or Quartz Syenite (Monzonite?)

Thin Section Description: (By T. Boerboom, MGS) #13861 at 107 ft. Layered hornblende-biotite schist/gneiss. Estimated mode overall rock (volume %): Hornblende, 5; Biotite (green-brown), 16;Plagioclase, 23; Orthoclase, 30; Quartz, 23; Apatite, 1; Sphene, 1; Epidote, 1; Opaques, Tr; Chlorite, Tr. Rock consists of two mineralogically and texturally distinct layer types. One layer is more hornblende-poor, biotite-rich, finer grained and equigranular than the other. The coarser grained portion contains grains (up to 2 mm) of perthitic or tartan-twinned orthoclase which are apparently remnants of a primary igneous rock, such as granodiorite or quartz monzonite. The fine-grained layer apparently lacks orthoclase (would need stain), contains abundant biotite, and has an even grain size suggesting a protolith of pelitic sediment. Foliation is parallel to the mineralogical layering. Hornblende-rich portion is possibly similar to #13862.

#13862 at 109.5 ft. Meta-granite or quartz syenite (monzonite?). Estimated mode (volume %): Orthoclase, 50; Plagioclase, 14; Quartz, 10; Biotite (green), 17; Hornblende 2; Epidote, 5; Sphene, 1 or more; Apatite, 1 or less; Zircon, Tr. Relatively low in quartz, rich in K-feldspar. Heavily recrystallized rock contains abundant 1 to 3 mm K-feldspar crystals and feldspar-quartz porphyroclasts in a finer-grained, granoblastic, biotite-rich matrix. Individual tabular feldspar crystals are compositionally zoned. The volume of plagioclase is questionable, but seems low; staining would be necessary to determine. K-feldspar is grid-twinned and perthitic.

#13863 at 112.5 ft. Biotite schist (metagraywacke). Estimated mode (volume %): Biotite (green), 13; Chlorite, 12; Feldspar, 45; Quartz, 30; Epidote, Tr; Opaques, Tr; Zeolite, Tr. On a macroscopic scale the rock consists of alternating light and dark layers, 1 cm or less in thickness. On a microscopic scale, each of the light-colored layers has a zeolite veinlet at the center, and along each side of the veinlet the feldspar is heavily sericitized and the biotite converted to chlorite. Feldspar composition is questionable, but the refractive index (n less than quartz) and lack of twinning indicate that it is albite.

## HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | DESCRIPTION | | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 16878CP | 14.3 | 0.6 | 13.7 | 177.8 | 153.9 | 23.9 | 18.1 | 5.8 | 0 | NA | P | 40 | 60 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -880CP | 13.4 | 0.4 | 13.0 | 261.7 | 245.9 | 15.8 | 12.7 | 3.1 | 0 | NA | P | 30 | 70 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -882CP | 12.6 | 4.3 | 8.3 | 148.9 | 125.9 | 23.0 | 19.2 | 3.8 | 1 | 151 | P | 60 | 40 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -883 | 5.4 | 2.4 | 3.0 | 79.4 | 67.8 | 11.6 | 9.6 | 2.0 | 0 | NA | P | 70 | 30 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -885CP | 8.2 | 3.5 | 4.7 | 97.0 | 75.8 | 21.2 | 17.7 | 3.5 | 3 | 269 | P | 80 | 20 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -886 | 9.3 | 1.5 | 7.8 | 132.9 | 103.6 | 29.3 | 24.6 | 4.7 | 0 | NA | P | 80 | 20 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -887 | 6.5 | 3.4 | 3.1 | 101.3 | 87.4 | 13.9 | 11.2 | 2.7 | 0 | NA | P | 80 | 20 | NA | NA | U | Y | Y | Y | B | B | TILL |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16878 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -880 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -882 | N | 100 X 150 | 25 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | TOTAL | 1 | 19.2 | 151 | |
| -885 | Y | 50 X 75 | 13 C | | 1 | | | | | 1 | | | EST. 10% PYRITE |
| | | 100 X 100 | 20 C | 1 | | | | | | 1 | | | 200 FINE (50 MICRONS) |
| | | 100 X 150 | 25 C | 1 | | | | | | 1 | | | MARCASITE (GLOBULAR) |
| | | | | | | | | | TOTAL | 3 | 17.7 | 269 | |
| -886 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -887 | N | NO VISIBLE GOLD | | | | | | | | | | | |

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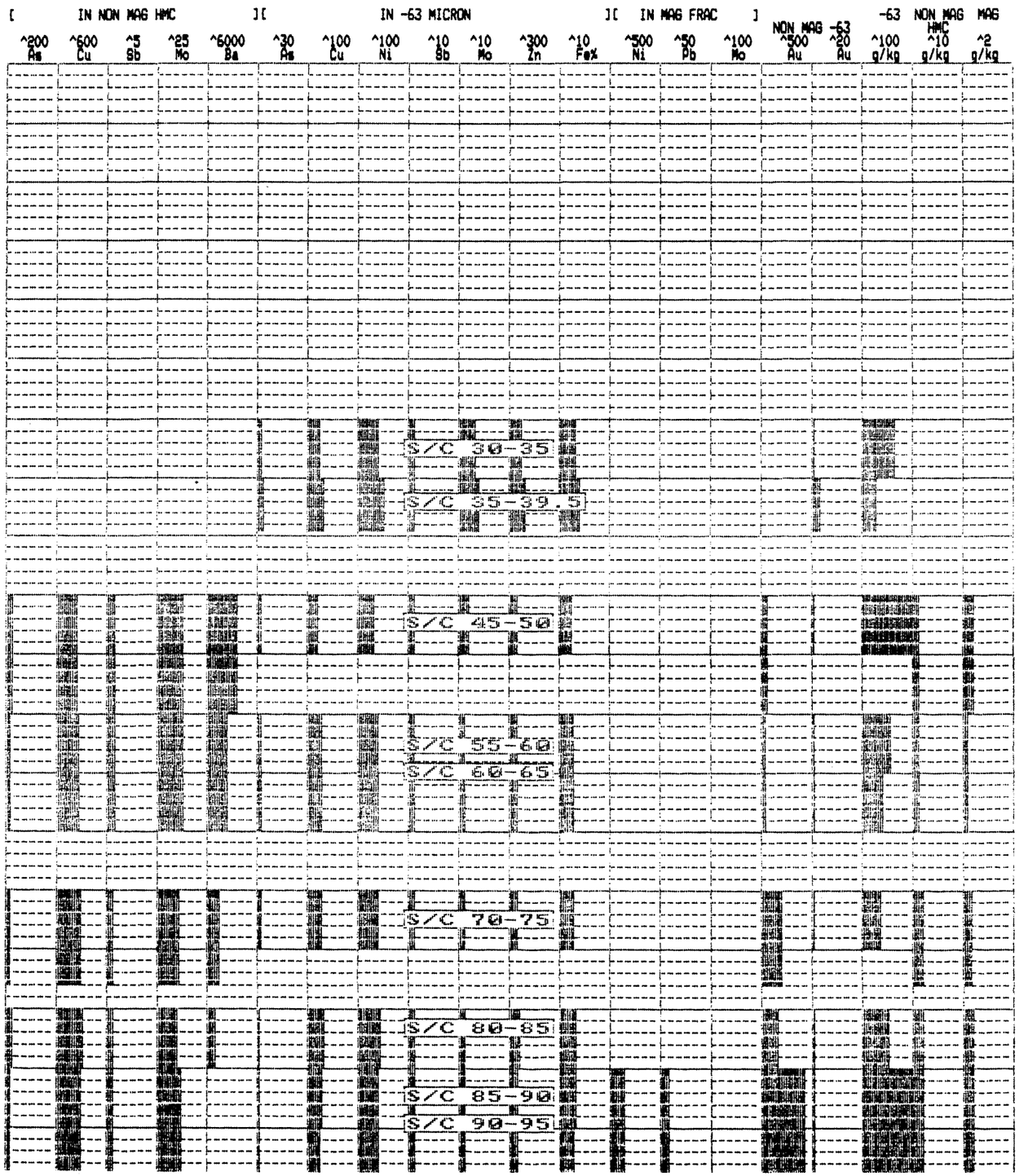
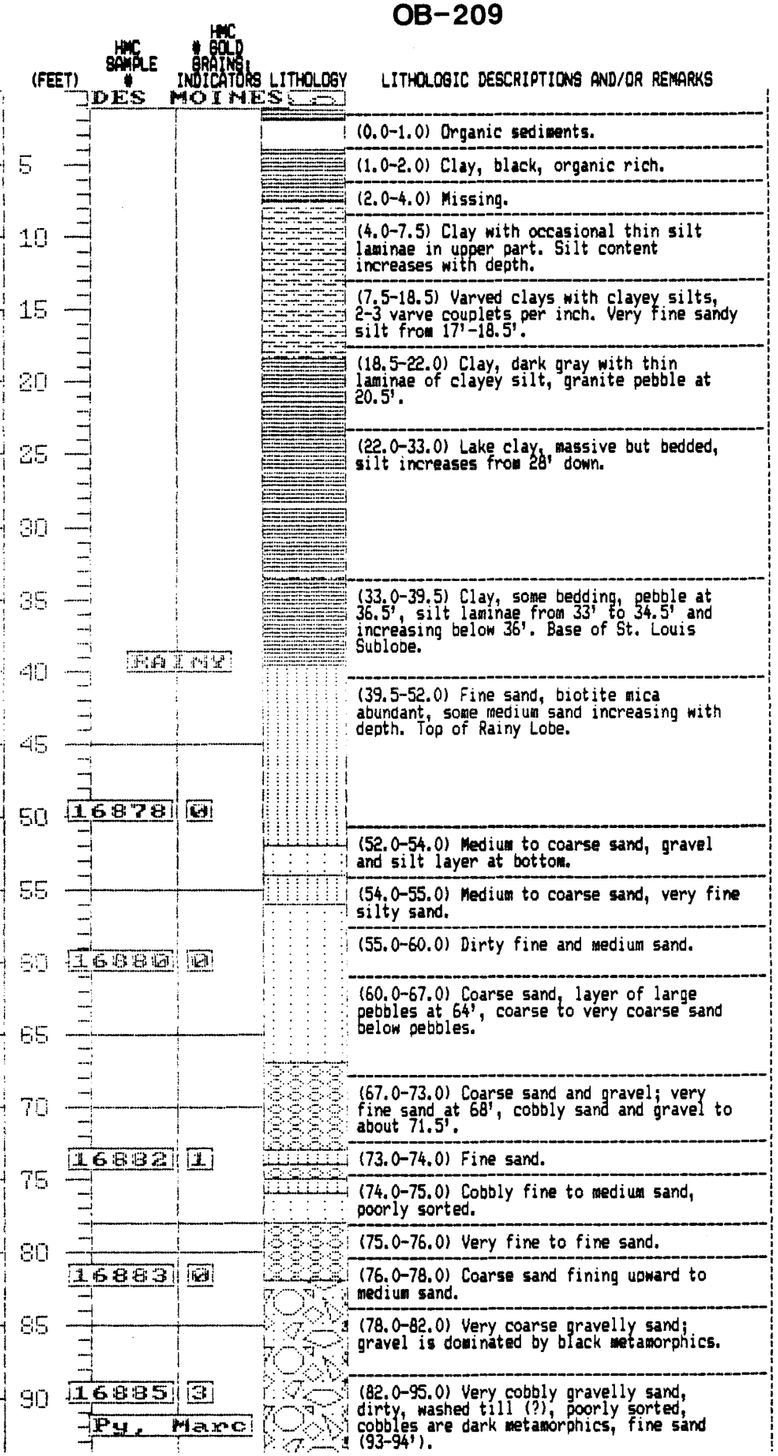
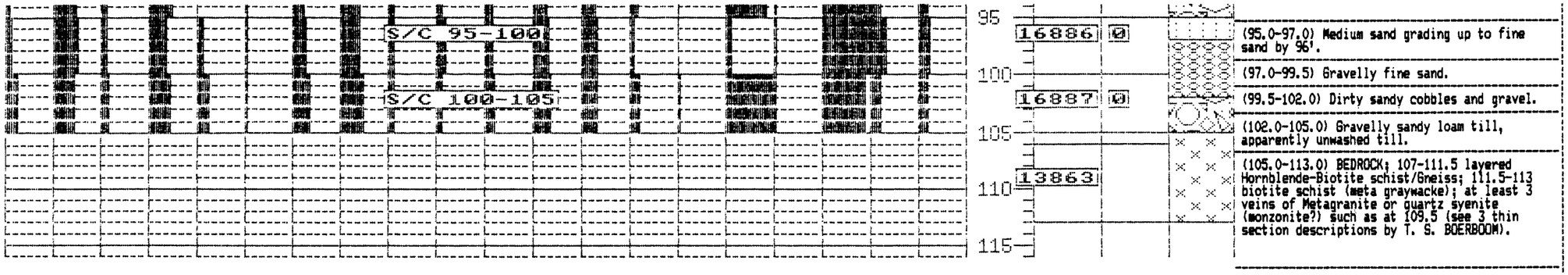
SUMMARY OF G. MEYER LOG OB-209, ROTASONIC CORE

# OB-209

Appendix 8-36B.






(95.0-97.0) Medium sand grading up to fine sand by 96'.

(97.0-99.5) Gravelly fine sand.

(99.5-102.0) Dirty sandy cobbles and gravel.

(102.0-105.0) Gravelly sandy loam till, apparently unwashed till.

(105.0-113.0) BEDROCK; 107-111.5 layered Hornblende-Biotite schist/Gneiss; 111.5-113 biotite schist (meta graywacke); at least 3 veins of Metagranite or quartz syenite (monzonite?) such as at 109.5 (see 3 thin section descriptions by T. S. BOERBOOM).

Appendix 8-36C.

## MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16875 | 209 | 30-35 | 5. | S | O | NE-SE | 16 | 63 | 20 | SL | DML CLAY: GLACIAL LK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 45.7 | 696.0 | 7 | -1 | -1 | |
| 16876 | 209 | 35-39.5 | 4.5 | S | O | NE-SE | 16 | 63 | 20 | SL | DML CLAY: GLACIAL LK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 22.8 | 765.0 | 3 | -1 | -1 | |
| 16877 | 209 | 45-50 | 5. | S | O | NE-SE | 16 | 63 | 20 | SL | RL. F. TO V.F. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 61.1 | 533.0 | 11 | -1 | -1 | |
| 16878 | 209 | 50-55 | 5. | S | O | NE-SE | 16 | 63 | 20 | SL | RL. MED. TO C. SAND | 45-55 | 0.0 | 14300.0 | 600.0 | 18.1 | 5.8 | -1.0 | -1.0 | -1 | 4 | -1 | |
| 16879 | 209 | 55-60 | 5. | S | O | NE-SE | 16 | 63 | 20 | SL | RL. F. TO V.F. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 34.5 | 628.0 | 5 | -1 | -1 | |
| 16880 | 209 | 60-65 | 5. | S | O | NE-SE | 16 | 63 | 20 | SL | RL. GVL. SAND | 55-65 | 0.0 | 13400.0 | 400.0 | 12.7 | 3.1 | 23.6 | 576.0 | 4 | 3 | 93 | |
| 16881 | 209 | 70-75 | 5. | S | O | NE-SE | 16 | 63 | 20 | SL | RL. GVL. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 29.1 | 782.0 | 4 | -1 | -1 | |
| 16882 | 209 | 75-78 | 3. | S | O | NE-SE | 16 | 63 | 20 | SL | RL. MED. TO C. SAND | 70-78 | 1.0 | 12600.0 | 4300.0 | 19.2 | 3.8 | -1.0 | -1.0 | -1 | 34 | -1 | |
| 16883 | 209 | 80-85 | 5. | S | O | NE-SE | 16 | 63 | 20 | SL | RL. GVL. SAND | 80-85 | 0.0 | 5400.0 | 2400.0 | 9.6 | 2.0 | 23.9 | 446.0 | 5 | 44 | 51 | |
| 16884 | 209 | 85-90 | 5. | S | O | NE-SE | 16 | 63 | 20 | SL | RL. GVL. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 54.6 | 415.0 | 13 | -1 | -1 | |
| 13846R | 209 | 85-90 | 5. | S | O | NE-SE | 16 | 63 | 20 | SL | RL. GVL. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 28.7 | 422.0 | 7 | -1 | -1 | |
| 16885 | 209 | 90-95 | 5. | S | O | NE-SE | 16 | 63 | 20 | SL | RL. GVL. SAND | 85-95 | 3.0 | 8200.0 | 3500.0 | 17.7 | 3.5 | 54.9 | 349.0 | 16 | 43 | 41 | |
| 16886 | 209 | 95-100 | 5. | S | O | NE-SE | 16 | 63 | 20 | SL | RL. GVL. SAND | 95-100 | 0.0 | 9300.0 | 1500.0 | 24.6 | 4.7 | 59.3 | 570.0 | 10 | 16 | 74 | |
| 16887 | 209 | 100-105 | 5. | S | O | NE-SE | 16 | 63 | 20 | SL | RL. SANDY GVL. TILL | 100-105 | 0.0 | 6500.0 | 3400.0 | 11.2 | 2.7 | 40.2 | 465.0 | 9 | 52 | 39 | |
| 16887R | 209 | 100-105 | 5.0 | S | O | NE-SE | 16 | 63 | 20 | X | RL. SANDY GVL. TILL | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 13861 | 209 | 106-107 | 1.0 | S | O | NE-SE | 16 | 63 | 20 | SL | BEDROCK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 13862 | 209 | 107-111.5 | 4.5 | S | O | NE-SE | 16 | 63 | 20 | SL | BEDROCK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 13863 | 209 | 111.5-113 | 1.5 | S | O | NE-SE | 16 | 63 | 20 | SL | BEDROCK | 106-113 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |

## NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SE | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16875 | 57 | 0.14 | 1310 | 400 | 10000 | 23.20 | 310 | 290 | 250 | 160 | 0 | 20 | 25 | 13 | -0.5 | 0 | -10 | -0.8 | 3600 | 623 | 110 | 11 | -10 | 65 | 2 | 300.0 | 27.0 | 1 | 13.50 |
| 16880 | -40 | 0.13 | 1030 | 340 | 11000 | 22.50 | 320 | 290 | 260 | 160 | 0 | 15 | -15 | 13 | -0.5 | 0 | -10 | -0.9 | 2500 | 433 | 68 | 6 | -10 | 52 | -2 | 210.0 | 21.1 | 1 | 9.61 |
| 16882 | 200 | 0.09 | 907 | 380 | 10000 | 23.70 | 420 | 330 | 280 | 150 | 0 | 15 | -14 | 11 | -0.5 | 0 | -10 | -0.7 | 1400 | 406 | 64 | 8 | 10 | 75 | 2 | 220.0 | 18.0 | 2 | 14.20 |
| 16883 | 170 | 0.13 | 816 | 330 | 10000 | 25.40 | 460 | 330 | 300 | 130 | 0 | 27 | -10 | 10 | -0.5 | 0 | -10 | -0.6 | 900 | 340 | 48 | 9 | 60 | 73 | 2 | 190.0 | 16.6 | 2 | 7.56 |
| 16885 | 420 | 0.11 | 767 | 330 | 9700 | 25.80 | 500 | 320 | 290 | 140 | 0 | 16 | -14 | 12 | -0.5 | 0 | -10 | 0.7 | 100 | 347 | 60 | 9 | 10 | 74 | 2 | 190.0 | 15.0 | 2 | 13.40 |
| 16886 | 69 | 0.15 | 756 | 330 | 11000 | 23.50 | 490 | 350 | 300 | 150 | 0 | 22 | 39 | 9 | -0.5 | 0 | -10 | -0.6 | 500 | 364 | 68 | 8 | 30 | 75 | 2 | 180.0 | 15.4 | 3 | 18.20 |
| 16887 | 120000 | 0.13 | 1050 | 360 | 9700 | 24.20 | 460 | 300 | 250 | 130 | 0 | 44 | -11 | 11 | -0.5 | 0 | -10 | -0.9 | -1400 | 430 | 57 | 12 | 10 | 73 | 2 | 210.0 | 28.6 | 2 | 8.19 |

## MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 16885 | 0.580 | 1.70 | 1600 | 150 | 41 | 320 | -1 | -1 | -0.5 | 8 | 0.4 |
| 16886 | 0.550 | 1.70 | 1900 | 170 | 34 | 350 | -1 | -1 | -0.5 | 4 | 0.5 |
| 16887 | 0.650 | 1.70 | 1300 | 150 | 44 | 300 | -1 | 2 | -0.5 | 10 | 0.4 |

## -63uM ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | V | CR | MN | FE % | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13846R | -1 | 77 | 110 | 430 | 2.7 | 17 | 36 | 29 | 43 | 1 | -1 | 1 | -0.5 | -1 | 9 | -1 | -1 | -1 | 14 | -1 | -1 | 68.0 |
| 16875 | -1 | 99 | 100 | 540 | 3.2 | 20 | 38 | 24 | 70 | 3 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | -1 | 17 | -1 | 2 | 65.7 |
| 16875 | 3 | 120 | 120 | 580 | 3.9 | 24 | 50 | 32 | 96 | 4 | 1 | 4 | -0.5 | 1 | 1 | -1 | -1 | -1 | 22 | -1 | 2 | 29.8 |
| 16877 | -1 | 58 | 97 | 360 | 2.3 | 17 | 31 | 21 | 45 | 2 | 1 | 2 | -0.5 | 1 | -1 | -1 | -1 | -1 | 20 | -1 | 1 | 114.6 |
| 16879 | -1 | 61 | 110 | 390 | 2.7 | 19 | 39 | 28 | 50 | 2 | -1 | 1 | -0.5 | 1 | 1 | -1 | -1 | -1 | 15 | -1 | 1 | 54.9 |
| 16880 | 1 | 67 | 110 | 400 | 2.8 | 19 | 38 | 29 | 52 | 2 | -1 | 1 | -0.5 | 1 | 1 | -1 | -1 | -1 | 19 | -1 | 1 | 41.0 |
| 16881 | -1 | 59 | 110 | 420 | 2.7 | 19 | 39 | 26 | 48 | 2 | -1 | 1 | -0.5 | 1 | 1 | -1 | -1 | -1 | 20 | -1 | 2 | 37.2 |
| 16883 | 1 | 71 | 120 | 420 | 3.0 | 23 | 43 | 30 | 55 | -1 | -1 | 1 | -0.5 | 1 | -1 | -1 | -1 | 1 | 18 | -1 | -1 | 53.6 |
| 16884 | -1 | 71 | 120 | 510 | 3.0 | 21 | 39 | 26 | 46 | 1 | -1 | -1 | -0.5 | -1 | 1 | -1 | -1 | -1 | 18 | -1 | 1 | 131.6 |
| 16885 | -1 | 67 | 120 | 480 | 2.9 | 22 | 39 | 25 | 48 | 1 | -1 | 1 | -0.5 | -1 | 1 | -1 | -1 | -1 | 16 | -1 | -1 | 157.3 |
| 16886 | -1 | 74 | 120 | 530 | 3.1 | 24 | 39 | 26 | 44 | 1 | -1 | 2 | -0.5 | 1 | 1 | -1 | -1 | 3 | 18 | -1 | 1 | 104.0 |
| 16887 | -1 | 82 | 130 | 550 | 3.5 | 26 | 46 | 37 | 62 | 1 | -1 | 1 | -0.5 | 1 | -1 | -1 | -1 | 9 | 20 | -1 | 1 | 86.5 |
| 16887R | 0 | 0 | 100 | 0 | 0.0 | 0 | 0 | 0 | 60 | 2 | -1 | 2 | -0.5 | -1 | 1 | -1 | 0 | 9 | 0 | 0 | 0 | 0.0 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13863 | -8 | -0.2 | -1.2 | 1300 | 0.0 | 1 | 82.0 | 0.0 | 210 | 17 | 0 | 3 | -50 | 4.1 | 47 | 0.0 | 2 | 52 | 100 | 0.00 | 0.0 | -5 | -2 | 2.90 | -8.0 | -10 | 0.0 | 7.4 | -10 | -2 | 2.0 | 0 | 100 | 0 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13863 | 46 | 24 | 94 | 640 | 2.0 | 0 | 46 | 3 | 0.02 | 33000 | 16000 | 5.21 | 62.8 | 0.00 | -50 | 21000 | 23000 | 3.5 | -300 | 670 | 7 | -3 | 1200 | -2.6 | -2 | 1.08 | 38000 |

## Appendix 8-37A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-210

Drilling Completion Date 12/8/85

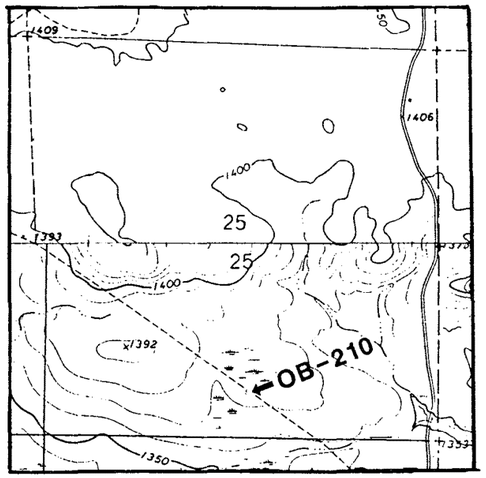
LOCATION (see map at right)

S-T-R SW¼-SE¼-25-64N-21W

County St. Louis

Quadrangle Gheen N.W. 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1367 ft.

Total Depth 54 ft.

Elevation, Top of Precambrian Bedrock 1318 ft.

Drilling Method Rotasonic

Sample Diameter 3.5 inch

Sample Collection Method Core: Sleeved & Boxed

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-21.5 | Des Moines Lobe Gl. Drift | G | A,B,C | |
| 21.5-49 | Rainy Lobe Gl. Drift | G | A,B,C | C = Cu,Ni |
| 49-54 | Bedrock | G,H | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: (Quartz) Monzonite or Monzodiorite (Streckeisen classification)

Thin Section Description: #13854 at 53 ft. (Quartz) monzonite or monzodiorite (Streckeisen classification). Estimated mode (volume %): Quartz, 6; Chlorite, 20; Plagioclase, 65; Orthoclase, 9; Pyrite, Tr; Apatite, Tr. Quartz-poor rock having plagioclase to alkali feldspar ratio of about 85:15. Primary mafic minerals are completely altered to chlorite, which is well aligned and wraps around primary feldspar grains. Plagioclase is moderately to heavily sericitized; microcline typically shows tartan twinning and is fresh. Veins of quartz and microcline cut rock parallel to foliation.



#13855 at 48 ft. pebble. Carbonaceous garnet-biotite schist (metapelite). Estimated mode (volume %): Quartz, 30; Feldspar (oligoclase), 50; Biotite, 18; Garnet (almandine), 1; Graphitic material, less than 1; Apatite, Tr. Very clean and fresh rock consisting of 0.1 to 0.5 mm polygonal quartz and feldspar (stain would be necessary to distinquish); stubby, well aligned biotite laths 0.5 mm long; garnets less than 1 mm across with sieve-textured cores and solid rims, pale yellow-orange in color. Carbonaceous material lines fractures, parallel to and at about 40° to foliation. (By T. Boerboom, MGS)

## HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 17013CP | 20.3 | 0.1 | 20.2 | 64.3 | 60.6 | 3.7 | 2.8 | 0.9 | 0 | NA | P | 30 | 70 | TR | 3 | S | F | Y | Y | B | B | SAND |
| -017CP | 24.0 | 5.8 | 18.2 | 226.0 | 137.5 | 88.5 | 82.7 | 5.8 | 2 | 27 | P | 80 | 20 | NA | NA | U | Y | Y | Y | GB | GB | TILL |
| -018 | 8.1 | 1.6 | 6.5 | 104.6 | 62.4 | 42.2 | 39.2 | 3.0 | 0 | NA | P | 80 | 20 | NA | NA | U | Y | Y | Y | GB | GB | TILL |
| -019 | 6.4 | 2.4 | 4.0 | 87.5 | 58.1 | 29.4 | 27.6 | 1.8 | 0 | NA | P | 80 | 20 | NA | NA | U | Y | Y | Y | GB | GB | TILL |

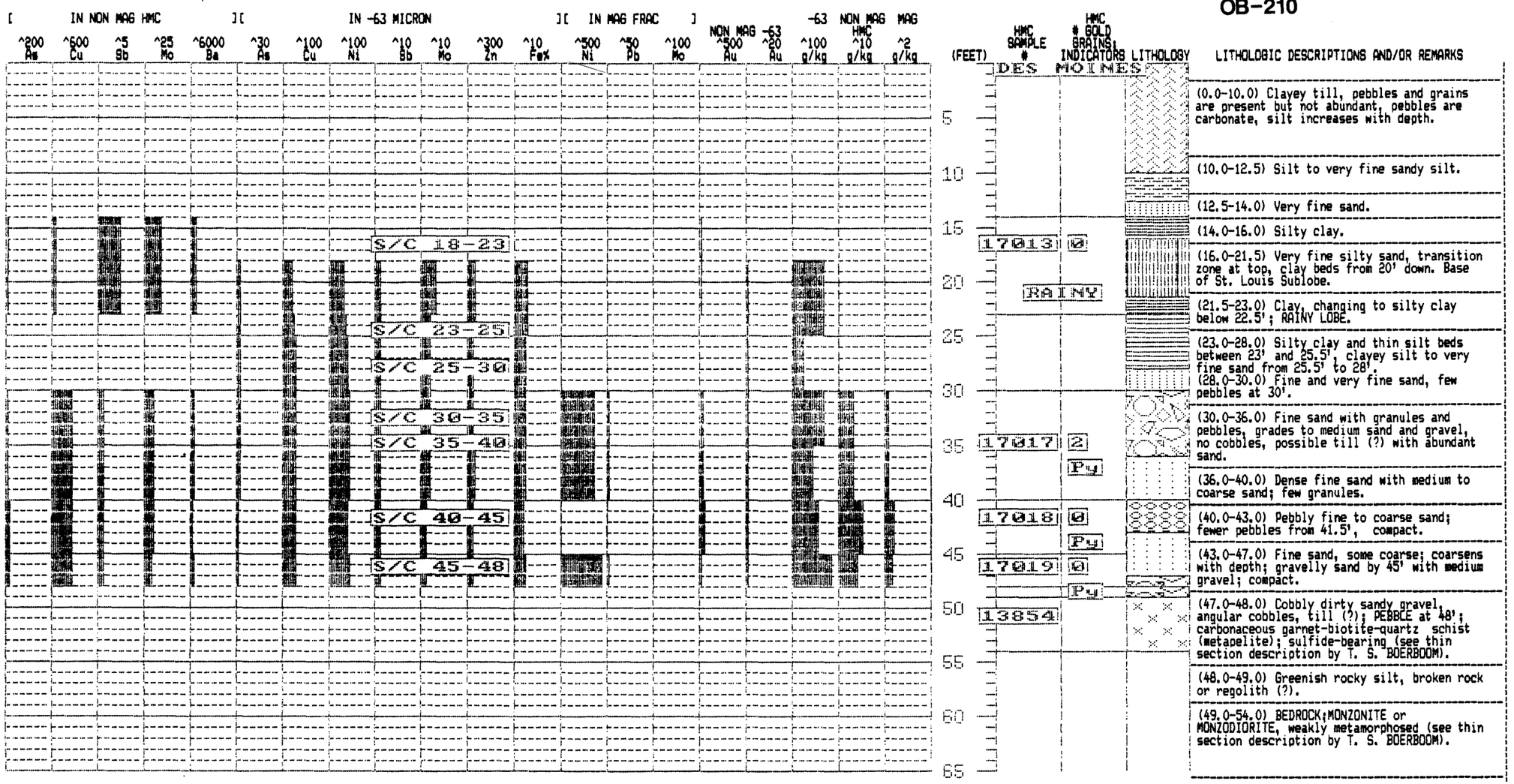
GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | NUMBER OF GRAINS: ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | NON MAG TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17013 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -017 | Y | 25 X 50 | 8 C | | 1 | | | | | 1 | | | EST. 20% PYRITE |
| | | 100 X 125 | 22 C | | 1 | | | | | 1 | | | |
| | | | | | | | | | TOTAL | 2 | 82.7 | 27 | |
| -018 | Y | NO VISIBLE GOLD | | | | | | | | | | | EST. 25% PYRITE |
| -019 | Y | NO VISIBLE GOLD | | | | | | | | | | | EST. 25% PYRITE |

SUMMARY OF G. MEYER LOG OB-210, ROTASONIC CORE

# OB-210




LITHOLOGIC DESCRIPTIONS AND/OR REMARKS

(0.0-10.0) Clayey till, pebbles and grains are present but not abundant, pebbles are carbonate, silt increases with depth.

(10.0-12.5) Silt to very fine sandy silt.

(12.5-14.0) Very fine sand.

(14.0-16.0) Silty clay.

(16.0-21.5) Very fine silty sand, transition zone at top, clay beds from 20' down. Base of St. Louis Sublobe.

(21.5-23.0) Clay, changing to silty clay below 22.5'; RAINY LOBE.

(23.0-28.0) Silty clay and thin silt beds between 23' and 25.5', clayey silt to very fine sand from 25.5' to 28'.
(28.0-30.0) Fine and very fine sand, few pebbles at 30'.

(30.0-36.0) Fine sand with granules and pebbles, grades to medium sand and gravel, no cobbles, possible till (?) with abundant sand.

(36.0-40.0) Dense fine sand with medium to coarse sand; few granules.

(40.0-43.0) Pebbly fine to coarse sand; fewer pebbles from 41.5', compact.

(43.0-47.0) Fine sand, some coarse; coarsens with depth; gravelly sand by 45' with medium gravel; compact.

(47.0-48.0) Cobbly dirty sandy gravel, angular cobbles, till (?); PEBBLE at 48'; carbonaceous garnet-biotite-quartz schist (metapelite); sulfide-bearing (see thin section description by T. S. BOERBOOM).

(48.0-49.0) Greenish rocky silt, broken rock or regolith (?).

(49.0-54.0) BEDROCK;MONZONITE or MONZODIORITE, weakly metamorphosed (see thin section description by T. S. BOERBOOM).

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY DESC | LEGAL | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT(g) -63uM | WT (g) MAG | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17011 | 210 | 5-10 | 5. | S | D | SW-SE | 25 | 64 | 21 | SL | DML. CLAYEY TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 17012 | 210 | 14-18 | 4. | S | D | SW-SE | 25 | 64 | 21 | SL | DML CLAY: GLACIAL LK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 17013 | 210 | 18-23 | 5. | S | D | SW-SE | 25 | 64 | 21 | SL | DML. F. TO V.F. SAND | 14-23 | 0.0 | 20300.0 | 100.0 | 2.8 | 0.9 | 45.8 | 659.0 | 7 | 0 | 93 | | |
| 17014 | 210 | 23-25 | 2. | S | D | SW-SE | 25 | 64 | 21 | SL | RL. CLAY: GLACIAL LK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 26.2 | 377.0 | 7 | -1 | -1 | | |
| 17015 | 210 | 25-30 | 5. | S | D | SW-SE | 25 | 64 | 21 | SL | RL. SILTY SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 23.5 | 908.0 | 3 | -1 | -1 | | |
| 17016 | 210 | 30-35 | 5. | S | D | SW-SE | 25 | 64 | 21 | SL | RL. GVL. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 63.5 | 945.0 | 7 | -1 | -1 | | |
| 13847R | 210 | 30-35 | 5. | S | D | SW-SE | 25 | 64 | 21 | SL | RL. GVL. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 50.2 | 1200.0 | 4 | -1 | -1 | | |
| 17017 | 210 | 35-40 | 5. | S | D | SW-SE | 25 | 64 | 21 | SL | RL. F. TO V.F. SAND | 30-40 | 2.0 | 24000.0 | 5800.0 | 82.7 | 5.8 | 28.9 | 642.0 | 5 | 24 | 71 | | |
| 17018 | 210 | 40-45 | 5. | S | D | SW-SE | 25 | 64 | 21 | SL | RL. GVL. SAND | 40-45 | 0.0 | 8100.0 | 1600.0 | 39.2 | 3.0 | 29.4 | 529.0 | 6 | 20 | 74 | | |
| 17019 | 210 | 45-48 | 3. | S | D | SW-SE | 25 | 64 | 21 | SL | RL. GVL. SAND | 45-48 | 0.0 | 6400.0 | 2400.0 | 27.6 | 1.8 | 34.7 | 413.0 | 8 | 38 | 54 | | |
| 13855 | 210 | 48 | -2.0 | S | D | SW-SE | 25 | 64 | 21 | SL | PEBBLES/BOULDERS | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | SAMP. BOULDER AT 48 | |
| 13853 | 210 | 49-52 | 3.0 | S | D | SW-SE | 25 | 64 | 21 | SL | BEDROCK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | | |
| 13854 | 210 | 52-54 | 2.0 | S | D | SW-SE | 25 | 64 | 21 | SL | BEDROCK | 49-54 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | ABS | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17013 | 23 | 0.32 | 1890 | 370 | 9100 | 16.30 | 38 | 79 | 50 | 190 | 0 | 11 | 80 | 9 | -0.5 | 0 | -10 | 2.4 | 700 | 777 | 200 | 11 | 20 | 440 | -2 | 230.0 | 33.7 | 0 | 3.38 |
| 17017 | -33 | 0.29 | 431 | 270 | 13000 | 27.50 | 260 | 320 | 260 | 110 | 0 | -8 | -10 | 5 | 1.0 | 0 | -10 | -0.7 | 400 | 285 | 89 | 4 | -10 | 35 | -2 | 100.0 | 15.4 | 3 | 60.80 |
| 17018 | 51 | 0.20 | 582 | 290 | 14000 | 31.50 | 330 | 370 | 260 | 130 | 0 | 17 | 14 | 5 | -0.5 | 0 | -10 | -0.7 | -300 | 359 | 38 | 6 | -10 | 26 | -2 | 140.0 | 15.7 | 5 | 26.10 |
| 17019 | -21 | 0.11 | 420 | 240 | 17000 | 24.60 | 240 | 340 | 260 | 150 | 0 | 19 | -10 | 4 | 0.5 | 0 | -10 | -0.5 | 500 | 252 | 31 | 3 | -10 | 33 | -2 | 93.0 | 12.1 | 4 | 20.40 |

-63uM ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | V | CR | MN | FE % | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13847R | -1 | 62 | 110 | 320 | 2.1 | 16 | 38 | 24 | 39 | 2 | -1 | 2 | -0.5 | 1 | -1 | -1 | -1 | 1 | 13 | -1 | -1 | 41.8 |
| 17013 | 1 | 73 | 87 | 550 | 2.8 | 18 | 31 | 19 | 50 | 2 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | -1 | 17 | -1 | 2 | 69.5 |
| 17014 | -1 | 72 | 98 | 410 | 2.7 | 18 | 35 | 22 | 54 | 3 | -1 | 2 | -0.5 | -1 | 2 | -1 | -1 | -1 | 21 | -1 | 2 | 69.5 |
| 17015 | -1 | 58 | 110 | 390 | 2.4 | 18 | 40 | 27 | 42 | 2 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 18 | -1 | -1 | 25.9 |
| 17016 | -1 | 52 | 120 | 400 | 2.3 | 20 | 43 | 28 | 42 | 3 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 20 | -1 | -1 | 67.2 |
| 17017 | -1 | 44 | 110 | 430 | 2.4 | 22 | 42 | 29 | 43 | 2 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | 1 | 17 | -1 | -1 | 45.0 |
| 17018 | -1 | 45 | 110 | 400 | 2.2 | 20 | 40 | 27 | 38 | 1 | -1 | 1 | -0.5 | -1 | -1 | -1 | -1 | -1 | 23 | -1 | 1 | 55.6 |
| 17019 | -1 | 56 | 120 | 400 | 2.3 | 21 | 44 | 29 | 32 | 1 | -1 | 1 | -0.5 | -1 | -1 | -1 | -1 | -1 | 16 | -1 | -1 | 84.0 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 17017 | 1.100 | 1.70 | 1500 | 370 | 240 | 200 | -1 | -1 | -0.5 | 2 | 0.2 |
| 17019 | 1.300 | 1.70 | 1600 | 450 | 300 | 150 | 1 | -1 | -0.5 | 2 | 0.3 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AG | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13854 | -9 | -0.2 | 1.6 | 0 | 0.0 | 0 | 214.0 | 0.0 | 210 | 25 | 0 | 14 | -50 | 4.5 | 102 | 0.0 | 0 | 0 | 0 | 0.00 | 0.0 | -5 | -2 | 1.70 | 0.0 | 0 | 0.0 | 5.8 | 0 | -2 | 1.7 | 0 | 100 | 0 |
| 13855 | -6 | -0.1 | -0.9 | 0 | 0.0 | 0 | 46.0 | 0.0 | 260 | 18 | 0 | 2 | -50 | 3.5 | 29 | 0.0 | 0 | 0 | 0 | 0.00 | 0.0 | -5 | -2 | 2.00 | 0.0 | 0 | 0.0 | 4.0 | 0 | -3 | 2.0 | 0 | 200 | 0 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | MIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13854 | 0 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | -330 | 0 | 0 | -5 | 2300 | -2.5 | 0 | 0.00 | 0 |
| 13855 | 0 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | -260 | 0 | 0 | -3 | 380 | -1.9 | 0 | 0.00 | 0 |

**Appendix 8-38A.** DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-211

Drilling Completion Date 12/7/85

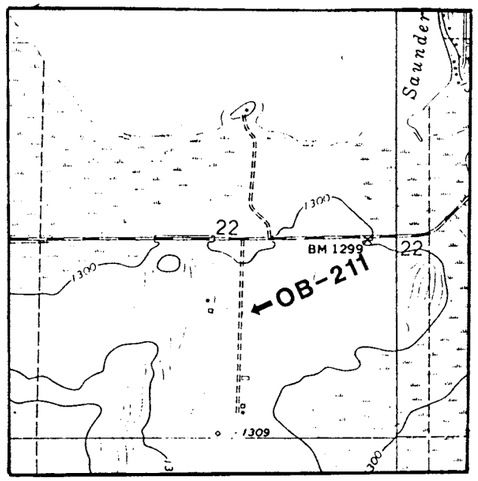
LOCATION (see map at right)

S-T-R NW¼-SE¼-22-64N-20W

County St. Louis

Quadrangle Orr S.W. 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1316 ft.

Total Depth 65 ft.

Elevation, Top of Precambrian Bedrock 1260 ft.

Drilling Method Rotasonic

Sample Diameter 3.5 inch

Sample Collection Method Core: Sleeved & Boxed

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-1 | Organic Sediments | | | |
| 1-25 | Des Moines Lobe Gl. Drift | G | A,B,C | |
| 25-56 | Rainy Lobe Gl. Drift | G | A,B,C | A = Zn,Mo<br>B = Co,Ni,Cu,Bi |
| 56-65 | Bedrock | G,H | I | C = Mo |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Amphibole Garnet Biotite Schist at 61.5 ft. and Garnet Sillimanite Biotite Schist

Thin Section Description: #13868 at 61.5 ft. Amphibole-garnet-biotite schist. Estimated mode (volume %): Garnet, 3; Hornblende and actinolite, 1; Biotite, 4; Chlorite, 1; Feldspar (dominantly sericite), 44; Quartz, 44; Opaques (pyrite + Fe-oxides), 1; Epidote (pseudomorphs), 1; Sillimanite, 1; Apatite, Tr; Tourmaline, Tr; Sphene (altered to leucoxene), Tr; Zircon, Tr. Assemblage has undergone late retrograde (very low temperature) metamorphism. Feldspar (presumably plagioclase) is altered to sericite (+ kaolinite?), and biotite is altered to chlorite. Very fine, fibrous sillimanite is present within altered feldspar. Amphiboles consist of hornblende and actinolite. Garnets are pale orange to pink, irregular in shape, and contain abundant quartz inclusions (sieve-textured). Epidote(?) is altered to clay minerals plus chlorite.



#13869 at 65 ft. Garnet-sillimanite-biotite schist. Estimated mode (volume %): Plagioclase (albite-oligoclase), 40; Quartz, 27; Biotite, 22; Garnet, 1; Sillimanite, 8; Chlorite, 1; Apatite, Tr; Zircon, Tr; Tourmaline (schorl), Tr; Opaques (pyrite), 1. Garnets are very pale pinkish-yellow, subhedral, sieve-textured. Fibrous masses of sillimanite are associated with red-brown biotite which is locally retrograded to chlorite. The plagioclase is fresh and twinned, in contrast to the heavily sericitized plagioclase in the sample from 61.5' depth. The biotite foliation wraps gently around the garnets, but no well-developed pressure shadows or snowballs garnets are present. (By T. Boerboom, MGS)

## HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | MATRIX | | | | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 16868 | 12.4 | 0.0 | 12.4 | 110.2 | 110.0 | 0.2 | 0.1 | 0.1 | 0 | NA | TR | NA | NA | NA | NA | S | F | Y | Y | B | B | SAND&CLAY |
| -871 | 6.1 | 1.9 | 4.2 | 149.1 | 132.4 | 16.7 | 12.6 | 4.1 | 0 | NA | C | 30 | 70 | NA | NA | U | Y | Y | Y | B | GY | TILL |
| -872 | 12.8 | 5.5 | 7.3 | 204.1 | 180.0 | 24.1 | 14.3 | 9.8 | 1 | 345 | P,C | 20 | 80 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -873 | 7.9 | 4.0 | 3.9 | 181.9 | 156.3 | 25.6 | 15.3 | 10.3 | 0 | NA | P | 30 | 70 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -874 | 17.1 | 4.6 | 12.5 | 175.9 | 154.6 | 21.3 | 15.8 | 5.5 | 0 | NA | P,C | 75 | 25 | NA | NA | U | Y | Y | Y | B | B | TILL |

GOLD CLASSIFICATION

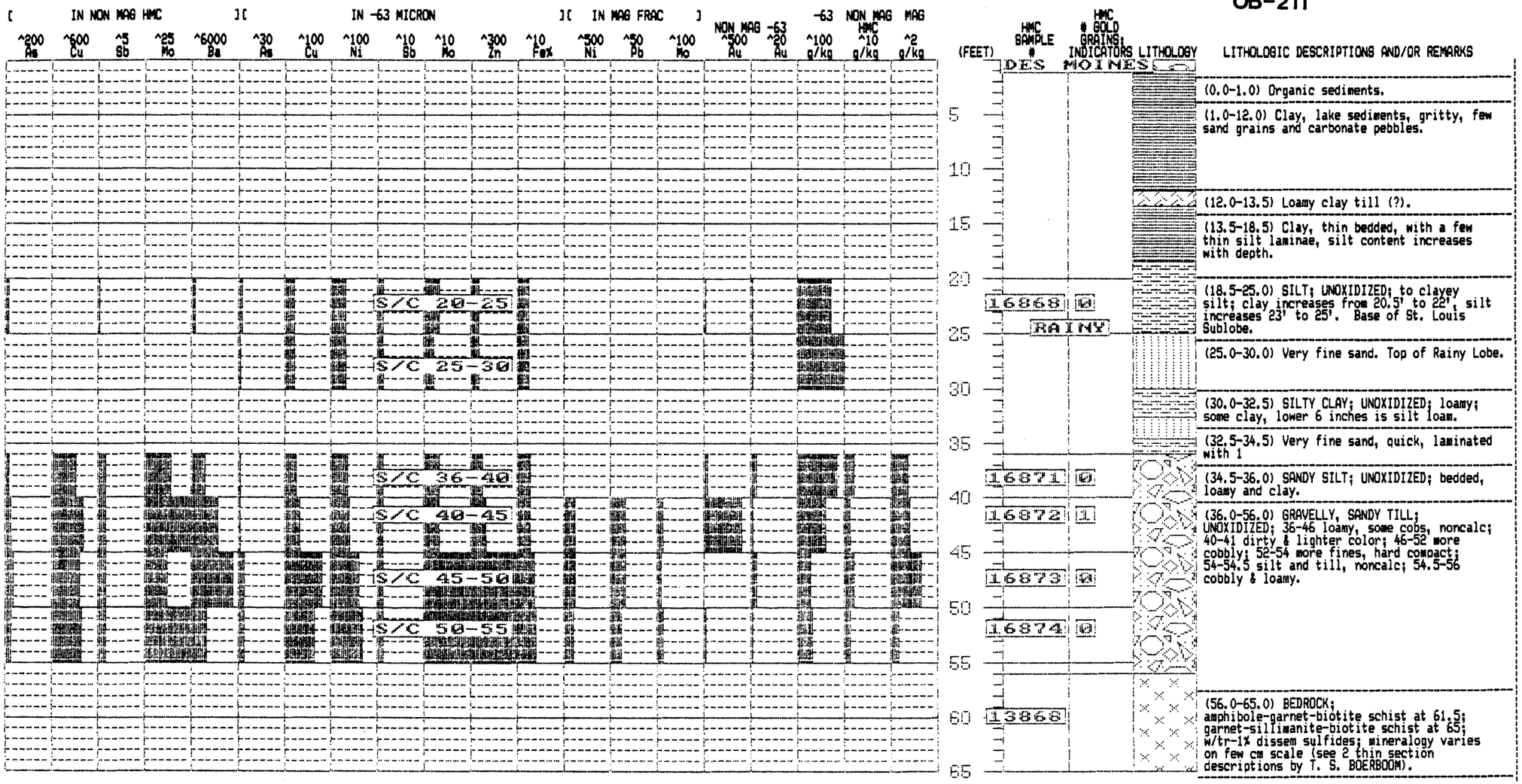
VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16868 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -871 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -872 | N | 150 X 150 | 29 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | TOTAL | 1 | 14.3 | 345 | |
| -873 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -874 | N | NO VISIBLE GOLD | | | | | | | | | | | |

SUMMARY OF G. MEYER LOG OB-211, ROTASONIC CORE

# OB-211







LITHOLOGIC DESCRIPTIONS AND/OR REMARKS

(0.0-1.0) Organic sediments.

(1.0-12.0) Clay, lake sediments, gritty, few sand grains and carbonate pebbles.

(12.0-13.5) Loamy clay till (?).

(13.5-18.5) Clay, thin bedded, with a few thin silt laminae, silt content increases with depth.

(18.5-25.0) SILT; UNOXIDIZED; to clayey silt; clay increases from 20.5' to 22', silt increases 23' to 25'. Base of St. Louis Sublobe.

(25.0-30.0) Very fine sand. Top of Rainy Lobe.

(30.0-32.5) SILTY CLAY; UNOXIDIZED; loamy; some clay, lower 6 inches is silt loam.

(32.5-34.5) Very fine sand, quick, laminated with 1

(34.5-36.0) SANDY SILT; UNOXIDIZED; bedded, loamy and clay.

(36.0-56.0) GRAVELLY, SANDY TILL; UNOXIDIZED; 36-46 loamy, some cobs, noncalc; 40-41 dirty & lighter color; 46-52 more cobbly; 52-54 more fines, hard compact; 54-54.5 silt and till, noncalc; 54.5-56 cobbly & loamy.

(56.0-65.0) BEDROCK; amphibole-garnet-biotite schist at 61.5; garnet-sillimanite-biotite schist at 65; w/tr-1% dissem sulfides; mineralogy varies on few cm scale (see 2 thin section descriptions by T. S. BOERBOOM).

Appendix 8-38C.

## MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY DESC | LEGAL | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16867 | 211 | 15-20 | 5. | S | D | NW-SE | 22 | 64 | 20 | SL | DML CLAY: GLACIAL LK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16868 | 211 | 20-25 | 5. | S | D | NW-SE | 22 | 64 | 20 | SL | DML. SILT | 20-25 | 0.0 | 12400.0 | 0.0 | 0.1 | 0.1 | 57.4 | 813.0 | 7 | 0 | 93 | |
| 16869 | 211 | 25-30 | 5. | S | D | NW-SE | 22 | 64 | 20 | SL | RL. F. TO V.F. SAND | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 52.4 | 336.0 | 16 | -1 | -1 | |
| 16870 | 211 | 30-35 | 5. | S | D | NW-SE | 22 | 64 | 20 | SL | RL. CLAY: GLACIAL LK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16871 | 211 | 35-40 | 4. | S | D | NW-SE | 22 | 64 | 20 | SL | RL. SANDY GVL. TILL | 35-40 | 0.0 | 6100.0 | 1900.0 | 12.5 | 4.1 | 33.5 | 404.0 | 8 | 31 | 61 | |
| 16872 | 211 | 40-45 | 5. | S | D | NW-SE | 22 | 64 | 20 | SL | RL. SANDY GVL. TILL | 40-45 | 1.0 | 12800.0 | 5500.0 | 14.3 | 9.8 | 44.3 | 759.0 | 6 | 43 | 51 | |
| 16873 | 211 | 45-50 | 5. | S | D | NW-SE | 22 | 64 | 20 | SL | RL. SANDY GVL. TILL | 45-50 | 0.0 | 7900.0 | 4000.0 | 15.3 | 10.3 | 11.1 | 421.0 | 3 | 51 | 46 | |
| 16873R | 211 | 45-50 | 5.0 | S | D | NW-SE | 22 | 64 | 20 | SL | RL. SANDY GVL. TILL | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 16874 | 211 | 50-55 | 5. | S | D | NW-SE | 22 | 64 | 20 | SL | RL. SANDY GVL. TILL | 50-55 | 0.0 | 17100.0 | 4600.0 | 15.8 | 5.5 | 30.7 | 1151.0 | 3 | 27 | 70 | |
| 16874R | 211 | 50-55 | 5.0 | S | D | NW-SE | 22 | 64 | 20 | SL | RL. SANDY GVL. TILL | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 13848R | 211 | 50-55 | 5. | S | D | NW-SE | 22 | 64 | 20 | SL | RL. SANDY GVL. TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 27.6 | 890.0 | 3 | -1 | -1 | |
| 13868 | 211 | 56-65 | 9.0 | S | D | NW-SE | 22 | 64 | 20 | SL | BEDROCK | 56-65 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |

## NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | DE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16868 | -11 | 0.07 | 602 | 120 | 0 | 7.30 | 81 | 0 | 0 | 0 | 0 | 12 | -10 | 0 | 0.0 | 0 | 0 | -0.3 | 400 | 372 | 41 | -3 | 0 | 0 | 0 | 120.0 | 14.3 | 0 | 0.17 |
| 16871 | -40 | 0.15 | 1130 | 280 | 6600 | 30.30 | 530 | 340 | 320 | 130 | 0 | 15 | -19 | 14 | -0.5 | 0 | -10 | -0.8 | 1700 | 420 | 80 | 10 | -10 | 56 | 6 | 130.0 | 21.5 | 2 | 9.22 |
| 16872 | 400 | 0.12 | 1260 | 230 | 8900 | 25.70 | 620 | 410 | 400 | 140 | 0 | 23 | -11 | 25 | -0.5 | 0 | -10 | 0.9 | 3400 | 542 | 89 | 12 | 150 | 48 | 6 | 190.0 | 28.1 | 1 | 10.50 |
| 16873 | 10 | 0.16 | 1070 | 200 | 8600 | 29.60 | 600 | 360 | 360 | 140 | 0 | 29 | -18 | 12 | -0.5 | 0 | -10 | 0.9 | 5200 | 461 | 69 | 8 | 280 | 86 | 6 | 180.0 | 21.1 | 2 | 11.30 |
| 16874 | 18 | 0.12 | 1010 | 240 | 7700 | 27.10 | 610 | 340 | 380 | 130 | 0 | 25 | -15 | 29 | -0.5 | 0 | -10 | 0.8 | 2000 | 440 | 68 | 8 | 240 | 49 | 4 | 140.0 | 17.2 | 1 | 11.80 |

## MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 16872 | 0.450 | 1.10 | 530 | 130 | 88 | 300 | -1 | 13 | -0.5 | 16 | 0.8 |
| 16873 | 0.360 | 1.00 | 520 | 120 | 66 | 220 | -1 | 7 | -0.5 | 16 | 1.3 |
| 16874 | 0.480 | 1.70 | 560 | 100 | 65 | 220 | -1 | 13 | -0.5 | 12 | 0.3 |

## -63uM ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | V | CR | MN | FE % | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13848R | -1 | 120 | 210 | 530 | 4.4 | 29 | 74 | 80 | 400 | 5 | -1 | 14 | -0.5 | 1 | 2 | -1 | -1 | 5 | 10 | -1 | -1 | 31.0 |
| 16868 | -1 | 66 | 93 | 350 | 2.3 | 15 | 30 | 19 | 48 | 2 | 2 | 3 | -0.5 | -1 | 1 | -1 | -1 | -1 | 15 | -1 | -1 | 70.6 |
| 16869 | 1 | 67 | 100 | 380 | 2.5 | 16 | 32 | 21 | 46 | 1 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 14 | -1 | -1 | 156.0 |
| 16871 | 2 | 76 | 98 | 410 | 2.7 | 20 | 36 | 25 | 69 | -1 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | 1 | 18 | -1 | -1 | 82.9 |
| 16872 | 1 | 68 | 99 | 430 | 2.9 | 21 | 38 | 32 | 100 | 1 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | 3 | 20 | -1 | 1 | 58.4 |
| 16873 | -2 | 92 | 150 | 490 | 3.8 | 28 | 61 | 79 | 580 | 4 | -1 | 10 | -0.5 | -1 | 2 | -1 | -1 | 8 | 21 | -1 | 1 | 26.4 |
| 16873R | 0 | 0 | 120 | 0 | 0.0 | 0 | 0 | 0 | 540 | 4 | -1 | 9 | -0.5 | -1 | 2 | -1 | 0 | 8 | 0 | 0 | 0 | 0.0 |
| 16874 | 1 | 110 | 190 | 500 | 4.1 | 28 | 67 | 64 | 320 | 4 | 1 | 12 | -0.5 | 1 | 2 | -1 | -1 | 7 | 14 | -1 | -1 | 26.7 |
| 16874R | 0 | 0 | 150 | 0 | 0.0 | 0 | 0 | 0 | 320 | 4 | 1 | 10 | -0.5 | -1 | 2 | -1 | 0 | 5 | 0 | 0 | 0 | 0.0 |

## BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13868 | -7 | -0.2 | -1.0 | 0 | 0.0 | 0 | 66.0 | 0.0 | 230 | 18 | 0 | 2 | -50 | 3.5 | 30 | 0.0 | 0 | 0 | 0 | 0.00 | 0.0 | -5 | -9 | 2.30 | 0.0 | 0 | 0.0 | 4.3 | 0 | -3 | 1.8 | 0 | -100 | 0 |

## BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FED % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13868 | 0 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | -270 | 0 | 0 | 5 | 790 | -2.0 | 0 | 0.00 | 0 |

**Appendix 8-39A.** DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-212

Drilling Completion Date 12/9/85

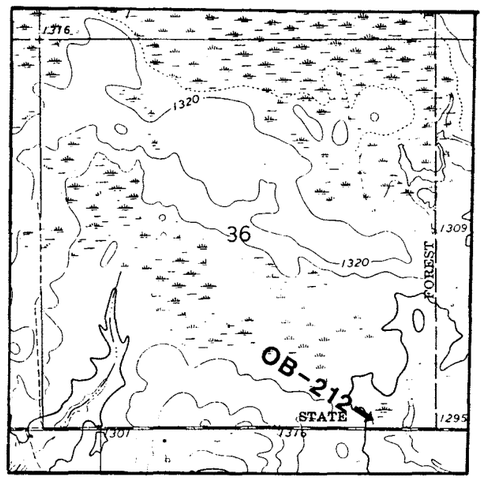
LOCATION (see map at right)

S-T-R SE¼-SE¼-36-63N-21W

County St. Louis

Quadrangle Gheen N.W. 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1291 ft.

Total Depth 116 ft.

Elevation, Top of Precambrian Bedrock 1184 ft.

Drilling Method Rotasonic

Sample Diameter 3.5 inch

Sample Collection Method Core: Sleeved & Boxed

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-1 | Organic Sediments | | | |
| 1-73.5 | Des Moines Lobe Gl. Drift | | | |
| 73.5-107 | Rainy Lobe Gl. Drift | G | A,B,C | A = Au, Mo<br>B = Cu, Se |
| 107-116 | Bedrock | G,H | I | C = Mo |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Syenite

Thin Section Description: #13864 at 109.5 ft. Syenite. Estimated mode (volume %): Microcline, 76; Plagioclase, 20; Phyllosilicate alteration assemblage after hornblende, 3; Leucoxene pseudomorphs after sphene, 1; Quartz, Tr(?). Dominantly red-stained (hematite dust) anhedral gridiron-twinned microcline up to 2.5 cm across. Granular, clear and colorless plagioclase is present between microcline grains. Plagioclase tentatively identified as andesine, possibly some albite. No quartz positively identified. Many grains look like quartz, but upon very close inspection are seen to be plagioclase feldspar. Sphene is pseudomorphed by leucoxene. Radial groups of fine-grained phyllosilicate (stilpnomelane or biotite) plus chlorite and montmorillonite occur as pseudomorphs of primary hornblende.



#13865 at 111 ft. Syenite. For mineral descriptions, see #13864. Mode also similar to #13864, except that plagioclase content in this sample may be slightly higher. The plagioclase is more definable as albite than in #13864. A (primary?) foliation is present in this sample which is defined by the preferred orientations of tabular microcline crystals. (By T. Boerboom, MGS)

## HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 16833 | 11.7 | 4.5 | 7.2 | 139.6 | 100.3 | 39.3 | 32.0 | 7.3 | 0 | NA | P/C | 25 | 75 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -834 | 5.2 | 2.3 | 2.9 | 63.5 | 37.9 | 25.6 | 22.7 | 2.9 | 0 | NA | P/C | 10 | 90 | NA | NA | U | Y | Y | Y | OC | OC | TILL |
| -835 | 4.4 | 2.3 | 2.1 | 82.9 | 65.3 | 17.6 | 15.6 | 2.0 | 0 | NA | P/C | 10 | 90 | NA | NA | U | Y | Y | Y | OC | OC | TILL |
| -836 | 4.9 | 1.0 | 3.9 | 80.0 | 50.4 | 29.6 | 25.3 | 4.3 | 0 | NA | P | 15 | 85 | NA | NA | U | Y | Y | Y | OC | OC | TILL |
| -837 | 9.0 | 3.4 | 5.6 | 91.8 | 66.0 | 25.8 | 22.5 | 3.3 | 0 | NA | P | 10 | 90 | NA | NA | U | Y | Y | Y | OC | OC | TILL |
| -838 | 12.3 | 3.8 | 8.5 | 159.3 | 149.5 | 9.8 | 7.7 | 2.1 | 0 | NA | B/P | 0 | 100 | NA | NA | U | Y | Y | Y | OC | OC | TILL |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.6. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16833 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -834 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -835 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -836 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -837 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -838 | N | NO VISIBLE GOLD | | | | | | | | | | | |

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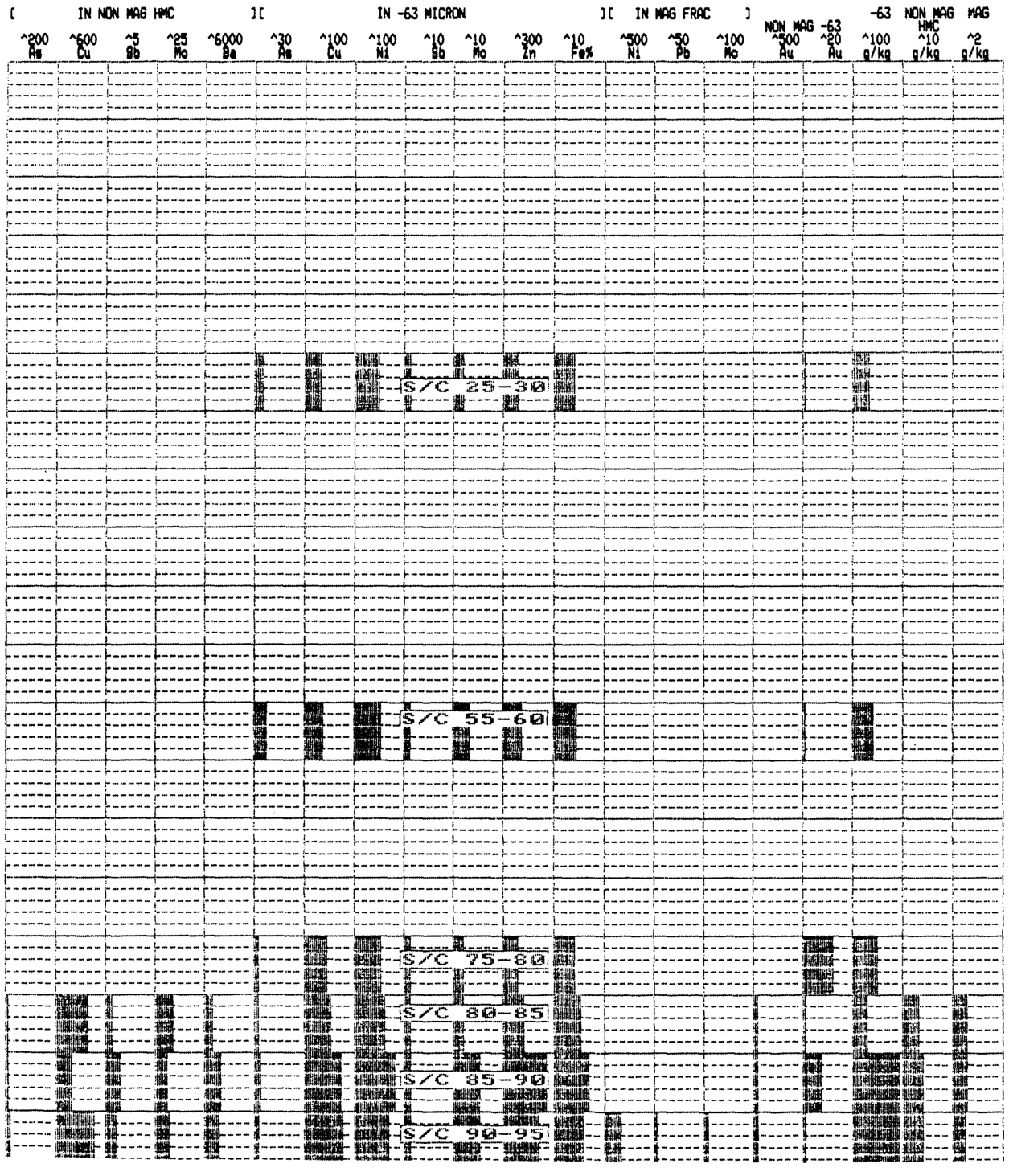
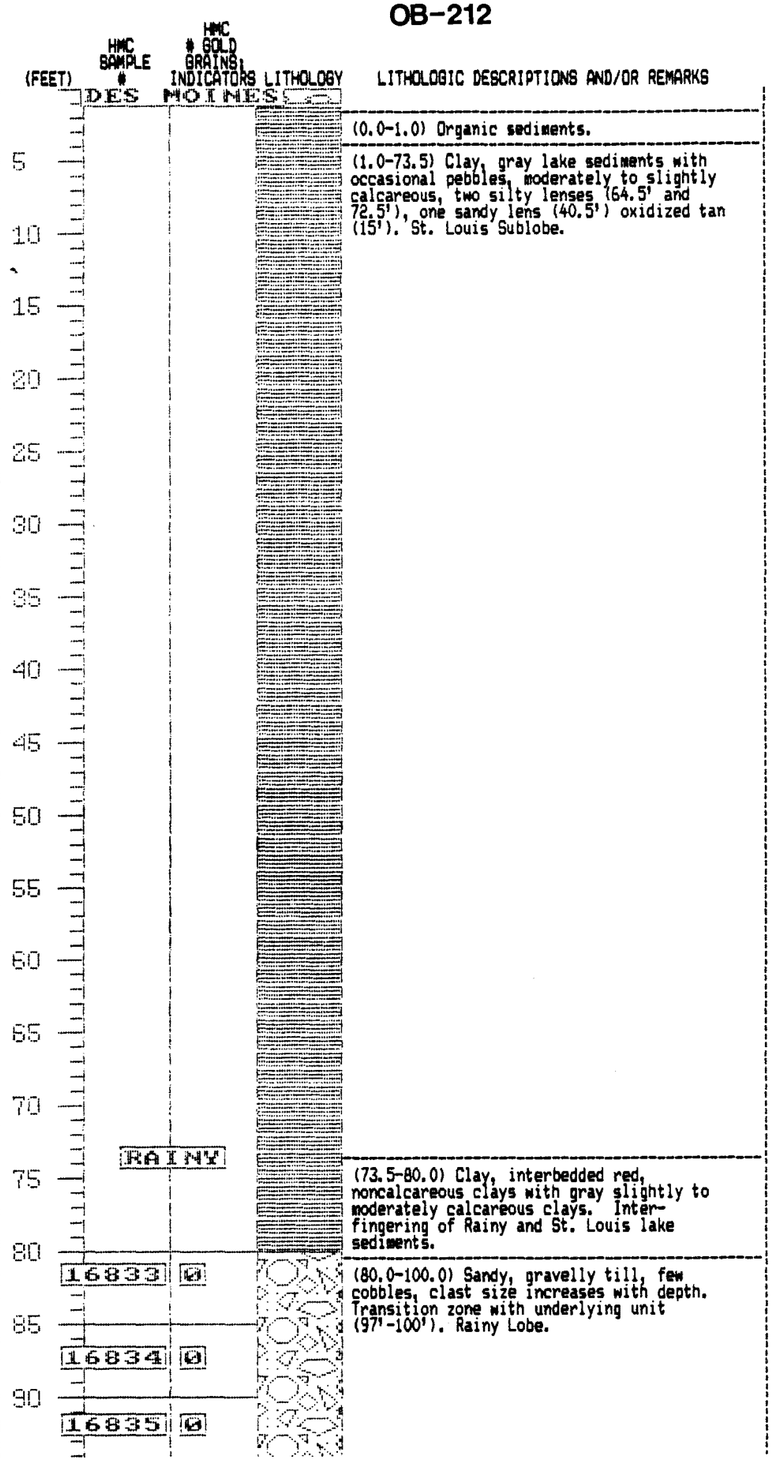
SUMMARY OF B. MEYER LOG OB-212, ROTASONIC CORE

# OB-212

Appendix B-39B.



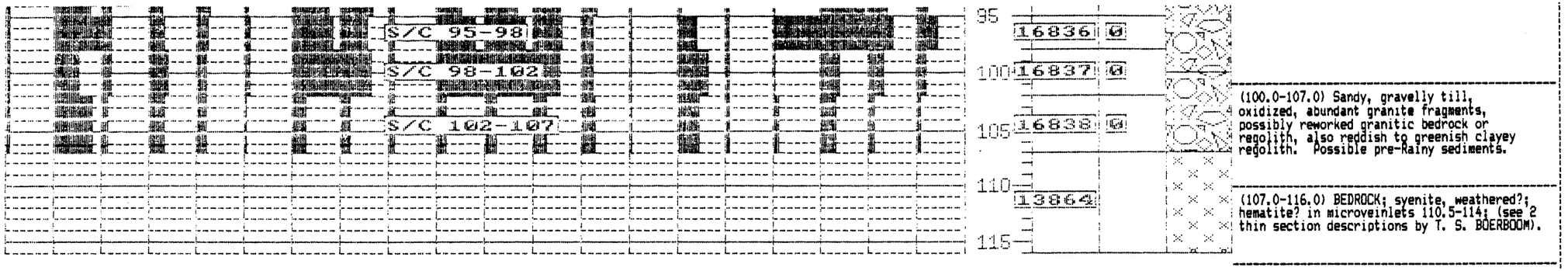

LITHOLOGIC DESCRIPTIONS AND/OR REMARKS

(0.0-1.0) Organic sediments.

(1.0-73.5) Clay, gray lake sediments with occasional pebbles, moderately to slightly calcareous, two silty lenses (64.5' and 72.5'), one sandy lens (40.5') oxidized tan (15'). St. Louis Sublobe.

(73.5-80.0) Clay, interbedded red, noncalcareous clays with gray slightly to moderately calcareous clays. Interfingering of Rainy and St. Louis lake sediments.

(80.0-100.0) Sandy, gravelly till, few cobbles, clast size increases with depth. Transition zone with underlying unit (97'-100'). Rainy Lobe.




(100.0-107.0) Sandy, gravelly till, oxidized, abundant granite fragments, possibly reworked granitic bedrock or regolith, also reddish to greenish clayey regolith. Possible pre-Rainy sediments.

(107.0-116.0) BEDROCK; syenite, weathered?; hematite? in microveinlets 110.5-114; (see 2 thin section descriptions by T. S. BOERBOOM).

**Appendix 8-39C.**

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16827 | 212 | 25-30 | 5. | S | D | SE-SE | 36 | 63 | 21 | SL | DML CLAY: GLACIAL LK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 23.5 | 735.0 | 3 | -1 | -1 | |
| 16828 | 212 | 30-35 | 5. | S | D | SE-SE | 36 | 63 | 21 | SL | DML CLAY: GLACIAL LK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16829 | 212 | 55-60 | 5. | S | D | SE-SE | 36 | 63 | 21 | SL | DML CLAY: GLACIAL LK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 23.0 | 567.0 | 4 | -1 | -1 | |
| 16830 | 212 | 60-65 | 5. | S | D | SE-SE | 36 | 63 | 21 | SL | DML CLAY: GLACIAL LK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 16831 | 212 | 70-75 | 5. | S | D | SE-SE | 36 | 63 | 21 | SL | DML CLAY: GLACIAL LK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | RAINY CLAY AT 73.5 |
| 16832 | 212 | 75-80 | 5. | S | D | SE-SE | 36 | 63 | 21 | SL | RL. CLAY: GLACIAL LK | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 27.1 | 551.0 | 5 | -1 | -1 | |
| 16833 | 212 | 80-85 | 5. | S | D | SE-SE | 36 | 63 | 21 | SL | RL. SANDY GVL. TILL | 80-85 | 0.0 | 11700.0 | 4500.0 | 32.0 | 7.3 | 28.8 | 969.0 | 3 | 38 | 59 | |
| 16834 | 212 | 85-90 | 5. | S | D | SE-SE | 36 | 63 | 21 | SL | RL. SANDY GVL. TILL | 85-90 | 0.0 | 5200.0 | 2300.0 | 22.7 | 2.9 | 35.4 | 387.0 | 9 | 44 | 47 | |
| 16835 | 212 | 90-95 | 5. | S | D | SE-SE | 36 | 63 | 21 | SL | RL. SANDY GVL. TILL | 90-95 | 0.0 | 4400.0 | 2300.0 | 15.6 | 2.0 | 24.2 | 262.0 | 9 | 52 | 39 | |
| 13849R | 212 | 50-95 | 5. | S | D | SE-SE | 36 | 63 | 21 | SL | RL. SANDY GVL. TILL | | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | 24.6 | 281.0 | 9 | -1 | -1 | |
| 16836 | 212 | 95-98 | 3. | S | D | SE-SE | 36 | 63 | 21 | SL | RL. SANDY GVL. TILL | 95-98 | 0.0 | 4900.0 | 1000.0 | 25.3 | 4.3 | 43.4 | 396.0 | 11 | 20 | 69 | |
| 16837 | 212 | 98-102 | 4. | S | D | SE-SE | 36 | 63 | 21 | SL | PRE-WISCONSIN TILL | 98-102 | 0.0 | 9000.0 | 3400.0 | 22.5 | 3.3 | 24.4 | 591.0 | 4 | 38 | 58 | |
| 16838 | 212 | 102-107 | 5. | S | D | SE-SE | 36 | 63 | 21 | SL | PRE-WISCONSIN TILL | 102-107 | 0.0 | 12300.0 | 3800.0 | 7.7 | 2.1 | 27.2 | 803.0 | 3 | 31 | 66 | |
| 13864 | 212 | 107-116 | 9.0 | S | D | SE-SE | 36 | 63 | 21 | SL | BEDROCK | 107-116 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16833 | -32 | 0.48 | 1470 | 270 | 5700 | 26.40 | 110 | 140 | 380 | 180 | 0 | 11 | -24 | 9 | -0.5 | 0 | 10 | -0.6 | 900 | 886 | 180 | 10 | -10 | 31 | -2 | 140.0 | 39.1 | 3 | 24.60 |
| 16834 | -40 | 0.51 | 2030 | 230 | 4300 | 23.20 | 57 | 79 | 200 | 140 | 0 | 8 | -26 | 6 | -0.5 | 0 | 10 | 1.4 | 1800 | 1110 | 170 | 10 | -10 | 22 | -2 | 95.0 | 25.1 | 4 | 17.30 |
| 16835 | -40 | 0.28 | 1420 | 250 | 4900 | 19.70 | 110 | 100 | 450 | 130 | 0 | 14 | 49 | 7 | -0.5 | 0 | 10 | 1.0 | 1600 | 575 | 100 | 10 | -10 | 20 | -2 | 79.0 | 13.6 | 4 | 12.20 |
| 16836 | -32 | 0.45 | 1400 | 360 | 5400 | 31.50 | 150 | 130 | 710 | 150 | 0 | 16 | -14 | 8 | -0.5 | 0 | 10 | 1.1 | 1400 | 791 | 130 | 9 | -10 | 20 | -2 | 99.0 | 19.0 | 5 | 19.50 |
| 16837 | -35 | 0.52 | 1740 | 260 | 5200 | 28.60 | 89 | 110 | 310 | 160 | 0 | 17 | -24 | 10 | -0.5 | 0 | 10 | 1.0 | 1200 | 988 | 140 | -5 | -10 | 22 | -2 | 110.0 | 23.9 | 3 | 17.70 |
| 16838 | -33 | 0.27 | 1550 | 260 | 4700 | 27.50 | 110 | 120 | 490 | 150 | 0 | 12 | -12 | 8 | -0.5 | 0 | 10 | -0.7 | 1200 | 549 | 95 | 9 | 20 | 31 | -2 | 67.0 | 12.3 | 1 | 6.21 |

-63uM ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | V | CR | MN | FE % | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13849R | -1 | 180 | 210 | 770 | 6.2 | 41 | 82 | 91 | 240 | 3 | -1 | 4 | -0.5 | 1 | 2 | -1 | -1 | 2 | 11 | -1 | 2 | 87.5 |
| 16827 | -1 | 140 | 110 | 610 | 4.0 | 22 | 46 | 30 | 87 | 5 | 1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 19 | -1 | 2 | 32.0 |
| 16829 | -1 | 160 | 120 | 610 | 4.3 | 24 | 50 | 34 | 110 | 7 | 2 | 3 | -0.5 | 1 | 1 | -1 | -1 | -1 | 17 | -1 | 2 | 40.6 |
| 16832 | 12 | 100 | 150 | 500 | 3.9 | 25 | 53 | 44 | 85 | 3 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 15 | -1 | 1 | 49.2 |
| 16833 | -1 | 110 | 150 | 770 | 5.1 | 34 | 59 | 53 | 120 | 2 | -1 | 2 | -0.5 | 1 | 1 | -1 | -1 | 1 | 13 | -1 | 1 | 29.7 |
| 16834 | 7 | 160 | 190 | 840 | 6.9 | 47 | 78 | 73 | 250 | 4 | -1 | 5 | -0.5 | 1 | 3 | -1 | -1 | 2 | 17 | -1 | 4 | 91.5 |
| 16835 | -1 | 150 | 200 | 700 | 5.5 | 36 | 69 | 75 | 200 | 2 | -1 | 5 | -0.5 | 1 | 2 | -1 | -1 | 2 | 15 | -1 | 2 | 92.4 |
| 16836 | 31 | 150 | 230 | 920 | 6.0 | 35 | 57 | 85 | 250 | 4 | 1 | 8 | -0.5 | -1 | 2 | -1 | -1 | 1 | 12 | -1 | 1 | 109.6 |
| 16837 | 1 | 76 | 85 | 620 | 5.6 | 34 | 65 | 98 | 340 | 4 | -1 | 13 | -0.5 | 1 | 2 | -1 | -1 | 2 | 8 | -1 | -1 | 41.3 |
| 16838 | 2 | 39 | 43 | 130 | 2.9 | 14 | 18 | 26 | 69 | 1 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | 1 | 4 | -1 | -1 | 33.9 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 16835 | 0.610 | 1.40 | 780 | 160 | 60 | 180 | -1 | 9 | -0.5 | -1 | 0.5 |
| 16836 | 0.610 | 1.40 | 1200 | 130 | 110 | 260 | -1 | 38 | -0.5 | 2 | 0.9 |
| 16837 | 0.630 | 1.20 | 1200 | 130 | 140 | 220 | -1 | 64 | -0.5 | -1 | 0.4 |
| 16838 | 0.400 | 0.87 | 690 | 150 | 85 | 150 | -1 | 45 | -0.5 | -1 | 0.2 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13864 | -8 | -0.2 | -1.0 | 1700 | 0.0 | -1 | 110.0 | 0.0 | 100 | 7 | 0 | 3 | -50 | 2.5 | 58 | 0.0 | -1 | 16 | 280 | 0.00 | 0.0 | -5 | -5 | 2.10 | -8.0 | -10 | 0.0 | 2.9 | -10 | 4 | -0.9 | 0 | -100 | 0 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13864 | 19 | 5 | 40 | 80 | 0.5 | 0 | 2 | 2 | -0.01 | 23000 | 800 | 3.52 | 63.0 | 0.00 | 50 | 87000 | 1100 | 0.3 | -230 | 400 | 5 | -3 | 1900 | -2.4 | -2 | 1.08 | 21000 |

**Appendix 8-40A.** DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-20100

Drilling Completion Date 1/26/87

LOCATION (see map at right)

S-T-R NE¼-NW¼-21-63N-24W

County Koochiching

Quadrangle Deer Lake N.W. 7.5

Regional Survey Area Orr

HOLE PARAMETERS

Surface Elevation 1360 ft.

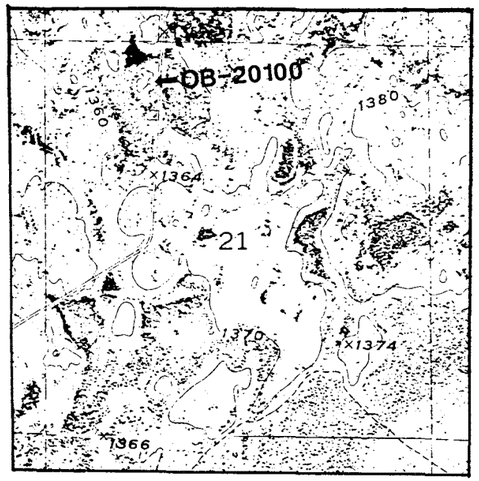
Total Depth 236 ft.

Elevation, Top of Precambrian Bedrock 1129 ft.

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam




SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-175 | Des Moines Lobe Gl. Drift | | | |
| 175-231 | Rainy Lobe Gl. Drift | F | B,C | B = Pb<br>C = Ni,Mo |
| 231-236 | Bedrock | F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Granodiorite. Pink massive granodiorite. Grain size 1.0-5.0 equigranular, interlocking. Comprised of 60% pink, hem. stained feldspar, 10% white feld., 10% qtz., 10% chloritized bt. and hornblende, and 10% epidote. Trace calcite assoc. w/epidote. 0.1% dissem. sphene. (By ODM, see report in Appendix.)

Thin Section Number: #18694.



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | M. I. CONC | | | | | | CLAST | | | | | MATRIX | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18688 | 11.0 | 0.0 | 11.0 | 156.3 | 134.8 | 21.5 | 17.2 | 4.3 | 1 | 790 | TR | NA | NA | NA | A | U | Y | Y | Y | B | B | TILL |
| -689 | 7.9 | 0.2 | 7.7 | 88.3 | 68.2 | 20.1 | 16.8 | 3.3 | 0 | NA | P.G | 30 | 70 | NA | NA | U | | Y | Y | Y | B | GB | TILL |
| -690 | 8.8 | 0.4 | 8.4 | 143.4 | 114.5 | 28.9 | 23.6 | 5.3 | 0 | NA | P.G | 80 | 20 | NA | NA | U | | Y | Y | Y | B | GB | TILL |
| -691 | 8.2 | 0.0 | 8.2 | 163.2 | 127.5 | 35.7 | 27.7 | 8.0 | 0 | NA | TR | NA | NA | NA | NA | U | | Y | Y | Y | GB | GB | TILL |
| -692 | 12.4 | 0.0 | 12.4 | 130.9 | 94.2 | 36.7 | 27.9 | 8.8 | 1 | 223 | TR | NA | NA | NA | A | U | Y | | Y | Y | B | B | TILL |
| -693 | 10.3 | 0.0 | 10.3 | 156.2 | 119.8 | 36.4 | 29.8 | 6.6 | 2 | 1164 | TR | NA | NA | NA | NA | U | | Y | Y | Y | GY | GY | TILL |
| 18693R | 7.8 | 0.0 | 7.8 | 188.9 | 150.7 | 38.2 | 32.1 | 6.1 | 0 | NA | TR | NA | NA | NA | NA | U | Y | | Y | Y | GB | GB | TILL |
| -695 | 5.1 | 0.0 | 5.1 | 162.2 | 138.8 | 23.4 | 19.7 | 3.7 | 0 | NA | | | | | | | | | | | | |

**GOLD CLASSIFICATION**

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | NUMBER OF GRAINS: ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18688 | N | 200 X 225 | 40 C | | | 1 | | | | 1 | | | |
| | | | | | | | | | | 1 | 17.2 | 790 | |
| -689 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -690 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -691 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -692 | N | 150 X 175 | 31 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | | 1 | 27.9 | 223 | |
| -693 | Y | 150 X 175 | 31 C | | 1 | | | | | 1 | | | EST. 5% PYRITE |
| | | 250 X 300 | 50 C | | | 1 | | | | 1 | | | |
| | | | | | | | | | | 2 | 29.8 | 1164 | |
| 18693R | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -695 | Y | NO VISIBLE GOLD | | | | | | | | | | | EST. 1% PYRITE |

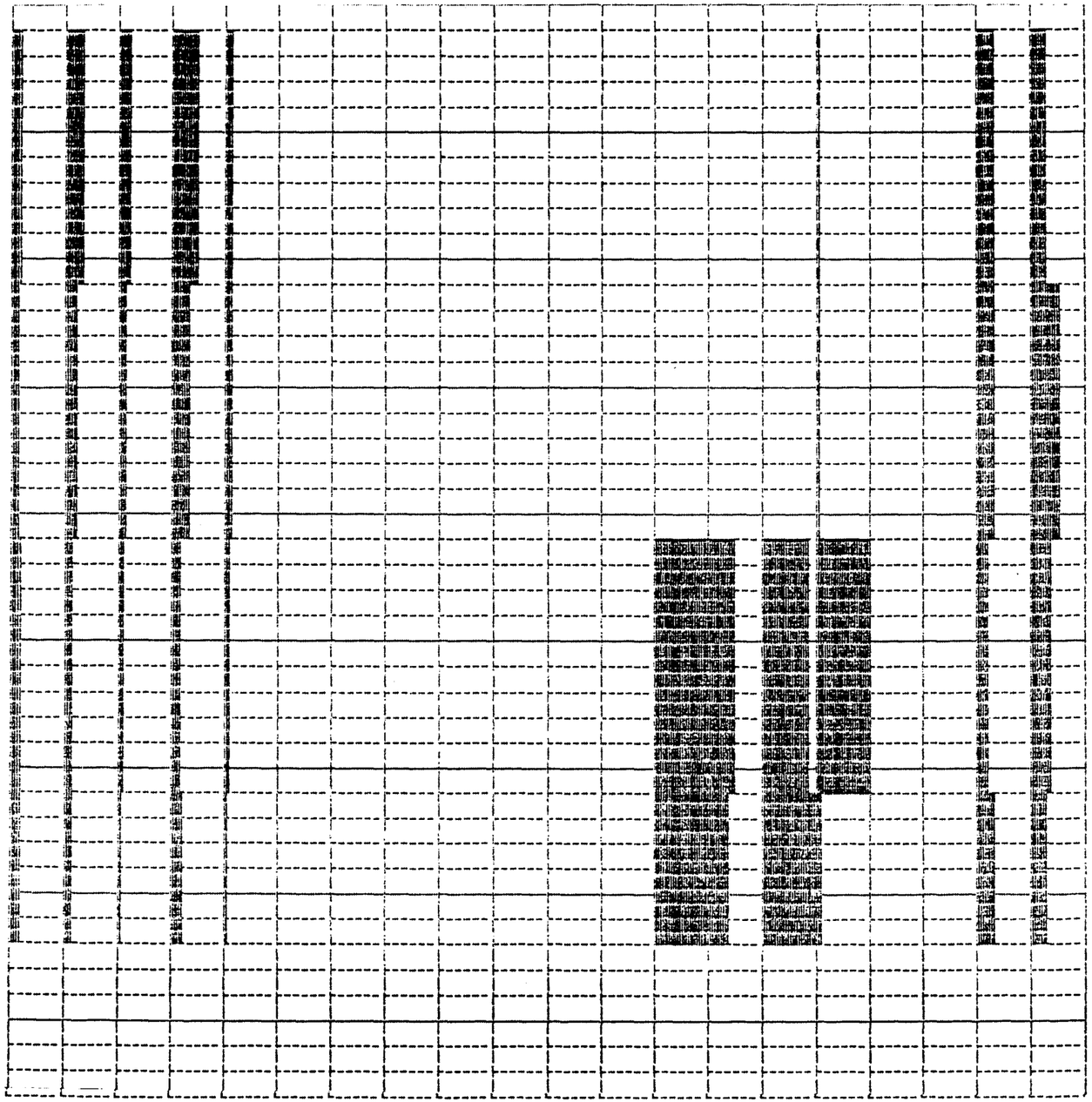
FIELDNOTE SUMMARY LOG OB-20100, MUD ROTARY

# OB-20100

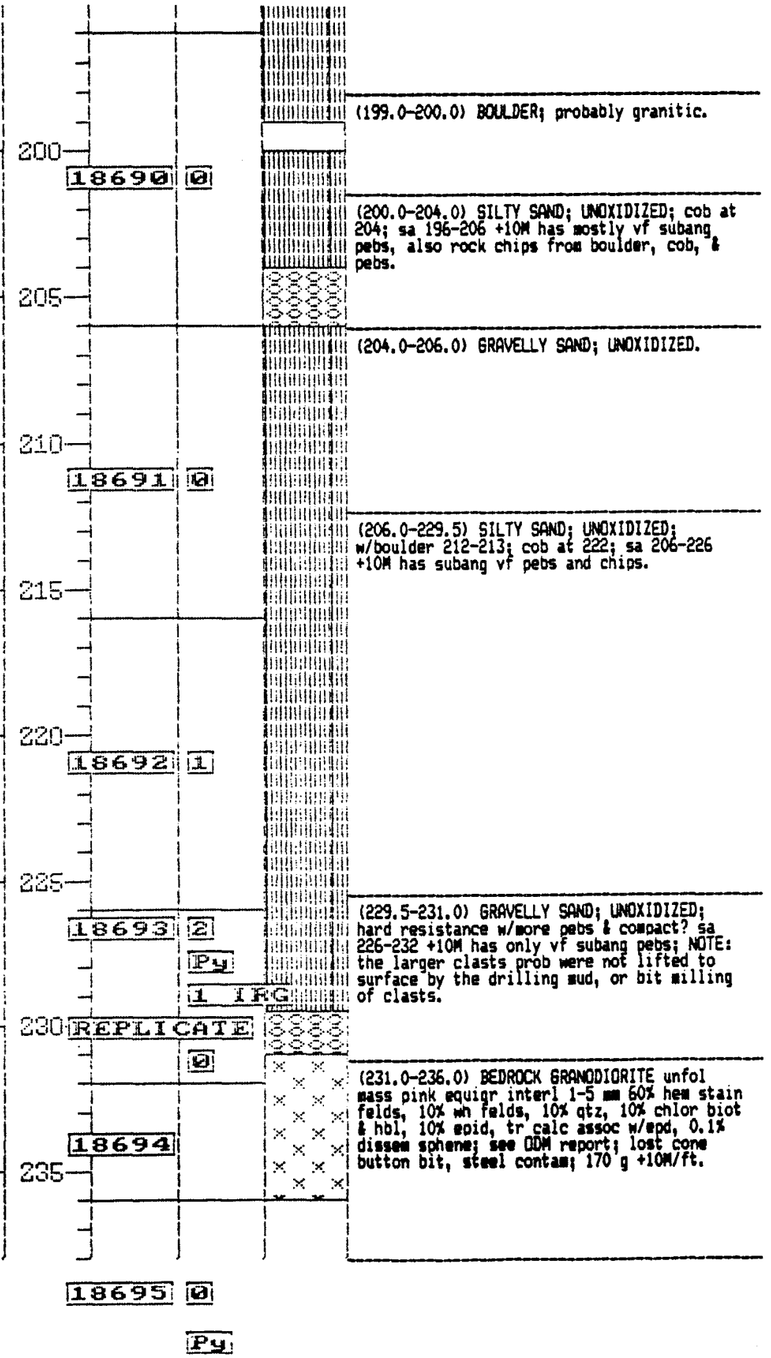
Appendix 8-40B.

| [ IN NON MAG HMC | | | | | ][ IN -63 MICRON | | | | | | | ][ IN MAG FRAC | | | NON MAG -63 | | -63 | NON MAG HMC | MAG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ^200 As | ^600 Cu | ^5 Sb | ^25 Mo | ^6000 Ba | ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 Fe% | ^500 Ni | ^50 Pb | ^100 Mo | ^500 Au | ^20 Au | ^100 g/kg | ^10 g/kg | ^2 g/kg |

| (FEET) | HMC SAMPLE # | HMC # GOLD GRAINS; INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|---|
| | DES | MOINES | | |
| 5 | | | | (0.0-10.0) CLAYEY TILL; OXIDIZED; tan w/ls pebs; cob at 9. |
| 10 | | | | |
| 15 | | | | |
| 20 | | | | |
| 25 | | | | (10.0-34.0) CLAYEY TILL; UNOXIDIZED; gray w/ls pebs; w/thin interbeds of clay. |
| 30 | | | | |
| 35 | | | | |
| 40 | | | | |
| 45 | | | | |
| 50 | | | | (34.0-60.0) CLAYEY TILL; UNOXIDIZED; gray w/ls pebs. |
| 55 | | | | |
| 60 | | | | |
| 65 | | | | |
| 70 | | | | |
| 75 | | | | (60.0-85.0) CLAY; UNOXIDIZED; gray lake sediments. |
| 80 | | | | |
| 85 | | | | |
| 90 | | | | (85.0-100.0) CLAYEY TILL; UNOXIDIZED; gray w/ls pebs. |
| 95 | | | | |
| 100 | | | | |
| 105 | | | | |
| 110 | | | | |
| 115 | | | | |
| 120 | | | | |
| 125 | | | | |
| 130 | | | | (100.0-161.0) CLAY; UNOXIDIZED; gray lake sediments; drilling rate 48 feet/hour for 140 feet. |
| 135 | | | | |
| 140 | | | | |
| 145 | | | | |
| 150 | | | | |
| 155 | | | | |
| 160 | | | | |
| 165 | | | | |
| 170 | | | | (161.0-175.0) CLAYEY TILL; UNOXIDIZED; gray w/ls pebs. |
| 175 | RAINY | | | |
| 180 | 18688 | 1 | | |
| 185 | | IRG | | (175.0-196.0) SILTY SAND; UNOXIDIZED; RAINY LOBE; w/cobs at 188, 198; sa 176-196 +10M mostly vf pebs, subrnd-subang. |
| 190 | 18689 | 0 | | |
| 195 | | | | |



SLUICE BOX 176-236



MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18688 | 20100 | 176-186 | 10. | M | D | NE-NW | 21 | 63 | 24 | K | RL. SILTY SAND | 176-186 | 1.0 | 11000.0 | -2.0 | 17.2 | 4.3 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18689 | 20100 | 186-196 | 10. | M | D | NE-NW | 21 | 63 | 24 | K | RL. SILTY SAND | 186-196 | 0.0 | 7900.0 | -2.0 | 16.8 | 3.3 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18690 | 20100 | 196-206 | 10. | M | D | NE-NW | 21 | 63 | 24 | K | RL. SILTY SAND | 196-206 | 0.0 | 8800.0 | -2.0 | 23.6 | 5.3 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18691 | 20100 | 206-216 | 10. | M | D | NE-NW | 21 | 63 | 24 | K | RL. SILTY SAND | 206-216 | 0.0 | 8200.0 | -2.0 | 27.7 | 8.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18692 | 20100 | 216-226 | 10. | M | D | NE-NW | 21 | 63 | 24 | K | RL. SILTY SAND | 216-226 | 1.0 | 12400.0 | -2.0 | 27.9 | 8.8 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18693 | 20100 | 226-232 | 6. | M | D | NE-NW | 21 | 63 | 24 | K | RL. GVL. SAND | 226-232 | 2.0 | 10300.0 | -2.0 | 29.8 | 6.6 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18693R | 20100 | 226-232 | 6.0 | M | D | NE-NW | 21 | 63 | 24 | K | RL. GVL. SAND | 226-232 | 0.0 | 7800.0 | -2.0 | 32.1 | 6.1 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18694 | 20100 | 232-236 | 4. | M | D | NE-NW | 21 | 63 | 24 | K | BEDROCK | | -1.0 | -1.0 | -2.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18695 | 20100 | 176-236 | 60. | M | D | NE-NW | 21 | 63 | 24 | K | SLUICE BOX | 176-236 | 0.0 | 5100.0 | -2.0 | 19.7 | 3.7 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18688 | 27 | -0.05 | 0 | 50 | 9500 | 4.30 | 10 | 120 | 110 | 150 | 0 | 4 | -10 | 3 | 1.5 | 0 | -10 | -0.2 | 100 | 72 | 18 | 1 | 2 | 147 | -2 | 19.0 | 1.5 | 2 | 2.27 |
| 18689 | 25 | 0.15 | 0 | 330 | 11000 | 32.70 | 70 | 130 | 120 | 110 | 0 | 24 | -10 | 4 | -0.5 | 0 | -10 | 0.8 | 800 | 368 | 91 | 8 | -7 | 94 | -2 | 120.0 | 13.4 | 2 | 12.00 |
| 18690 | 20 | 0.13 | 0 | 1900 | 7800 | 31.50 | 80 | 150 | 190 | 110 | 0 | 28 | -10 | 12 | -0.5 | 0 | -10 | 1.1 | 700 | 419 | 94 | -3 | 14 | 88 | -2 | 140.0 | 12.8 | 3 | 17.20 |
| 18691 | -18 | 0.12 | 0 | 610 | 12000 | 26.40 | 80 | 160 | 110 | 110 | 0 | 23 | -20 | 8 | 0.5 | 0 | -10 | 0.7 | 600 | 499 | 75 | 10 | 9 | 63 | -2 | 180.0 | 14.1 | 3 | 20.00 |
| 18692 | 1800 | 0.11 | 0 | 490 | 9200 | 23.40 | 70 | 140 | 81 | 140 | 0 | 35 | -20 | 4 | -0.5 | 0 | -10 | -0.4 | 400 | 381 | 73 | 10 | 10 | 75 | -2 | 160.0 | 14.6 | 2 | 10.00 |
| 18693 | 43 | 0.12 | 0 | 460 | 10000 | 25.00 | 70 | 130 | 74 | 100 | 0 | 29 | -10 | 5 | -0.5 | 0 | -10 | -0.3 | -200 | 425 | 91 | 11 | 17 | 59 | -2 | 160.0 | 12.5 | 3 | 21.60 |
| 18695 | -24 | 0.20 | 764 | 1000 | 8100 | 25.60 | 80 | 200 | 140 | 150 | 0 | 23 | -170 | 6 | -0.5 | 0 | -10 | 0.6 | -400 | 503 | 120 | 15 | 160 | 77 | -2 | 170.0 | 20.1 | 4 | 14.80 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18688 | 1.100 | 4.70 | 1100 | 190 | 47 | 270 | -1 | 16 | -0.5 | 39 | 0.4 |
| 18692 | 1.100 | 5.80 | 1200 | 840 | 79 | 320 | -1 | 84 | -0.5 | 24 | 0.7 |
| 18693 | 0.930 | 6.00 | 1200 | 630 | 79 | 340 | -1 | 105 | -0.5 | 18 | 0.6 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | ABR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18694 | -7 | -0.2 | -1.0 | 400 | 0.0 | -1 | 35.0 | 0.0 | -50 | 10 | 0 | 3 | -100 | 3.3 | 19 | 0.0 | 3 | 21 | 0 | 0.00 | 0.0 | -10 | 0 | 4.10 | -1.0 | -10 | 0.0 | 2.7 | -10 | 9 | 0.9 | 0 | 0 | 0 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18694 | 8 | 12 | 62 | 0 | 1.0 | 0 | 0 | 0 | 0.00 | 4 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | -2 | 0.00 | 0 |

**Appendix 8-41A.** DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-20101

Drilling Completion Date 1/29/87

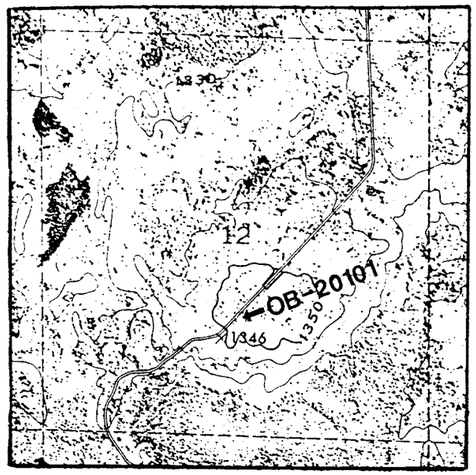
LOCATION (see map at right)

S-T-R NW¼-SE¼-12-63N-24W

County Koochiching

Quadrangle Deer Lake N.E. 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1350 ft.

Total Depth 172 ft.

Elevation, Top of Precambrian Bedrock 1184 ft.

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-34 | Des Moines Lobe Gl. Drift | | | |
| 34-166 | Rainy Lobe Gl. Drift | F | B,C | C = Mo |
| 166-172 | Bedrock | F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Uncertain

Thin Section Description: #18707



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18705 | 11.8 | 0.0 | 11.8 | 119.8 | 81.7 | 38.1 | 29.5 | 8.6 | 0 | NA | TR | NA | NA | NA | NA | S | M | Y | N | B | NA | SAND |
| -706 | 8.5 | 0.0 | 8.5 | 147.7 | 126.0 | 21.7 | 16.3 | 5.4 | 0 | NA | TR | NA | NA | NA | NA | U | Y | Y | Y | B | B | TILL |
| 18708 | 8.3 | 0.0 | 8.3 | 293.4 | 237.7 | 55.7 | 42.6 | 13.1 | 3 | 100 | | | | | | | | | | | | |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | NUMBER OF GRAINS ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18705 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -706 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18708 | Y | 50 X 75 | 13 C | | 1 | | | | | 1 | | | EST. 3% PYRITE |
| | | 50 X 125 | 18 C | | 1 | | | | | 1 | | | 150 GRAINS |
| | | 100 X 150 | 25 C | 1 | | | | | | 1 | | | ARSENOPYRITE |
| | | | | | | | | | | 3 | 42.6 | 100 | |

FIELDNOTE SUMMARY LOG OB-20101, MUD ROTARY

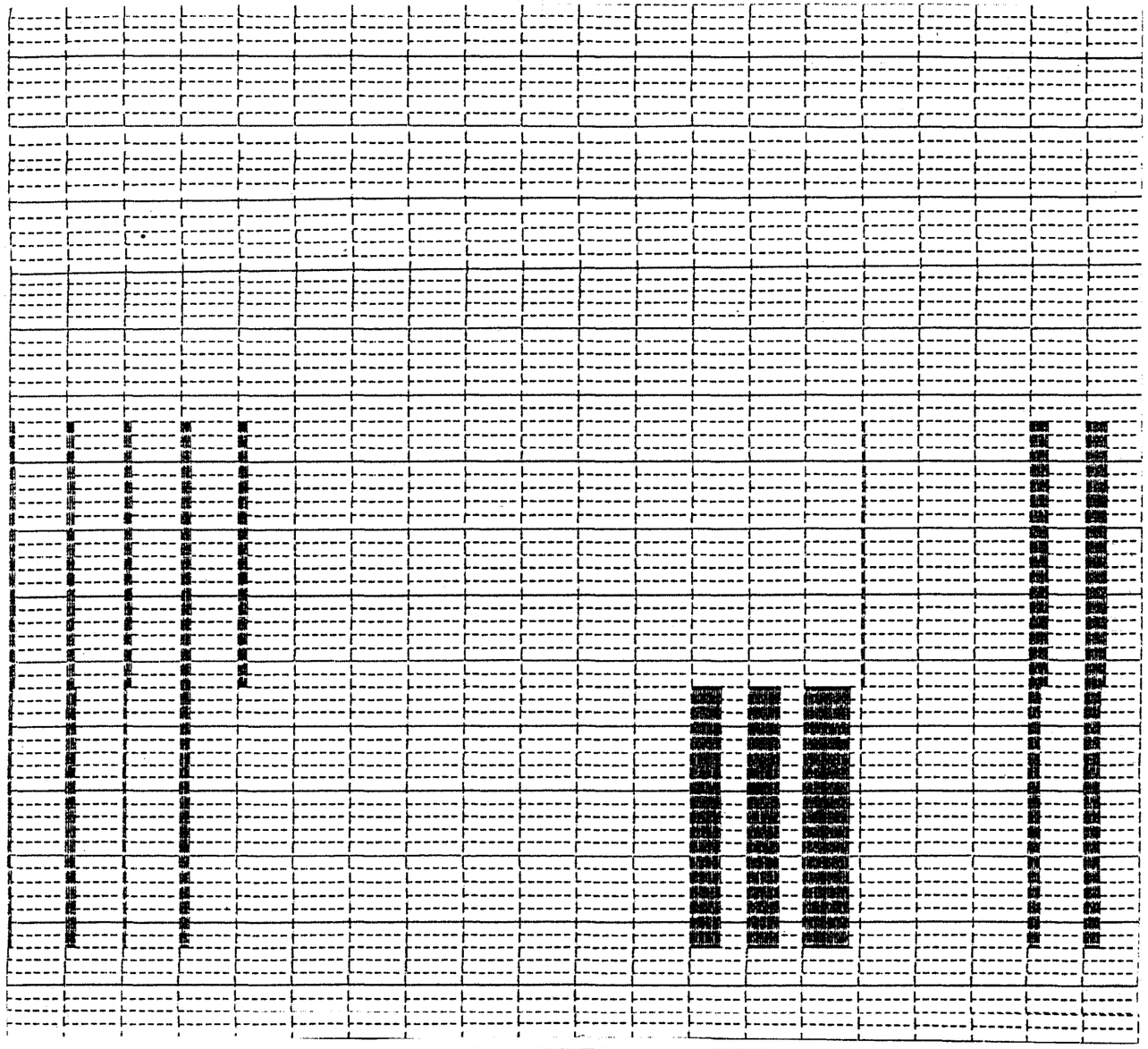
# OB-20101

Appendix 8-41B.

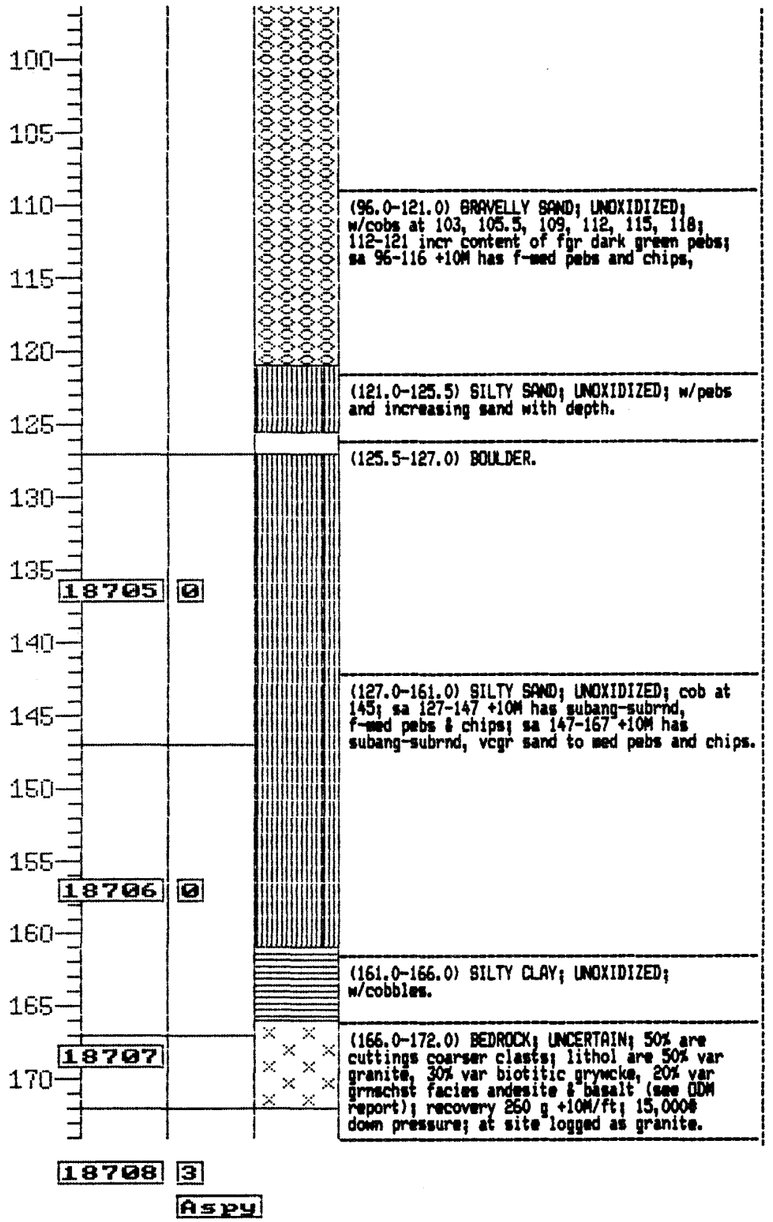
[ IN NON MAG HMC ][ IN -63 MICRON ][ IN MAG FRAC ]

| ^200 Ag | ^600 Cu | ^5 Sb | ^25 Mo | ^6000 Ba | ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 Fe% | ^500 Ni | ^50 Pb | ^100 Mo | NON MAG ^500 Au | -63 ^20 Au | -63 ^100 p/kg | NON MAG HMC ^10 p/kg | MAG ^2 p/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| (FEET) | HMC SAMPLE # | HMC # GOLD GRAINS INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|---|
| | DES MOINES | | | |
| 5 | | | | |
| 10 | | | | (0.0-20.0) CLAYEY TILL; OXIDIZED; buff & gray w/ls & black pebs. |
| 15 | | | | |
| 20 | | | | |
| 25 | | | | (20.0-34.0) CLAYEY TILL; UNOXIDIZED; gray w/mostly ls pebs. |
| 30 | | | | |
| 35 | RAINY | | | |
| 40 | | | | (34.0-76.0) SILTY SAND; UNOXIDIZED; RAINY LOBE; 34-39 v pebbly; 39-41 v silty; 46 soft black organic fragments; 59-61 w/cgr sand; sa 41-61 +10M has subrnd vf-f pebs and chips; sa 61-76 +10M has subrnd vf pebs. |
| 45 | | | | |
| 50 | | | | |
| 55 | | | | |
| 60 | | | | |
| 65 | | | | |
| 70 | | | | |
| 75 | | | | |
| 80 | | | | |
| 85 | | | | (76.0-91.0) SILTY SAND; UNOXIDIZED; w/few pebs; sa 76-96 +10M mostly vcgr sand, subrnd. |
| 90 | | | | |
| 95 | | | | (91.0-96.0) COBBLES; UNOXIDIZED; w/gravelly sand. |



SLUICE BOX 41-172



MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18700 | 20101 | 41-61 | 20. | M | D | NW-SE | 12 | 63 | 24 | K | RL. SILTY SAND | | -1.0 | -1.0 | -2.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18701 | 20101 | 61-76 | 15. | M | D | NW-SE | 12 | 63 | 24 | K | RL. SILTY SAND | | -1.0 | -1.0 | -2.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18702 | 20101 | 76-96 | 20. | M | D | NW-SE | 12 | 63 | 24 | K | RL. SILTY SAND | | -1.0 | -1.0 | -2.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18703 | 20101 | 96-116 | 20.0 | M | D | NW-SE | 12 | 63 | 24 | K | RL. GVL. SAND | | -1.0 | -1.0 | -2.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18704 | 20101 | 116-127 | 11.0 | M | D | NW-SE | 12 | 63 | 24 | K | RL. GVL. SAND | | -1.0 | -1.0 | -2.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18705 | 20101 | 127-147 | 20. | M | D | NW-SE | 12 | 63 | 24 | K | RL. SILTY SAND | 127-147 | 0.0 | 11800.0 | -2.0 | 29.5 | 8.6 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18706 | 20101 | 147-167 | 20. | M | D | NW-SE | 12 | 63 | 24 | K | RL. SILTY SAND | 147-167 | 0.0 | 8500.0 | -2.0 | 16.3 | 5.4 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18707 | 20101 | 167-172 | 5. | M | D | NW-SE | 12 | 63 | 24 | K | BEDROCK | | -1.0 | -1.0 | -2.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18708 | 20101 | 41-172 | -3.0 | M | D | NW-SE | 12 | 63 | 24 | K | SLUICE BOX | 41-172 | 3.0 | 8300.0 | -2.0 | 42.6 | 13.1 | -1.0 | -1.0 | -1 | -1 | -1 | ST(-3)=131 |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18705 | 22 | 0.12 | 0 | 460 | 14000 | 22.30 | 60 | 130 | 62 | 140 | 0 | 19 | -10 | 4 | -0.5 | 0 | -10 | 0.5 | -900 | 337 | 45 | 9 | 13 | 59 | -2 | 150.0 | 16.5 | 3 | 11.30 |
| 18706 | -5 | -0.05 | 0 | 70 | 13000 | 5.30 | 10 | 140 | 94 | 150 | 0 | 6 | -10 | 4 | -0.5 | 0 | -10 | -0.2 | -100 | 83 | 12 | 1 | 3 | 66 | -2 | 30.0 | 1.9 | 2 | 2.54 |
| 18708 | 86 | 0.13 | 618 | 420 | 10000 | 21.40 | 60 | 110 | 64 | 130 | 0 | 16 | -10 | 5 | -0.5 | 0 | -10 | 1.1 | -300 | 406 | 55 | 9 | 23 | 34 | -2 | 160.0 | 12.2 | 5 | 32.90 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18706 | 1.000 | 5.80 | 1000 | 270 | 59 | 380 | -1 | 79 | -0.5 | 28 | 0.6 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18707 | -7 | -0.2 | -1.0 | 500 | 0.0 | 1 | 31.0 | 0.0 | 50 | 10 | 0 | 2 | -100 | 3.4 | 17 | 0.0 | 3 | 31 | 0 | 0.00 | 0.0 | -10 | 0 | 3.70 | -1.0 | -10 | 0.0 | 4.4 | -10 | 3 | 1.0 | 0 | 0 | 0 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18707 | 19 | 14 | 56 | 0 | 1.0 | 0 | 0 | 0 | 0.00 | 4 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | -2 | 0.00 | 0 |

**Appendix 8-42A.** DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-20103

Drilling Completion Date 1/22/87

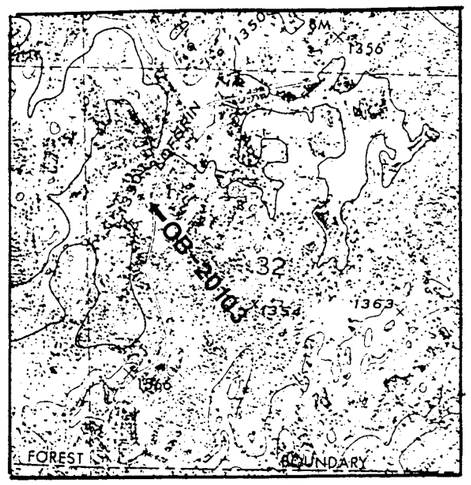
LOCATION (see map at right)

S-T-R SW¼-NW¼-32-63N-24W

County Koochiching

Quadrangle Deer Lake N.W. 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1350 ft.

Total Depth 223 ft.

Elevation, Top of Precambrian Bedrock 1135 ft.

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-215 | Des Moines Lobe Gl. Drift | | | |
| 215-223 | Bedrock | F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Meta-andesite. Medium green, moderately foliated meta-andesite. Grain size ground-mass 0.1-0.15 plag. phenos to 1.5. Equigranular, interlocking overprinted by foliation. Comprised of 75% plag. including 0.5% as phenos, 25% chlorite and 2-5% visible qtz. (By ODM, see report in Appendix)

Thin Section Number: #18686.



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | MATRIX | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S GR | % LS | % OT | S/U | SD | ST CY | COLOR SD CY | |
| 18687 | 4.8 | 0.0 | 4.8 | 170.7 | 136.0 | 34.7 | 26.4 | 6.3 | 0 | NA | | | | | | | | | |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | NUMBER OF GRAINS ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18687 | Y | NO VISIBLE GOLD | | | | | | | | | | | EST. 7% PYRITE |

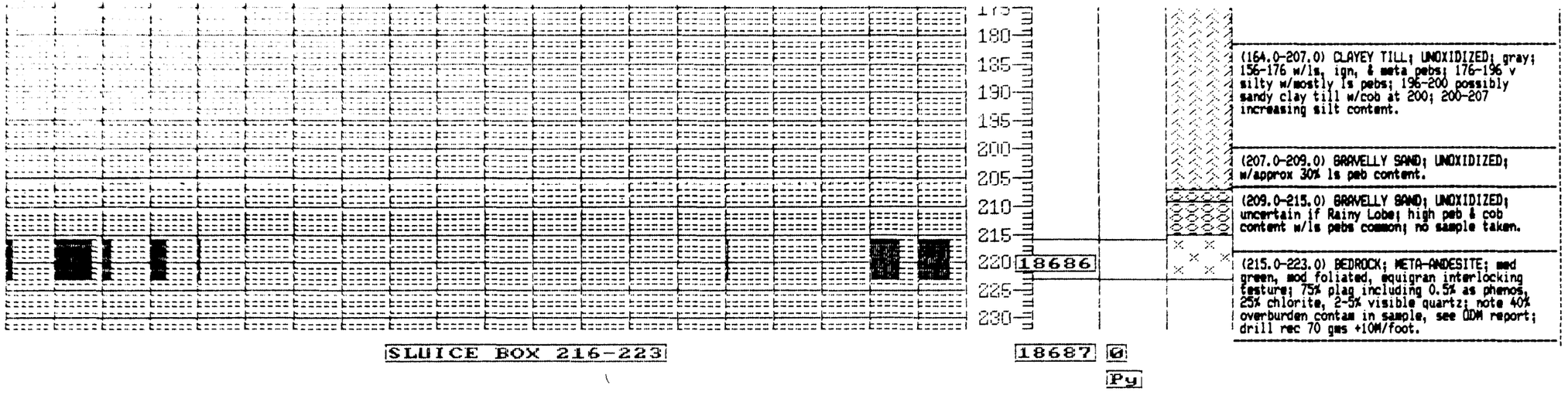
FIELDNOTE SUMMARY LOG OB-20103, MUD ROTARY

# OB-20103

Appendix 8-42B.

| [ IN NON MAG HMC | | | | | ][ IN -63 MICRON | | | | | | | ][ IN MAG FRAC | | | | NON MAG -63 | | -63 NON MAG HMC | MAG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ^200 As | ^600 Cu | ^5 Sb | ^25 Mo | ^6000 Ba | ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 Fe% | ^500 Ni | ^50 Pb | ^100 Mo | ^500 Au | ^20 Au | ^100 g/kg | ^10 g/kg | ^2 g/kg |
| | | | | | | | | | | | | | | | | | | | |

| (FEET) | HMC SAMPLE # | HMC # GOLD GRAINS/ INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|---|
| | | DES MOINES | | |
| 5 | | | | (0.0-9.0) CLAYEY TILL; OXIDIZED; tan, w/pebs of ls, granite, & black metavol w/sulfides. |
| 10 | | | | |
| 15 | | | | |
| 20 | | | | |
| 25 | | | | |
| 30 | | | | |
| 35 | | | | |
| 40 | | | | |
| 45 | | | | |
| 50 | | | | |
| 55 | | | | |
| 60 | | | | |
| 65 | | | | |
| 70 | | | | |
| 75 | | | | |
| 80 | | | | |
| 85 | | | | |
| 90 | | | | |
| 95 | | | | |
| 100 | | | | (9.0-162.0) CLAYEY TILL; UNOXIDIZED; gray w/high (approx 30%) peb content, mostly ls pebs; hard drilling, rate 52 ft/hour to 156 ft. |
| 105 | | | | |
| 110 | | | | |
| 115 | | | | |
| 120 | | | | |
| 125 | | | | |
| 130 | | | | |
| 135 | | | | |
| 140 | | | | |
| 145 | | | | |
| 150 | | | | |
| 155 | | | | |
| 160 | | | | |
| 165 | | | | (162.0-164.0) FINE SAND; UNOXIDIZED; w/vfgr sand; mostly ls. |
| 170 | | | | |
| 175 | | | | |




SLUICE BOX 216-223

18687 G

Py

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18686 | 20103 | 216-223 | 7. | M | D | SW-NW | 32 | 63 | 24 | K | BEDROCK | | -1.0 | -1.0 | -2.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18687 | 20103 | 216-223 | 7. | M | D | SW-NW | 32 | 63 | 24 | K | SLUICE BOX | 216-223 | 0.0 | 4800.0 | -2.0 | 28.4 | 6.3 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18687 | -14 | 0.07 | 350 | 360 | 7700 | 14.80 | 50 | 190 | 460 | 300 | 0 | 26 | -10 | 8 | -0.5 | 0 | -10 | 0.8 | 200 | 213 | 73 | 5 | 84 | 91 | -2 | 76.0 | 7.9 | 6 | 21.10 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18686 | -6 | -0.2 | -1.0 | 400 | 0.0 | -1 | 21.0 | 0.0 | 60 | 10 | 0 | 2 | -100 | 3.6 | 11 | 0.0 | 2 | 53 | 0 | 0.00 | 0.0 | -10 | 0 | 2.50 | -1.0 | -10 | 0.0 | 2.1 | -10 | -2 | 1.4 | 0 | 0 | 0 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18686 | 24 | 14 | 41 | 0 | 1.0 | 0 | 0 | 0 | 0.00 | 3 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | -2 | 0.00 | 0 |

## Appendix 8-43A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-20104

Drilling Completion Date 1/28/87

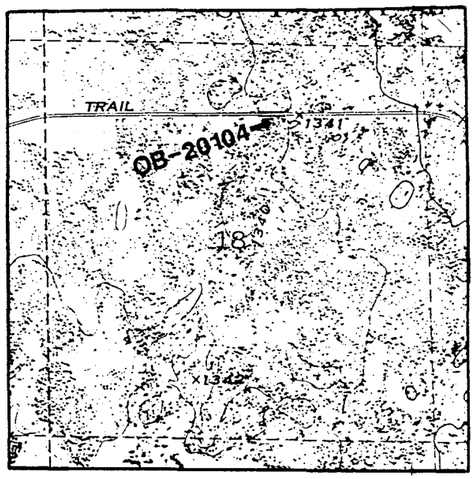
LOCATION (see map at right)

S-T-R NW¼-NE¼-18-63N-24W

County Koochiching

Quadrangle Deer Lake N.W. 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1340 ft.

Total Depth 146 ft.

Elevation, Top of Precambrian Bedrock

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-133 | Des Moines Lobe Gl. Drift | F | | |
| 133-146 | Rainy Lobe Gl. Drift | F | B,C | B = As,Pb<br>C = Ni,Mo |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type:

Thin Section Description:



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | M. I. CONC | | | | | | CLAST | | | | | MATRIX | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18696 | 10.8 | 0.6 | 10.2 | 90.5 | 52.2 | 38.3 | 25.4 | 12.9 | 1 | 981 | P | 30 | 20 | 30 | A | U | Y | Y | Y | B | B | TILL |
| -697 | 10.5 | 0.3 | 10.2 | 139.6 | 107.8 | 31.8 | 23.0 | 8.8 | 0 | NA | P | 45 | 45 | 10 | A | U | Y | Y | Y | GB | GB | TILL |
| -698 | 13.6 | 0.2 | 13.4 | 164.0 | 135.2 | 28.8 | 21.0 | 7.8 | 0 | NA | P | 45 | 55 | NA | A | U | Y | Y | Y | B | B | TILL |
| -699 | 5.6 | 0.0 | 5.6 | 134.0 | 101.4 | 32.6 | 26.2 | 6.4 | 1 | 827 | | | | | | | | | | | |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | NUMBER OF GRAINS: ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18696 | N | 225 X 300 | 48 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | | 1 | 25.4 | 981 | |
| -697 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -698 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -699 | Y | 200 X 300 | 46 C | 1 | | | | | | 1 | | | EST. 10% PYRITE 100 GRAINS |
| | | | | | | | | | | 1 | 26.2 | 827 | ARSENOPYRITE |

FIELDNOTE SUMMARY LOG OB-20104, MUD ROTARY

# OB-20104

Appendix 8-43B.

[ IN NON MAG HMC ]

| ^200 As | ^600 Cu | ^5 Sb | ^25 Mo | ^5000 Ba |
|---|---|---|---|---|

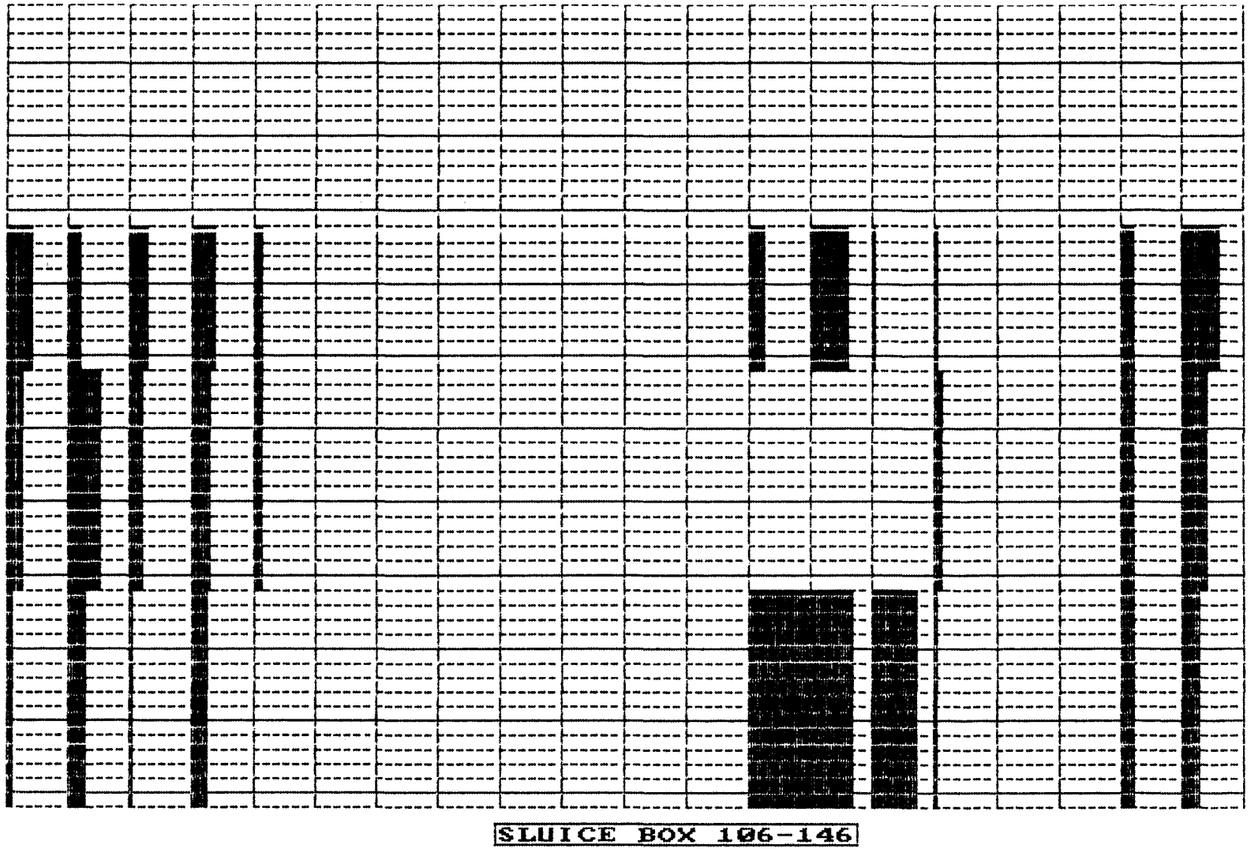
[ IN -63 MICRON ]

| ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 Fe% |
|---|---|---|---|---|---|---|

[ IN MAG FRAC ]

| ^500 Ni | ^50 Pb | ^100 Mo | NON MAG ^500 Au | -63 ^20 Au | -63 ^100 g/kg | NON MAG HMC ^10 g/kg | MAG ^2 g/kg |
|---|---|---|---|---|---|---|---|

| (FEET) | HMC SAMPLE # | HMC # GOLD GRAINS INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|---|
| | DES MOINES | | | |
| 0 | | | | (0.0-5.0) GRAVELLY SAND; OXIDIZED; ls pebs dominant. |
| 5 | | | | |
| 10 | | | | (5.0-21.0) CLAYEY TILL; OXIDIZED; brown; gravel from 0-5 washing into sample so ls peb content uncertain, could be some lake clays missed. |
| 15 | | | | |
| 20 | | | | |
| 25 | | | | |
| 30 | | | | (21.0-43.0) CLAYEY TILL; UNOXIDIZED; gray; gravel from 0-5 washing into sa, so could miss some lake clays. |
| 35 | | | | |
| 40 | | | | |
| 45 | | | | |
| 50 | | | | (43.0-65.0) NO OBSERVATIONS. |
| 55 | | | | |
| 60 | | | | |
| 65 | | | | (65.0-71.0) CLAYEY TILL; UNOXIDIZED; gray; w/some ls pebs. |
| 70 | | | | |
| 75 | | | | |
| 80 | | | | (71.0-94.0) CLAY; UNOXIDIZED; gray lake sediments; a few pebs at 78 and 86. |
| 85 | | | | |
| 90 | | | | |



SLUICE BOX 106-146

95
100
105
110
115
120
125
130
135
140
145

18696 1
18697 0
RAINY
18698 0
18699 1

Py, Aspy

(94.0-102.0) CLAYEY TILL; UNOXIDIZED; gray incr peb content w/depth; pebs to 1 inch dia.

(102.0-127.0) SANDY SILT; UNOXIDIZED; transition to Rainy? 106-115 w/clay & few pebs; +10M is v dirty from sh, minor lignite & ls, tr py; 6 inch mgr-cgr clean sand at 115; stiffer resistance from 121 down; sa 106-116 +10M has minor ls, & most pebs subrnd.

(127.0-133.0) SANDY SILT; UNOXIDIZED; fgr w/incr peb content; top of Rainy Lobe? cob at 127, 130 132.

(133.0-146.0) GRAVELLY SAND; UNOXIDIZED; RAINY LOBE; v cobbly; stopped due to artesian flow; sa 131-146 +10M mostly subang pebs and chips.

**Appendix 8-43C.**

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY DESC | LEGAL | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18696 | 20104 | 106-116 | 10. | M | D | NW-NE | 18 | 63 | 24 | K | RL. SILTY SAND | 106-116 | 1.0 | 10800.0 | | -2.0 | 25.4 | 12.9 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18697 | 20104 | 116-131 | 15. | M | D | NW-NE | 18 | 63 | 24 | K | RL. SILTY SAND | 116-131 | 0.0 | 10500.0 | | -2.0 | 23.0 | 8.8 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18698 | 20104 | 131-146 | 15. | M | D | NW-NE | 18 | 63 | 24 | K | RL. GVL. SAND | 131-146 | 0.0 | 13600.0 | | -2.0 | 21.0 | 7.8 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18699 | 20104 | 106-146 | 40. | M | D | NW-NE | 18 | 63 | 24 | K | SLUICE BOX | 106-146 | 1.0 | 5600.0 | | -2.0 | 26.2 | 6.4 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18696 | -20 | 0.12 | 0 | 620 | 11000 | 24.40 | 90 | 150 | 110 | 200 | 0 | 79 | -20 | 9 | 0.5 | 0 | -10 | 1.4 | 800 | 473 | 160 | 12 | 12 | 67 | -2 | 200.0 | 24.7 | 2 | 10.90 |
| 18697 | 61 | 0.27 | 0 | 320 | 11000 | 19.30 | 90 | 230 | 300 | 160 | 0 | 51 | 10 | 7 | -0.5 | 0 | -10 | 1.1 | 700 | 589 | 150 | 9 | 25 | 105 | -2 | 200.0 | 25.8 | 2 | 10.20 |
| 18698 | 22 | -0.05 | 0 | 50 | 13000 | 5.10 | 10 | 160 | 160 | 130 | 0 | 15 | -10 | 6 | -0.5 | 0 | -10 | 0.2 | 100 | 96 | 15 | 1 | 11 | 78 | -2 | 33.0 | 3.4 | 2 | 2.42 |
| 18699 | 660 | 0.27 | 901 | 670 | 8400 | 26.60 | 90 | 190 | 170 | 160 | 0 | 53 | -10 | 8 | -0.5 | 0 | -10 | 1.4 | 800 | 567 | 150 | 11 | 110 | 83 | -2 | 200.0 | 22.8 | 5 | 19.50 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18696 | 1.100 | 4.20 | 1100 | 120 | 35 | 220 | -1 | 5 | -0.5 | 29 | 1.2 |
| 18698 | 0.990 | 5.20 | 940 | 710 | 100 | 230 | -1 | 71 | -0.5 | 33 | 0.6 |

## Appendix 8-44A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-20200

Drilling Completion Date 2/6/87

LOCATION (see map at right)

S-T-R SE¼-SW¼-16-63N-23W

County Koochiching

Quadrangle Deer Lake N.E. 7.5

Regional Survey Area Orr

HOLE PARAMETERS

Surface Elevation 1340 ft.

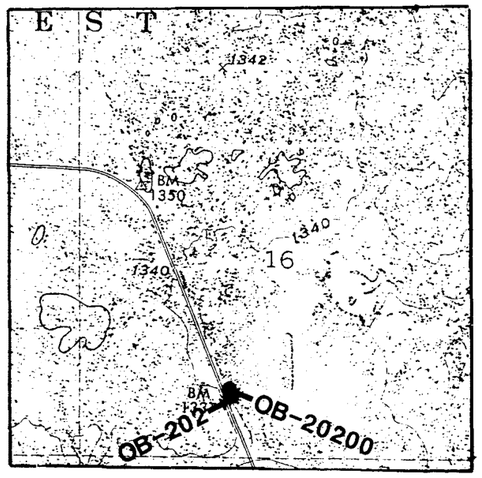
Total Depth 117 ft.

Elevation, Top of Precambrian Bedrock 1232.5 ft.

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam




SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-70 | Des Moines Lobe Gl. Drift | | | Note: Compare to hole 202 at same site. B = Au,Cu C = Ni,Mo |
| 70-107.5 | Rainy Lobe Gl. Drift | F | B,C | |
| 107.5-117 | Bedrock | F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Amphibolite; see also hole 202 at same site. Dark gray to green. Variably massive to well foliated. Grain size 0.2 (esp. plag.) to 0.5 (esp. amphibole). Interlocking, equigranular to inequigranular (amph. coarser than px.) to sub-diabasic. Comprised of 50% hornblende (variable to actinolite), 40% plag. and 10% chloritized biotite. 3% dissem. calcite. Trace py. (By ODM, see report in Appendix)

Thin Section Number: #18725.



## HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) TABLE SPLIT | +10 CHIPS | TABLE FEED | WEIGHT (GRAMS DRY) TABLE CONC | M.I. LIGHTS | M. I. CONC CONC. TOTAL | NON MAG | MAG | AU NO. V.G. | CALC PPB | DESCRIPTION CLAST SIZE | CLAST % V/S | GR | LS | OT | MATRIX S/U | SD | ST | CY | COLOR SD | CY | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18721 | 7.5 | 0.3 | 7.2 | 105.6 | 89.2 | 16.4 | 12.2 | 4.2 | 0 | NA | P | 69 | 30 | 1 | NA | U | Y | Y | Y | GB | GB | TILL |
| -722 | 9.1 | 0.0 | 9.1 | 229.4 | 205.4 | 24.0 | 18.0 | 6.0 | 0 | NA | TR | NA | NA | NA | NA | U | Y | Y | Y | GB | GB | TILL |
| -723 | 10.6 | 1.2 | 9.4 | 177.5 | 145.8 | 31.7 | 23.9 | 7.8 | 0 | NA | P | 60 | 40 | NA | NA | U | Y | Y | Y | GB | GB | TILL |
| 18724 | 6.4 | 0.0 | 6.4 | 116.5 | 92.9 | 23.6 | 16.5 | 7.1 | 1 | 23 | TR | NA | NA | NA | NA | U | Y | Y | Y | GB | GB | TILL |
| -726 | 5.3 | 0.0 | 5.3 | 113.8 | 86.7 | 27.1 | 20.8 | 6.3 | 3 | 386 | | | | | | | | | | | | |
| -727A | 11.0 | 0.4 | 10.6 | 132.8 | 93.0 | 39.8 | 29.4 | 10.4 | 0 | NA | P/G | 25 | 50 | 25 | A | U | Y | Y | Y | GB | B | TILL |
| -727B | 10.8 | 0.3 | 10.5 | 136.2 | 92.9 | 43.3 | 32.2 | 11.1 | 0 | NA | P | 30 | 50 | 20 | A | U | Y | Y | Y | B | B | TILL |

GOLD CLASSIFICATION

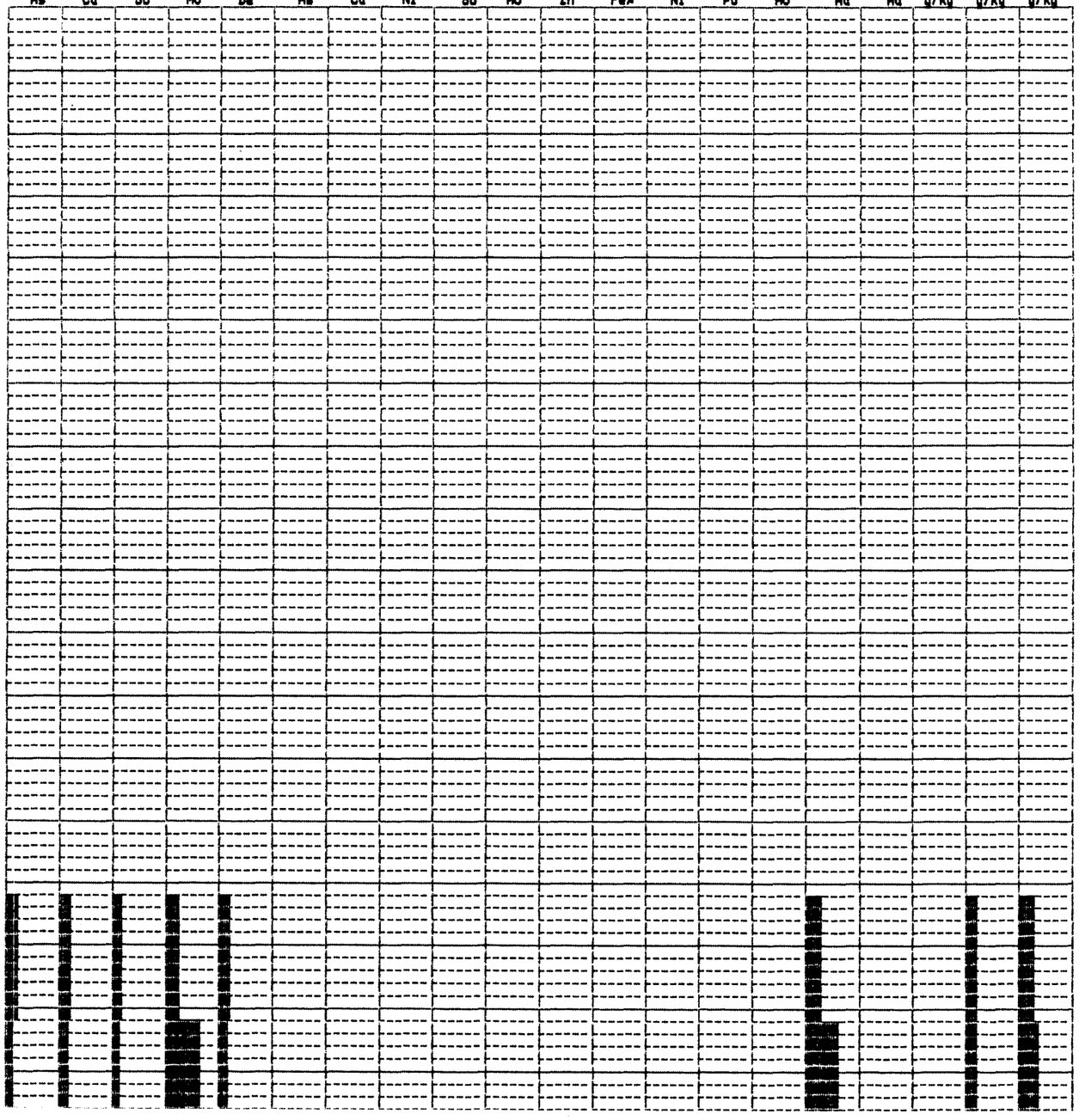
VISIBLE GOLD FROM SHAKING TABLE AND PANNING

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | NUMBER OF GRAINS ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18721 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -722 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -723 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18724 | Y | 50 X 75 | 13 C | | 1 | | | | | 1 | | | EST. 5% PYRITE |
| | | | | | | | | | | 1 | 16.5 | 23 | |
| -726 | Y | 25 X 250 | 27 C | 1 | | | | | | 1 | | | |
| | | 50 X 75 | 13 C | | 1 | | | | | 1 | | | EST. 15% PYRITE |
| | | 100 X 175 | 27 C | 1 | | | | | | 1 | | | 20 GRAINS ARSENOPYRITE |
| | | | | | | | | | | 3 | 20.8 | 386 | |
| -727A | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -727B | N | NO VISIBLE GOLD | | | | | | | | | | | |

FIELDNOTE SUMMARY LOG OB-20200, MUD ROTARY; SEE ALSO OB-202, ROTASONIC, few feet away.

[ IN NON MAG HMC ][ IN -63 MICRON ][ IN MAG FRAC ]

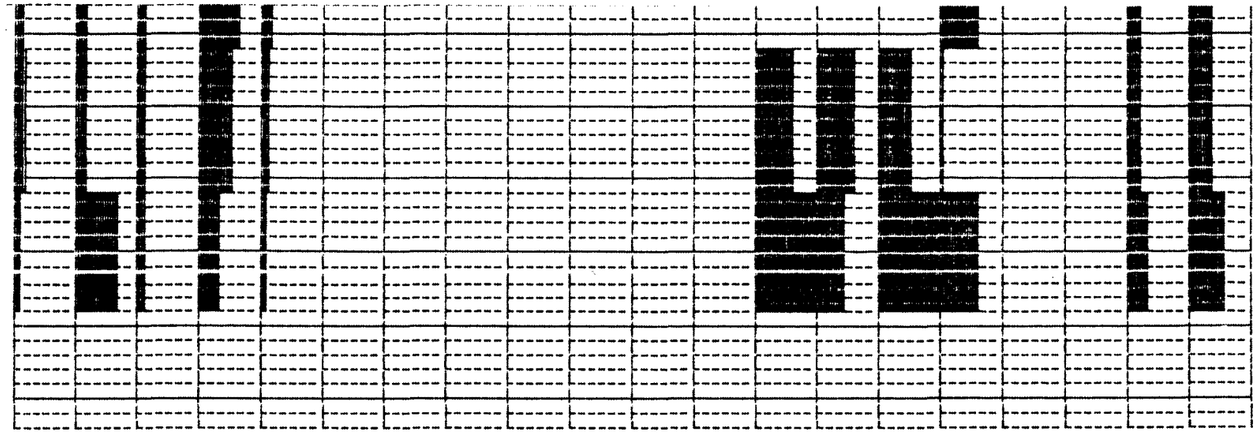
| ^200 As | ^600 Cu | ^5 Sb | ^25 Mo | ^6000 Ba | ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 FeX | ^500 Ni | ^50 Pb | ^100 Mo | NON MAG ^500 Au | -63 ^20 Au | -63 ^100 g/kg | NON MAG HMC ^10 g/kg | MAG ^2 g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|



# OB-20200

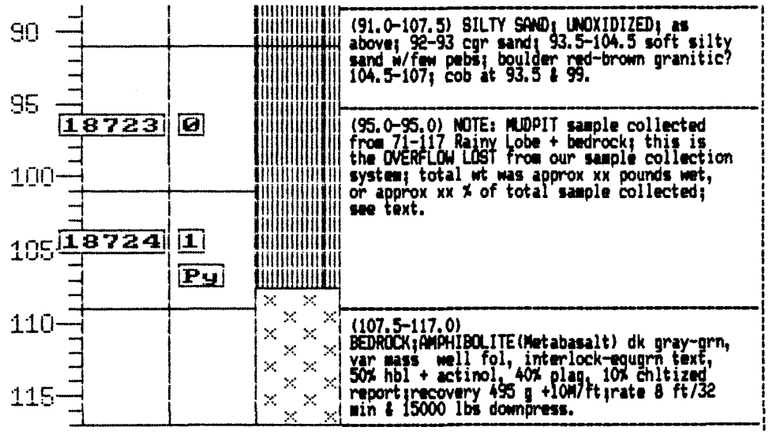
| (FEET) | HMC SAMPLE # | HMC # GOLD GRAINS; INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|---|
| | DES MOINES | | | |
| | | | | (0.0-3.0) CLAY; OXIDIZED; brown lake sediments. |
| 5 | | | | |
| 10 | | | | (3.0-19.0) CLAYEY TILL; OXIDIZED; brown, w/ls & occ black pebs. |
| 15 | | | | |
| 20 | | | | |
| 25 | | | | |
| 30 | | | | (19.0-41.0) CLAYEY TILL; UNOXIDIZED; gray, w/ls & occ black pebs. |
| 35 | | | | |
| 40 | | | | |
| 45 | | | | |
| 50 | | | | (41.0-60.0) CLAY; UNOXIDIZED; gray to black lake sediments, slimy w/no silt; few pebs at 46; drilling rate about 50 ft/hour. |
| 55 | | | | |
| 60 | | | | |
| 65 | | | | (60.0-69.0) CLAYEY TILL; UNOXIDIZED; 61-69 v sandy & silty w/ig & meta pebs. |
| 70 | RAINY | | | (69.0-70.0) CLAY; UNOXIDIZED; black, slimy. |
| 75 | 18721 | 0 | | (70.0-91.0) SILTY SAND; UNOXIDIZED; PEBBLY; RAINY LOBE; see OB-202 core-till; hard resistance 75-77; cob at 76, 87, 90; cgr sand at 84, 81-91 more pebs than above; sa 71-101 +10M has subang vf-f pebs & chips. |
| 80 | | | | |
| 85 | 18722 | 0 | | |

Appendix 8-44B.



SLUICE BOX 71-117

MUD PIT SAMP 71-117



MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18721 | 20200 | 71-81 | 10. | M | D | SE-SW | 16 | 63 | 23 | K | RL. SILTY SAND | 71-81 | 0.0 | 7500.0 | -2.0 | 12.2 | 4.2 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18722 | 20200 | 81-91 | 10. | M | D | SE-SW | 16 | 63 | 23 | K | RL. GVL. SAND | 81-91 | 0.0 | 9100.0 | -2.0 | 18.0 | 6.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18723 | 20200 | 91-101 | 10. | M | D | SE-SW | 16 | 63 | 23 | K | RL. SILTY SAND | 91-101 | 0.0 | 10600.0 | -2.0 | 23.9 | 7.8 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18724 | 20200 | 101-109 | 8. | M | D | SE-SW | 16 | 63 | 23 | K | RL. SILTY SAND | 101-109 | 1.0 | 6400.0 | -2.0 | 16.5 | 7.1 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18725 | 20200 | 109-117 | 8. | M | D | SE-SW | 16 | 63 | 23 | K | BEDROCK | | -1.0 | -1.0 | -2.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18726 | 20200 | 71-117 | 46. | M | D | SE-SW | 16 | 63 | 23 | K | SLUICE BOX | 71-117 | 3.0 | 5300.0 | -2.0 | 20.8 | 6.3 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18727A | 20200 | 71-117 | 46. | M | D | SE-SW | 16 | 63 | 23 | K | MUD PIT | 71-117 | 0.0 | 11000.0 | -2.0 | 29.4 | 10.4 | -1.0 | -1.0 | -1 | -1 | -1 | MUD PIT SAMP. |
| 18727B | 20200 | 71-117 | 46.0 | M | D | SE-SW | 16 | 63 | 23 | K | MUD PIT | 71-117 | 0.0 | 10800.0 | -2.0 | 32.2 | 11.1 | -1.0 | -1.0 | -1 | -1 | -1 | MUD PIT SAMP. |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18721 | 150 | 0.29 | 0 | 440 | 12000 | 31.10 | 100 | 180 | 130 | 120 | 0 | 39 | -20 | 6 | -0.5 | 0 | -10 | -0.8 | 1200 | 537 | 120 | 13 | -11 | 63 | -2 | 210.0 | 20.5 | 2 | 9.07 |
| 18722 | 300 | 0.23 | 0 | 410 | 12000 | 22.50 | 80 | 160 | 96 | 120 | 0 | 20 | -20 | 16 | -0.5 | 0 | -10 | -0.5 | 900 | 539 | 76 | 10 | 14 | 62 | -2 | 220.0 | 18.0 | 2 | 17.20 |
| 18723 | 27 | 0.27 | 0 | 370 | 13000 | 30.30 | 90 | 160 | 100 | 110 | 0 | 30 | -10 | 13 | -0.5 | 0 | -10 | -0.7 | 800 | 552 | 79 | 10 | 12 | 63 | -2 | 210.0 | 18.9 | 2 | 13.20 |
| 18724 | 300 | 0.20 | 0 | 1600 | 9000 | 34.90 | 470 | 200 | 410 | 98 | 0 | 19 | -10 | 8 | -0.5 | 0 | -10 | 0.7 | -500 | 379 | 80 | 6 | 13 | 51 | -2 | 140.0 | 15.4 | 3 | 12.40 |
| 18726 | 350 | 0.24 | 790 | 1500 | 12000 | 23.40 | 240 | 170 | 170 | 210 | 0 | 24 | -20 | 9 | -0.5 | 0 | -10 | -0.6 | 900 | 491 | 71 | 12 | 38 | 56 | -2 | 200.0 | 23.0 | 4 | 16.00 |
| 18727A | 51 | 0.16 | 0 | 2100 | 11000 | 21.80 | 230 | 170 | 200 | 200 | 0 | 23 | 30 | 8 | -0.5 | 0 | -10 | 0.8 | 900 | 436 | 94 | 7 | 11 | 34 | -2 | 200.0 | 22.2 | 3 | 12.00 |
| 18727B | 36 | 0.18 | 0 | 2100 | 11000 | 21.60 | 230 | 180 | 200 | 200 | 0 | 24 | -10 | 6 | -0.5 | 0 | -10 | -0.4 | 700 | 461 | 92 | 11 | 15 | 46 | -2 | 200.0 | 22.1 | 3 | 11.60 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18723 | 1.200 | 4.30 | 830 | 300 | 73 | 320 | -1 | 53 | -0.5 | 29 | 0.7 |
| 18724 | 0.910 | 2.80 | 620 | 2800 | 87 | 200 | -1 | 231 | -0.5 | 22 | 1.1 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18725 | -7 | -0.2 | -1.0 | 400 | 0.0 | -1 | 29.0 | 0.0 | 490 | 30 | 0 | 2 | -100 | 6.1 | 12 | 0.0 | 5 | 230 | 0 | 0.00 | 0.0 | -10 | 0 | 3.00 | -1.0 | -10 | 0.0 | 1.7 | -10 | 3 | -0.5 | 0 | 0 | 0 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18725 | 70 | 11 | 83 | 0 | 1.0 | 0 | 0 | 0 | 0.00 | 3 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | -2 | 0.00 | 0 |

## Appendix 8-45A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-20201

Drilling Completion Date 2/5/87

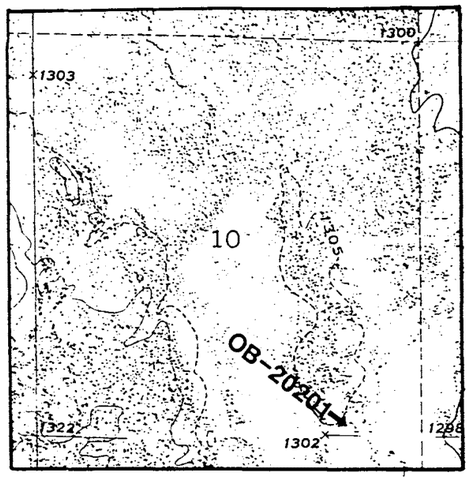
LOCATION (see map at right)

S-T-R SE¼-SE¼-10-63N-23W

County Koochiching

Quadrangle Deer Lake N.E. 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1300 ft.

Total Depth 77 ft.

Elevation, Top of Precambrian Bedrock 1228 ft.

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-62 | Des Moines Lobe Gl. Drift | | | |
| 62-72 | Rainy Lobe Gl. Drift | F | B,C | B = Cu,Ni,Cr, Ag,Se,Sb |
| 72-77 | Bedrock | F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Amphibolite (basalt). Dark green, moderately foliated amphibolite (basalt). Grain size 0.2 (plag.) to 0.5 (actinolite) with inequigranular, interlocking texture. Comprised of 50% actinolite, 40% plag., and 10% chloritized biotite. 5% of chips contain 10% calcite. (By ODM, see report in Appendix.)

Thin Section Number: #18719.



## HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % | | | | S/U | SD | ST | CY | COLOR | |
| | | | | | | | | | | | | V/S | GR | LS | OT | | | | | SD CY | |
| 18717 | 8.3 | 0.2 | 8.1 | 135.3 | 105.8 | 29.5 | 23.1 | 6.4 | 0 | NA | P.G | 90 | 10 | NA | NA | U | Y | Y | Y | GG GG | TILL |
| -718 | 7.0 | 0.0 | 7.0 | 230.9 | 219.4 | 11.5 | 9.9 | 1.6 | 0 | NA | TR | NA | NA | NA | NA | U | Y | Y | Y | GB GB | TILL&BDK |
| -720 | 2.5 | 0.0 | 2.5 | 70.3 | 64.3 | 6.0 | 5.2 | 0.8 | 0 | NA | | | | | | | | | | | |

GOLD CLASSIFICATION

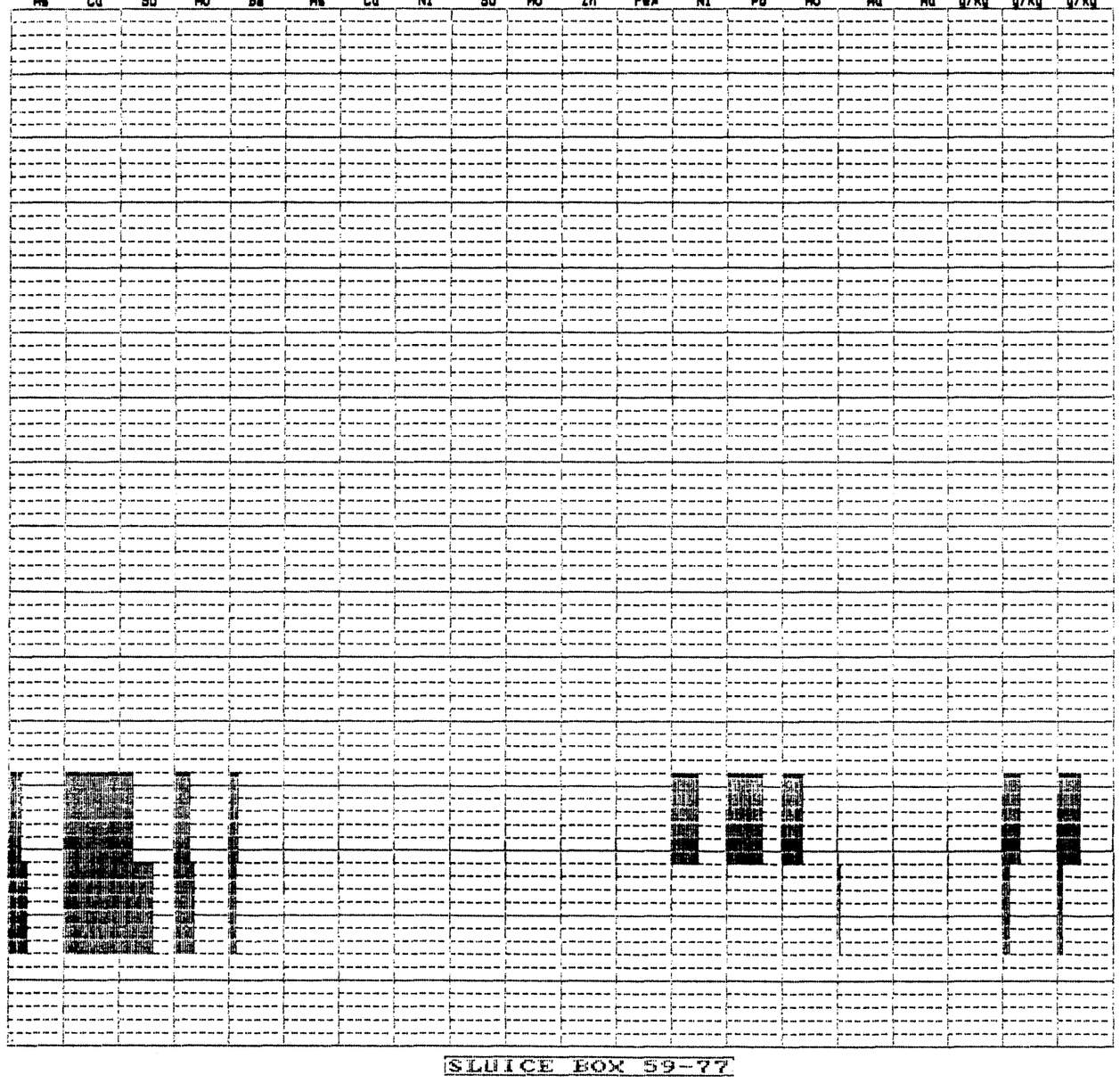
VISIBLE GOLD FROM SHAKING TABLE AND PANNING

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | NUMBER OF GRAINS: ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18717 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -718 | Y | NO VISIBLE GOLD | | | | | | | | | | | EST. 5% PYRITE |
| -720 | Y | NO VISIBLE GOLD | | | | | | | | | | | EST. 5% PYRITE<br>20 GRAINS<br>ARSENOPYRITE |

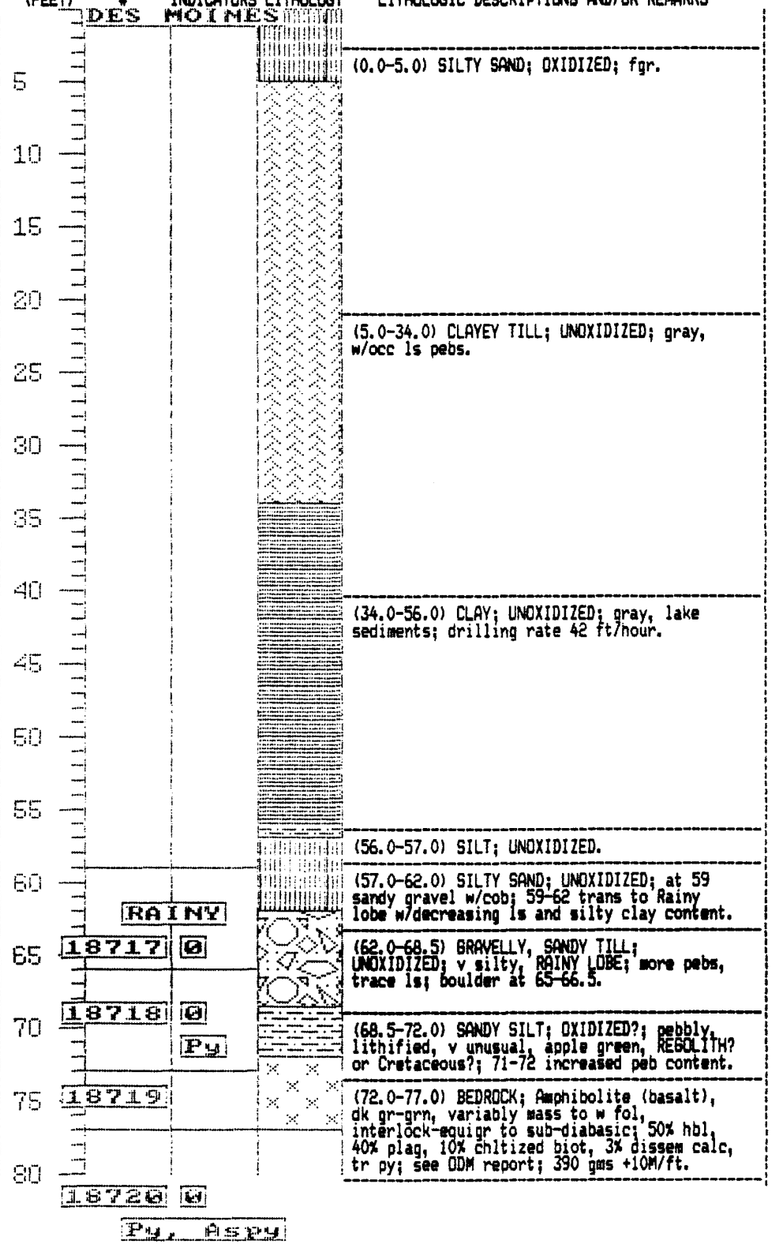
FIELDNOTE SUMMARY LOB OB-20201, MUD ROTARY

# OB-20201

Appendix 8-45B.




SLUICE BOX 59-77




LITHOLOGIC DESCRIPTIONS AND/OR REMARKS

(0.0-5.0) SILTY SAND; OXIDIZED; fgr.

(5.0-34.0) CLAYEY TILL; UNOXIDIZED; gray, w/occ ls pebs.

(34.0-56.0) CLAY; UNOXIDIZED; gray, lake sediments; drilling rate 42 ft/hour.

(56.0-57.0) SILT; UNOXIDIZED.

(57.0-62.0) SILTY SAND; UNOXIDIZED; at 59 sandy gravel w/cob; 59-62 trans to Rainy lobe w/decreasing ls and silty clay content.

(62.0-68.5) GRAVELLY, SANDY TILL; UNOXIDIZED; v silty, RAINY LOBE; more pebs, trace ls; boulder at 65-66.5.

(68.5-72.0) SANDY SILT; OXIDIZED?; pebbly, lithified, v unusual, apple green, REGOLITH? or Cretaceous?; 71-72 increased peb content.

(72.0-77.0) BEDROCK; Amphibolite (basalt), dk gr-grn, variably mass to w fol, interlock-equigr to sub-diabasic; 50% hbl, 40% plag, 10% chltized biot, 3% dissem calc, tr py; see ODM report; 390 gms +10M/ft.

Appendix 8-45C.

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18717 | 20201 | 59-66 | 7. | M | O | SE-SE | 10 | 63 | 23 | K | RL. GVL. SAND | 59-66 | 0.0 | 8300.0 | -2.0 | 23.1 | 6.4 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18718 | 20201 | 66-73 | 7. | M | O | SE-SE | 10 | 63 | 23 | K | RL. SILTY SAND | 66-73 | 0.0 | 7000.0 | -2.0 | 9.9 | 1.6 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18719 | 20201 | 73-77 | 4. | M | O | SE-SE | 10 | 63 | 23 | K | BEDROCK | | -1.0 | -1.0 | -2.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18720 | 20201 | 59-77 | 18. | M | O | SE-SE | 10 | 63 | 23 | K | SLUICE BOX | 59-77 | 0.0 | 2500.0 | -2.0 | 5.2 | 0.8 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18717 | -5 | 0.21 | 0 | 2600 | 11000 | 34.10 | 180 | 290 | 590 | 130 | 0 | 39 | 20 | 7 | -0.5 | 0 | -10 | 1.2 | 900 | 386 | 110 | 7 | 19 | 72 | -2 | 130.0 | 17.0 | 3 | 16.90 |
| 18718 | -29 | 0.24 | 0 | 23000 | 6800 | 36.70 | 330 | 640 | 1200 | 220 | 0 | 64 | 50 | 9 | 2.5 | 0 | -10 | 3.0 | -800 | 550 | 110 | 12 | 28 | 109 | -2 | 110.0 | 16.5 | 1 | 7.34 |
| 18720 | -33 | 0.32 | 855 | 5600 | 10000 | 33.00 | 220 | 380 | 740 | 190 | 0 | 28 | -10 | 6 | -0.5 | 0 | -10 | 1.4 | -600 | 470 | 120 | 9 | 94 | 59 | -2 | 170.0 | 19.9 | 2 | 3.71 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18717 | 1.200 | 4.20 | 1500 | 250 | 86 | 300 | -1 | 34 | -0.5 | 32 | 0.8 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18719 | -9 | -0.2 | 2.0 | 1000 | 0.0 | 2 | 188.0 | 0.0 | 380 | 30 | 0 | 4 | -100 | 6.8 | 105 | 0.0 | 2 | 270 | 0 | 0.00 | 0.0 | -10 | 0 | 3.30 | -1.0 | -10 | 0.0 | 8.3 | -10 | 4 | 1.5 | 0 | 0 | 0 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18719 | 30 | 23 | 130 | 0 | 2.0 | 0 | 0 | 0 | 0.00 | 3 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | -2 | 0.00 | 0 |

**Appendix 8-46A.** DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-20204

Drilling Completion Date 2/4/87

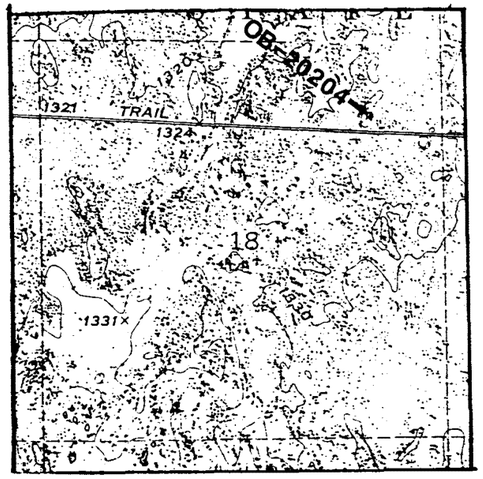
LOCATION (see map at right)

S-T-R NE¼-NE¼-18-63N-23W

County Koochiching

Quadrangle Deer Lake N.E. 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1330 ft.

Total Depth 177 ft.

Elevation, Top of Precambrian Bedrock 1159 ft.

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-161 | Des Moines Lobe Gl. Drift | No | No | |
| 161-171 | Rainy Lobe Gl. Drift | F | B,C | |
| 171-177 | Bedrock | F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Uncertain

Thin Section Description: #18715



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18712 | 7.5 | 0.0 | 7.5 | 100.4 | 74.7 | 25.7 | 18.1 | 7.6 | 0 | NA | TR | NA | NA | NA | U | Y | Y | N | B | NA | TILL |
| -713 | 11.5 | 0.2 | 11.3 | 238.7 | 198.5 | 40.2 | 31.8 | 8.4 | 0 | NA | P,G | 60 | 40 | NA | NA | U | Y | Y | N | B | NA | TILL |
| -714 | 12.5 | 0.8 | 11.7 | 222.6 | 170.8 | 51.8 | 42.3 | 9.5 | 0 | NA | P | 60 | 40 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -716 | 5.9 | 0.0 | 5.9 | 210.1 | 171.0 | 39.1 | 31.6 | 7.5 | 3 | 151 | | | | | | | | | | | | |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | NUMBER OF GRAINS ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18712 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -713 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -714 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -716 | Y | 50 X 75 | 13 C | | 1 | | | | | 1 | | | EST. 15% PYRITE |
| | | 75 X 125 | 20 C | 1 | | | | | | 1 | | | 20 GRAINS |
| | | 75 X 175 | 25 C | 1 | | | | | | 1 | | | ARSENOPYRITE |
| | | | | | | | | | | 3 | 31.6 | 151 | |

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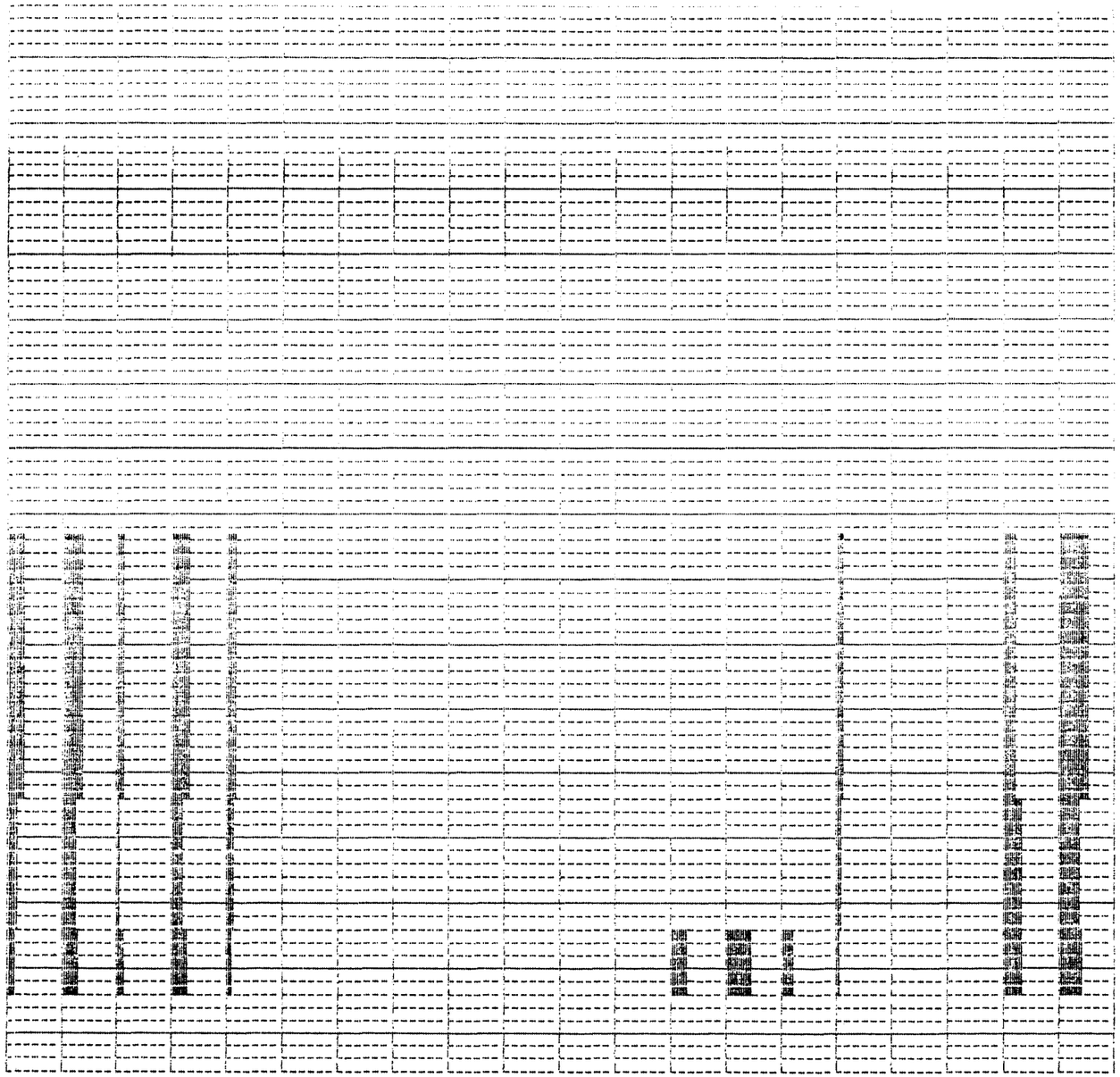
FIELDNOTE SUMMARY LOG OB-20204, MUD ROTARY

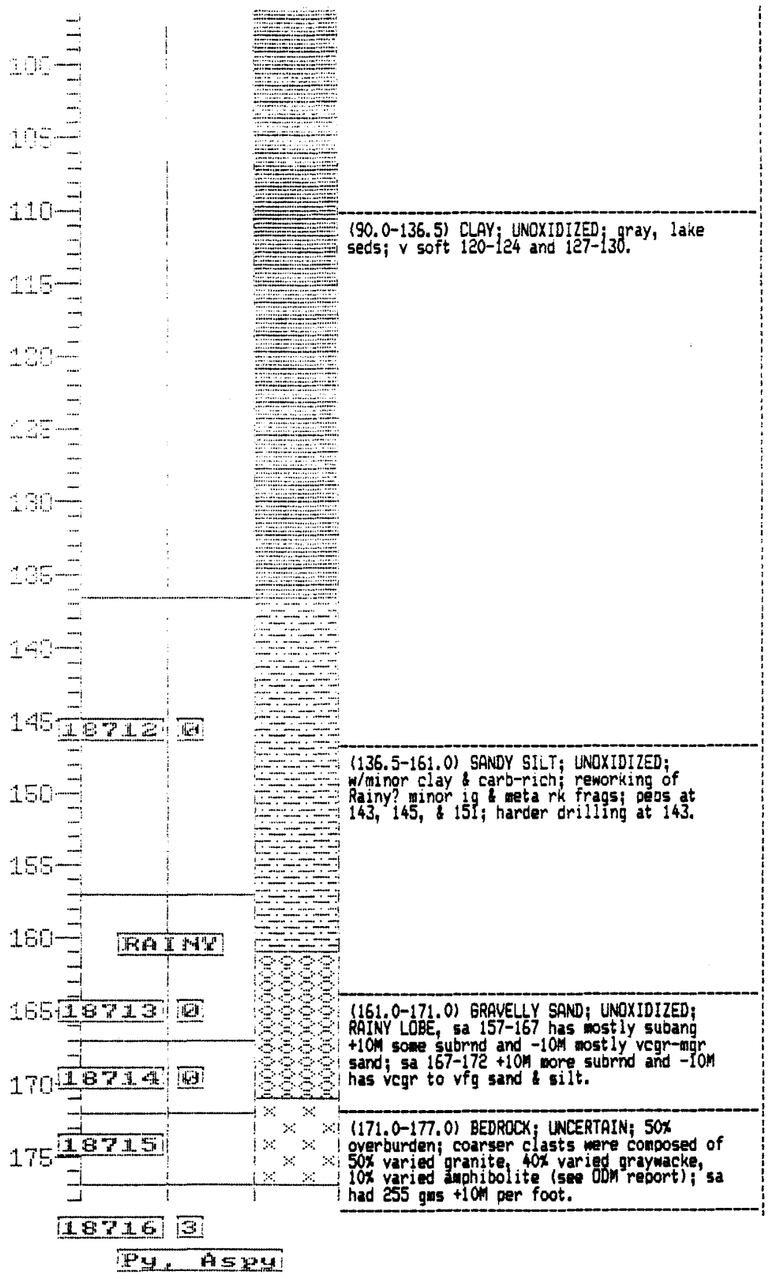
# OB-20204

Appendix 8-46B.

| [ IN NON MAG HMC | | | | | ][ IN -63 MICRON | | | | | | | | ][ IN MAG FRAC | | | NON MAG -63 | | -63 NON MAG HMC | MAG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ^200 As | ^600 Cu | ^5 Sb | ^25 Mo | ^6000 Ba | ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 Fe% | ^500 Ni | ^50 Pb | ^100 Mo | ^500 Au | ^20 Au | ^100 g/kg | ^10 g/kg | ^2 g/kg |
| | | | | | | | | | | | | | | | | | | | |

| (FEET) | HMC SAMPLE # | HMC # GOLD GRAINS; INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|---|
| | | DES MOINES | | |
| 5 | | | | (0.0-14.0) COARSE SAND; OXIDIZED; some clay, ls pebs dominant; O.K. for road fill material?. |
| 10 | | | | |
| 15 | | | | (14.0-17.0) CLAYEY TILL; UNOXIDIZED; more sand than usual, w/ls & ig/meta pebs. |
| 20 | | | | |
| 25 | | | | |
| 30 | | | | |
| 35 | | | | |
| 40 | | | | (17.0-87.0) CLAY; UNOXIDIZED; lake seds, gray; possible clayey till 37-47 w/ls clasts; silt content may increase w/depth. |
| 45 | | | | |
| 50 | | | | |
| 55 | | | | |
| 60 | | | | |
| 65 | | | | |
| 70 | | | | |
| 75 | | | | |
| 80 | | | | |
| 85 | | | | |
| 90 | | | | (87.0-90.0) CLAYEY TILL; UNOXIDIZED; w/pebs of ls & meta/igs. |
| 95 | | | | |


SLUICE BOX 136.5-177


105
110
115
120
125
130
135
140
145
150
155
160
165
170
175
18712
18713
18714
18715
18716
RAINY
Py, Aspy
(90.0-136.5) CLAY; UNOXIDIZED; gray, lake seds; v soft 120-124 and 127-130.
(136.5-161.0) SANDY SILT; UNOXIDIZED; w/minor clay & carb-rich; reworking of Rainy? minor ig & meta rk frags; peas at 143, 145, & 151; harder drilling at 143.
(161.0-171.0) GRAVELLY SAND; UNOXIDIZED; RAINY LOBE, sa 157-167 has mostly subang +10M some subrnd and -10M mostly vcgr-mgr sand; sa 167-172 +10M more subrnd and -10M has vcgr to vfg sand & silt.
(171.0-177.0) BEDROCK; UNCERTAIN; 50% overburden; coarser clasts were composed of 50% varied granite, 40% varied graywacke, 10% varied amphibolite (see ODM report); sa had 255 gms +10M per foot.

**Appendix 8-46C.**

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY DESC | LEGAL | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18712 | 20204 | 136.5-157 | 20.5 | M | O | NE-NE | 18 | 63 | 23 | K | RL. CLAY: GLACIAL LK | 136.5-157 | 0.0 | 7500.0 | -2.0 | 18.1 | 7.6 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18713 | 20204 | 157-167 | 10. | M | O | NE-NE | 18 | 63 | 23 | K | RL. GVL. SAND | 157-167 | 0.0 | 11500.0 | -2.0 | 31.8 | 8.4 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18714 | 20204 | 167-172 | 5. | M | O | NE-NE | 18 | 63 | 23 | K | RL. GVL. SAND | 167-172 | 0.0 | 12500.0 | -2.0 | 42.3 | 9.5 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18715 | 20204 | 172-177 | 5. | M | O | NE-NE | 18 | 63 | 23 | K | BEDROCK | | -1.0 | -1.0 | -2.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18716 | 20204 | 136.5-177 | 40.5 | M | O | NE-NE | 18 | 63 | 23 | K | SLUICE BOX | 136.5-177 | 3.0 | 5900.0 | -2.0 | 31.6 | 7.5 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18712 | 65 | 0.16 | 0 | 400 | 11000 | 27.90 | 70 | 140 | 220 | 160 | 0 | 56 | -10 | 8 | -0.5 | 0 | -10 | -0.6 | 900 | 415 | 140 | 11 | 11 | 79 | -2 | 150.0 | 17.4 | 2 | 13.20 |
| 18713 | 47 | 0.25 | 0 | 450 | 12000 | 25.20 | 110 | 160 | 150 | 110 | 0 | 30 | -30 | 5 | -0.5 | 0 | -10 | -0.2 | 600 | 445 | 65 | 13 | -10 | 57 | -2 | 160.0 | 12.3 | 3 | 22.80 |
| 18714 | -23 | 0.24 | 0 | 490 | 11000 | 24.40 | 100 | 140 | 170 | 130 | 0 | 24 | -20 | 7 | -0.5 | 0 | -10 | -0.5 | -500 | 403 | 54 | 9 | -8 | 44 | -2 | 140.0 | 13.7 | 3 | 30.70 |
| 18716 | 130 | 0.22 | 603 | 430 | 12000 | 21.10 | 70 | 130 | 140 | 150 | 0 | 18 | -10 | 4 | -0.5 | 0 | -10 | -0.5 | -700 | 353 | 50 | 5 | -14 | 33 | -2 | 130.0 | 11.3 | 5 | 23.90 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18714 | 1.200 | 5.00 | 800 | 150 | 77 | 290 | -1 | 18 | -0.5 | 22 | 0.8 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18715 | -6 | -0.2 | -1.0 | 600 | 0.0 | 1 | 28.0 | 0.0 | -50 | 10 | 0 | 2 | -100 | 2.8 | 15 | 0.0 | 2 | 26 | 0 | 0.00 | 0.0 | -10 | 0 | 3.00 | -1.0 | -10 | 0.0 | 3.1 | -10 | -2 | 0.7 | 0 | 0 | 0 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18715 | 20 | 13 | 39 | 0 | 1.5 | 0 | 0 | 0 | 0.00 | 3 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | -2 | 0.00 | 0 |

**Appendix 8-47A.** DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-20303

Drilling Completion Date 2/3/87

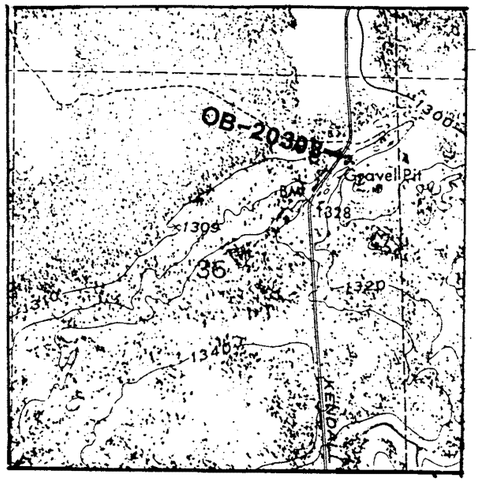
LOCATION (see map at right)

S-T-R NE¼-NE¼-36-64N-24W

County Koochiching

Quadrangle Deer Lake N.E. 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1310 ft.

Total Depth 64 ft.

Elevation, Top of Precambrian Bedrock 1256 ft.

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-49 | Des Moines Lobe Gl. Drift | | | |
| 49-54 | Rainy Lobe Gl. Drift | F | B,C | C = Ni |
| 54-64 | Bedrock | F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Amphibolite. Black, well foliated to gneissic with 5% quartz stringers amphibolite. Grain size 0.1-0.5 to locally pegmatitic. Locally equigranular but hornblende generally coarser than plag.; interlocking. Comprised of 70% hornblende (brown px. in 10% gneissic bands), 30% plag. and 0.2% garnet. 2-3% fracture calcite. 0.5% stringer and fracture pyrite. 5% magnetite in 10% of chips only. (By ODM, see report in Appendix)

Thin Section Number: #18710.



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18709 | 7.3 | 0.0 | 7.3 | 166.6 | 116.0 | 50.6 | 44.9 | 5.7 | 0 | NA | TR | NA | NA | NA | NA | U | Y | Y | Y | B | B | TILL |
| -711 | 2.9 | 0.0 | 2.9 | 150.3 | 51.5 | 98.8 | 88.5 | 10.3 | 1 | 33 | | | | | | | | | | | |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18709 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -711 | Y | 100 X 150 | 25 C | | 1 | | | | | 1 | | | EST. 50% PYRITE 50 GRAINS |
| | | | | | | | | | | 1 | 88.5 | 33 | ARSENOPYRITE |

FIELDNOTE SUMMARY LOG OB-20303, MUD ROTARY

# OB-20303

Appendix 8-47B.

[ IN NON MAG HMC ][ IN -63 MICRON ][ IN MAG FRAC ]

| ^200 As | ^600 Cu | ^5 Sb | ^25 Mo | ^6000 Ba | ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 FeX | ^500 Ni | ^50 Pb | ^100 Mo | NON MAG ^500 Au | -63 ^20 Au | -63 ^100 g/kg | NON MAG HMC ^10 g/kg | MAG ^2 g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | |

SLUICE BOX 51-64

| (FEET) | HMC SAMPLE # | HMC # GOLD GRAINS; INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|---|
| | | DES MOINES | | |
| 5 | | | | (0.0-8.0) GRAVELLY SAND; OXIDIZED; within small gravel pit; ls dominant peb; cob at 8. |
| 10 | | | | |
| 15 | | | | (8.0-16.0) CLAY; UNOXIDIZED; gray to black; v few pebs; lake sediments. |
| 20 | | | | |
| 25 | | | | |
| 30 | | | | (16.0-49.0) CLAYEY TILL; UNOXIDIZED; dark gray w/numerous ls clasts and ms/mv clasts; hard. |
| 35 | | | | |
| 40 | | | | |
| 45 | | | | |
| | | RAINY | | |
| 50 | 18709 | 0 | | (49.0-54.0) SANDY LOAM; UNOXIDIZED; Rainy Lobe; 49-50 cgr sand & cobs; 51-54 w/pebs; more clayey than usual; sa 51-55 +10M has subrnd & subang pebs & chips. |
| 55 | | | | |
| 60 | 18710 | | | (54.0-64.0) BEDROCK;AMPHIBOLITE,metabasalt,blk well fol w/5% qtz stringers;70% hornbl(brn pyrox in 10% gneiss bands) 30% plag,0.2% garnet,2-3% fract calc,0.5% stringer & fract py, 5% magnetite in 10% of chips;see ODM report;good recov,709 gas +10M/ft. |
| 65 | 18711 | 1 | | |
| | | Py, Aspy | | |

**Appendix 8-47C.**

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY DESC | LEGAL | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18709 | 20303 | 51-55 | 4. | M | O | NE-NE | 36 | 64 | 24 | K | RL. SILT | 51-55 | 0.0 | 7300.0 | -2.0 | 44.9 | 5.7 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18710 | 20303 | 55-64 | 9. | M | O | NE-NE | 36 | 64 | 24 | K | BEDROCK | | -1.0 | -1.0 | -2.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18742R | 20303 | 55-64 | 9.0 | M | O | NE-NE | 36 | 64 | 24 | K | BEDROCK | | -1.0 | -1.0 | -2.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18711 | 20303 | 51-64 | 13. | M | O | NE-NE | 36 | 64 | 24 | K | SLUICE BOX | 51-64 | 1.0 | 2900.0 | -2.0 | 88.5 | 10.3 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18709 | 44 | 0.24 | 0 | 240 | 10000 | 22.70 | 100 | 140 | 140 | 110 | 0 | 14 | -10 | 6 | -0.5 | 0 | -10 | 0.5 | 200 | 134 | 33 | 2 | 16 | 50 | -2 | 44.0 | 5.6 | 6 | 32.60 |
| 18711 | 63 | 0.21 | 39 | 60 | 10000 | 21.70 | 80 | 140 | 180 | 150 | 0 | -2 | -10 | 2 | -0.5 | 0 | -10 | 0.2 | -100 | 20 | 4 | 1 | 16 | 19 | -2 | 5.2 | -1.1 | 31 | 67.70 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18709 | 2.000 | 5.30 | 2000 | 740 | 120 | 220 | -1 | 62 | -0.5 | 21 | 0.8 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18710 | -7 | -0.2 | -1.0 | 300 | 0.0 | 1 | 18.0 | 0.0 | 50 | 40 | 0 | 3 | -100 | 23.3 | 6 | 0.0 | 2 | 88 | 0 | 0.00 | 0.0 | -10 | 0 | 0.96 | -1.0 | -10 | 0.0 | -0.5 | -10 | -3 | -0.5 | 0 | 0 | 0 |
| 18742R | -7 | -0.2 | -1.0 | -400 | 0.0 | -1 | 18.0 | 0.0 | 50 | 40 | 0 | 2 | -100 | 24.0 | 7 | 0.0 | 3 | 88 | 0 | 0.00 | 0.0 | -10 | 0 | 0.97 | -1.0 | -10 | 0.0 | 1.0 | -10 | -3 | -0.5 | 0 | 0 | 0 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FED % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18710 | 88 | 12 | 170 | 0 | 2.5 | 0 | 0 | 0 | 0.00 | 1 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | -2 | 0.00 | 0 |
| 18742R | 95 | 6 | 180 | 0 | 2.5 | 0 | 0 | 0 | 0.00 | 1 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | -2 | 0.00 | 0 |

## Appendix 8-48A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-20401

Drilling Completion Date 1/7/87

LOCATION (see map at right)

S-T-R SE¼-SW¼-13-63N-22W

County Koochiching

Quadrangle Silverdale 7.5

Regional Survey Area Orr

HOLE PARAMETERS

Surface Elevation 1290 ft.

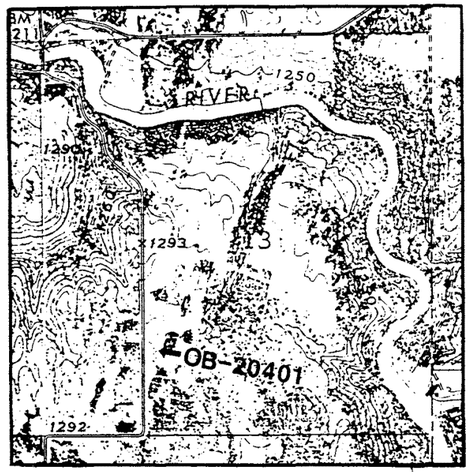
Total Depth 113.5 ft.

Elevation, Top of Precambrian Bedrock 1178 ft.

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam




SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-93 | Des Moines Lobe Gl. Drift | | | |
| 93-112 | Rainy Lobe Gl. Drift | F | B,C | B = W,Cu,Pb<br>C = Ni,Cu,Mo |
| 112-113.5 | Bedrock | F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Uncertain, Probably Quartz Diorite. Medium gray, well foliated quartz diorite. Grain size variable 0.2-1.0 between chips. Interlocking, equigranular at chip scale. Comprised of 60% plag., 20% qtz., 10-20% hornblende and 10% biotite. 2% dissem. calcite and 0.5% dissem. pyrite. (By ODM, see report in Appendix.)

Thin Section Number: #18652 and #18653.



## HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | M. I. CONC | | | | | | CLAST | | | | MATRIX | | | | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | | |
| 18650 | 5.3 | 0.4 | 4.9 | 161.2 | 145.6 | 15.6 | 13.6 | 2.0 | 0 | NA | P | 20 | 80 | NA | NA | U | | Y | Y | Y | GB | GB | TILL |
| -651 | 10.1 | 0.4 | 9.7 | 172.8 | 144.9 | 27.9 | 23.6 | 4.3 | 0 | NA | P | 70 | 30 | NA | NA | U | | Y | Y | Y | GB | GB | TILL |
| -654 | 2.4 | 0.0 | 2.4 | 89.1 | 78.8 | 10.3 | 9.1 | 1.2 | 2 | 483 | | | | | | | | | | | | | |
| 18754C | 2.6 | 0.1 | 2.5 | 90.7 | 78.6 | 12.1 | 9.8 | 2.3 | 0 | NA | TR | NA | NA | NA | NA | U | Y | | Y | Y | GB | GB | TILL |

### GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | NUMBER OF GRAINS: ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18650 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -651 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -654 | Y | 75 X 125 | 20 C | | 1 | | | | | 1 | | | EST. 3% PYRITE |
| | | 100 X 150 | 25 C | | 1 | | | | | 1 | | | 3% ARSENOPYRITE (FINE) |
| | | | | | | | | | | 2 | 9.1 | 483 | |
| 18754C | Y | NO VISIBLE GOLD | | | | | | | | | | | EST. 5% PYRITE 0.5% ARSENOPYRITE |

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FIELDNOTE SUMMARY LOG OB-20401, MUD ROTARY

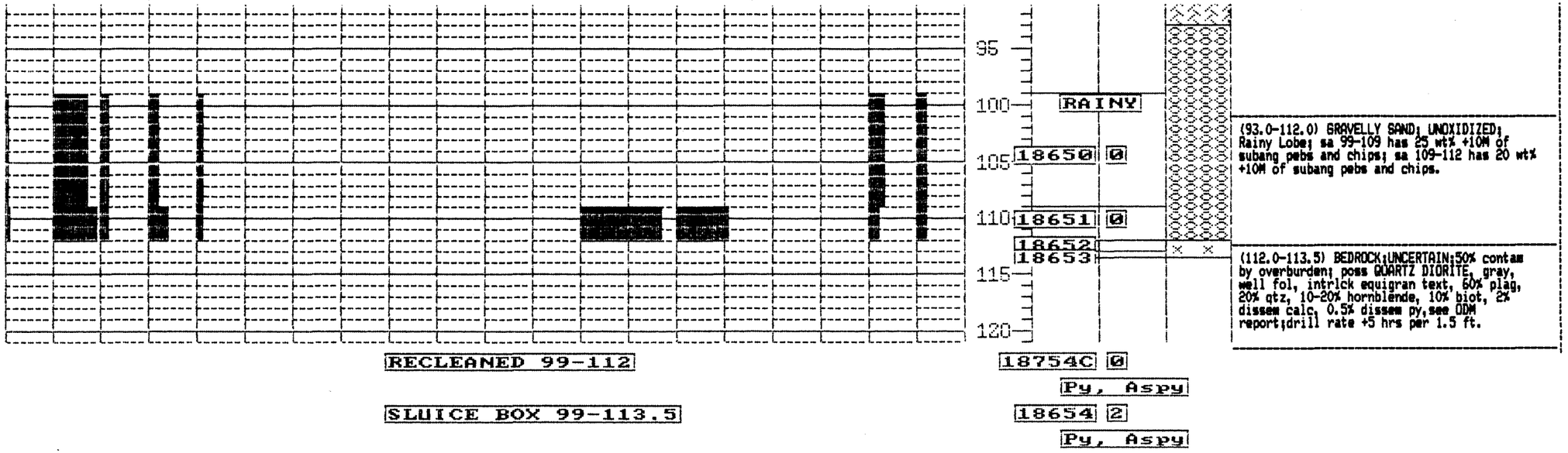
# OB-20401

Appendix 8-48B.

[ IN NON MAG HMC ][ IN -63 MICRON ][ IN MAG FRAC ]

| ^200 As | ^500 Cu | ^5 Sb | ^25 Mo | ^6000 Ba | ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 FeX | ^500 Ni | ^50 Pb | ^100 Mo | NON MAG ^500 Au | -63 ^20 Au | -63 ^100 g/kg | NON MAG HMC ^10 g/kg | MAG ^2 g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| (FEET) | HMC SAMPLE # | HMC # GRAINS; BOLD INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|---|
| 5 | | | | |
| 10 | | | | |
| 15 | | | | (0.0-20.0) CLAY; OXIDIZED; brown, lake sediments. |
| 20 | | | | |
| 25 | | | | |
| 30 | | | | |
| 35 | | | | |
| 40 | | | | |
| 45 | | | | (20.0-69.0) CLAY; UNOXIDIZED; gray, lake sediments, w/silty clay; no pebs. |
| 50 | | | | |
| 55 | | | | |
| 60 | | | | |
| 65 | | | | |
| 70 | | | | |
| 75 | | | | |
| 80 | | | | (69.0-93.0) CLAYEY TILL; UNOXIDIZED; gray, w/ls and ms/mv pebs; low peb content; 69-71 transition sl sandy & oxidized?. |
| 85 | | | | |
| 90 | | | | |


95
100
105
110
115
120
RAINY
18650 0
18651 0
18652
18653
18754C 0
Py, Aspy
18654 2
Py, Aspy
(93.0-112.0) GRAVELLY SAND; UNOXIDIZED; Rainy Lobe; sa 99-109 has 25 wt% +10M of subang pebs and chips; sa 109-112 has 20 wt% +10M of subang pebs and chips.
(112.0-113.5) BEDROCK;UNCERTAIN;50% contam by overburden; poss QUARTZ DIORITE, gray, well fol, intrlck equigran text, 60% plag, 20% qtz, 10-20% hornblende, 10% biot, 2% dissem calc, 0.5% dissem py,see ODM report;drill rate +5 hrs per 1.5 ft.
RECLEANED 99-112
SLUICE BOX 99-113.5

Appendix 8-48C.

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY DESC | LEGAL | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18650 | 20401 | 99-109 | 10. | M | O | SE-SW | 13 | 63 | 22 | K | RL. GVL. SAND | 99-109 | 0.0 | 5300.0 | -2.0 | 13.6 | 2.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18754C | 20401 | 99-112 | 13. | M | O | SE-SW | 13 | 63 | 22 | K | SPECIAL SAMPLE | 99-112 | 0.0 | 2600.0 | -2.0 | 9.8 | 2.3 | -1.0 | -1.0 | -1 | -1 | -1 | RECLEANED +10M MAT'L |
| 18651 | 20401 | 109-112 | 3. | M | O | SE-SW | 13 | 63 | 22 | K | RL. GVL. SAND | 109-112 | 0.0 | 10100.0 | -2.0 | 23.6 | 4.3 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18652 | 20401 | 112-113 | 1. | M | O | SE-SW | 13 | 63 | 22 | K | BEDROCK | | -1.0 | -1.0 | -2.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18653 | 20401 | 113-113.5 | 0.5 | M | O | SE-SW | 13 | 63 | 22 | K | BEDROCK | | -1.0 | -1.0 | -2.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18654 | 20401 | 99-113.5 | 14.5 | M | O | SE-SW | 13 | 63 | 22 | K | SLUICE BOX | 99-113.5 | 2.0 | 2400.0 | -2.0 | 9.1 | 1.2 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18650 | -5 | 0.14 | 0 | 240 | 12000 | 26.20 | 100 | 170 | 420 | 140 | 0 | 11 | -20 | 5 | -0.5 | 0 | -10 | -0.9 | -700 | 225 | 26 | 11 | 800 | 111 | -2 | 83.0 | 12.5 | 3 | 9.92 |
| 18651 | -35 | 0.13 | 0 | 250 | 9700 | 23.90 | 100 | 200 | 540 | 120 | 0 | 19 | -10 | 10 | -0.5 | 0 | 27 | -0.8 | -700 | 205 | 47 | 4 | 4500 | 86 | -2 | 73.0 | 9.7 | 2 | 17.40 |
| 18754C | 24 | -0.05 | 369 | 240 | 10000 | 24.20 | 120 | 140 | 690 | 130 | 0 | 14 | -10 | 8 | -0.5 | 0 | -10 | 0.7 | -300 | 249 | 41 | -1 | 1900 | 48 | -2 | 31.0 | 6.2 | 4 | 6.55 |
| 18654 | 410 | 0.16 | 505 | 400 | 11000 | 26.20 | 190 | 170 | 310 | 160 | 0 | 32 | -10 | 8 | -0.5 | 0 | -10 | -1.3 | -1600 | 362 | 70 | 12 | 4200 | 111 | -2 | 130.0 | 10.7 | 4 | 6.91 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18651 | 1.200 | 4.80 | 1300 | 760 | 350 | 320 | -1 | 119 | -0.5 | 34 | 0.4 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18652 | -6 | -0.2 | 3.0 | 500 | 0.0 | 1 | 43.0 | 0.0 | 60 | 10 | 0 | -2 | -100 | 3.8 | 23 | 0.0 | 3 | 58 | 0 | 0.00 | 0.0 | -10 | 0 | 2.20 | -1.0 | -10 | 0.0 | 4.9 | -10 | 20 | 1.4 | 0 | 0 | 0 |
| 18653 | -6 | 0.3 | 5.0 | 500 | 0.0 | -1 | 52.0 | 0.0 | 70 | 20 | 0 | 3 | -100 | 4.7 | 33 | 0.0 | 2 | 68 | 0 | 0.00 | 0.0 | -10 | 0 | 1.60 | -1.0 | -10 | 0.0 | 8.0 | -10 | 9 | 1.7 | 0 | 0 | 0 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18652 | 39 | 19 | 77 | 0 | 1.0 | 0 | 0 | 0 | 0.00 | 2 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | -2 | 0.00 | 0 |
| 18653 | 45 | 20 | 110 | 0 | 1.5 | 0 | 0 | 0 | 0.00 | 2 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | -2 | 0.00 | 0 |

**Appendix 8-49A.** DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-20402

Drilling Completion Date 12/31/86

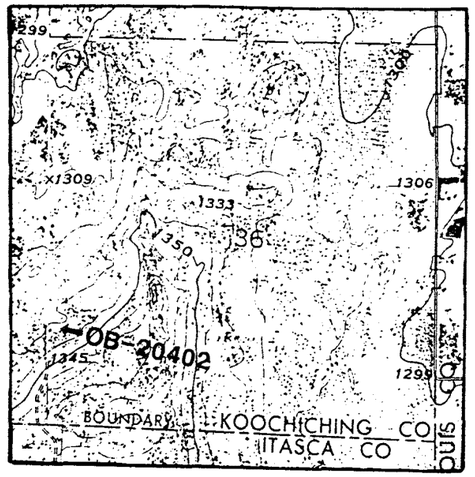
LOCATION (see map at right)

S-T-R NW¼-SW¼-36-63N-22W

County Koochiching

Quadrangle Silverdale 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1330 ft.

Total Depth 59.5 ft.

Elevation, Top of Precambrian Bedrock 1272 ft.

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-48 | Des Moines Lobe Gl. Drift | No | No | |
| 48-58 | Rainy Lobe Gl. Drift | F | B,C | B = Cu, Se, W, Pb<br>C = Ni, Cu, Mo |
| 58-59.5 | Bedrock | F | I | I = W, Pb |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Uncertain

Thin Section Description: #18648



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18646 | 10.5 | 0.6 | 9.9 | 283.8 | 246.9 | 36.9 | 30.0 | 6.9 | 0 | NA | F | 15 | 85 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -647 | 7.3 | 0.0 | 7.3 | 176.4 | 145.4 | 31.0 | 24.0 | 7.0 | 0 | NA | TR | NA | NA | NA | NA | U | Y | Y | Y | GB | GB | TILL |
| -649 | 3.2 | 0.0 | 3.2 | 99.1 | 81.5 | 17.6 | 14.8 | 2.8 | 3 | 117 | | | | | | | | | | | | |
| 18753C | 4.4 | 0.0 | 4.4 | 14.9 | 0.0 | 14.9 | 11.9 | 3.0 | 0 | NA | TR | NA | NA | NA | NA | U | Y | Y | Y | B | B | TILL |

GOLD CLASSIFICATION

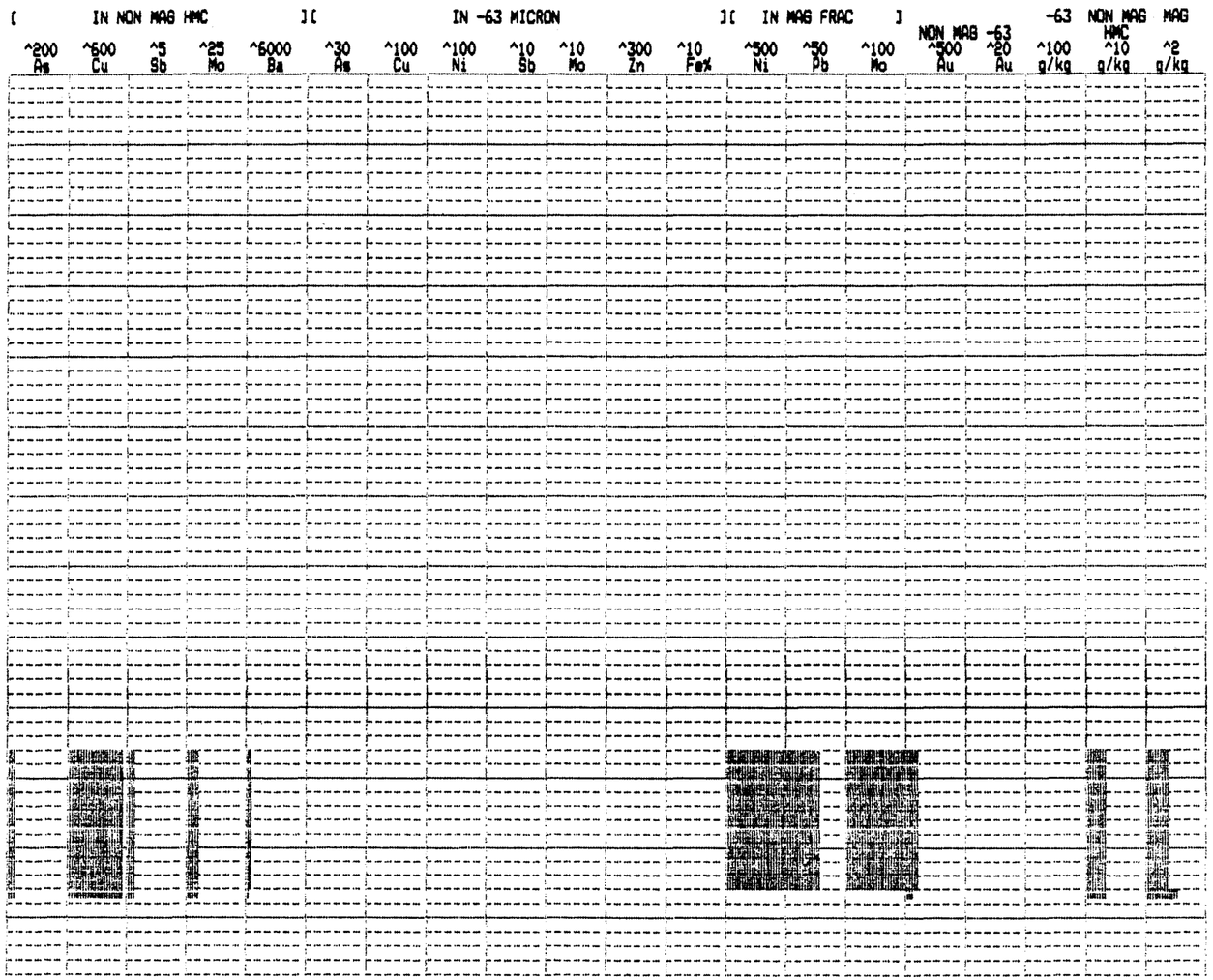
VISIBLE GOLD FROM SHAKING TABLE AND PANNING

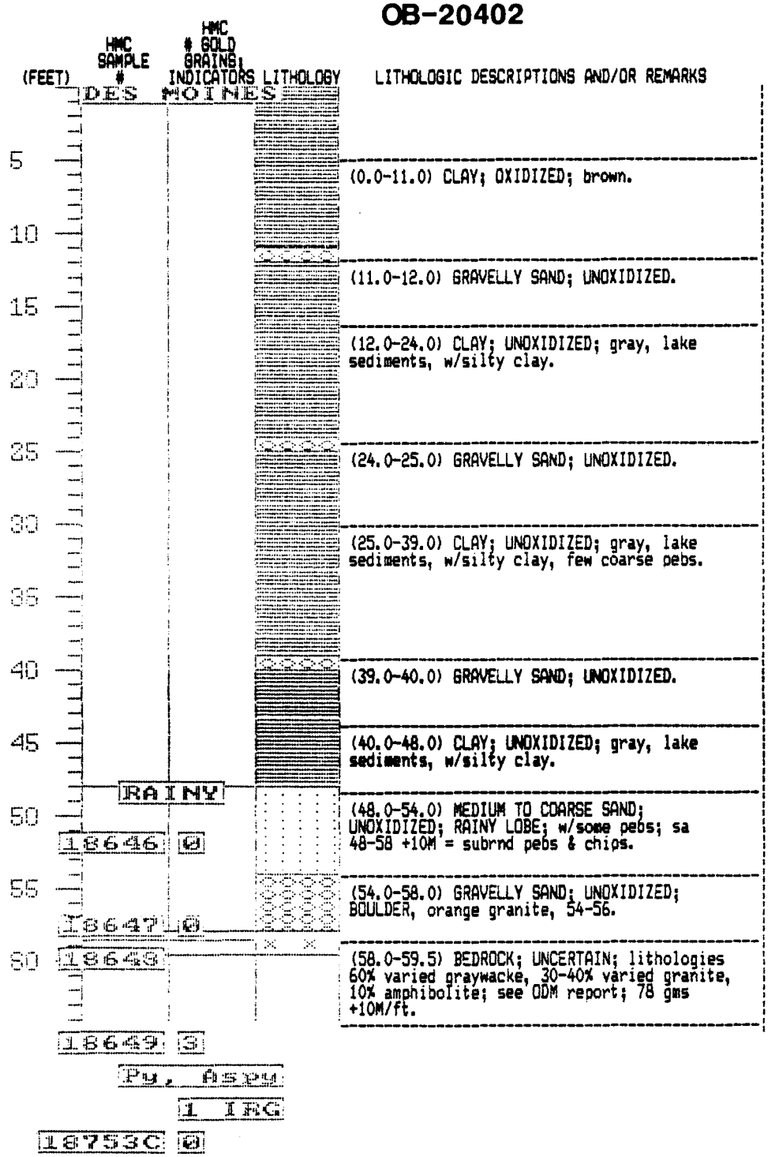
| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | NUMBER OF GRAINS: ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18646 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -647 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -649 | Y | 25 X 50 | 8 C | | 1 | | | | | 1 | | | EST. 3% PYRITE |
| | | 25 X 125 | 15 C | | | | 1 | | | 1 | | | 5% ARSENOPYRITE |
| | | 75 X 100 | 18 C | | 1 | | | | | 1 | | | (FINE) |
| | | | | | | | | | | 3 | 14.8 | 117 | |
| 18753C | N | NO VISIBLE GOLD | | | | | | | | | | | |

FIELDNOTE SUMMARY LOG OB-20402, MUD ROTARY

# OB-20402

Appendix 8-49B.




LITHOLOGIC DESCRIPTIONS AND/OR REMARKS

(0.0-11.0) CLAY; OXIDIZED; brown.

(11.0-12.0) GRAVELLY SAND; UNOXIDIZED.

(12.0-24.0) CLAY; UNOXIDIZED; gray, lake sediments, w/silty clay.

(24.0-25.0) GRAVELLY SAND; UNOXIDIZED.

(25.0-39.0) CLAY; UNOXIDIZED; gray, lake sediments, w/silty clay, few coarse pebs.

(39.0-40.0) GRAVELLY SAND; UNOXIDIZED.

(40.0-48.0) CLAY; UNOXIDIZED; gray, lake sediments, w/silty clay.

(48.0-54.0) MEDIUM TO COARSE SAND; UNOXIDIZED; RAINY LOBE; w/some pebs; sa 48-58 +10M = subrnd pebs & chips.

(54.0-58.0) GRAVELLY SAND; UNOXIDIZED; BOULDER, orange granite, 54-56.

(58.0-59.5) BEDROCK; UNCERTAIN; lithologies 60% varied graywacke, 30-40% varied granite, 10% amphibolite; see ODM report; 78 gms +10M/ft.

Appendix 8-49C.

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18646 | 20402 | 48-58 | 10. | M | O | NW-SW | 36 | 63 | 22 | K | RL. MED. TO C. SAND | 48-58 | 0.0 | 10500.0 | -2.0 | 30.0 | 6.9 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18647 | 20402 | 58-58.5 | 0.5 | M | O | NW-SW | 36 | 63 | 22 | K | BEDROCK | 58-58.5 | 0.0 | 7300.0 | -2.0 | 24.0 | 7.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18648 | 20402 | 58.5-59.5 | 1. | M | O | NW-SW | 36 | 63 | 22 | K | BEDROCK | | -1.0 | -1.0 | -2.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18753C | 20402 | 48-58.5 | 10.5 | M | O | NW-SW | 36 | 63 | 22 | K | SPECIAL SAMPLE | 48-58.5 | 0.0 | 4400.0 | -2.0 | 11.9 | 3.0 | -1.0 | -1.0 | -1 | -1 | -1 | RECLEANED +10M MAT'L |
| 18649 | 20402 | 48-59.5 | 11.5 | M | O | NW-SW | 36 | 63 | 22 | K | SLUICE BOX | 48-59.5 | 3.0 | 3200.0 | -2.0 | 14.8 | 2.8 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18646 | 96 | 0.20 | 0 | 420 | 12000 | 23.70 | 140 | 160 | 560 | 130 | 0 | 23 | -10 | 5 | 2.0 | 0 | -10 | 0.7 | 400 | 355 | 66 | 12 | 19 | 55 | -2 | 130.0 | 13.3 | 3 | 21.70 |
| 18647 | 70 | 0.21 | 0 | 360 | 12000 | 27.50 | 130 | 160 | 540 | 120 | 0 | 23 | -10 | 5 | 0.5 | 0 | -10 | 0.5 | -300 | 233 | 50 | 7 | 51 | 45 | -2 | 81.0 | 10.6 | 3 | 17.50 |
| 18753C | 56 | 0.22 | 449 | 350 | 13000 | 21.70 | 140 | 130 | 440 | 150 | 0 | 20 | -20 | 6 | -0.5 | 0 | -10 | 1.0 | 1000 | 307 | 82 | 8 | 38 | 57 | -2 | 110.0 | 12.5 | 3 | 8.72 |
| 18649 | 120 | 0.27 | 686 | 580 | 12000 | 25.20 | 170 | 230 | 290 | 170 | 0 | 26 | 50 | 10 | -0.5 | 0 | -10 | -0.8 | -1400 | 496 | 120 | 11 | 2800 | 196 | -2 | 180.0 | 19.3 | 5 | 10.70 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18646 | 1.300 | 4.30 | 1300 | 1700 | 200 | 270 | -1 | 179 | -0.5 | 28 | 0.7 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18648 | -7 | 0.4 | 4.0 | 300 | 0.0 | -1 | 31.0 | 0.0 | 50 | 20 | 0 | 3 | -100 | 5.6 | 17 | 0.0 | 4 | 60 | 0 | 0.00 | 0.0 | -10 | 0 | 2.40 | -1.0 | -10 | 0.0 | 4.4 | -10 | 270 | 1.3 | 0 | 0 | 0 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FED % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18648 | 61 | 183 | 72 | 0 | 1.0 | 0 | 0 | 0 | 0.00 | 2 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | -2 | 0.00 | 0 |

**Appendix 8-50A.** DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-20404

Drilling Completion Date 1/21/87

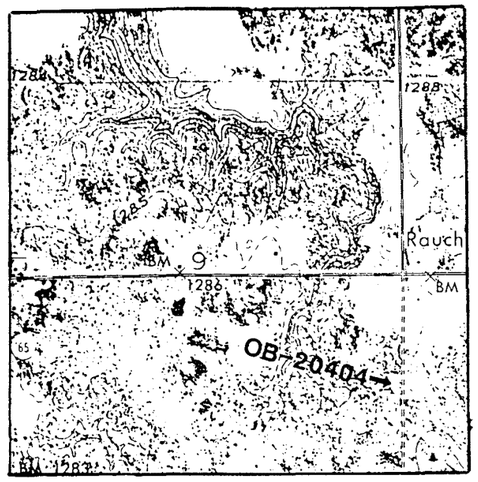
LOCATION (see map at right)

S-T-R SE¼-SE¼-9-63N-22W

County Koochiching

Quadrangle Rauch 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1285 ft.

Total Depth 126 ft.

Elevation, Top of Precambrian Bedrock 1164 ft.

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-121 | Des Moines Lobe Gl. Drift | | | |
| 121-126 | Bedrock | F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Graywacke. Dark gray, well foliated graywacke. Grain size: sugar 0.05-0.15 and garnet metacryst 0.3-0.5 with sugary texture, no relict sand grains. Comprised of 75% qtz.-plag. sugar, 25% biotite and trace garnet metacrysts. 0.2% dissem. pyrite. (By ODM, see report in Appendix)

Thin Section Number: #18684.



## HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | MATRIX | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S GR | % LS OT | S/U SD | ST CY | COLOR SD CY | |
| 18685 | 1.8 | 0.0 | 1.8 | 102.5 | 97.1 | 5.4 | 4.9 | 0.5 | 0 | NA | | | | | | | |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18685 | Y | NO VISIBLE GOLD | | | | | | | | | | | EST. 10% PYRITE |

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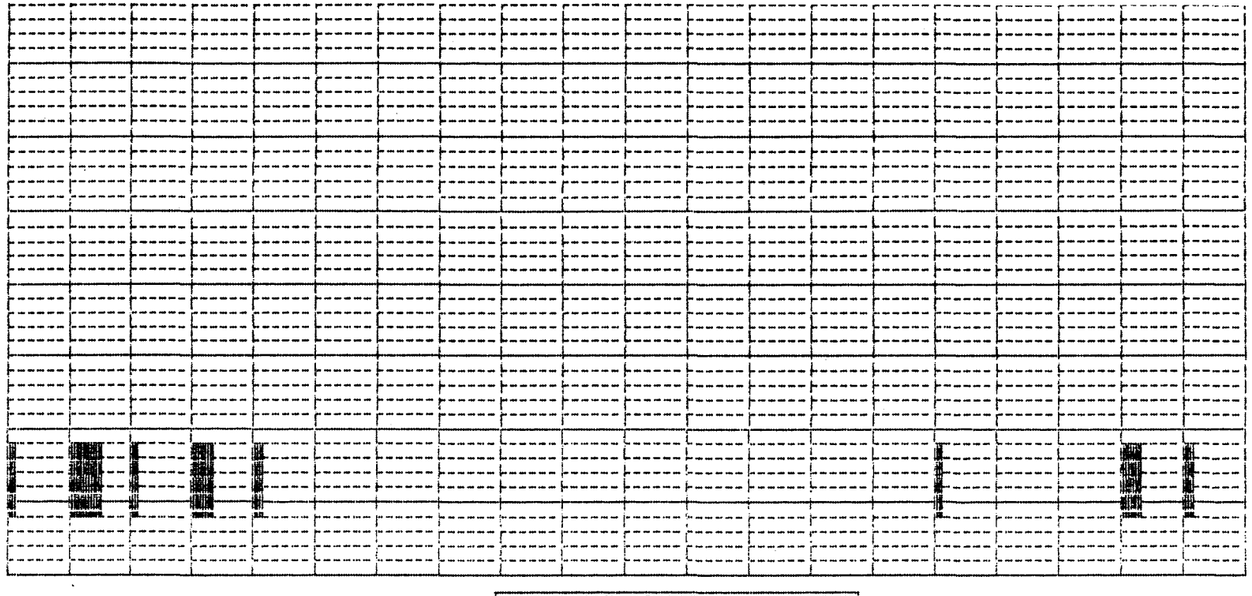
FIELDNOTE SUMMARY LOG OB-20404, MUD ROTARY

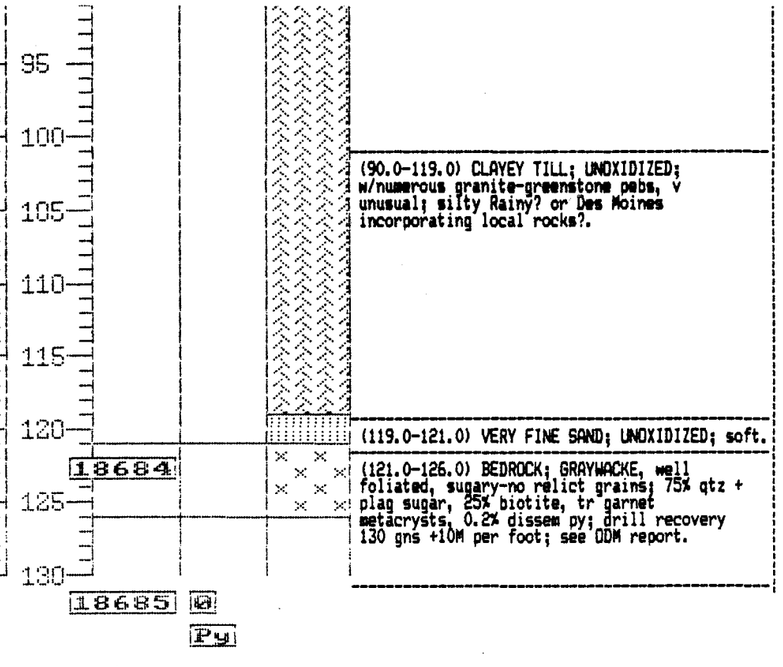
# OB-20404

Appendix 8-50B.

| [ IN NON MAG HMC | | | | | ][ IN -63 MICRON | | | | | | | | ][ IN MAG FRAC | | | | -63 | NON MAG HMC | MAG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ^200 As | ^600 Cu | ^5 Sb | ^25 Mo | ^6000 Ba | ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 Fe% | ^500 Ni | ^50 Pb | ^100 Mo | NON MAG ^500 Au | -63 ^20 Au | ^100 g/kg | ^10 g/kg | ^2 g/kg |
| | | | | | | | | | | | | | | | | | | | |

| (FEET) | HMC SAMPLE # | HMC # GOLD GRAINS; INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|---|
| | | DES MOINES | | |
| 5 | | | | |
| 10 | | | | (0.0-15.0) CLAY; OXIDIZED; brown, lake sediments. |
| 15 | | | | |
| 20 | | | | |
| 25 | | | | |
| 30 | | | | |
| 35 | | | | |
| 40 | | | | (15.0-90.0) CLAY; UNOXIDIZED; gray, lake sedS. w/silty clay; w/v few pebs; softer 56-88; harder clay 88-91; drilling rate 100 feet/76 minutes. |
| 45 | | | | |
| 50 | | | | |
| 55 | | | | |
| 60 | | | | |
| 65 | | | | |
| 70 | | | | |
| 75 | | | | |
| 80 | | | | |
| 85 | | | | |
| 90 | | | | |


SLUICE BOX 121-126


95
100
105
110
115
120
125
130
18684
18685
Py
(90.0-119.0) CLAYEY TILL; UNOXIDIZED; w/numerous granite-greenstone pebs, v unusual; silty Rainy? or Des Moines incorporating local rocks?.
(119.0-121.0) VERY FINE SAND; UNOXIDIZED; soft.
(121.0-126.0) BEDROCK; GRAYWACKE, well foliated, sugary-no relict grains; 75% qtz + plag sugar, 25% biotite, tr garnet metacrysts, 0.2% dissem py; drill recovery 130 gns +10M per foot; see ODM report.

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY DESC | LEGAL | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18684 | 20404 | 121-126 | 5. | M | O | SE-SE | 9 | 63 | 22 | K | BEDROCK | | -1.0 | -1.0 | -2.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18685 | 20404 | 121-126 | 5. | M | O | SE-SE | 9 | 63 | 22 | K | SLUICE BOX | 121-126 | 0.0 | 1800.0 | -2.0 | 4.9 | 0.5 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18685 | 65 | 0.28 | 546 | 310 | 12000 | 31.30 | 220 | 400 | 300 | 130 | 0 | 21 | -20 | 9 | 0.5 | 0 | -10 | -0.7 | 1000 | 293 | 52 | 7 | 31 | 35 | 2 | 96.0 | 15.8 | 3 | 4.07 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18684 | -6 | -0.2 | 2.0 | 700 | 0.0 | -1 | 47.0 | 0.0 | 100 | 20 | 0 | 4 | -100 | 4.9 | 30 | 0.0 | 4 | 69 | 0 | 0.00 | 0.0 | -10 | 0 | 2.60 | -1.0 | -10 | 0.0 | 6.5 | -10 | 2 | 1.6 | 0 | 0 | 0 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18684 | 59 | 15 | 82 | 0 | 1.0 | 0 | 0 | 0 | 0.00 | 3 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | -2 | 0.00 | 0 |

**Appendix 8-51A.** DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-20405

Drilling Completion Date 1/13/87

LOCATION (see map at right)

S-T-R NW¼-SE¼-19-63N-22W

County Koochiching

Quadrangle Rauch 7.5

Regional Survey Area Orr

HOLE PARAMETERS

Surface Elevation 1280 ft.

Total Depth 107 ft.

Elevation, Top of Precambrian Bedrock 1174.3 ft.

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-41 | No Observations | | | |
| 41-99 | Des Moines Lobe Gl. Drift | No | No | |
| 99-105.7 | Rainy Lobe Gl. Drift | F | B,C | |
| 105.7-107 | Bedrock | F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Uncertain

Thin Section Description: #18664



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % | | | | S/U | SD | ST | CY | COLOR |
| | | | | | | | | | | | | V/S | GR | LS | OT | | | | SD | CY |
| 18663 | 8.0 | 1.1 | 6.9 | 334.6 | 301.3 | 33.3 | 28.8 | 4.5 | 0 | NA | P | 70 | 30 | NA | NA | U | Y | Y | Y | B GB |
| -665 | 3.2 | 0.0 | 3.2 | 136.1 | 118.7 | 17.4 | 15.0 | 2.4 | 1 | 2 | | | | | | | | | | TILL |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18663 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -665 | Y | 25 X 25 | 5 C | | 1 | | | | | 1 | | | |
| | | | | | | | | | | 1 | 15.0 | 2 | EST. 7% PYRITE 50 GRAINS ARSENOPYRITE |

FIELDNOTE SUMMARY LOG, OB-20405, MUD ROTARY

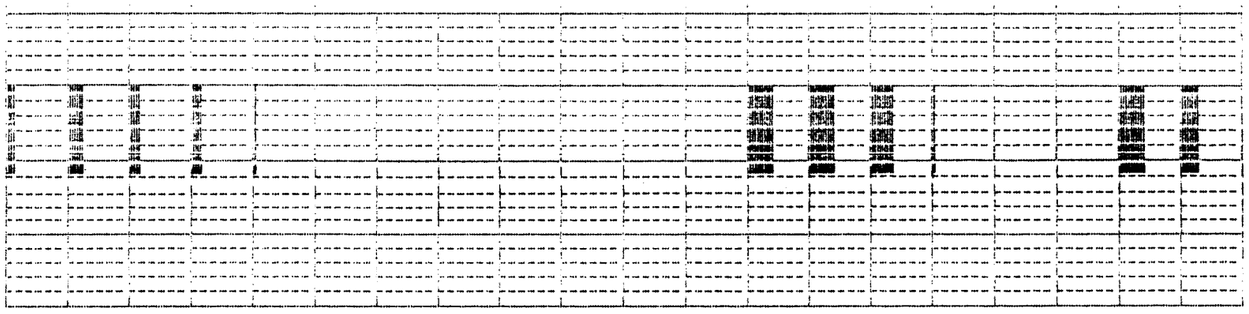
# OB-20405

Appendix 8-51B.

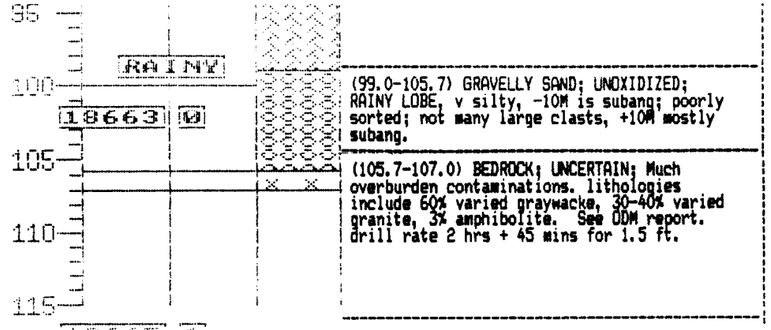
[ IN NON MAG HMC ][ IN -63 MICRON ][ IN MAG FRAC ]

| ^200 As | ^500 Cu | ^5 Sb | ^25 Mo | ^6000 Ba | ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 Fe% | ^500 Ni | ^50 Pb | ^100 Mo | NON MAG -63 ^500 Au | -63 ^20 Au | -63 ^100 g/kg | NON MAG HMC ^10 g/kg | MAG ^2 g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| (FEET) | HMC SAMPLE # | HMC # GOLD GRAINS; INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|---|
| 5 | | | | |
| 10 | | | | |
| 15 | | | | (0.0-41.0) NO OBSERVATIONS: UNDETERMINED whether Des Moines, clayey till or lake clay. |
| 20 | | | | |
| 25 | | | | |
| 30 | | | | |
| 35 | | | | |
| 40 | | | DES MOINES | |
| 45 | | | | |
| 50 | | | | (41.0-71.0) CLAY; UNOXIDIZED; lake seds; observations 41-45, 50-55, and 62-71. |
| 55 | | | | |
| 60 | | | | |
| 65 | | | | |
| 70 | | | | |
| 75 | | | | (71.0-83.0) NO OBSERVATIONS; UNDETERMINED whether Des Moines, clayey till or lake clay. |
| 80 | | | | |
| 85 | | | | |
| 90 | | | | (83.0-99.0) CLAYEY TILL; UNOXIDIZED; w/ ls pebs and sh pebs; prob trans to Rainy 95.5-99. |



SLUICE BOX 100-107




(99.0-105.7) GRAVELLY SAND; UNOXIDIZED; RAINY LOBE, v silty, -10M is subang; poorly sorted; not many large clasts, +10M mostly subang.

(105.7-107.0) BEDROCK; UNCERTAIN; Much overburden contaminations. lithologies include 60% varied graywacke, 30-40% varied granite, 3% amphibolite. See ODM report. drill rate 2 hrs + 45 mins for 1.5 ft.

Appendix 8-51C.

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18663 | 20405 | 100-105.75 | 5.8 | M | O | NW-SE | 19 | 63 | 22 | K | RL. GVL. SAND | 100-105.75 | 0.0 | 8000.0 | -2.0 | 28.8 | 4.5 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18664 | 20405 | 105.75-107 | 1.3 | M | O | NW-SE | 19 | 63 | 22 | K | BEDROCK | | -1.0 | -1.0 | -2.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18665 | 20405 | 100-107 | 7. | M | O | NW-SE | 19 | 63 | 22 | K | SLUICE BOX | 100-107 | 1.0 | 3200.0 | -2.0 | 15.0 | 2.4 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18663 | -14 | 0.16 | 0 | 440 | 13000 | 27.60 | 110 | 200 | 140 | 120 | 0 | 24 | -10 | 4 | -0.5 | 0 | -10 | 0.9 | -300 | 194 | 30 | 4 | 28 | 50 | -2 | 71.0 | 6.8 | 4 | 20.50 |
| 18665 | 80 | 0.17 | 515 | 710 | 13000 | 30.90 | 130 | 180 | 150 | 170 | 0 | 23 | -10 | 5 | -0.5 | 0 | -10 | 0.8 | -600 | 292 | 56 | 7 | 110 | 55 | -2 | 120.0 | 14.2 | 5 | 11.30 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18663 | 1.400 | 6.20 | 1000 | 200 | 51 | 360 | -1 | 34 | -0.5 | 19 | 0.6 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18664 | -6 | -0.2 | 3.0 | 600 | 0.0 | 2 | 37.0 | 0.0 | 60 | 10 | 0 | 3 | -100 | 3.2 | 21 | 0.0 | 2 | 45 | 0 | 0.00 | 0.0 | -10 | 0 | 2.80 | -1.0 | -10 | 0.0 | 5.6 | -10 | 4 | 1.3 | 0 | 0 | 0 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG % | AL | SIO2 % | S % | CL | K | CA % | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18664 | 25 | 16 | 63 | 0 | 1.5 | 0 | 0 | 0 | 0.00 | 3 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | -2 | 0.00 | 0 |

**Appendix 8-52A.** DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-20502

Drilling Completion Date 1/14/87

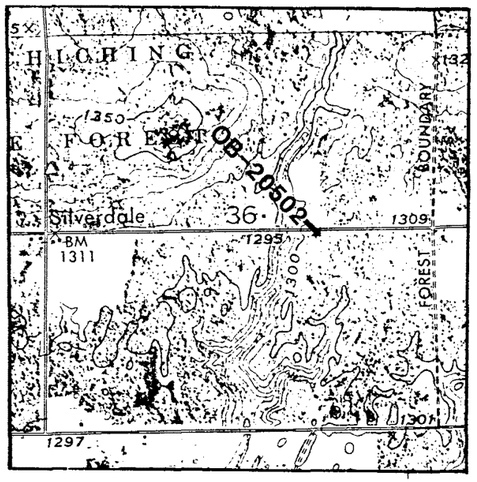
LOCATION (see map at right)

S-T-R NW¼-SE¼-36-64N-22W

County Koochiching

Quadrangle Silverdale 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1300 ft.

Total Depth 208 ft.

Elevation, Top of Precambrian Bedrock 1098 ft.

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-127 | Des Moines Lobe Gl. Drift | | | |
| 127-202 | Rainy Lobe Gl. Drift | F | B,C | B = Au,As,Se, Mo,Pb<br>C = Mo,Ni |
| 202-208 | Bedrock | F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Graywacke. Light gray, well foliated graywacke. Grain size from 0.1-0.3 mm with a sugary texture and no relict sand. Comprised of 60-70% plag., 15-20% qtz., and 20% biotite with trace dissem. calcite and 0.2% dissem. pyrite. (By ODM, see report in Appendix.)

Thin Section Number: #18673.



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | M. I. CONC | | | | | | CLAST | | | | | MATRIX | | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18666 | 7.5 | 0.7 | 6.8 | 82.6 | 71.7 | 10.9 | 8.4 | 2.5 | 0 | NA | G | 75 | 25 | NA | NA | U | Y | Y | Y | GB | B | TILL |
| -667 | 8.7 | 4.6 | 4.1 | 277.9 | 261.0 | 16.9 | 12.7 | 4.2 | 0 | NA | P | 40 | 60 | NA | NA | U | Y | Y | Y | B | GB | TILL |
| -668A | 9.7 | 1.2 | 8.5 | 78.4 | 60.9 | 17.5 | 11.3 | 6.2 | 0 | NA | C | 70 | 30 | NA | NA | U | Y | Y | Y | GB | B | TILL |
| -668B | 10.5 | 2.0 | 8.5 | 104.7 | 87.1 | 17.6 | 11.2 | 6.4 | 0 | NA | P | 55 | 45 | NA | NA | U | Y | Y | Y | GB | B | TILL |
| -669 | 8.7 | 4.4 | 4.3 | 44.4 | 39.2 | 5.2 | 3.6 | 1.6 | 0 | NA | C | 65 | 35 | NA | NA | U | Y | Y | Y | GB | B | TILL |
| -670 | 6.0 | 0.4 | 5.6 | 109.4 | 94.2 | 15.2 | 11.0 | 4.2 | 0 | NA | P | 50 | 50 | NA | NA | U | Y | Y | Y | B | GB | TILL |
| -671 | 12.0 | 0.0 | 12.0 | 104.5 | 76.5 | 28.0 | 18.3 | 9.7 | 0 | NA | TR | NA | NA | NA | NA | U | Y | Y | Y | GG | GG | TILL |
| -672 | 6.5 | 0.0 | 6.5 | 237.3 | 210.9 | 26.4 | 18.7 | 7.7 | 0 | NA | TR | NA | NA | NA | NA | U | Y | Y | Y | GB | GB | TILL |
| -674 | 6.2 | 0.0 | 6.2 | 149.9 | 135.9 | 14.0 | 6.3 | 7.7 | 3 | 916 | | | | | | | | | | | | |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | NUMBER OF GRAINS ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18666 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -667 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -668A | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -668B | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -669 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -670 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -671 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -672 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -674 | Y | 50 X 50 | 10 C | | 1 | | | | | 1 | | | EST. 15% PYRITE |
| | | 50 X 100 | 15 C | | 1 | | | | | 1 | | | |
| | | 125 X 175 | 29 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | | 3 | 6.3 | 916 | |

FIELDNOTE SUMMARY LOG OB-20502, MUD ROTARY

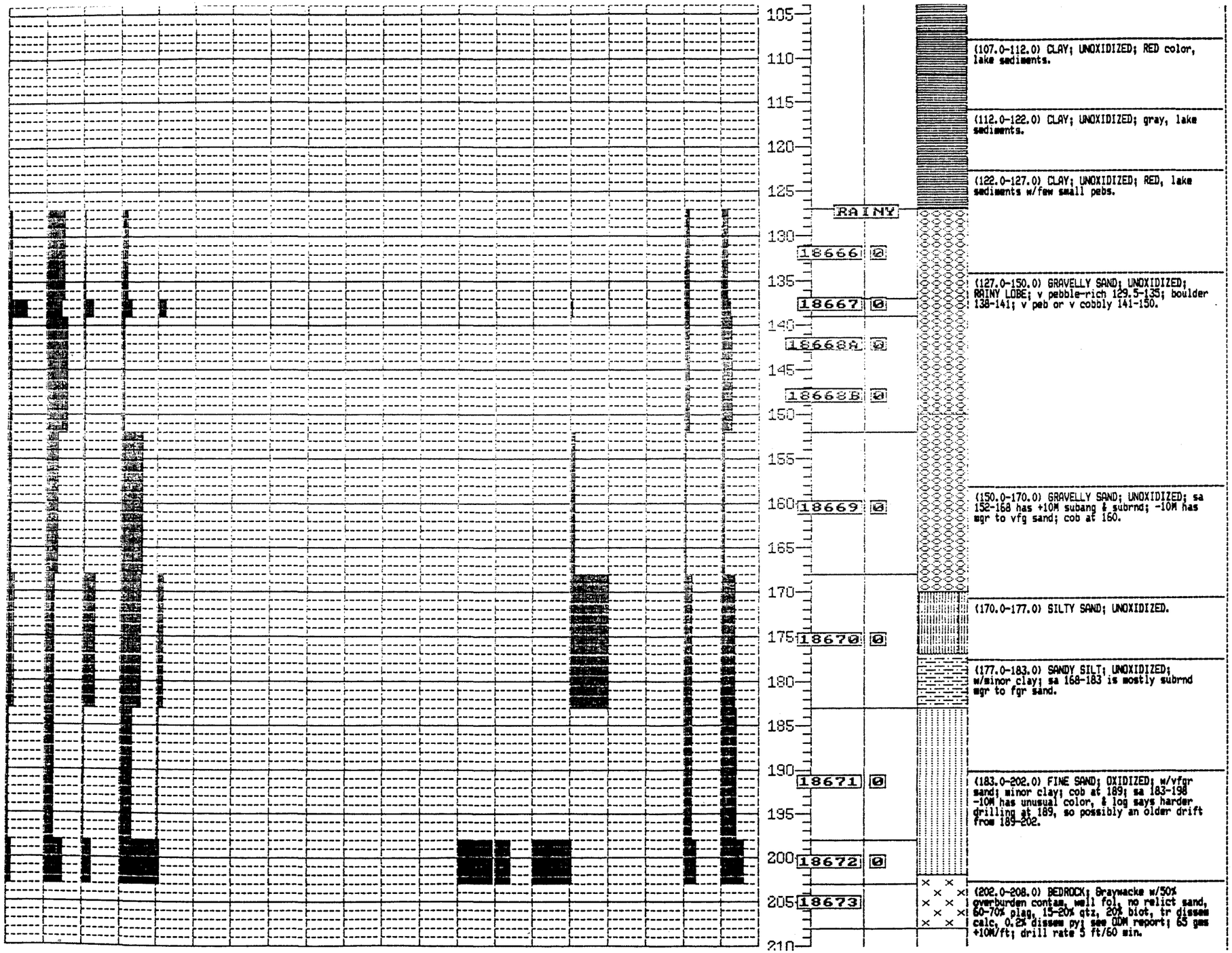
[ IN NON MAG HMC ][ IN -63 MICRON ][ IN MAG FRAC ]

| ^200 As | ^600 Cu | ^5 Sb | ^25 Mo | ^6000 Ba | ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 Fe% | ^500 Ni | ^50 Pb | ^100 Mo | NON MAG ^500 Au | -63 ^20 Au | -63 ^100 g/kg | NON MAG HMC ^10 g/kg | MAG ^2 g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

# OB-20502

Appendix 8-52B.

| (FEET) | HMC SAMPLE # | HMC # GOLD GRAINS INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|---|
| | | DES MOINES | | |
| 5 | | | | (0.0-14.0) CLAY; OXIDIZED; dark brown at 14 but grayer above, unusual. |
| 10 | | | | |
| 15 | | | | |
| 20 | | | | |
| 25 | | | | |
| 30 | | | | |
| 35 | | | | |
| 40 | | | | |
| 45 | | | | |
| 50 | | | | |
| 55 | | | | |
| 60 | | | | |
| 65 | | | | |
| 70 | | | | |
| 75 | | | | |
| 80 | | | | |
| 85 | | | | |
| 90 | | | | |
| 95 | | | | |
| 100 | | | | (14.0-107.0) CLAY; UNOXIDIZED; w/silty clay, gray, lake sediments, few observations. |


105
110
115
120
125
130
135
140
145
150
155
160
165
170
175
180
185
190
195
200
205
210
RAINY
18666
18667
18668A
18668B
18669
18670
18671
18672
18673
(107.0-112.0) CLAY; UNOXIDIZED; RED color, lake sediments.
(112.0-122.0) CLAY; UNOXIDIZED; gray, lake sediments.
(122.0-127.0) CLAY; UNOXIDIZED; RED, lake sediments w/few small pebs.
(127.0-150.0) GRAVELLY SAND; UNOXIDIZED; RAINY LOBE; v pebble-rich 129.5-135; boulder 138-141; v peb or v cobbly 141-150.
(150.0-170.0) GRAVELLY SAND; UNOXIDIZED; sa 152-168 has +10M subang & subrnd; -10M has mgr to vfg sand; cob at 160.
(170.0-177.0) SILTY SAND; UNOXIDIZED.
(177.0-183.0) SANDY SILT; UNOXIDIZED; w/minor clay; sa 168-183 is mostly subrnd mgr to fgr sand.
(183.0-202.0) FINE SAND; OXIDIZED; w/vfgr sand; minor clay; cob at 189; sa 183-198 -10M has unusual color, & log says harder drilling at 189, so possibly an older drift from 189-202.
(202.0-208.0) BEDROCK; Graywacke w/50% overburden contam, well fol, no relict sand, 60-70% plag, 15-20% qtz, 20% biot, tr disseminated calc, 0.2% disseminated py; see ODM report; 65 gpm +10M/ft; drill rate 5 ft/60 min.

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTS | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18666 | 20502 | 127-137 | 10. | M | O | NW-SE | 36 | 64 | 22 | K | RL. GVL. SAND | 127-137 | 0.0 | 7500.0 | -2.0 | 8.4 | 2.5 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18667 | 20502 | 137-139 | 2. | M | O | NW-SE | 36 | 64 | 22 | K | PEBBLES/BOULDERS | 137-139 | 0.0 | 8700.0 | -2.0 | 12.7 | 4.2 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18668A | 20502 | 139-152 | 13. | M | O | NW-SE | 36 | 64 | 22 | K | RL. GVL. SAND | 139-152 | 0.0 | 9700.0 | -2.0 | 11.3 | 6.2 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18668B | 20502 | 139-152 | 13.0 | M | O | NW-SE | 36 | 64 | 22 | K | RL. GVL. SAND | 139-152 | 0.0 | 10500.0 | 2000.0 | 11.2 | 6.4 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18669 | 20502 | 152-168 | 16. | M | O | NW-SE | 36 | 64 | 22 | K | RL. GVL. SAND | 152-168 | 0.0 | 8700.0 | -2.0 | 3.6 | 1.6 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18670 | 20502 | 168-183 | 15. | M | O | NW-SE | 36 | 64 | 22 | K | RL. F. TO V.F. SAND | 168-183 | 0.0 | 6000.0 | -2.0 | 11.0 | 4.2 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18671 | 20502 | 183-198 | 15. | M | O | NW-SE | 36 | 64 | 22 | K | RL. F. TO V.F. SAND | 183-198 | 0.0 | 12000.0 | -2.0 | 18.3 | 9.7 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18672 | 20502 | 198-203 | 5. | M | O | NW-SE | 36 | 64 | 22 | K | RL. F. TO V.F. SAND | 198-203 | 0.0 | 6500.0 | -2.0 | 18.7 | 7.7 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18673 | 20502 | 203-208 | 5. | M | O | NW-SE | 36 | 64 | 22 | K | BEDROCK | | -1.0 | -1.0 | -2.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18674 | 20502 | 127-208 | 81. | M | O | NW-SE | 36 | 64 | 22 | K | SLUICE BOX | 127-208 | 3.0 | 6200.0 | -2.0 | 6.3 | 7.7 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18666 | -5 | -0.05 | 0 | 50 | 14000 | 5.60 | 30 | 230 | 290 | 190 | 0 | 15 | -10 | 4 | 0.5 | 0 | -10 | 0.3 | -100 | 99 | 12 | 3 | 5 | 72 | -2 | 38.0 | 3.1 | 1 | 2.49 |
| 18667 | -19 | 0.24 | 0 | 280 | 11000 | 30.30 | 110 | 170 | 230 | 190 | 0 | 93 | 40 | 7 | -0.5 | 0 | -10 | 1.2 | -1200 | 337 | 48 | 17 | 64 | 77 | -2 | 120.0 | 23.2 | 1 | 9.78 |
| 18668A | -5 | 0.05 | 0 | -50 | 13000 | 4.80 | 20 | 190 | 340 | 180 | 0 | 18 | -10 | 2 | 1.0 | 0 | -10 | 0.2 | -100 | 85 | 11 | 1 | 21 | 96 | -2 | 30.0 | 3.1 | 1 | 2.40 |
| 18668B | 830 | 0.05 | 0 | -50 | 13000 | 4.70 | 30 | 190 | 300 | 170 | 0 | 12 | -10 | 10 | 0.5 | 0 | -10 | -0.2 | -100 | 97 | 12 | 2 | 23 | 133 | -2 | 37.0 | 3.7 | -1 | 2.64 |
| 18669 | 55 | -0.05 | 0 | -50 | 13000 | 4.70 | 20 | 200 | 200 | 170 | 0 | 13 | -10 | 15 | -0.5 | 0 | -10 | 0.2 | -100 | 73 | 11 | 1 | 10 | 56 | -2 | 25.0 | 2.6 | 0 | 2.19 |
| 18670 | 790 | 0.20 | 0 | 370 | 11000 | 26.70 | 90 | 160 | 150 | 120 | 0 | 29 | -20 | 14 | -0.5 | 0 | -10 | 1.7 | 1000 | 546 | 110 | 9 | 43 | 68 | -2 | 180.0 | 22.2 | 2 | 8.03 |
| 18671 | -5 | 0.06 | 0 | 60 | 12000 | 4.60 | 10 | 140 | 150 | 150 | 0 | 4 | 20 | 8 | -0.5 | 0 | -10 | 0.3 | 200 | 110 | 17 | 2 | 6 | 67 | -2 | 41.0 | 2.8 | 2 | 1.99 |
| 18672 | -16 | 0.34 | 0 | 270 | 8200 | 27.10 | 150 | 180 | 280 | 110 | 0 | 20 | -10 | 39 | -0.5 | 0 | -10 | 1.2 | -400 | 306 | 54 | 8 | 14 | 53 | -2 | 120.0 | 16.1 | 3 | 13.60 |
| 18674 | 350 | 0.25 | 1060 | 460 | 11000 | 26.70 | 180 | 230 | 240 | 170 | 0 | 50 | -20 | 11 | -0.5 | 0 | -10 | -0.6 | 500 | 656 | 98 | 13 | 86 | 67 | -2 | 270.0 | 24.4 | 1 | 19.50 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18672 | 1.100 | 3.20 | 2900 | 460 | 240 | 180 | -1 | 730 | -0.5 | 19 | 1.2 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | Sm | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18673 | -6 | -0.2 | -1.0 | 600 | 0.0 | 2 | 33.0 | 0.0 | 50 | 10 | 0 | 3 | -100 | 2.7 | 19 | 0.0 | 3 | 40 | 0 | 0.00 | 0.0 | -10 | 0 | 3.30 | -1.0 | -10 | 0.0 | 4.5 | -10 | -2 | 1.3 | 0 | 0 | 0 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18673 | 20 | 15 | 52 | 0 | 1.5 | 0 | 0 | 0 | 0.00 | 3 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | -2 | 0.00 | 0 |

**Appendix 8-53A.** DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-20601

Drilling Completion Date 1/8/87

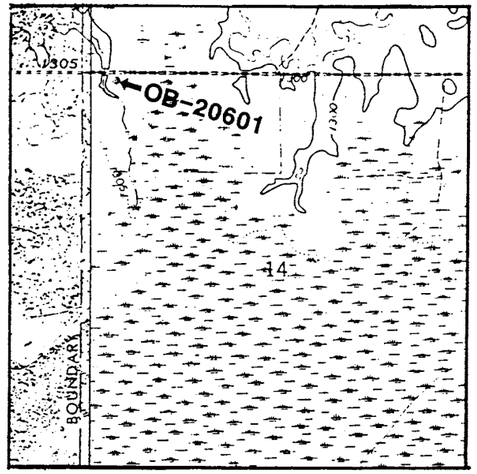
LOCATION (see map at right)

S-T-R NW¼-NW¼-14-63N-21W

County St. Louis

Quadrangle Gheen N.W. 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1300 ft.

Total Depth 141 ft.

Elevation, Top of Precambrian Bedrock 1162 ft.

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-128 | Des Moines Lobe Gl. Drift | | | |
| 128-138 | Rainy Lobe Gl. Drift | F | B,C | |
| 138-141 | Bedrock | F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Granodiorite. White to pink, massive granodiorite. Grain size 0.5-1.5 equigranular, interlocking. Comprised of 60-70% white to pink (hem.-stained) feldspar, 30% quartz and 3% chlorite or biotite.
(By ODM, see report in Appendix)

Thin Section Number: #18657.



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | MATRIX | | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18655 | 8.4 | 0.4 | 8.0 | 126.6 | 102.1 | 24.5 | 19.6 | 4.9 | 0 | | NA G/P | 40 | 60 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -656 | 6.7 | 0.4 | 6.3 | 78.6 | 61.3 | 17.3 | 13.5 | 3.8 | 0 | | NA G/P | 15 | 85 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -658 | 5.2 | 0.0 | 5.2 | 126.4 | 98.7 | 27.7 | 24.6 | 3.1 | 1 | 61 | | | | | | | | | | | | |
| 18756C | 7.3 | 0.0 | 7.3 | 175.9 | 152.1 | 23.8 | 21.3 | 2.5 | 1 | | 18 TR | NA | NA | NA | NA | U | Y | Y | Y | B | B | TILL |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18655 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -656 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -658 | Y | 75 X 125 | 20 C | 1 | | | | | | 1 | | | EST. 20% PYRITE 1% ARSENOPYRITE |
| | | | | | | | | | | 1 | 24.6 | 61 | (FINE) |
| 18756C | Y | 50 X 75 | 13 C | | 1 | | | | | 1 | | | EST. 10% PYRITE |
| | | | | | | | | | | 1 | 21.3 | 18 | |

FIELDNOTE SUMMARY LOG OB-20601, MUD ROTARY

[ IN NON MAG HMC ]

| ^200 As | ^600 Cu | ^5 Sb | ^25 Mo | ^5000 Ba |
|---|---|---|---|---|

[ IN -63 MICRON ]

| ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 FeX |
|---|---|---|---|---|---|---|

[ IN MAG FRAC ]

| ^500 Ni | ^50 Pb | ^100 Mo |
|---|---|---|

| NON MAG -63 ^500 Au | ^20 Au |
|---|---|

-63 NON MAG HMC

| ^100 g/kg | ^10 g/kg |
|---|---|

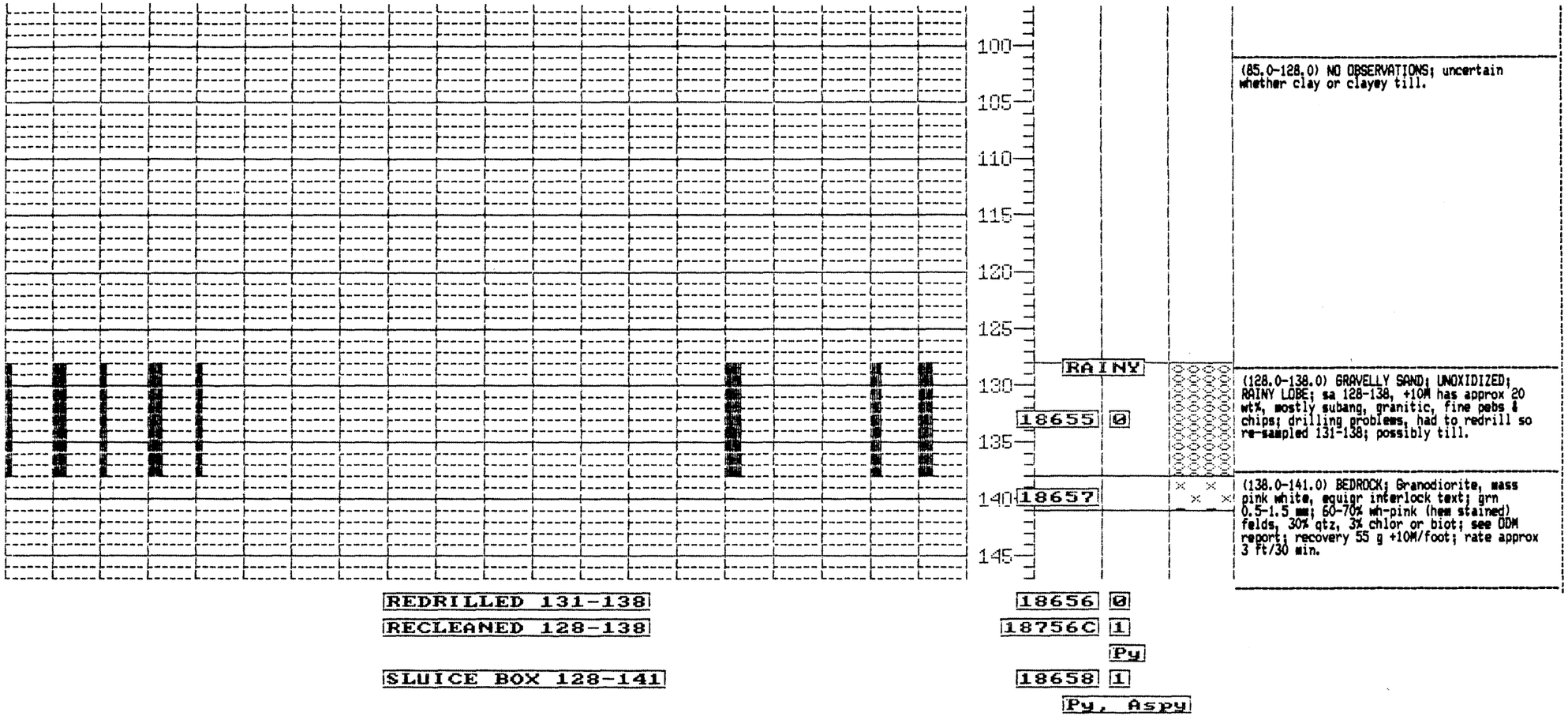
MAG

| ^2 g/kg |
|---|

# OB-20601

| (FEET) | HMC SAMPLE # | HMC # GOLD GRAINS; INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|---|
| | | DES MOINES | | |
| 5 | | | | (0.0-10.0) CLAY; OXIDIZED; depth of ox uncertain. |
| 10 | | | | |
| 15 | | | | |
| 20 | | | | |
| 25 | | | | |
| 30 | | | | |
| 35 | | | | |
| 40 | | | | (10.0-80.0) CLAY; UNOXIDIZED; lake sediments, gray; w/silty clay; few observations this interval. |
| 45 | | | | |
| 50 | | | | |
| 55 | | | | |
| 60 | | | | |
| 65 | | | | |
| 70 | | | | |
| 75 | | | | |
| 80 | | | | (80.0-85.0) CLAYEY TILL; UNOXIDIZED; gray w/ls clasts. |
| 85 | | | | |
| 90 | | | | |
| 95 | | | | |

Appendix 8-53B.




(85.0-128.0) NO OBSERVATIONS; uncertain whether clay or clayey till.

(128.0-138.0) GRAVELLY SAND; UNOXIDIZED; RAINY LOBE; sa 128-138, +10M has approx 20 wt%, mostly subang, granitic, fine pebs & chips; drilling problems, had to redrill so re-sampled 131-138; possibly till.

(138.0-141.0) BEDROCK; Granodiorite, mass pink white, equigr interlock text; grn 0.5-1.5 mm; 60-70% wh-pink (hem stained) felds, 30% qtz, 3% chlor or biot; see DDH report; recovery 55 g +10M/foot; rate approx 3 ft/30 min.

REDRILLED 131-138

RECLEANED 128-138

SLUICE BOX 128-141

18656 0

18756C 1
Py

18658 1
Py, Aspy

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY DESC | LEGAL | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18655 | 20601 | 128-138 | 10. | M | O | NW-NW | 14 | 63 | 21 | SL | RL. GVL. SAND | 128-138 | 0.0 | 8400.0 | -2.0 | 19.6 | 4.9 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18656 | 20601 | 131-138 | 7. | M | O | NW-NW | 14 | 63 | 21 | SL | REDRILLED | 131-138 | 0.0 | 6700.0 | -2.0 | 13.5 | 3.8 | -1.0 | -1.0 | -1 | -1 | -1 | REDRILLED |
| 18756C | 20601 | 128-138 | 10. | M | O | NW-NW | 14 | 63 | 21 | SL | SPECIAL SAMPLE | 128-138 | 1.0 | 7300.0 | -2.0 | 21.3 | 2.5 | -1.0 | -1.0 | -1 | -1 | -1 | RECLEANED +10M MAT'L |
| 18657 | 20601 | 138-141 | 3. | M | O | NW-NW | 14 | 63 | 21 | SL | BEDROCK | | -1.0 | -1.0 | -2.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18658 | 20601 | 128-141 | 13. | M | O | NW-NW | 14 | 63 | 21 | SL | SLUICE BOX | 128-141 | 1.0 | 5200.0 | -2.0 | 24.6 | 3.1 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18655 | 160 | 0.10 | 0 | 210 | 11000 | 23.90 | 210 | 220 | 170 | 120 | 0 | 23 | -10 | 7 | 1.0 | 0 | -10 | 0.4 | 700 | 278 | 36 | 8 | 20 | 47 | 3 | 110.0 | 12.4 | 2 | 12.50 |
| 18656 | -5 | -0.05 | 0 | -50 | 11000 | 5.50 | 50 | 300 | 260 | 160 | 0 | 5 | -10 | 7 | 1.0 | 0 | -10 | 0.2 | 200 | 81 | 12 | -1 | 5 | 75 | 3 | 25.0 | 2.6 | 2 | 2.79 |
| 18756C | 58 | 0.13 | 266 | 190 | 9300 | 25.10 | 160 | 160 | 140 | 120 | 0 | 24 | -10 | 4 | -0.5 | 0 | -10 | -0.6 | 800 | 178 | 21 | -1 | 30 | 42 | -2 | 58.0 | 9.1 | 3 | 15.50 |
| 18658 | 78 | 0.21 | 476 | 310 | 11000 | 27.80 | 250 | 250 | 190 | 150 | 0 | 19 | -10 | 6 | -0.5 | 0 | -10 | 0.6 | 400 | 373 | 61 | 6 | 190 | 69 | 3 | 120.0 | 13.3 | 5 | 18.70 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18656 | 0.900 | 3.80 | 1100 | 180 | 76 | 230 | -1 | 13 | -0.5 | 63 | 0.6 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18657 | -6 | 0.2 | 1.0 | 800 | 0.0 | 2 | 20.0 | 0.0 | -50 | -10 | 0 | -2 | -100 | 1.5 | 15 | 0.0 | 1 | 25 | 0 | 0.00 | 0.0 | -10 | 0 | 4.00 | -1.0 | -10 | 0.0 | 2.7 | -10 | 3 | 3.1 | 0 | 0 | 0 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FED % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18657 | 12 | 17 | 45 | 0 | 1.5 | 0 | 0 | 0 | 0.00 | 4 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | -2 | 0.00 | 0 |

**Appendix 8-54A.** DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-20603

Drilling Completion Date 12/30/86

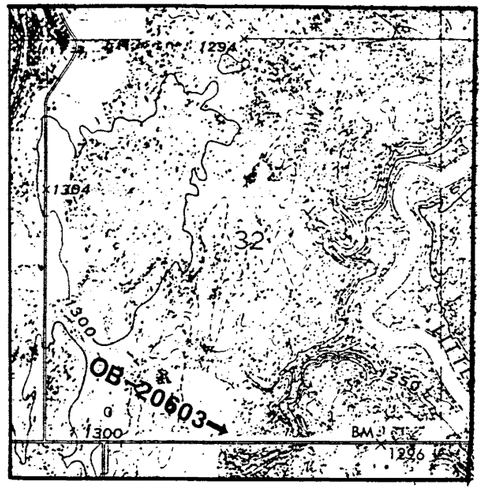
LOCATION (see map at right)

S-T-R SE¼-SW¼-32-63N-21W

County St. Louis

Quadrangle Silverdale 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1290 ft.

Total Depth 193 ft.

Elevation, Top of Precambrian Bedrock 1101 ft.

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-165 | Des Moines Lobe Gl. Drift | | | |
| 165-189 | Rainy Lobe Gl. Drift | F | B,C | C = Ni |
| 189-193 | Bedrock | | | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Uncertain

Thin Section Description: #18644



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | M. I. CONC | | | | | | CLAST | | | | | MATRIX | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18642 | 11.3 | 0.0 | 11.3 | 317.6 | 139.0 | 178.6 | 153.7 | 24.9 | 0 | NA | TR | NA | NA | NA | NA | U | Y | Y | Y | GB | B | TILL |
| 18643 | 9.8 | 0.0 | 9.8 | 259.3 | 66.4 | 192.9 | 165.1 | 27.8 | 0 | NA | TR | NA | NA | NA | NA | U | Y | Y | Y | BB | B | TILL |
| -644 | 9.6 | 0.2 | 9.4 | 277.4 | 117.7 | 159.7 | 115.5 | 44.2 | 0 | NA | P | 70 | 30 | NA | NA | U | Y | Y | Y | GB | B | TILL |
| -645 | 4.7 | 0.0 | 4.7 | 200.0 | 70.0 | 130.0 | 101.8 | 28.2 | 3 | 66 | | | | | | | | | | | | |
| 18752C | 15.4 | 0.0 | 15.4 | 305.9 | 113.9 | 192.0 | 166.1 | 25.9 | 1 | 96 | TR | NA | NA | NA | NA | U | Y | Y | Y | GYB | GYB | TILL |
| 18755C | 10.2 | 0.0 | 10.2 | 577.7 | 341.1 | 236.6 | 208.9 | 27.7 | 1 | 219 | TR | NA | NA | NA | NA | U | Y | Y | Y | GB | GB | TILL |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18642 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18643 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -644 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -645 | Y | 25 X 50 | 8 C | | 1 | | | | | 1 | | | EST. 25% PYRITE |
| | | 50 X 75 | 13 C | | | | | | 1 | 1 | | | 1000 GRAINS |
| | | 125 X 200 | 31 C | | | | 1 | | | 1 | | | ARSENOPYRITE (FINE) |
| | | | | | | | | | | 3 | 101.8 | 66 | |
| 18752C | Y | 175 X 275 | 42 C | | 1 | | | | | 1 | | | EST. 7% PYRITE |
| | | | | | | | | | | 1 | 166.1 | 96 | |
| 18755C | N | 250 X 400 | 58 C | | | | 1 | | | 1 | | | |
| | | | | | | | | | | 1 | 208.9 | 219 | |

FIELDNOTE SUMMARY LOG OB-20603, MUD ROTARY

[ IN NON MAG HMC ]I IN -63 MICRON ]I IN MAG FRAC ] -63 NON MAG MAG

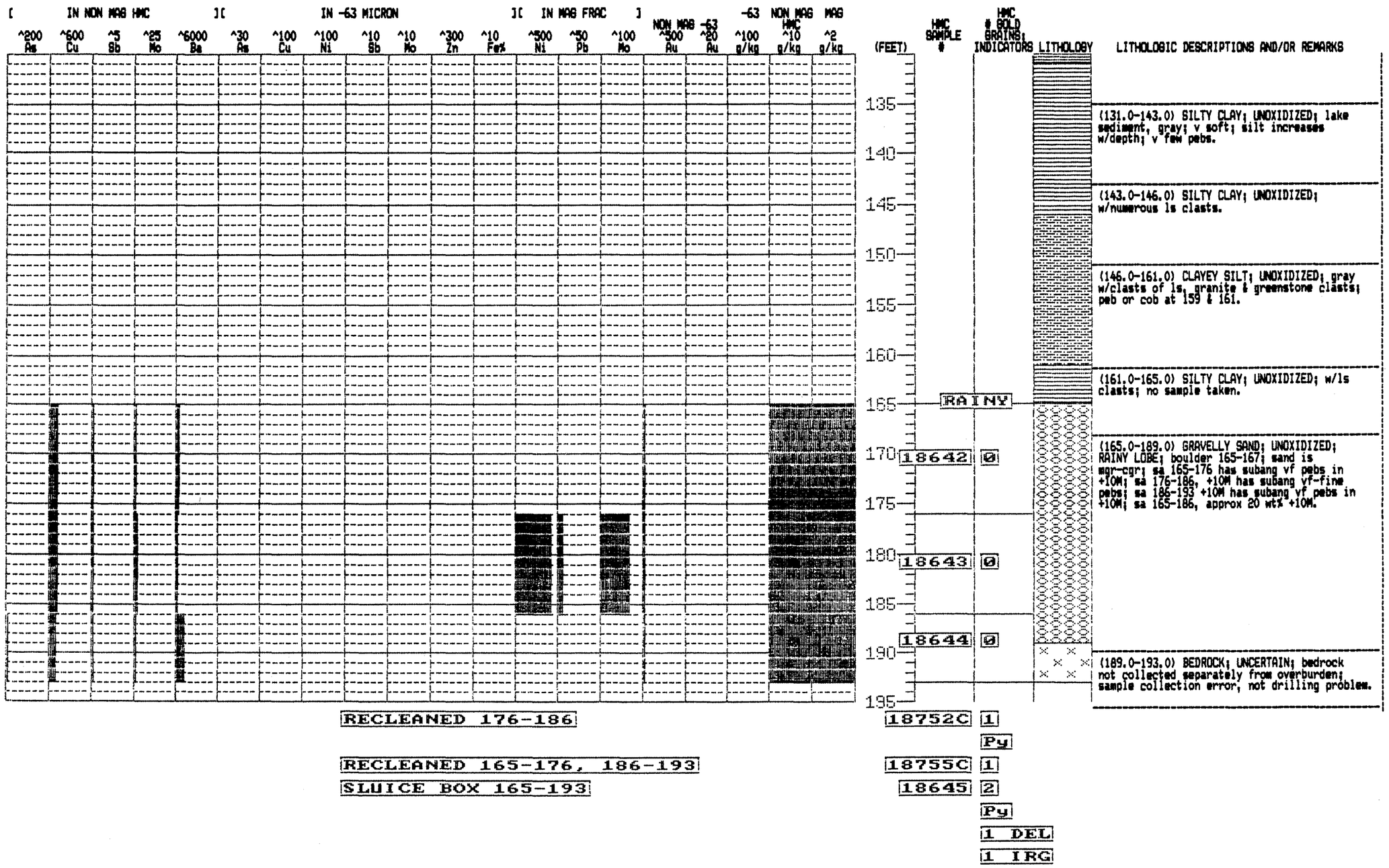
| ^800 As | ^500 Cu | ^5 Sb | ^25 Mo | ^6000 Ba | ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 FeX | ^300 Ni | ^50 Pb | ^100 Mo | NON MAG ^500 Au | -63 ^20 Au | ^100 g/kg | NON MAG HMC ^10 g/kg | MAG ^2 g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | |

# OB-20603

Appendix 8-54B.

| (FEET) | HMC SAMPLE # | HMC # GOLD GRAINS; INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|---|
| | | | DES MOINES | |
| 5 | | | | |
| 10 | | | | (0.0-18.0) CLAY; OXIDIZED; lake sediment, brown. |
| 15 | | | | |
| 20 | | | | |
| 25 | | | | |
| 30 | | | | |
| 35 | | | | |
| 40 | | | | |
| 45 | | | | |
| 50 | | | | (18.0-130.0) CLAY; UNOXIDIZED; lake sediment, gray; ls pebs noted at 30, 44, 77; v soft at 120. |
| 55 | | | | |
| 60 | | | | |
| 65 | | | | |
| 70 | | | | |
| 75 | | | | |
| 80 | | | | |
| 85 | | | | |
| 90 | | | | |
| 95 | | | | |
| 100 | | | | |
| 105 | | | | |
| 110 | | | | |
| 115 | | | | |
| 120 | | | | |
| 125 | | | | |
| 130 | | | | |

FIELDNOTE SUMMARY LOG OB-20603, MUD ROTARY



Appendix 8-54C.

MASTER FILE

| SAMPLE NUMBER | DN NUMBER | SAMPLE INTERVAL | ST | D | S | FORTY DESC | LEGAL | | | COUNTY | DRIFT TYPE | ASSAY FTG | BOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18642 | 20603 | 165-176 | 11. | N | O | SE-SW | 32 | 63 | 21 | SL | RL. GVL. SAND | 165-176 | 0.0 | 11300.0 | -2.0 | 153.7 | 24.9 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18643 | 20603 | 176-186 | 10. | N | O | SE-SW | 32 | 63 | 21 | SL | RL. GVL. SAND | 176-186 | 0.0 | 9800.0 | -2.0 | 165.1 | 27.8 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18752C | 20603 | 176-186 | 10. | N | O | SE-SW | 32 | 63 | 21 | SL | SPECIAL SAMPLE | 176-186 | 1.0 | 15400.0 | -2.0 | 166.1 | 25.9 | -1.0 | -1.0 | -1 | -1 | -1 | RECLEANED +10M MAT'L |
| 18644 | 20603 | 186-193 | 7. | N | O | SE-SW | 32 | 63 | 21 | SL | RL. GVL. SAND | 186-193 | 0.0 | 9600.0 | -2.0 | 115.5 | 44.2 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18755C | 20603 | 165-193 | -2.0 | N | O | SE-SW | 32 | 63 | 21 | SL | SPECIAL SAMPLE | 165-193 | 1.0 | 10200.0 | -2.0 | 208.9 | 27.7 | -1.0 | -1.0 | -1 | -1 | -1 | SI=165-176 & 186-193 |
| 18645 | 20603 | 165-193 | 28. | N | O | SE-SW | 32 | 63 | 21 | SL | SLUICE BOX | 165-193 | 3.0 | 4700.0 | -2.0 | 101.8 | 28.2 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18642 | -12 | 0.65 | 384 | 160 | 3000 | 8.20 | 50 | 110 | 120 | 150 | 0 | 3 | -10 | 1 | -0.5 | 0 | -10 | -0.2 | 400 | 193 | 21 | 3 | 5 | 20 | -2 | 17.0 | 4.2 | 14 | 112.00 |
| 18643 | -14 | 0.63 | 432 | 130 | 4100 | 9.70 | 60 | 110 | 110 | 150 | 0 | 3 | -10 | 2 | -0.5 | 0 | -10 | -0.2 | 300 | 222 | 21 | 2 | 7 | 23 | -2 | 18.0 | 4.4 | 17 | 121.00 |
| 18752C | -20 | 0.70 | 504 | 180 | 4400 | 11.60 | 60 | 110 | 130 | 180 | 0 | 4 | -10 | 2 | -0.5 | 0 | -10 | -0.5 | 200 | 254 | 28 | 4 | -14 | 18 | -2 | 18.0 | -2.9 | 11 | 117.00 |
| 18644 | -16 | 0.60 | 0 | 170 | 3500 | 10.50 | 70 | 110 | 93 | 170 | 0 | 4 | -10 | 1 | -0.5 | 0 | -10 | -0.3 | 1100 | 276 | 24 | 4 | 8 | 20 | -2 | 27.0 | 4.3 | 12 | 13.20 |
| 18755C | 47 | 0.78 | 523 | 180 | 3400 | 12.70 | 60 | 94 | 72 | 160 | 0 | 7 | -10 | 2 | -0.5 | 0 | -10 | 0.8 | 600 | 258 | 30 | 2 | -10 | 17 | -2 | 21.0 | 4.5 | 20 | 150.00 |
| 18645 | -33 | 0.78 | 873 | 270 | 3500 | 14.20 | 90 | 150 | 150 | 140 | 0 | 10 | -20 | 7 | -0.5 | 0 | -10 | 0.7 | 500 | 430 | 51 | -3 | 55 | 25 | -2 | 43.0 | 10.6 | 22 | 75.50 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18643 | 2.000 | 1.30 | 1200 | 420 | 110 | 160 | -1 | 68 | -0.5 | 6 | 2.8 |

**Appendix 8-55A.** DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-20604

Drilling Completion Date 1/8/87

LOCATION (see map at right)

S-T-R NE¼-NW¼-17-63N-21W

County St. Louis

Quadrangle Silverdale 7.5

Regional Survey Area Orr

HOLE PARAMETERS

Surface Elevation 1295 ft.

Total Depth 127 ft.

Elevation, Top of Precambrian Bedrock

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-126 | Des Moines Lobe Gl. Drift | | | |
| 126-127 | Rainy Lobe Gl. Drift | | | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type:

Thin Section Description:

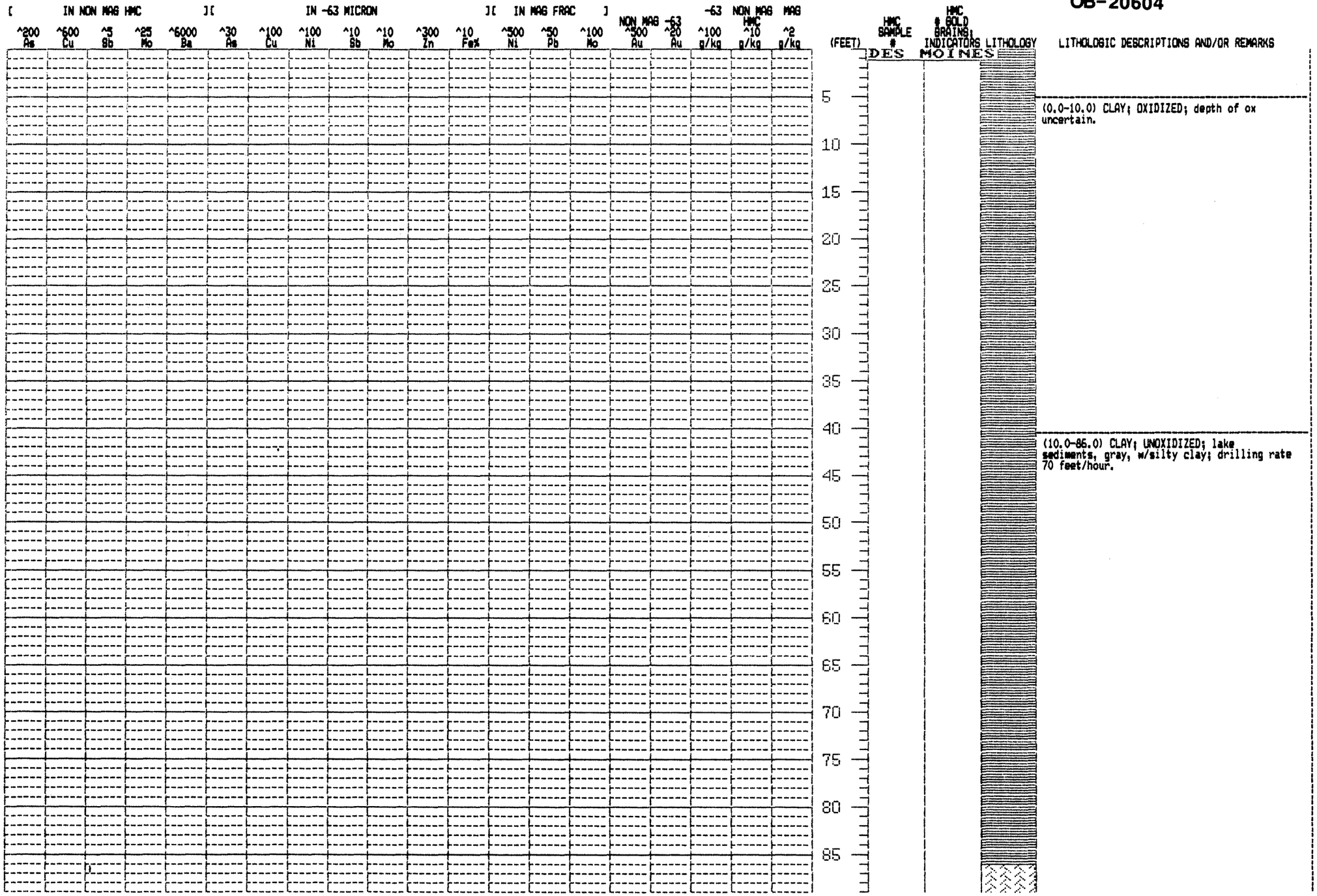


**No samples obtained for heavy mineral concentration.**

FIELDNOTE SUMMARY LOG OB-20604, MUD ROTARY

# OB-20604

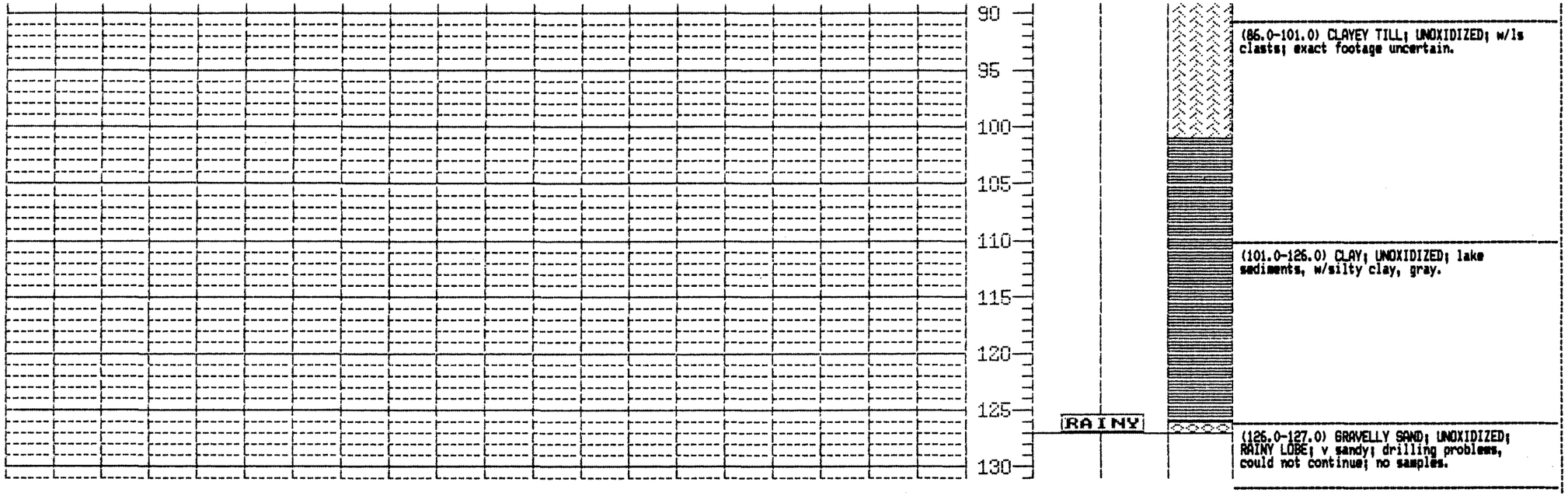
Appendix 8-55B.




LITHOLOGIC DESCRIPTIONS AND/OR REMARKS

(0.0-10.0) CLAY; OXIDIZED; depth of ox uncertain.

(10.0-86.0) CLAY; UNOXIDIZED; lake sediments, gray, w/silty clay; drilling rate 70 feet/hour.


90
95
100
105
110
115
120
125
130
RAINY
(86.0-101.0) CLAYEY TILL; UNOXIDIZED; w/ls clasts; exact footage uncertain.
(101.0-126.0) CLAY; UNOXIDIZED; lake sediments, w/silty clay, gray.
(126.0-127.0) GRAVELLY SAND; UNOXIDIZED; RAINY LOBE; v sandy; drilling problems, could not continue; no samples.

**Appendix 8-56A.** DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-20702

Drilling Completion Date 12/18/86

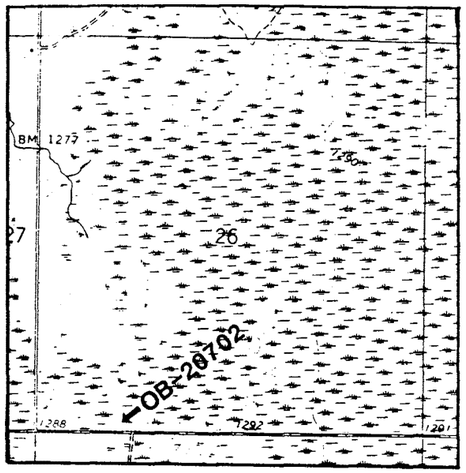
LOCATION (see map at right)

S-T-R SW¼-SW¼-26-62N-21W

County St. Louis

Quadrangle Meadowbrook 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1290 ft.

Total Depth 133 ft.

Elevation, Top of Precambrian Bedrock 1162.5 ft.

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-96 | Des Moines Lobe Gl. Drift | | | |
| 96-127.5 | Rainy Lobe Gl. Drift | F | B,C | C = Ag,Ni,Cu |
| 127.5-133 | Bedrock | F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Uncertain

Thin Section Description: #18630



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | M.I. CONC | | | AU | | DESCRIPTION | | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | CLAST | | | | | MATRIX | | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % | | | | S/U | SD | ST | CY | COLOR | | |
| | | | | | | | | | | | | V/S | GR | LS | OT | | | | | SD | CY | |
| 18626 | 5.8 | 0.3 | 5.5 | 246.1 | 220.5 | 25.6 | 22.6 | 3.0 | 0 | | NA | P | 60 | 40 | NA | NA | U | Y | Y | Y | B | B | TILL |
| 18626R | 4.4 | 0.3 | 4.1 | 174.6 | 145.0 | 29.6 | 25.8 | 3.8 | 0 | | NA | P | 75 | 25 | NA | NA | U | Y | Y | Y | BNB | BNB | TILL |
| -27 | 15.0 | 0.4 | 14.6 | 290.7 | 224.3 | 66.4 | 53.6 | 12.8 | 0 | | NA | C | 20 | 80 | NA | NA | U | Y | Y | Y | B | GB | TILL |
| -28 | 13.3 | 0.2 | 13.1 | 266.0 | 197.3 | 68.7 | 52.9 | 15.8 | 3 | | 188 | F | 60 | 40 | NA | NA | U | Y | Y | Y | B | GB | TILL |
| 18628R | 10.7 | 0.0 | 10.7 | 214.9 | 139.4 | 75.5 | 58.7 | 16.8 | 0 | | NA | TR | NA | NA | NA | NA | U | Y | Y | Y | GB | GB | TILL |
| -29 | 10.3 | 0.0 | 10.3 | 242.9 | 181.0 | 61.9 | 46.3 | 15.6 | 0 | | NA | TR | NA | NA | NA | NA | U | Y | Y | Y | B | GB | TILL |
| -631 | 3.0 | 0.0 | 3.0 | 96.3 | 63.2 | 33.1 | 25.9 | 7.2 | 2 | | 2 | | | | | | | | | | | | |
| 18748C | 19.1 | 0.0 | 19.1 | 376.5 | 340.1 | 36.4 | 11.5 | 24.9 | 0 | | NA | TR | NA | NA | NA | NA | S | C | Y | N | GB | NA | SAND |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18626 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18626R | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -27 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -28 | Y | 100 X 125 | 22 C | | 1 | | | | | 1 | | | EST. 1% PYRITE |
| | • | 100 X 150 | 25 C | 1 | | | | | | 1 | | | 250 GRAINS |
| | | 100 X 200 | 29 C | 1 | | | | | | 1 | | | ARSENOPYRITE |
| | | | | | | | | | | 3 | 52.9 | .188 | PHOTO REFERENCE #129 |
| 18628R | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -29 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -631 | Y | 25 X 25 | 5 C | | 2 | | | | | 2 | | | EST. 5% PYRITE |
| | | | | | | | | | | 2 | 25.9 | 2 | 0.5% ARSENOPYRITE (FINE) |
| 18748C | N | NO VISIBLE GOLD | | | | | | | | | | | |

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FIELDNOTE SUMMARY LOG OB-20702, MUD ROTARY

# OB-20702

Appendix 8-56B.

[ IN NON MAG HMC ][ IN -63 MICRON ][ IN MAG FRAC ]

| ^200 Au | ^500 Cu | ^5 Sb | ^25 Mo | ^6000 Ba | ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 FeX | ^500 Ni | ^50 Pb | ^100 Mo | NON MAG ^500 Au | -63 ^20 Au | -63 ^100 g/kg | NON MAG HMC ^10 g/kg | MAG ^2 g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | |
| | | 1 | | | | | | | | | | | | | | | | | |

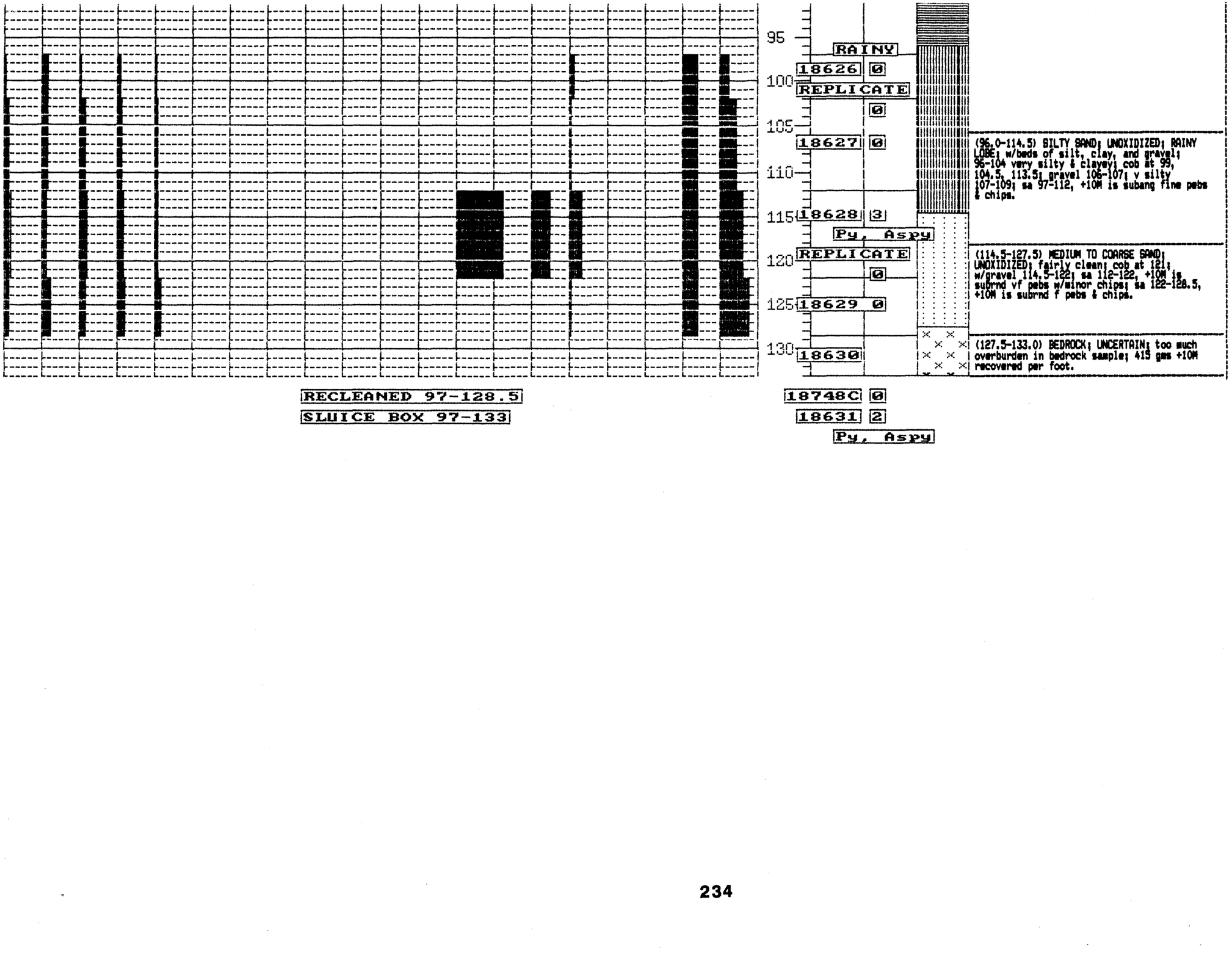
(FEET) | HMC SAMPLE # | HMC # GOLD GRAINS; INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS

DES MOINES

5 10 15 20 35 30 35 40 45 50 55 60 65 70 75 80 85 90

(0.0-24.0) CLAY; OXIDIZED; not completely oxidized, gray zones; softer clay 17-24.

(24.0-96.0) CLAY; UNOXIDIZED; lake sediments, gray, w/silty clay; drilling rate 25 feet per hour.


95
100
105
110
115
120
125
130
RAINY
18626 0
REPLICATE
0
18627 0
18628 3
Py, Aspy
REPLICATE
0
18629 0
18630
(96.0-114.5) SILTY SAND; UNOXIDIZED; RAINY LOBE; w/beds of silt, clay, and gravel; 96-104 very silty & clayey; cob at 99, 104.5, 113.5; gravel 106-107; v silty 107-109; sa 97-112, +10M is subang fine pebs & chips.
(114.5-127.5) MEDIUM TO COARSE SAND; UNOXIDIZED; fairly clean; cob at 121; w/gravel 114.5-122; sa 112-122, +10M is subrnd vf pebs w/minor chips; sa 122-128.5, +10M is subrnd f pebs & chips.
(127.5-133.0) BEDROCK; UNCERTAIN; too much overburden in bedrock sample; 415 gms +10M recovered per foot.
RECLEANED 97-128.5
SLUICE BOX 97-133
18748C 0
18631 2
Py, Aspy

Appendix 8-56C.

## MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | B | FORTY DESC | LEGAL | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18626 | 20702 | 97-102 | 5. | M | O | SW-SW | 26 | 62 | 21 | SL | RL. SILTY SAND | 97-102 | 0.0 | 5800.0 | -2.0 | 22.6 | 3.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18626R | 20702 | 97-102 | 5.0 | M | O | SW-SW | 26 | 62 | 21 | SL | RL. SILTY SAND | 97-102 | 0.0 | 4400.0 | -2.0 | 25.8 | 3.8 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18627 | 20702 | 102-112 | 10. | M | O | SW-SW | 26 | 62 | 21 | SL | RL. SILTY SAND | 102-112 | 0.0 | 15000.0 | -2.0 | 53.6 | 12.8 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18628 | 20702 | 112-122 | 10. | M | O | SW-SW | 26 | 62 | 21 | SL | RL. MED. TO C. SAND | 112-122 | 3.0 | 13300.0 | -2.0 | 52.9 | 15.8 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18628R | 20702 | 112-122 | 10.0 | M | O | SW-SW | 26 | 62 | 21 | SL | RL. MED. TO C. SAND | 112-122 | 0.0 | 10700.0 | -2.0 | 58.7 | 16.8 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18629 | 20702 | 122-128.5 | 6.5 | M | O | SW-SW | 26 | 62 | 21 | SL | RL. MED. TO C. SAND | 122-128.5 | 0.0 | 10300.0 | -2.0 | 46.3 | 15.6 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18630 | 20702 | 128.5-133 | 4.5 | M | O | SW-SW | 26 | 62 | 21 | SL | BEDROCK | | -1.0 | -1.0 | -2.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18748C | 20702 | 97-128.5 | 31.5 | M | O | SW-SW | 26 | 62 | 21 | SL | SPECIAL SAMPLE | 97-128.5 | 0.0 | 19100.0 | -2.0 | 11.5 | 24.9 | -1.0 | -1.0 | -1 | -1 | -1 | RECLEANED +10M MAT'L |
| 18631 | 20702 | 97-133 | 36. | M | O | SW-SW | 26 | 62 | 21 | SL | SLUICE BOX | 97-133 | 2.0 | 3000.0 | -2.0 | 25.9 | 7.2 | -1.0 | -1.0 | -1 | -1 | -1 | |

## NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18626 | 66 | 0.32 | 221 | 120 | 8400 | 8.80 | 30 | 120 | 97 | 150 | 0 | 9 | -10 | 2 | 3.5 | 0 | -10 | 0.2 | 200 | 111 | 11 | -1 | 44 | 42 | -2 | 22.0 | 2.1 | 4 | 20.00 |
| 18626R | -16 | 0.74 | 360 | 250 | 7800 | 16.00 | 60 | 110 | 130 | 160 | 0 | 22 | 10 | 2 | -0.5 | 0 | -10 | 1.0 | 500 | 194 | 21 | 3 | 37 | 73 | -2 | 35.0 | 6.3 | 6 | 6.94 |
| 18627 | -18 | 0.42 | 564 | 430 | 8700 | 19.60 | 60 | 120 | 96 | 130 | 0 | 22 | -10 | 3 | 0.5 | 0 | -10 | 0.8 | -400 | 335 | 43 | 10 | 28 | 46 | -2 | 90.0 | 10.4 | 4 | 39.20 |
| 18628 | 160 | 0.31 | 629 | 570 | 9800 | 22.00 | 60 | 120 | 80 | 120 | 0 | 28 | 30 | 4 | -0.5 | 0 | -10 | 1.0 | -400 | 388 | 49 | 14 | 25 | 54 | -2 | 130.0 | 10.1 | 4 | 38.80 |
| 18629 | -19 | 0.38 | 614 | 490 | 8700 | 21.00 | 100 | 170 | 150 | 130 | 0 | 23 | -10 | 5 | -0.5 | 0 | -10 | 0.9 | 1000 | 337 | 50 | 7 | 23 | 51 | -2 | 99.0 | 10.3 | 4 | 33.90 |
| 18748C | -19 | 0.38 | 563 | 530 | 8100 | 23.40 | 70 | 110 | 70 | 140 | 0 | 17 | -10 | 3 | -0.5 | 0 | -10 | 0.8 | 400 | 337 | 44 | 7 | 20 | 54 | -2 | 110.0 | 6.3 | 1 | 81.20 |
| 18631 | 90 | 0.36 | 874 | 780 | 7000 | 23.00 | 80 | 140 | 110 | 180 | 0 | 19 | -10 | 4 | -0.5 | 0 | -10 | 0.8 | 600 | 514 | 79 | 13 | 120 | 66 | -2 | 160.0 | 12.6 | 9 | 19.50 |

## MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18628 | 1.000 | 6.70 | 1500 | 520 | 65 | 480 | -1 | 48 | 6.5 | 12 | 1.2 |

## BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18630 | -7 | -0.2 | 2.0 | 800 | 0.0 | 1 | 32.0 | 0.0 | 120 | 10 | 0 | 2 | -100 | 3.9 | 20 | 0.0 | 1 | 58 | 0 | 0.00 | 0.0 | -10 | 0 | 3.40 | -1.0 | -10 | 0.0 | 3.8 | -10 | -2 | 0.8 | 0 | 0 | 0 |

## BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18630 | 32 | 20 | 67 | 0 | 1.0 | 0 | 0 | 0 | 0.00 | 3 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | -2 | 0.00 | 0 |

## Appendix 8-57A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-20704

Drilling Completion Date 12/17/86

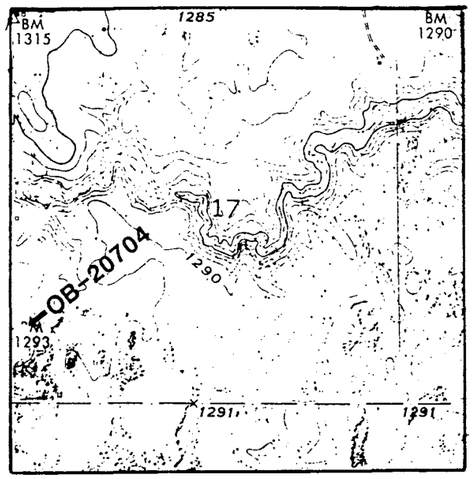
LOCATION (see map at right)

S-T-R SW¼-SW¼-17-62N-21W

County St. Louis

Quadrangle Bear River 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1290 ft.

Total Depth 102 ft.

Elevation, Top of Precambrian Bedrock 1192 ft.

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-80 | Des Moines Lobe Gl. Drift | | | |
| 80-98 | Rainy Lobe Gl. Drift | F | B,C | C = Ag |
| 98-102 | Bedrock | F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Graywacke. Dark gray, moderately to weakly foliated graywacke. Grain size 0.05-0.1 sugar, 0.2-1.0 relict sand. Sugary texture with 20% relict sand. Comprised of 20% biotite, 60% qtz.-plag. sugar and 20% relict sand including 5-10% blue to colorless qtz., 5% plag., and 5% cherty lithics. 0.5% dissem. py. 0.1% dissem. magnetite. (By ODM, see report in Appendix)

Thin Section Number: #18624.



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) TABLE SPLIT | +10 CHIPS | TABLE FEED | WEIGHT (GRAMS DRY) TABLE CONC | M. I. CONC M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | AU NO. V.G. | CALC PPB | DESCRIPTION CLAST SIZE | CLAST % V/S | GR | LS | OT | MATRIX S/U | SD | ST | CY | COLOR SD | CY | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18622R | 8.7 | 0.0 | 8.7 | 294.0 | 168.3 | 125.7 | 108.5 | 17.2 | 1 | 35 | TR | NA | NA | NA | NA | U | Y | Y | Y | GB | GB | TILL |
| -23 | 6.7 | 0.2 | 6.5 | 241.0 | 161.3 | 79.7 | 68.8 | 10.9 | 0 | NA | P | 60 | 40 | NA | NA | U | Y | Y | Y | B | BGN | TILL |
| -22 | 10.1 | 0.4 | 9.7 | 348.8 | 233.3 | 115.5 | 98.5 | 17.0 | 1 | 220 | C | 50 | 50 | NA | NA | U | Y | Y | Y | B | BGN | TILL |
| -625 | 3.8 | 0.0 | 3.8 | 131.1 | 89.9 | 41.2 | 32.4 | 8.8 | 1 | 1 | | | | | | | | | | | | |
| 18747C | 7.8 | 0.1 | 7.7 | 214.8 | 145.8 | 69.0 | 59.2 | 9.8 | 0 | NA | G | 70 | 30 | NA | NA | U | Y | Y | N | B | NA | TILL |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -22 | Y | 150 X 350 | 46 C | 1 | | | | | | 1 | | | EST. 3% PYRITE |
| | | | | | | | | | | | | | 700 GRAINS |
| | | | | | | | | | | 1 | 98.5 | 220 | ARSENOPYRITE |
| | | | | | | | | | | | | | PHOTO REFERENCE #129 |
| 18622R | N | 125 X 150 | 27 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | | 1 | 108.5 | 35 | |
| -23 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 625 | Y | 25 X 25 | 5 C | | | | 1 | | | 1 | | | EST. 15% PYRITE |
| | | | | | | | | | | | | | 4% ARSENOPYRITE |
| | | | | | | | | | | 1 | 32.4 | 1 | PHOTOMICROGRAPH |
| | | | | | | | | | | | | | FILM REFERENCE #137 |
| 18747C | N | NO VISIBLE GOLD | | | | | | | | | | | |

FIELDNOTE SUMMARY LOG OB-20704, MUD ROTARY

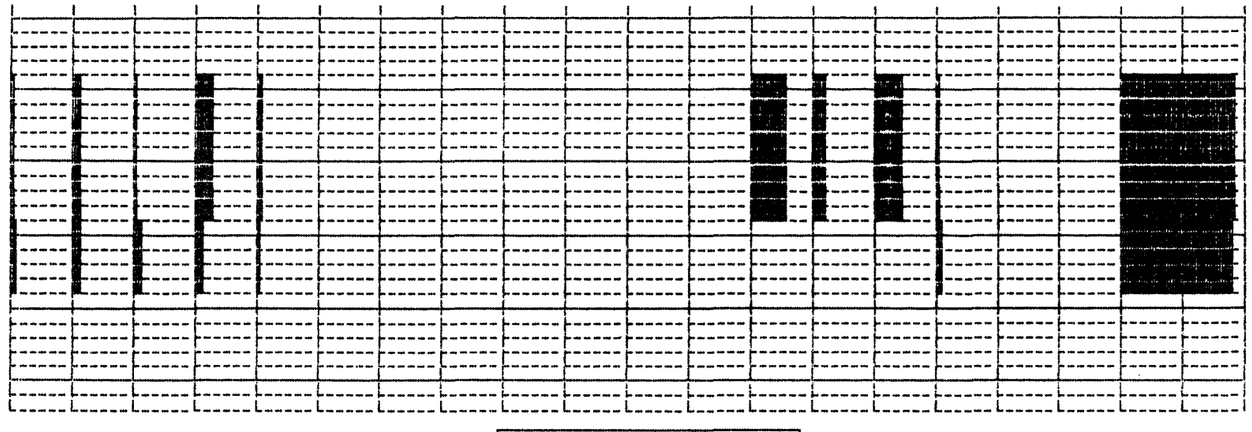
# OB-20704

Appendix 8-57B.

[ IN NON MAG HMC ][ IN -63 MICRON ][ IN MAG FRAC ]

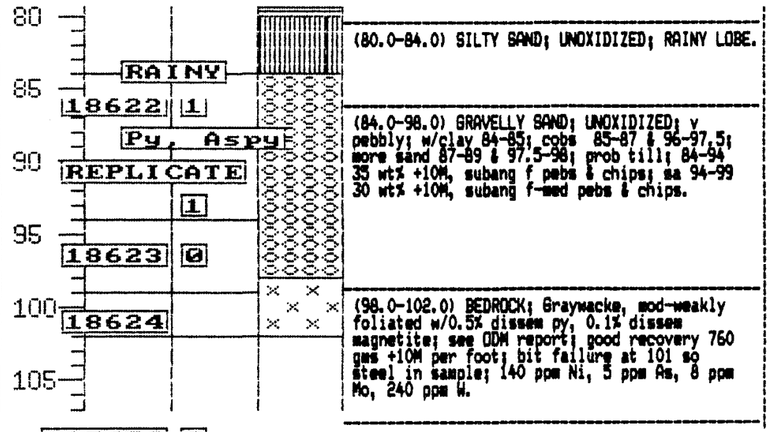
| ^200 As | ^500 Cu | ^5 Sb | ^25 Mo | ^6000 Ba | ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 FeX | ^500 Ni | ^50 Pb | ^100 Mo | NON MAG ^500 Au | -63 ^20 Au | -63 ^100 g/kg | NON MAG HMC ^10 g/kg | MAG ^2 g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | |

| (FEET) | HMC SAMPLE # | HMC # GOLD GRAINS; INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|---|
| | | DES MOINES | | |
| 5 | | | | (0.0-10.0) CLAY; OXIDIZED; depth of ox uncertain. |
| 10 | | | | |
| 15 | | | | |
| 20 | | | | |
| 25 | | | | |
| 30 | | | | |
| 35 | | | | |
| 40 | | | | (10.0-80.0) CLAY; UNOXIDIZED; lake sediments w/silty clay; some ls granules at 30; drilling rate w/drag bit in clay 38 ft per hour; softer clay 51-58. |
| 45 | | | | |
| 50 | | | | |
| 55 | | | | |
| 60 | | | | |
| 65 | | | | |
| 70 | | | | |
| 75 | | | | |



RECLEANED 84-99

SLUICE BOX 84-102




(80.0-84.0) SILTY SAND; UNOXIDIZED; RAINY LOBE.

(84.0-98.0) GRAVELLY SAND; UNOXIDIZED; v pebbly; w/clay 84-85; cobs 85-87 & 96-97.5; more sand 87-89 & 97.5-98; prob till; 84-94 35 wt% +10M, subang f pebs & chips; sa 94-99 30 wt% +10M, subang f-med pebs & chips.

(98.0-102.0) BEDROCK; Graywacke, mod-weakly foliated w/0.5% disseм py, 0.1% disseм magnetite; see ODM report; good recovery 760 gms +10M per foot; bit failure at 101 so steel in sample; 140 ppm Ni, 5 ppm As, 8 ppm Mo, 240 ppm W.

Appendix 8-57C.

## MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18622 | 20704 | 84-94 | 10. | M | O | SW-SW | 17 | 62 | 21 | SL | RL. GVL. SAND | 84-94 | 1.0 | 10100.0 | -2.0 | 98.5 | 17.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18622R | 20704 | 84-94 | 10.0 | M | O | SW-SW | 17 | 62 | 21 | SL | RL. GVL. SAND | 84-94 | 1.0 | 8700.0 | -2.0 | 108.5 | 17.2 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18747C | 20704 | 84-99 | 15. | M | O | SW-SW | 17 | 62 | 21 | SL | SPECIAL SAMPLE | 84-99 | 0.0 | 7800.0 | -2.0 | 59.2 | 9.8 | -1.0 | -1.0 | -1 | -1 | -1 | RECLEANED +10M MAT'L |
| 18623 | 20704 | 94-99 | 5. | M | O | SW-SW | 17 | 62 | 21 | SL | RL. GVL. SAND | 94-99 | 0.0 | 6700.0 | -2.0 | 68.8 | 10.9 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18624 | 20704 | 99-102 | 3. | M | O | SW-SW | 17 | 62 | 21 | SL | BEDROCK | | -1.0 | -1.0 | -2.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18625 | 20704 | 84-102 | 18. | M | O | SW-SW | 17 | 62 | 21 | SL | SLUICE BOX | 84-102 | 1.0 | 3800.0 | -2.0 | 32.4 | 8.8 | -1.0 | -1.0 | -1 | -1 | -1 | |

## NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18622 | 21 | 0.58 | 555 | 180 | 4700 | 10.90 | 40 | 120 | 66 | 170 | 0 | 5 | -10 | 7 | -0.5 | 0 | -10 | -0.3 | 500 | 262 | 25 | 6 | 110 | 26 | -2 | 33.0 | 4.5 | 10 | 72.20 |
| 18747C | -15 | 0.60 | 486 | 230 | 4300 | 14.90 | 70 | 160 | 57 | 190 | 0 | 13 | -10 | 3 | -0.5 | 0 | -10 | 0.8 | 400 | 225 | 27 | 5 | 180 | 22 | -2 | 27.0 | 3.3 | 8 | 43.30 |
| 18623 | 49 | 0.52 | 421 | 270 | 4100 | 14.60 | 70 | 210 | 67 | 150 | 0 | 15 | -10 | 3 | -0.5 | 0 | -10 | 0.7 | -300 | 210 | 23 | 5 | 240 | 25 | -2 | 29.0 | 4.3 | 10 | 50.30 |
| 18625 | -26 | 0.55 | 756 | 310 | 4000 | 15.70 | 80 | 180 | 77 | 170 | 0 | 13 | -90 | 7 | -0.5 | 0 | -10 | -0.5 | -400 | 409 | 48 | 6 | 630 | 26 | -2 | 48.0 | 4.0 | 9 | 48.70 |

## MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18622 | 1.300 | 2.50 | 1200 | 290 | 74 | 230 | -1 | 43 | 1.5 | 10 | 1.7 |

## BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18624 | -7 | 0.3 | 5.0 | 800 | 0.0 | 2 | 52.0 | 0.0 | 70 | 30 | 0 | -2 | -100 | 4.6 | 29 | 0.0 | 8 | 140 | 0 | 0.00 | 0.0 | -10 | 0 | 3.00 | -1.0 | -10 | 0.0 | 4.8 | -10 | 240 | 1.3 | 0 | 0 | 0 |

## BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FED % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18624 | 45 | 17 | 79 | 0 | 1.5 | 0 | 0 | 0 | 0.00 | 3 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | -2 | 0.00 | 0 |

**Appendix 8-58A.** DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-20705

Drilling Completion Date 2/7/87

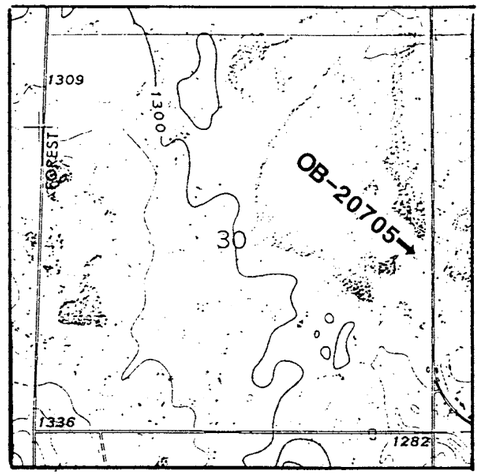
LOCATION (see map at right)

S-T-R NE¼-SE¼-30-62N-21W

County St. Louis

Quadrangle Bear River 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1290 ft.

Total Depth 217 ft.

Elevation, Top of Precambrian Bedrock

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-78 | Des Moines Lobe Gl. Drift | | | |
| 78-217 | Rainy Lobe Gl. Drift | F | B,C | B = Se |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type:

Thin Section Description:



# HEAVY MINERAL CONCENTRATE REPORT

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) TABLE SPLIT | +10 CHIPS | TABLE FEED | WEIGHT (GRAMS DRY) TABLE CONC | M.I. LIGHTS | M. I. CONC TOTAL | NON MAG | MAG | AU NO. V.G. | AU CALC PPB | DESCRIPTION CLAST SIZE | CLAST % V/S | GR | LS | OT | MATRIX S/U | SD | ST | CY | COLOR SD | CY | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18728 | 9.7 | 0.6 | 9.1 | 106.6 | 64.8 | 41.8 | 31.0 | 10.8 | 0 | NA | P | 50 | 50 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -729 | 11.5 | 0.6 | 10.9 | 175.5 | 144.8 | 30.7 | 23.4 | 7.3 | 0 | NA | C | 50 | 50 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -730 | 10.6 | 0.9 | 9.7 | 165.6 | 121.9 | 43.7 | 34.6 | 9.1 | 1 | 1626 | C | 45 | 55 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -731 | 8.1 | 0.4 | 7.7 | 144.7 | 85.0 | 59.7 | 46.1 | 13.6 | 0 | NA | P | 55 | 45 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -732 | 11.0 | 0.2 | 10.8 | 181.3 | 115.8 | 65.5 | 49.9 | 15.6 | 0 | NA | P | 20 | 80 | NA | NA | U | Y | Y | Y | B | GB | TILL |
| -733 | 12.6 | 0.2 | 12.4 | 177.7 | 122.3 | 55.4 | 44.5 | 10.9 | 0 | NA | P | 35 | 65 | NA | NA | U | Y | Y | N | B | NA | TILL |
| -734 | 9.8 | 0.0 | 9.8 | 239.0 | 136.6 | 102.4 | 88.5 | 13.9 | 0 | NA | TR | NA | NA | NA | NA | S | M,C | Y | N | B | NA | SAND |
| -735 | 12.2 | 0.1 | 12.1 | 209.3 | 128.2 | 81.1 | 70.4 | 10.7 | 0 | NA | P | 45 | 55 | NA | NA | S | M,C | Y | N | B | NA | SAND |
| 18736 | 8.4 | 0.4 | 8.0 | 200.3 | 121.5 | 78.8 | 69.2 | 9.6 | 0 | NA | P | 35 | 65 | NA | NA | U | Y | Y | N | B | NA | TILL |
| 18737 | 4.9 | 0.0 | 4.9 | 156.2 | 98.6 | 57.6 | 43.9 | 13.7 | 1 | 15 | | | | | | | | | | | | |

**GOLD CLASSIFICATION**

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18728 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -729 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -730 | N | 250 X 450 | 61 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | | 1 | 34.6 | 1626 | |
| -731 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -732 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -733 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -734 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -735 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18736 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18737 | Y | 75 X 75 | 15 C | | 1 | | | | | 1 | | | EST. 7% PYRITE 15 GRAINS |
| | | | | | | | | | | 1 | 43.9 | 15 | ARSENOPYRITE |

FIELDNOTE SUMMARY LOG OB-20705, MUD ROTARY

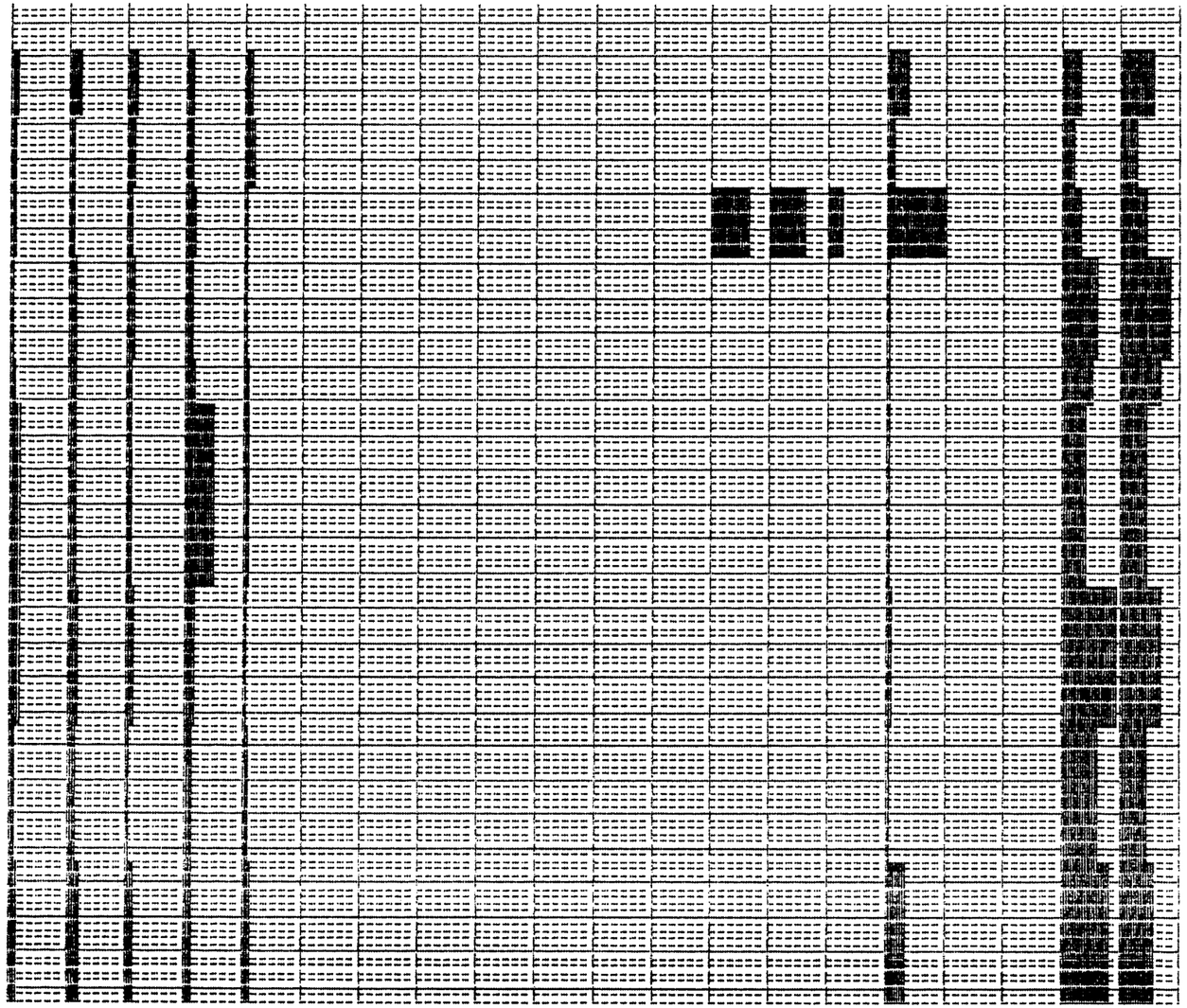
[ IN NON MAG HMC ]I IN -63 MICRON ]I IN MAG FRAC ]

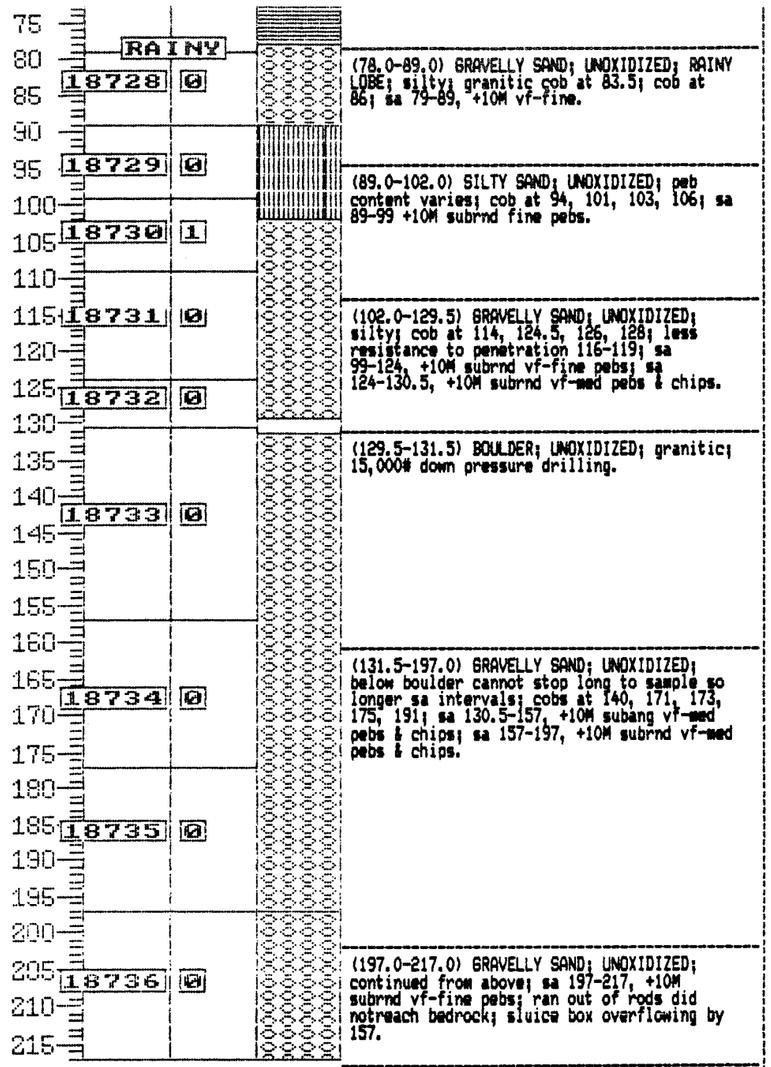
| ^200 As | ^600 Cu | ^5 Sb | ^25 Mo | ^5000 Ba | ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 Fe% | ^300 Ni | ^50 Pb | ^100 Mo | NON MAG -63 ^500 Au | -63 ^20 Au | -63 ^100 g/kg | NON MAG HMC ^10 g/kg | MAG ^2 g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | |

# OB-20705

| (FEET) | HMC SAMPLE # | HMC # GOLD GRAINS; INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|---|
| | | DES MOINES | | |
| 5 | | | | (0.0-6.0) CLAY; OXIDIZED; lake sediments, w/6 inches peat on top. |
| 10 | | | | |
| 15 | | | | |
| 20 | | | | |
| 25 | | | | |
| 30 | | | | |
| 35 | | | | |
| 40 | | | | |
| 45 | | | | (6.0-78.0) CLAY; UNOXIDIZED; lake sediments, w/silty clay, gray; cob at 19 & 26; sl reddish color at 50; transition to gravelly sand 78-79. |
| 50 | | | | |
| 55 | | | | |
| 60 | | | | |
| 65 | | | | |
| 70 | | | | |

Appendix 8-58B.




(78.0-89.0) GRAVELLY SAND; UNOXIDIZED; RAINY LOBE; silty; granitic cob at 83.5; cob at 86; sa 79-89, +10M vf-fine.

(89.0-102.0) SILTY SAND; UNOXIDIZED; peb content varies; cob at 94, 101, 103, 106; sa 89-99 +10M subrnd fine pebs.

(102.0-129.5) GRAVELLY SAND; UNOXIDIZED; silty; cob at 114, 124.5, 126, 128; less resistance to penetration 116-119; sa 99-124, +10M subrnd vf-fine pebs; sa 124-130.5, +10M subrnd vf-med pebs & chips.

(129.5-131.5) BOULDER; UNOXIDIZED; granitic; 15,000# down pressure drilling.

(131.5-197.0) GRAVELLY SAND; UNOXIDIZED; below boulder cannot stop long to sample so longer sa intervals; cobs at 140, 171, 173, 175, 191; sa 130.5-157, +10M subang vf-med pebs & chips; sa 157-197, +10M subrnd vf-med pebs & chips.

(197.0-217.0) GRAVELLY SAND; UNOXIDIZED; continued from above; sa 197-217, +10M subrnd vf-fine pebs; ran out of rods did notreach bedrock; sluice box overflowing by 157.

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18728 | 20705 | 79-89 | 10. | M | D | NE-SE | 30 | 62 | 21 | SL | RL. GVL. SAND | 79-89 | 0.0 | 9700.0 | -2.0 | 31.0 | 10.8 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18729 | 20705 | 89-99 | 10. | M | D | NE-SE | 30 | 62 | 21 | SL | RL. SILTY SAND | 89-99 | 0.0 | 11500.0 | -2.0 | 23.4 | 7.3 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18730 | 20705 | 99-109 | 10. | M | D | NE-SE | 30 | 62 | 21 | SL | RL. GVL. SAND | 99-109 | 1.0 | 10600.0 | -2.0 | 34.6 | 9.1 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18731 | 20705 | 109-124 | 15. | M | D | NE-SE | 30 | 62 | 21 | SL | RL. SILTY SAND | 109-124 | 0.0 | 8100.0 | -2.0 | 46.1 | 13.6 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18732 | 20705 | 124-130.5 | 6.5 | M | D | NE-SE | 30 | 62 | 21 | SL | RL. GVL. SAND | 124-130.5 | 0.0 | 11000.0 | -2.0 | 49.9 | 15.6 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18733 | 20705 | 130.5-157 | 26.5 | M | D | NE-SE | 30 | 62 | 21 | SL | RL. GVL. SAND | 130.5-157 | 0.0 | 12600.0 | -2.0 | 44.5 | 10.9 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18734 | 20705 | 157-177 | 20. | M | D | NE-SE | 30 | 62 | 21 | SL | RL. GVL. SAND | 157-177 | 0.0 | 9800.0 | -2.0 | 88.5 | 13.9 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18735 | 20705 | 177-197 | 20. | M | D | NE-SE | 30 | 62 | 21 | SL | RL. GRAVEL | 177-197 | 0.0 | 12200.0 | -2.0 | 70.4 | 10.7 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18736 | 20705 | 197-217 | 20. | M | D | NE-SE | 30 | 62 | 21 | SL | RL. GVL. SAND | 197-217 | 0.0 | 8400.0 | -2.0 | 69.2 | 9.6 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18737 | 20705 | 79-217 | -3.0 | M | D | NE-SE | 30 | 62 | 21 | SL | SLUICE BOX | 79-217 | 1.0 | 4900.0 | -2.0 | 43.9 | 13.7 | -1.0 | -1.0 | -1 | -1 | -1 | ST(-3)=138 |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18728 | 180 | 0.39 | 0 | 380 | 7400 | 17.00 | 70 | 130 | 130 | 170 | 0 | 20 | 50 | 3 | -0.5 | 0 | -10 | 0.8 | 600 | 398 | 45 | 7 | 8 | 28 | -2 | 110.0 | 9.1 | 3 | 11.40 |
| 18729 | 68 | 0.27 | 0 | 490 | 11000 | 20.80 | 60 | 120 | 56 | 160 | 0 | 12 | 30 | 3 | -0.5 | 0 | -10 | 0.7 | -1000 | 409 | 54 | 12 | 9 | 38 | -2 | 150.0 | 6.0 | 2 | 10.80 |
| 18730 | 1300 | 0.40 | 0 | 360 | 8600 | 17.80 | 60 | 120 | 54 | 160 | 0 | 13 | -10 | 4 | -0.5 | 0 | -10 | 0.4 | 300 | 289 | 38 | 6 | -5 | 20 | -2 | 84.0 | 7.8 | 3 | 10.90 |
| 18731 | -18 | 0.51 | 0 | 260 | 6800 | 14.50 | 50 | 110 | 60 | 160 | 0 | 10 | -10 | 3 | -0.5 | 0 | -10 | 0.5 | 300 | 264 | 37 | 5 | 6 | 21 | -2 | 58.0 | 6.1 | 6 | 11.70 |
| 18732 | -18 | 0.47 | 0 | 300 | 6700 | 16.70 | 60 | 110 | 66 | 170 | 0 | 15 | -20 | 4 | -0.5 | 0 | -10 | 0.4 | 500 | 330 | 45 | 8 | 8 | 29 | -2 | 86.0 | 45.0 | 5 | 11.80 |
| 18733 | -18 | 0.27 | 0 | 320 | 10000 | 22.30 | 70 | 130 | 71 | 160 | 0 | 29 | 20 | 12 | -0.5 | 0 | -10 | 0.4 | -400 | 302 | 34 | 8 | 6 | 28 | -2 | 96.0 | 11.5 | 4 | 9.76 |
| 18734 | 49 | 0.15 | 0 | 190 | 12000 | 20.40 | 50 | 110 | 89 | 140 | 0 | 33 | -10 | 4 | -0.5 | 0 | -10 | 0.5 | 300 | 191 | 21 | 2 | 5 | 34 | -2 | 46.0 | 4.3 | 9 | 12.40 |
| 18735 | -14 | 0.14 | 0 | 180 | 12000 | 20.40 | 50 | 110 | 76 | 140 | 0 | 17 | -10 | 3 | -0.5 | 0 | -10 | 0.3 | 400 | 180 | 19 | 4 | 4 | 50 | -2 | 50.0 | 4.9 | 6 | 11.90 |
| 18736 | 170 | 0.12 | 0 | 180 | 12000 | 23.30 | 60 | 110 | 120 | 140 | 0 | 26 | -10 | 3 | -0.5 | 0 | -10 | 0.7 | 600 | 182 | 25 | 3 | -4 | 48 | -2 | 53.0 | 4.9 | 8 | 11.60 |
| 18737 | 42 | 0.41 | 737 | 330 | 7500 | 16.80 | 60 | 130 | 82 | 170 | 0 | 17 | -10 | 4 | -0.5 | 0 | -10 | -0.4 | -300 | 395 | 55 | 12 | 21 | 27 | -2 | 100.0 | 8.9 | 9 | 33.60 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18730 | 1.400 | 4.50 | 1400 | 320 | 36 | 330 | -1 | 23 | -0.5 | 29 | 0.9 |

**Appendix 8-59A.** DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-20801

Drilling Completion Date 2/11/86

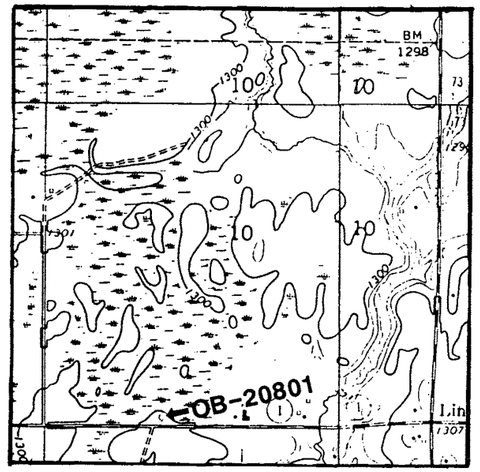
LOCATION (see map at right)

S-T-R SE¼-SW¼-10-62N-20W

County St. Louis

Quadrangle Meadowbrook 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1300 ft.

Total Depth 137 ft.

Elevation, Top of Precambrian Bedrock Not known

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-50.5 | Des Moines Lobe Gl. Drift | No | No | |
| 50.5-139 | Rainy Lobe Gl. Drift | F | B,C | B = Au,As,Ag,Sb W,Pb,Bi,Se,Cr, Fe,Ni,Cu,Sn<br>C = Ag,As,Pb,Mo, Se,Cu,Ni,Cr |

Gold particle micrographs from Scanning Electron Microscope are also available.

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type:

Thin Section Description:



# OB-20801

## HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18605 | 11.0 | 5.4 | 5.6 | 163.3 | 162.1 | 21.2 | 16.7 | 4.5 | 2 | 101 | C | 90 | 10 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -06 | 11.6 | 0.0 | 11.6 | 299.4 | 254.7 | 44.7 | 35.6 | 9.1 | 6 | 1160 | TR | NA | NA | NA | NA | U | Y | Y | Y | B | B | TILL |
| 18606R | 16.0 | 0.0 | 16.0 | 404.4 | 322.1 | 82.3 | 68.0 | 14.3 | 2 | 31 | TR | NA | NA | NA | NA | U | Y | Y | Y | GB | GB | TILL |
| -07 | 13.1 | 0.1 | 13.0 | 344.3 | 302.1 | 42.2 | 34.3 | 7.9 | 0 | NA | P | 50 | 50 | NA | NA | U | Y | Y | Y | GB | GB | TILL |
| -08 | 12.8 | 0.0 | 12.8 | 339.1 | 289.7 | 49.4 | 37.6 | 11.8 | 0 | NA | TR | NA | NA | NA | NA | U | Y | Y | Y | B | B | TILL |
| -09 | 13.7 | 0.0 | 13.7 | 203.9 | 151.0 | 52.9 | 39.9 | 13.0 | 3 | 35 | TR | NA | NA | NA | NA | U | Y | Y | Y | B | B | TILL |
| 18609R | 10.5 | 0.0 | 10.5 | 154.9 | 116.4 | 38.5 | 29.8 | 8.7 | 3 | 78 | TR | NA | NA | NA | NA | U | Y | Y | Y | B | B | TILL |
| -10 | 7.9 | 0.0 | 7.9 | 172.9 | 139.9 | 33.0 | 30.1 | 2.9 | 0 | NA | TR | NA | NA | NA | NA | U | Y | Y | Y | B | BGN | TILL |
| 18611 | 12.8 | 0.2 | 12.6 | 158.8 | 54.6 | 104.2 | 49.2 | 55.0 | 7 | 48 | P | 70 | 30 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -12 | 7.2 | 0.0 | 7.2 | 198.1 | 148.8 | 49.3 | 46.7 | 2.6 | 2 | 5 | TR | NA | NA | NA | NA | U | Y | Y | Y | BGN | BGN | TILL |
| 18612R | 13.0 | 0.0 | 13.0 | 233.6 | 134.2 | 99.4 | 94.5 | 4.9 | 13 | 125 | TR | NA | NA | NA | NA | U | Y | Y | Y | GNB | GNB | TILL |
| 18613 | 3.3 | 0.0 | 3.3 | 107.8 | 79.7 | 28.1 | 22.9 | 5.2 | 25 | 228 | | | | | | | | | | | | |
| 18744C | 13.3 | 0.1 | 13.2 | 309.5 | 262.8 | 46.7 | 38.7 | 8.0 | 0 | NA | G | 75 | 25 | NA | NA | U | Y | Y | N | B | NA | TILL |

## GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18605 | Y | 50 X 50 | 10 C | | 1 | | | | | 1 | | | EST. 30% PYRITE |
| | | 75 X 125 | 20 C | | 1 | | | | | 1 | | | 2% ARSENOPYRITE |
| | | | | | | | | | | | | | PHOTO REFERENCE #130 |
| | | | | | | | | | | 2 | 16.7 | 101 | |
| -06 | Y | 50 X 50 | 10 C | | | | 2 | | | 2 | | | EST. 35% PYRITE |
| | | 100 X 200 | 29 C | | 1 | | | | | 1 | | | 2% PYRITE |
| | | 125 X 125 | 25 C | | 1 | | | | | 1 | | | PHOTO REFERENCE #129 |
| | | 150 X 250 | 38 C | 1 | | | | | | 1 | | | |
| | | 250 X 250 | 46 C | | 1 | | | | | 1 | | | |
| | | | | | | | | | | 6 | 35.6 | 1160 | |
| 18606R | Y | 75 X 75 | 15 C | | 1 | | | | | 1 | | | EST. 20% PYRITE |
| | | 75 X 125 | 20 C | 1 | | | | | | 1 | | | 0.5% ARSENOPYRITE |
| | | | | | | | | | | 2 | 68.0 | 31 | |
| -07 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -08 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -09 | Y | 25 X 25 | 5 C | 1 | | | | | | 1 | | | EST. 20% PYRITE |
| | | 50 X 75 | 13 C | 1 | | | | | | 1 | | | |
| | | 75 X 100 | 18 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | | 3 | 39.9 | 35 | |
| 18609R | Y | 25 X 75 | 10 C | 1 | | | | | | 1 | | | EST. 10% PYRITE |
| | | 75 X 75 | 15 C | 1 | | | | | | 1 | | | 0.25% ARSENOPYRITE |
| | | 100 X 100 | 20 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | | 3 | 29.8 | 78 | |
| -10 | Y | NO VISIBLE GOLD | | | | | | | | | | | EST. 75% PYRITE |
| 18611 | Y | 25 X 25 | 5 C | | | | | 3 | | 3 | | | EST. 80% PYRITE, CRYSTALLINE |
| | | 25 X 50 | 8 C | | | | | 2 | | 2 | | | 500 GRAINS ARSENOPYRITE (FINE) |
| | | 50 X 100 | 15 C | 1 | | | | | | 1 | | | 100 GRAINS ARSENOPYRITE (COARSE) |
| | | 75 X 125 | 20 C | 1 | | | | | | 1 | | | PHOTOMICROGRAPH AVAILABLE |
| | | | | | | | | | | | | | FILM REFERENCE #136 |
| | | | | | | | | | | 7 | 49.2 | 48 | |
| -12 | Y | 25 X 25 | 5 C | 1 | | | | | | 1 | | | EST. 65% PYRITE |
| | | 50 X 50 | 10 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | | 2 | 46.7 | 5 | |



## GOLD CLASSIFICATION CONT.

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18612R | Y | 25 X 25 | 5 C | | | | | | 4 | 4 | | | EST. 60% PYRITE |
| | | 25 X 50 | 8 C | | | | | | 3 | 3 | | | 1000 GRAINS ARSENOPYRITE |
| | | 50 X 50 | 10 C | | | | | | 1 | 1 | | | |
| | | 50 X 75 | 13 C | | | | | | 2 | 2 | | | |
| | | 75 X 75 | 15 C | | | | | | 1 | 1 | | | |
| | | 100 X 125 | 22 C | | | | | 1 | | 1 | | | |
| | | 150 X 200 | 34 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | | 13 | 94.5 | 125 | |
| 18613 | Y | 25 X 25 | 5 C | | 1 | | | 1 | 5 | 7 | | | EST. 40% PYRITE |
| | | 25 X 50 | 8 C | | 1 | | | | 1 | 2 | | | 1% ARSENOPYRITE |
| | | 25 X 75 | 10 C | | | | | 3 | | 3 | | | PHOTOMICROGRAPH AVAILABLE |
| | | 25 X 125 | 15 C | | 1 | | | | | 1 | | | FILM REFERENCE #138 |
| | | 50 X 50 | 10 C | 1 | 1 | | | | 4 | 6 | | | |
| | | 50 X 75 | 13 C | | | 2 | | 2 | 1 | 5 | | | |
| | | 75 X 75 | 15 C | | 1 | | | | | 1 | | | |
| | | | | | | | | | | 25 | 22.9 | 228 | |
| 18744C | Y | NO VISIBLE GOLD | | | | | | | | | | | EST. 60% PYRITE |
| | | | | | | | | | | | | | 300 GRAINS |
| | | | | | | | | | | | | | ARSENOPYRITE |

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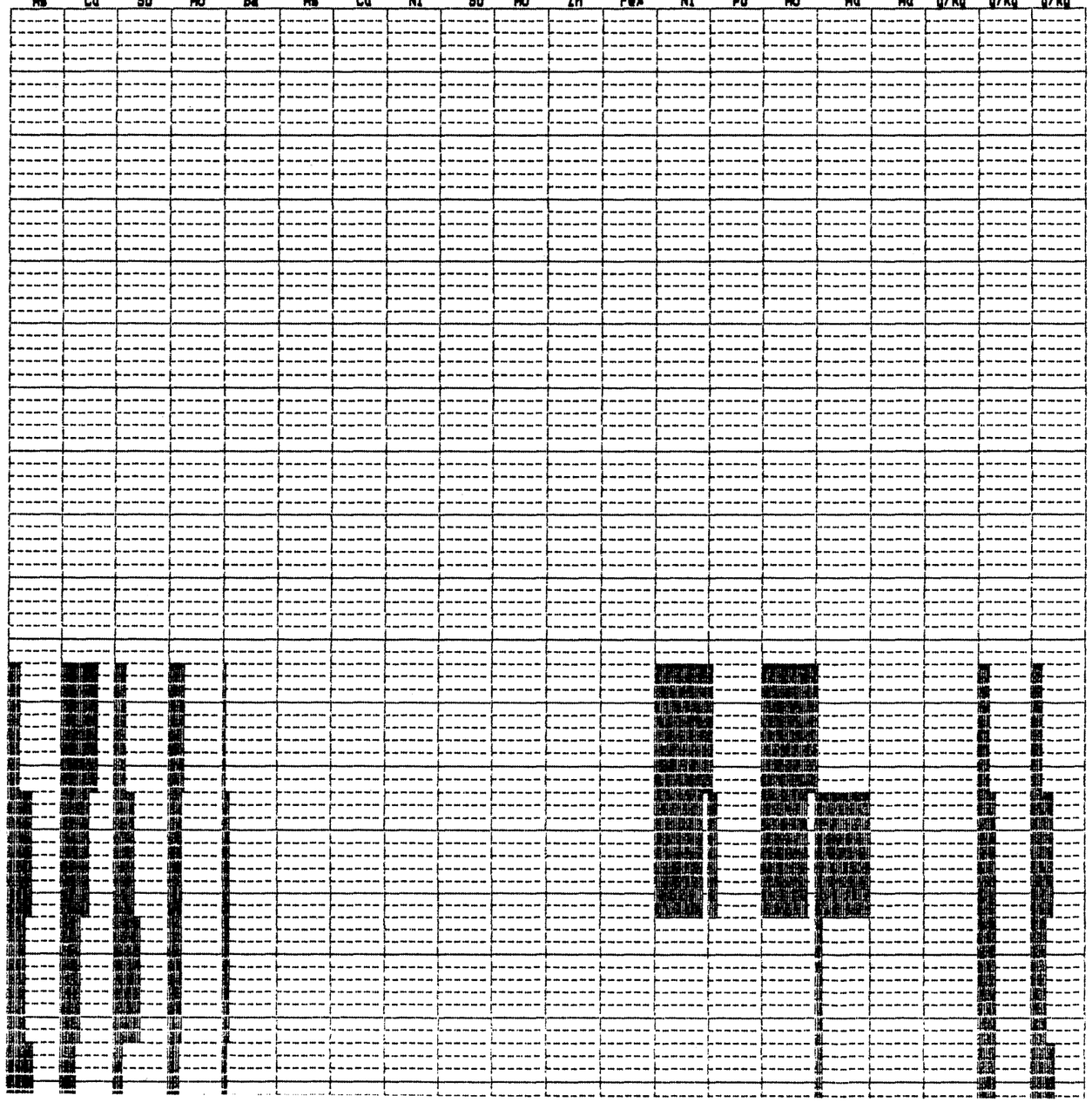
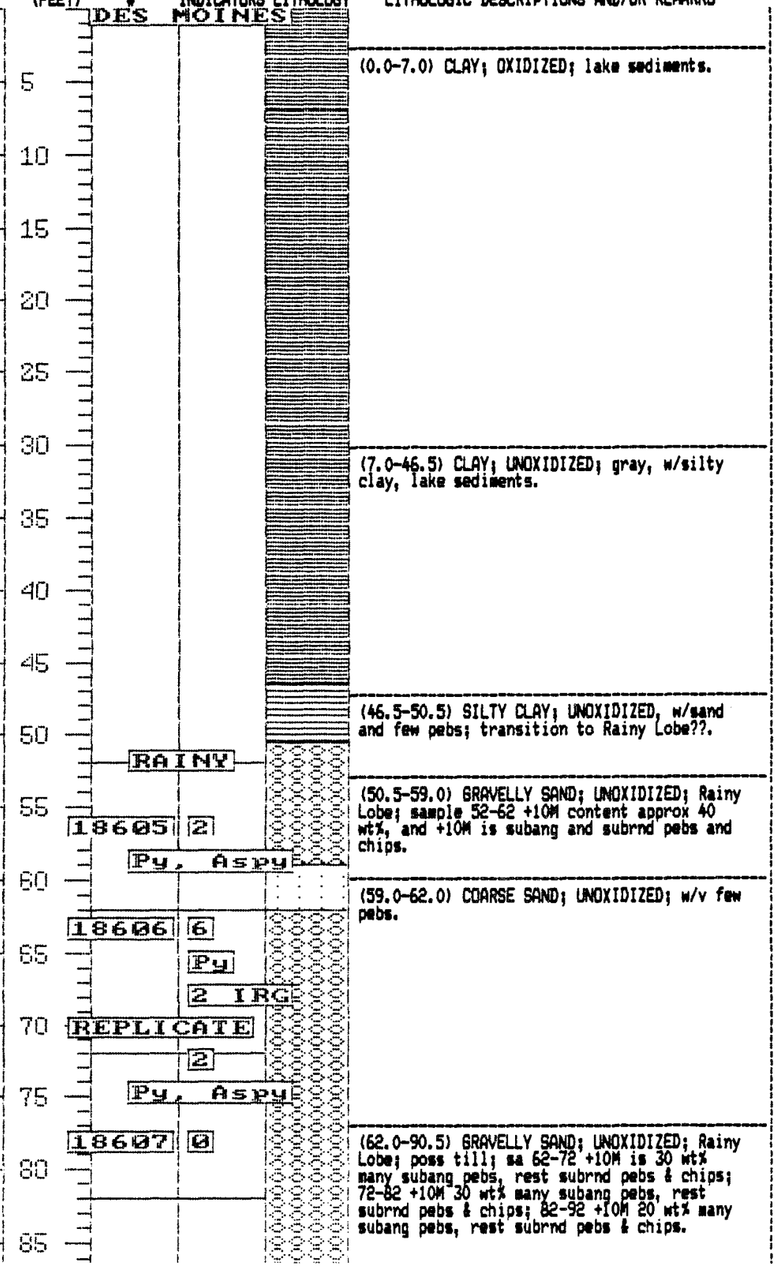
FIELDNOTE SUMMARY LOG OB-20801, MUD ROTARY

# OB-20801

Appendix 8-59B.




LITHOLOGIC DESCRIPTIONS AND/OR REMARKS

(0.0-7.0) CLAY; OXIDIZED; lake sediments.

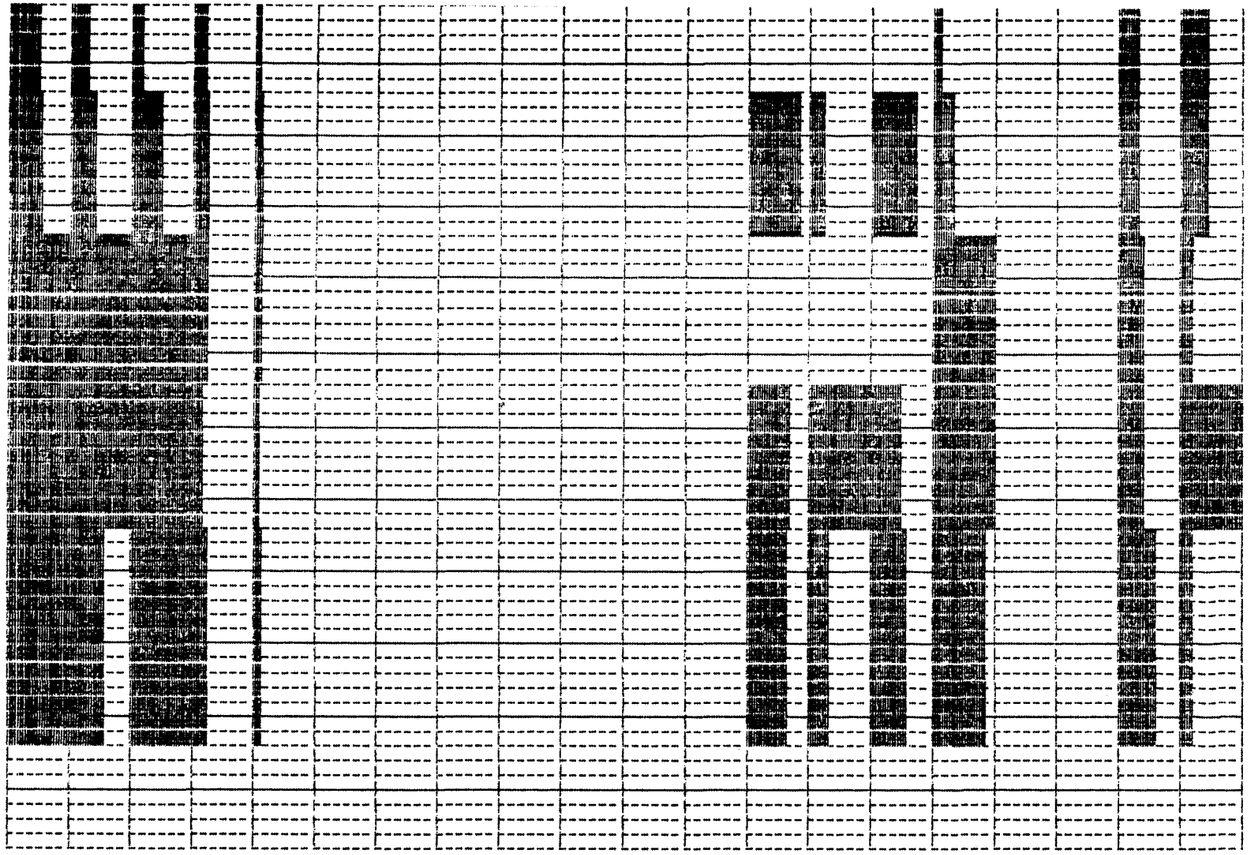
(7.0-46.5) CLAY; UNOXIDIZED; gray, w/silty clay, lake sediments.

(46.5-50.5) SILTY CLAY; UNOXIDIZED, w/sand and few pebs; transition to Rainy Lobe??.

(50.5-59.0) GRAVELLY SAND; UNOXIDIZED; Rainy Lobe; sample 52-62 +10M content approx 40 wt%, and +10M is subang and subrnd pebs and chips.

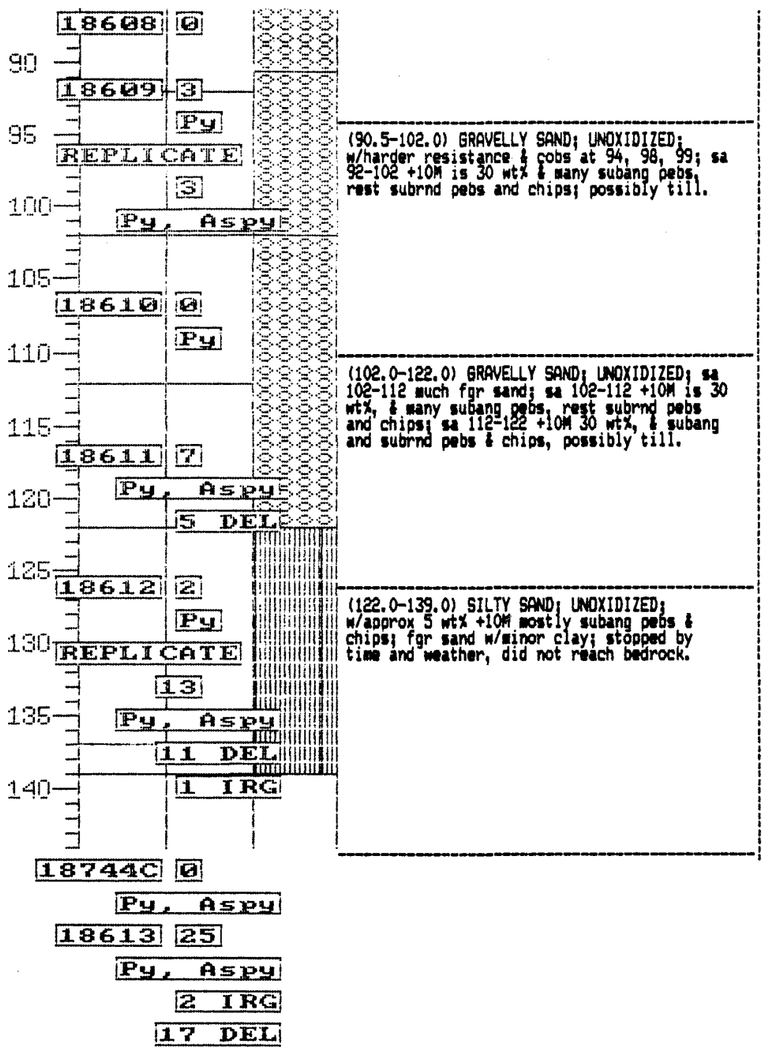
(59.0-62.0) COARSE SAND; UNOXIDIZED; w/v few pebs.

(62.0-90.5) GRAVELLY SAND; UNOXIDIZED; Rainy Lobe; poss till; sa 62-72 +10M is 30 wt% many subang pebs, rest subrnd pebs & chips; 72-82 +10M 30 wt% many subang pebs, rest subrnd pebs & chips; 82-92 +10M 20 wt% many subang pebs, rest subrnd pebs & chips.



RECLEANED 52-137

SLUICE BOX 52-137




(90.5-102.0) GRAVELLY SAND; UNOXIDIZED; w/harder resistance & cobs at 94, 98, 99; sa 92-102 +10M is 30 wt% & many subang pebs, rest subrnd pebs and chips; possibly till.

(102.0-122.0) GRAVELLY SAND; UNOXIDIZED; sa 102-112 much fgr sand; sa 102-112 +10M is 30 wt%, & many subang pebs, rest subrnd pebs and chips; sa 112-122 +10M 30 wt%, & subang and subrnd pebs & chips, possibly till.

(122.0-139.0) SILTY SAND; UNOXIDIZED; w/approx 5 wt% +10M mostly subang pebs & chips; fgr sand w/minor clay; stopped by time and weather, did not reach bedrock.

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18605 | 20801 | 52-62 | 10. | M | D | SE-SW | 10 | 62 | 20 | SL | RL. GVL. SAND | 52-62 | 2.0 | 11000.0 | -2.0 | 16.7 | 4.5 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18605R | 20801 | 52-62 | 10.0 | M | D | SE-SW | 10 | 62 | 20 | SL | RL. GVL. SAND | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 18606 | 20801 | 62-72 | 10. | M | D | SE-SW | 10 | 62 | 20 | SL | RL. GVL. SAND | 62-72 | 6.0 | 11600.0 | -2.0 | 35.6 | 9.1 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18606R | 20801 | 62-72 | 10.0 | M | D | SE-SW | 10 | 62 | 20 | SL | RL. GVL. SAND | 62-72 | 2.0 | 1600.0 | -2.0 | 68.0 | 14.3 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18607 | 20801 | 72-82 | 10. | M | D | SE-SW | 10 | 62 | 20 | SL | RL. GVL. SAND | 72-82 | 0.0 | 13100.0 | -2.0 | 34.3 | 7.9 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18608 | 20801 | 82-92 | 10. | M | D | SE-SW | 10 | 62 | 20 | SL | RL. GVL. SAND | 82-92 | 0.0 | 12800.0 | -2.0 | 37.6 | 11.8 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18608R | 20801 | 82-92 | 10.0 | M | D | SE-SW | 10 | 62 | 20 | SL | RL. GVL. SAND | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 18609 | 20801 | 92-102 | 10. | M | D | SE-SW | 10 | 62 | 20 | SL | RL. GVL. SAND | 92-102 | 3.0 | 13700.0 | -2.0 | 39.9 | 13.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18609R | 20801 | 92-102 | 10.0 | M | D | SE-SW | 10 | 62 | 20 | SL | RL. GVL. SAND | 92-102 | 3.0 | 10500.0 | -2.0 | 29.8 | 8.7 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18610 | 20801 | 102-112 | 10. | M | D | SE-SW | 10 | 62 | 20 | SL | RL. GVL. SAND | 102-112 | 0.0 | 7900.0 | -2.0 | 30.1 | 2.9 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18611 | 20801 | 112-122 | 10. | M | D | SE-SW | 10 | 62 | 20 | SL | RL. GVL. SAND | 112-122 | 7.0 | 12800.0 | -2.0 | 49.2 | 55.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18612 | 20801 | 122-137 | 15. | M | D | SE-SW | 10 | 62 | 20 | SL | RL. GVL. SAND | 122-137 | 2.0 | 7200.0 | -2.0 | 46.7 | 2.6 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18612R | 20801 | 122-137 | 15.0 | M | D | SE-SW | 10 | 62 | 20 | SL | RL. GVL. SAND | 122-137 | 13.0 | 13000.0 | -2.0 | 94.5 | 4.9 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18744C | 20801 | 52-137 | 85. | M | D | SE-SW | 10 | 62 | 20 | SL | SPECIAL SAMPLE | 52-137 | 0.0 | 13300.0 | -2.0 | 38.7 | 8.0 | -1.0 | -1.0 | -1 | -1 | -1 | RECLEANED +10M MAT'L |
| 18613 | 20801 | 52-137 | 85. | M | D | SE-SW | 10 | 62 | 20 | SL | SLUICE BOX | 52-137 | 25.0 | 3300.0 | -2.0 | 22.9 | 5.2 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18605 | 25 | 0.08 | 211 | 350 | 7500 | 13.30 | 160 | 270 | 410 | 110 | 0 | 41 | -10 | 7 | 1.0 | 0 | -10 | 1.1 | 300 | 124 | -2 | 3 | 550 | 66 | 4 | 49.0 | 5.4 | 2 | 15.40 |
| 18606 | 910 | 0.17 | 647 | 890 | 9300 | 30.30 | 310 | 260 | 320 | 110 | 0 | 90 | -20 | 6 | 1.0 | 0 | -10 | 1.9 | -600 | 396 | 48 | 12 | 690 | 69 | 3 | 160.0 | 14.1 | 3 | 26.00 |
| 18607 | 58 | 0.16 | 577 | 630 | 9400 | 26.50 | 220 | 210 | 210 | 120 | 0 | 67 | -10 | 6 | -0.5 | 0 | -10 | 2.4 | -600 | 373 | 51 | 10 | 610 | 75 | 2 | 140.0 | 15.6 | 3 | 25.50 |
| 18608 | 67 | 0.17 | 878 | 640 | 11000 | 25.40 | 190 | 190 | 160 | 110 | 0 | 98 | -30 | 5 | -0.5 | 0 | -10 | 0.9 | 400 | 564 | 78 | 8 | 400 | 81 | -2 | 230.0 | 23.9 | 3 | 27.60 |
| 18609 | 160 | 0.21 | 824 | 1700 | 9400 | 27.90 | 250 | 260 | 240 | 140 | 0 | 100 | 40 | 6 | -0.5 | 0 | -10 | 2.4 | -600 | 529 | 74 | 10 | 610 | 70 | 3 | 220.0 | 19.1 | 3 | 29.30 |
| 18610 | 600 | 0.15 | 339 | 1500 | 3500 | 39.20 | 730 | 470 | 660 | 440 | 0 | 320 | -20 | 5 | 1.0 | 0 | -10 | 6.3 | -600 | 181 | 60 | -4 | 230 | 93 | 7 | 71.0 | 12.0 | 4 | 22.20 |
| 18611 | 690 | 0.07 | 0 | 490 | 2400 | 34.50 | 560 | 550 | 660 | 170 | 0 | 490 | 30 | 4 | 2.0 | 0 | 35 | 4.8 | 400 | 143 | 39 | 5 | 210 | 187 | 7 | 60.0 | 6.0 | 4 | 12.90 |
| 18612 | 420 | 0.17 | 192 | 400 | 1800 | 34.80 | 690 | 570 | 330 | 140 | 0 | 360 | -10 | 6 | 1.5 | 0 | -10 | 10.0 | 600 | 124 | 92 | -3 | 91 | 151 | 10 | 47.0 | 9.5 | 6 | 34.40 |
| 18744C | 190 | 0.19 | 456 | 880 | 7400 | 35.50 | 410 | 280 | 350 | 150 | 0 | 160 | -20 | 7 | -0.5 | 0 | 71 | 4.5 | -600 | 293 | 35 | 9 | 1100 | 192 | 4 | 100.0 | 7.7 | 3 | 28.30 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | AS | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18605 | 1.300 | 2.70 | 2200 | 580 | 130 | 290 | 1 | 94 | 2.0 | 4 | 0.0 | 0.4 |
| 18605R | 0.950 | 2.50 | 2300 | 230 | 120 | 290 | 0.3 | 35 | -0.5 | 8 | 5.8 | 0 |
| 18606 | 0.990 | 3.50 | 2500 | 440 | 88 | 370 | -1 | 82 | 3.0 | 8 | 0.0 | 0.8 |
| 18606R | 0.680 | 3.00 | 3000 | 170 | 79 | 440 | 0.2 | 26 | -0.5 | 8 | 4.8 | 8.9 |
| 18607 | 0.730 | 3.50 | 1900 | 160 | 75 | 410 | -0.1 | 21 | -0.5 | 14 | 4.2 | 0 |
| 18608R | 0.530 | 3.50 | 1700 | 160 | 70 | 410 | -0.1 | 18 | -0.5 | 12 | 3.4 | 0 |
| 18609 | 1.000 | 4.00 | 2100 | 420 | 74 | 370 | 1 | 71 | 3.0 | 10 | 0.0 | 0.9 |
| 18609R | 0.510 | 3.30 | 2100 | 150 | 64 | 290 | 0.1 | 17 | -0.5 | 12 | 6.1 | 0.8 |
| 18610 | 0.760 | 2.80 | 2500 | 240 | 130 | 340 | 0.4 | 66 | -0.5 | 12 | 15.0 | 0 |
| 18611 | 0.960 | 3.00 | 1900 | 350 | 110 | 280 | -1 | 49 | -0.5 | 48 | 0.0 | 4.3 |
| 18612 | 0.900 | 3.20 | 2300 | 330 | 87 | 350 | 2 | 56 | 2.5 | 16 | 0.0 | 0.4 |
| 18612 | 0.460 | 2.80 | 2500 | 210 | 90 | 380 | 0.7 | 37 | -0.5 | 22 | 30.0 | 0.4 |

**Appendix 8-60A.** DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-20803

Drilling Completion Date 12/19/86

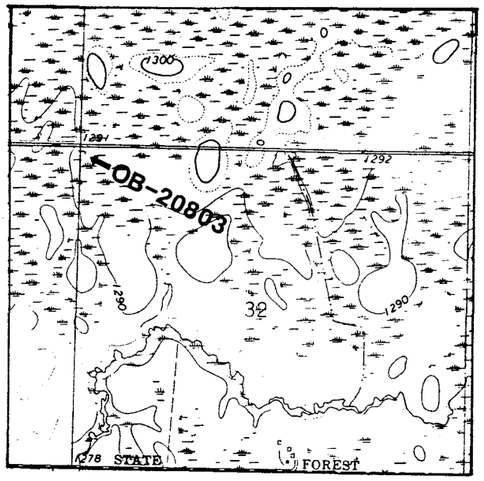
LOCATION (see map at right)

S-T-R NW¼-NW¼-32-62N-20W

County St. Louis

Quadrangle Meadowbrook 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1290 ft.

Total Depth 129 ft.

Elevation, Top of Precambrian Bedrock 1166 ft.

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-4 | Organic Sediments | | | |
| 4-90.5 | Des Moines Lobe Gl. Drift | | | |
| 90.5-124 | Rainy Lobe Gl. Drift | F | B,C | B = Au,As,Sb,Pb<br>C = Ag |
| 124-129 | Bedrock | F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Uncertain, probably Graywacke. Light gray and well foliated. Sugar 0.1%, relict sand to 0.5%. Sugary with 5% relict sand grains. Comprised of 80% qtz.-plag. sugar, 5% relict sand grains (mostly plag.), and 15% biotite to (mostly) chlorite. 0.1% dissem. py. (By ODM, see report in Appendix)

Thin Section Number: #18636.



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | MATRIX | | | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18732 | 9.9 | 0.0 | 9.9 | 151.4 | 115.3 | 36.1 | 29.1 | 7.0 | 0 | NA | TR | NA | NA | NA | NA | U | Y | Y | Y | B | B | TILL |
| -33 | 19.6 | 0.0 | 19.6 | 289.4 | 219.7 | 69.7 | 57.1 | 12.6 | 0 | NA | TR | NA | NA | NA | NA | U | Y | Y | Y | GB | GB | TILL |
| -34 | 16.9 | 0.0 | 16.9 | 233.7 | 166.9 | 66.8 | 53.3 | 13.5 | 0 | NA | TR | NA | NA | NA | A | U | Y | Y | Y | GB | GB | TILL |
| -35 | 13.3 | 0.0 | 13.3 | 259.7 | 216.4 | 43.3 | 36.1 | 7.2 | 0 | NA | TR | NA | NA | NA | NA | U | Y | Y | Y | GB | GB | TILL |
| -637 | 3.6 | 0.0 | 3.6 | 96.1 | 65.4 | 30.7 | 24.7 | 6.0 | 4 | 50 | | | | | | | | | | | | |
| 18749C | 10.5 | 0.0 | 10.5 | 129.1 | 96.6 | 32.5 | 29.7 | 2.8 | 0 | NA | TR | NA | NA | NA | NA | S | C | Y | N | B | NA | SAND |
| 18750C | 19.1 | 0.0 | 19.1 | 343.2 | 270.1 | 73.1 | 58.8 | 14.3 | 2 | 133 | TR | NA | NA | NA | NA | U | Y | Y | Y | GB | GB | TILL |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18732 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -33 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -34 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -35 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -637 | Y | 25 X 25 | 5 C | | 1 | | | | | 1 | | | EST. 10% PYRITE |
| | | 50 X 50 | 10 C | | | | | | 1 | 1 | | | 800 GRAINS |
| | | 50 X 75 | 13 C | 1 | | | | | | 1 | | | ARSENOPYRITE |
| | | 50 X 100 | 15 C | | 1 | | | | | 1 | | | (FINE) |
| | | | | | | | | | | 4 | 24.7 | 50 | |
| 18749C | Y | NO VISIBLE GOLD | | | | | | | | | | | EST. 7% PYRITE |
| 18750C | Y | 25 X 50 | 8 C | | 1 | | | | | 1 | | | EST. 10% PYRITE |
| | | 125 X 225 | 34 C | | 1 | | | | | 1 | | | |
| | | | | | | | | | | 2 | 58.8 | 133 | |

FIELDNOTES SUMMARY LOG OB-20803, MUD ROTARY

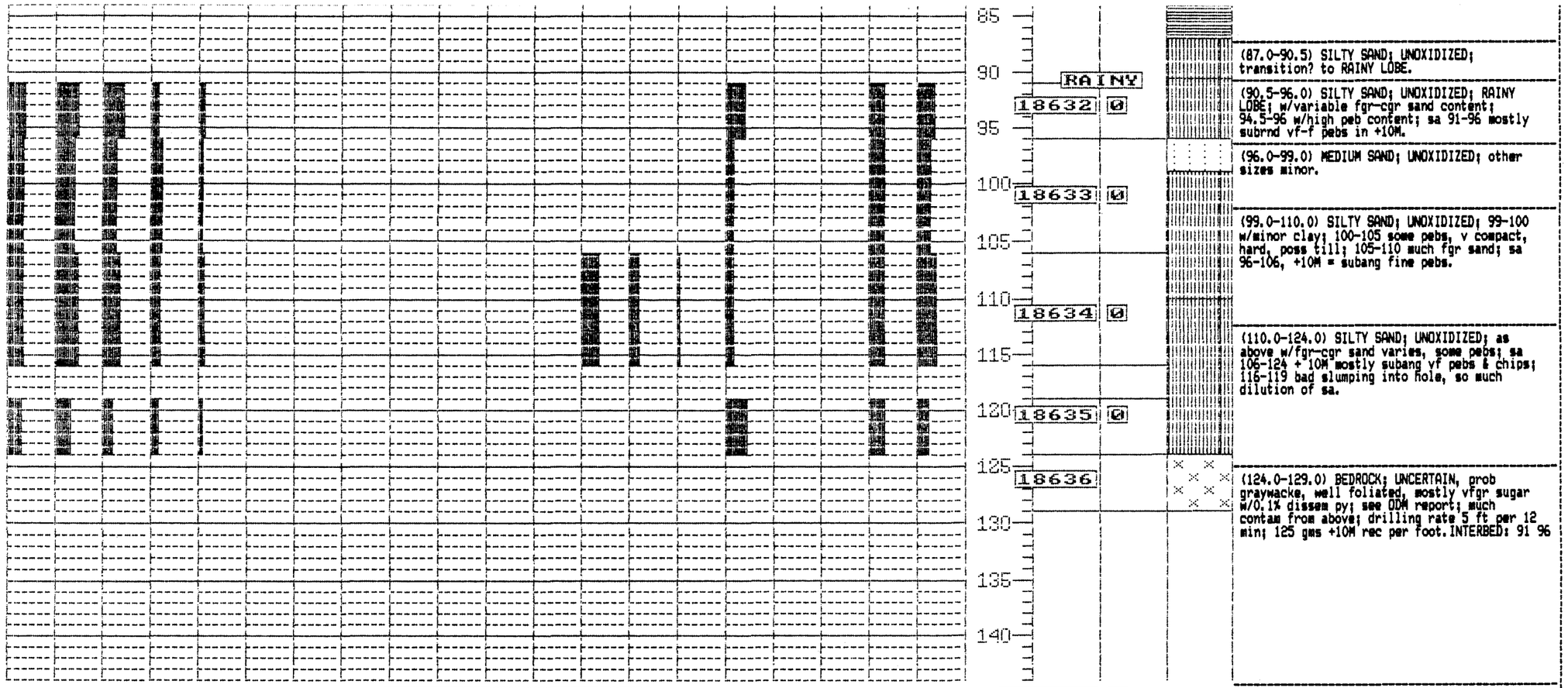
[ IN NON MAG HMC ][ IN -63 MICRON ][ IN MAG FRAC ]

| ^200 As | ^600 Cu | ^5 Sb | ^25 Mo | ^6000 Ba | ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 Fe% | ^500 Ni | ^50 Pb | ^100 Mo | NON MAG ^500 Au | -63 ^20 Au | -63 ^100 g/kg | NON MAG HMC ^10 g/kg | MAG ^2 g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

# OB-20803

Appendix 8-60B.

| (FEET) | HMC SAMPLE # | HMC # GOLD GRAINS; INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|---|
| 5 | | | DES MOINES | (0.0-4.0) ORGANIC SEDIMENTS; peat. |
| 10 | | | | (4.0-17.0) CLAY; OXIDIZED; only slight ox, still grayish, harder than usual to penetration. |
| 15 | | | | |
| 20 | | | | |
| 25 | | | | |
| 30 | | | | |
| 35 | | | | |
| 40 | | | | |
| 45 | | | | |
| 50 | | | | |
| 55 | | | | |
| 60 | | | | |
| 65 | | | | |
| 70 | | | | |
| 75 | | | | |
| 80 | | | | (17.0-87.0) CLAY; UNOXIDIZED; lake sediments, w/silty clay; drilling rate = 25 ft/hour; 79-87 softer clay. |




RECLEANED 106-116 — 18750C 2 Py

RECLEANED 91-124 — 18749C 0 Py

SLUICE BOX 91-129 — 18637 4 Py, Aspy; 1 DEL

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18632 | 20803 | 91-96 | 5. | M | O | NW-NW | 32 | 62 | 20 | SL | RL. SILTY SAND | 91-96 | 0.0 | 9900.0 | -2.0 | 29.1 | 7.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18633 | 20803 | 96-106 | 10. | M | O | NW-NW | 32 | 62 | 20 | SL | RL. SILTY SAND | 96-106 | 0.0 | 19600.0 | -2.0 | 57.1 | 12.6 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18634 | 20803 | 106-116 | 10. | M | O | NW-NW | 32 | 62 | 20 | SL | RL. SILTY SAND | 106-116 | 0.0 | 16900.0 | -2.0 | 53.3 | 13.5 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18750C | 20803 | 106-116 | 10. | M | O | NW-NW | 32 | 62 | 20 | SL | SPECIAL SAMPLE | 106-116 | 2.0 | 19100.0 | -2.0 | 58.8 | 14.3 | -1.0 | -1.0 | -1 | -1 | -1 | RECLEANED +10M MAT'L |
| 18635 | 20803 | 119-124 | 5. | M | O | NW-NW | 32 | 62 | 20 | SL | RL. SILTY SAND | 119-124 | 0.0 | 13300.0 | -2.0 | 36.1 | 7.2 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18636 | 20803 | 124-129 | 5. | M | O | NW-NW | 32 | 62 | 20 | SL | BEDROCK | | -1.0 | -1.0 | -2.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18749C | 20803 | 91-124 | 33. | M | O | NW-NW | 32 | 62 | 20 | SL | SPECIAL SAMPLE | 91-124 | 0.0 | 10500.0 | -2.0 | 29.7 | 2.8 | -1.0 | -1.0 | -1 | -1 | -1 | RECLEANED +10M MAT'L |
| 18637 | 20803 | 91-129 | 38. | M | O | NW-NW | 32 | 62 | 20 | SL | SLUICE BOX | 91-129 | 4.0 | 3600.0 | -2.0 | 24.7 | 6.0 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18632 | 200 | 0.25 | 822 | 820 | 9700 | 27.10 | 240 | 250 | 290 | 140 | 0 | 75 | -10 | 4 | 0.5 | 0 | -10 | 2.3 | 700 | 514 | 91 | 6 | 26 | 69 | 2 | 200.0 | 19.3 | 3 | 21.40 |
| 18633 | 88 | 0.17 | 568 | 750 | 10000 | 23.80 | 200 | 240 | 250 | 130 | 0 | 63 | -20 | 6 | 0.5 | 0 | -10 | 1.4 | 400 | 359 | 53 | 9 | 8 | 123 | 3 | 140.0 | 14.2 | 3 | 41.70 |
| 18634 | 86 | 0.15 | 635 | 960 | 10000 | 25.60 | 210 | 240 | 290 | 120 | 0 | 63 | -10 | 5 | -0.5 | 0 | -10 | 1.9 | 600 | 409 | 57 | 11 | 12 | 46 | 2 | 160.0 | 15.0 | 3 | 39.10 |
| 18750C | 100 | 0.16 | 656 | 1100 | 9800 | 29.80 | 240 | 210 | 250 | 150 | 0 | 99 | -10 | 5 | -0.5 | 0 | -10 | 1.6 | -600 | 465 | 72 | 12 | 20 | 66 | 3 | 170.0 | 14.8 | 3 | 43.00 |
| 18635 | 220 | 0.18 | 542 | 970 | 10000 | 25.60 | 200 | 220 | 200 | 120 | 0 | 55 | 70 | 4 | -0.5 | 0 | -10 | 1.1 | -500 | 331 | 42 | 10 | -6 | 40 | 2 | 130.0 | 11.4 | 3 | 26.40 |
| 18749C | 35 | 0.19 | 283 | 600 | 9300 | 23.60 | 180 | 180 | 190 | 120 | 0 | 82 | -10 | 3 | -0.5 | 0 | -10 | 2.8 | 600 | 183 | 18 | 4 | -12 | 91 | 2 | 66.0 | 7.3 | 3 | 14.70 |
| 18637 | 76 | 0.19 | 835 | 930 | 8200 | 22.60 | 210 | 320 | 220 | 160 | 0 | 33 | -10 | 6 | -0.5 | 0 | -10 | -0.6 | -500 | 461 | 140 | 6 | 60 | 69 | -2 | 180.0 | 15.9 | 7 | 18.20 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18634 | 1.200 | 4.30 | 2500 | 180 | 42 | 440 | -1 | 4 | 4.0 | 10 | 0.8 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18636 | -7 | -0.2 | 2.0 | 400 | 0.0 | 2 | 37.0 | 0.0 | 130 | 20 | 0 | 3 | -100 | 5.4 | 19 | 0.0 | 1 | 86 | 0 | 0.00 | 0.0 | -10 | 0 | 3.40 | -1.0 | -10 | 0.0 | 3.9 | -10 | -2 | 0.8 | 0 | 0 | 0 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18636 | 30 | 14 | 59 | 0 | 1.0 | 0 | 0 | 0 | 0.00 | 3 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | -2 | 0.00 | 0 |

## Appendix 8-61A. DRILL HOLE SUMMARY SHEET

### IDENTIFICATION

DNR Drill Hole Number OB-20804

Drilling Completion Date 2/11/86

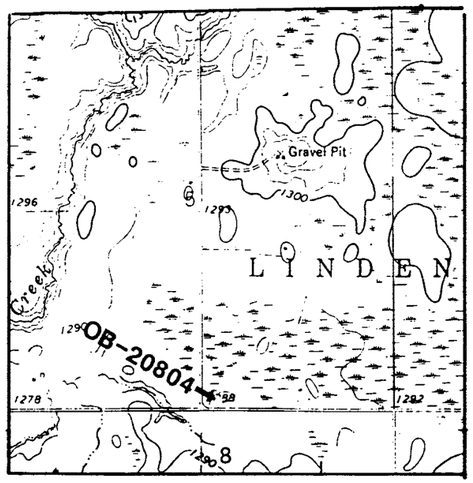
### LOCATION (see map at right)

S-T-R SW¼-SE¼-5-62N-20W

County St. Louis

Quadrangle Gheen N.W. 7.5

Regional Survey Area Orr




### HOLE PARAMETERS

Surface Elevation 1288 ft.

Total Depth 92 ft.

Elevation, Top of Precambrian Bedrock

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

### INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-64 | Des Moines Lobe Gl. Drift | | | |
| 64-92 | Rainy Lobe Gl. Drift | F | B,C | C = Ag,Ni,Co |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

### BEDROCK

Principal Rock Type:

Thin Section Description:



## HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18601 | 11.3 | 1.6 | 9.7 | 367.5 | 297.4 | 70.1 | 56.6 | 13.5 | 0 | NA | C | 85 | 15 | NA | NA | U | Y | Y | Y | BGN | BGN | TILL |
| -02 | 19.4 | 1.8 | 17.6 | 557.8 | 445.0 | 112.8 | 91.6 | 21.2 | 0 | NA | C | 90 | 10 | NA | NA | U | Y | Y | Y | GN | B | TILL |
| 18602R | 8.3 | 0.6 | 7.7 | 200.1 | 145.2 | 54.9 | 46.0 | 8.9 | 4 | 91 | P | 60 | 40 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -03 | 9.3 | 0.2 | 9.1 | 272.1 | 222.8 | 49.3 | 39.7 | 9.6 | 0 | NA | C | 85 | 15 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -04 | 3.2 | 0.2 | 3.0 | 82.9 | 71.3 | 11.6 | 9.7 | 1.9 | 0 | NA | P | 85 | 15 | NA | NA | U | Y | Y | Y | B | GN | TILL |
| 18604R | 6.4 | 0.0 | 6.4 | 164.8 | 133.5 | 31.3 | 25.0 | 6.3 | 2 | 48 | TR | NA | NA | NA | NA | U | Y | Y | Y | GB | GB | TILL |
| -621 | 2.9 | 0.0 | 2.9 | 126.1 | 96.4 | 29.7 | 22.7 | 7.0 | I | 28 | | | | | | | | | | | | |
| 18743C | 23.7 | 0.0 | 23.7 | 407.5 | 279.7 | 127.8 | 100.1 | 27.7 | 3 | 162 | TR | NA | NA | NA | NA | U | Y | Y | Y | B | B | TILL |

### GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18601 | Y | NO VISIBLE GOLD | | | | | | | | | | | EST. 35% PYRITE |
| -02 | Y | NO VISIBLE GOLD | | | | | | | | | | | EST. 30% PYRITE<br>1% ARSENOPYRITE |
| 18602R | Y | 25 X 50 | B C | | | | | | 1 | 1 | | | EST. 15% PYRITE |
| | | 50 X 50 | 10 C | | 1 | | | | | 1 | | | 150 GRAINS |
| | | 75 X 100 | 18 C | | 1 | | | | | 1 | | | ARSENOPYRITE |
| | | 75 X 175 | 25 C | | | | 1 | | | 1 | | | |
| | | | | | | | | | | 4 | 46.0 | 91 | |
| -03 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -04 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18604R | Y | 50 X 50 | 10 C | | | | 1 | | | 1 | | | EST. 15% PYRITE |
| | | 75 X 100 | 18 C | | 1 | | | | | 1 | | | 0.1% ARSENOPYRITE |
| | | | | | | | | | | 2 | 25.0 | 48 | |
| -621 | Y | 75 X 75 | 15 C | | 1 | | | | | 1 | | | EST. 15% PYRITE |
| | | | | | | | | | | 1 | | | 1000 GRAINS |
| | | | | | | | | | | 1 | 22.7 | 28 | ARSENOPYRITE |
| 18743C | Y | 25 X 25 | 5 C | | 1 | | | | | 1 | | | EST. 50% PYRITE |
| | | 25 X 75 | 10 C | | | | 1 | | | 1 | | | 300 GRAINS |
| | | 200 X 250 | 42 C | | 1 | | | | | 1 | | | ARSENOPYRITE |
| | | | | | | | | | | 3 | 100.1 | 162 | |

FIELDNOTE SUMMARY LOG OB-20804, MUD ROTARY FIRST HOLE

[ IN NON MAG HMC ][ IN -63 MICRON ][ IN MAG FRAC ]

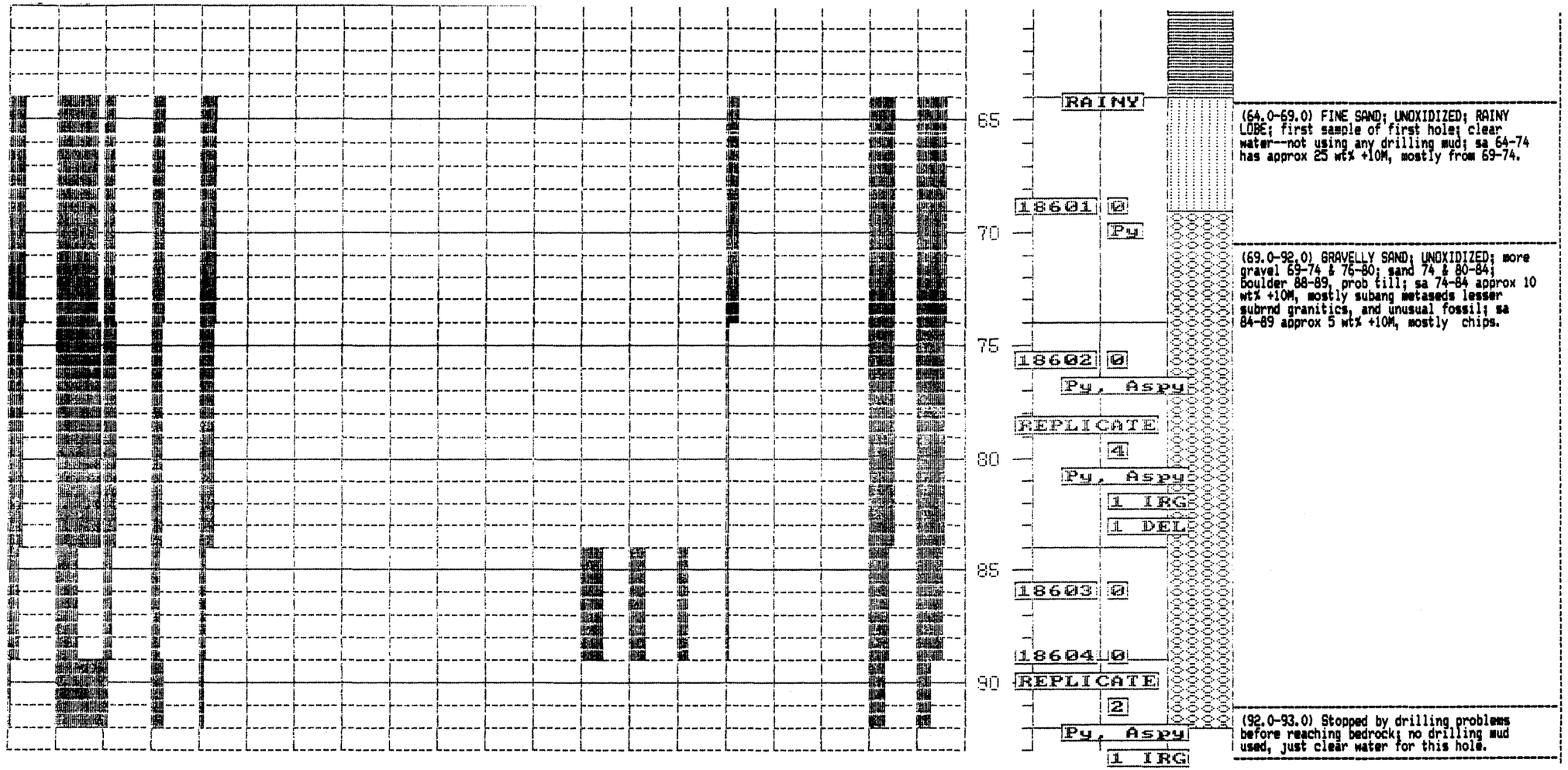
| ^200 As | ^600 Cu | ^5 Sb | ^25 Mo | ^6000 Ba | ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 Fe% | ^500 Ni | ^50 Pb | ^100 Mo | NON MAG ^500 Au | -63 ^20 Au | -63 ^100 g/kg | NON MAG HMC ^10 g/kg | MAG ^2 g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | |

| (FEET) | HMC SAMPLE # | HMC # GOLD GRAINS; INDICATORS | LITHOLOGY |
|---|---|---|---|
| | DES MOINES | | |
| 5 | | | |
| 10 | | | |
| 15 | | | |
| 20 | | | |
| 25 | | | |
| 30 | | | |
| 35 | | | |
| 40 | | | |
| 45 | | | |
| 50 | | | |
| 55 | | | |
| 60 | | | |

OB-20804

LITHOLOGIC DESCRIPTIONS AND/OR REMARKS

Appendix 8-61B.




RECLEANED 74-92

18743C 3
Py, Aspy
1 IRG

SLUICE BOX 64-92

18621 1
Py, Aspy

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY DESC | LEGAL | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18601 | 20804 | 64-74 | 10. | M | O | SW-SE | 5 | 62 | 20 | SL | RL. GVL. SAND | 64-74 | 0.0 | 11300.0 | | -2.0 | 56.6 | 13.5 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18602 | 20804 | 74-84 | 10. | M | O | SW-SE | 5 | 62 | 20 | SL | RL. GVL. SAND | 74-84 | 0.0 | 19400.0 | | -2.0 | 91.6 | 21.2 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18602R | 20804 | 74-84 | 10.0 | M | O | SW-SE | 5 | 62 | 20 | SL | RL. GVL. SAND | 74-84 | 4.0 | 8300.0 | | -2.0 | 46.0 | 8.9 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18743C | 20804 | 74-92 | 18. | M | O | SW-SE | 5 | 62 | 20 | SL | SPECIAL SAMPLE | 74-92 | 3.0 | 23700.0 | | -2.0 | 100.1 | 27.7 | -1.0 | -1.0 | -1 | -1 | -1 | RECLEANED +10M MAT'L |
| 18603 | 20804 | 84-89 | 5. | M | O | SW-SE | 5 | 62 | 20 | SL | RL. GVL. SAND | 84-89 | 0.0 | 9300.0 | | -2.0 | 39.7 | 9.6 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18604 | 20804 | 89-92 | 3. | M | O | SW-SE | 5 | 62 | 20 | SL | RL. GVL. SAND | 89-92 | 0.0 | 3200.0 | | -2.0 | 9.7 | 1.9 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18604R | 20804 | 89-92 | 3.0 | M | O | SW-SE | 5 | 62 | 20 | SL | RL. GVL. SAND | 89-92 | 2.0 | 6400.0 | | -2.0 | 25.0 | 6.3 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18621 | 20804 | 64-92 | 28. | M | O | SW-SE | 5 | 62 | 20 | SL | SLUICE BOX | 64-92 | 1.0 | 2900.0 | | -2.0 | 22.7 | 7.0 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18601 | 120 | 0.46 | 493 | 690 | 4300 | 30.30 | 280 | 260 | 510 | 160 | 0 | 61 | -10 | 6 | -0.5 | 0 | -10 | 1.1 | 2000 | 281 | 42 | -3 | 21 | 52 | 4 | 85.0 | 12.5 | 5 | 34.50 |
| 18602 | 22 | 0.35 | 330 | 470 | 4900 | 24.10 | 220 | 240 | 560 | 140 | 0 | 53 | 20 | 5 | -0.5 | 0 | -10 | 1.3 | 1600 | 192 | 26 | -2 | 41 | 58 | 4 | 64.0 | 6.9 | 5 | 68.70 |
| 18743C | 150 | 0.33 | 511 | 630 | 6500 | 30.40 | 250 | 230 | 470 | 140 | 0 | 52 | -10 | 5 | -0.5 | 0 | -10 | 1.0 | 1600 | 340 | 48 | 4 | 64 | 46 | 3 | 120.0 | 14.4 | 4 | 73.70 |
| 18603 | -22 | 0.24 | 647 | 460 | 7700 | 24.20 | 170 | 190 | 270 | 120 | 0 | 36 | -60 | 4 | 1.0 | 0 | -10 | 0.9 | 800 | 393 | 55 | 8 | 67 | 60 | 2 | 150.0 | 14.9 | 4 | 29.30 |
| 18604 | -9 | 0.13 | 295 | 180 | 6600 | 10.10 | 70 | 210 | 630 | 140 | 0 | 11 | -10 | 6 | 0.5 | 0 | -10 | 0.4 | 400 | 174 | 29 | 6 | 75 | 39 | 2 | 65.0 | 7.8 | 3 | 10.60 |
| 18604R | 32 | 0.24 | 490 | 470 | 9100 | 21.10 | 170 | 220 | 280 | 150 | 0 | 42 | -10 | 6 | -0.5 | 0 | -10 | 1.8 | 600 | 341 | 59 | 7 | 320 | 86 | 2 | 120.0 | 10.3 | 4 | 18.70 |
| 18621 | 62 | 0.53 | 755 | 910 | 6300 | 27.80 | 220 | 410 | 390 | 150 | 0 | 39 | -10 | 6 | -0.5 | 0 | -10 | 1.7 | 1500 | 561 | 120 | 10 | 120 | 101 | 3 | 190.0 | 19.2 | 8 | 16.90 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18603 | 0.810 | 3.80 | 1300 | 230 | 73 | 340 | -1 | 19 | 3.0 | 16 | 1.0 |

## Appendix 8-62A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-20901

Drilling Completion Date 12/19/86

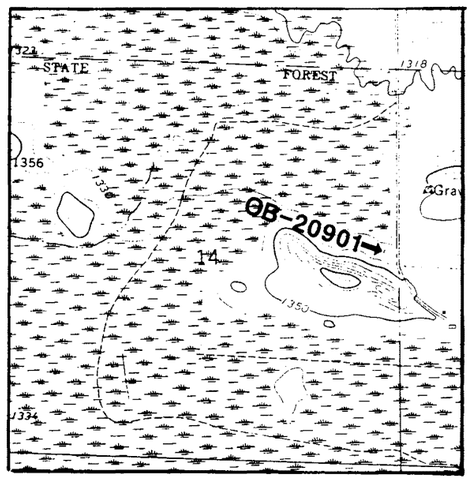
LOCATION (see map at right)

S-T-R SE¼-NE¼-14-63N-20W

County St. Louis

Quadrangle Gheen 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1335 ft.

Total Depth 65 ft.

Elevation, Top of Precambrian Bedrock 1275 ft.

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-47.5 | Des Moines Lobe Gl. Drift | | | |
| 47.5-60 | Rainy Lobe Gl. Drift | F | B,C | B = Cu,Ba,Bi<br>C = Ag,Ni,Mo |
| 60-65 | Bedrock | F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Graywacke. Sample is minimum 70% overburden clast contamination. Mainly whole pebbles of gray (biotitic) to green (chloritic) wacke and pink to white granitoids (no volc.); balance is drill cuttings, possibly bedrock, of sugary biotitic graywacke containing 1% relict sand and 5-10% dissem. pyrite. (i.e.: Graywacke is all one variety, either bedrock or large boulder.) (By ODM, see report in Appendix)

Thin Section Number: #18640.



## HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18638 | 11.9 | 0.0 | 11.9 | 167.2 | 129.0 | 38.2 | 30.5 | 7.7 | 0 | NA | TR | NA | NA | NA | A | U | Y | Y | Y | BB | GB | TILL |
| 18638R | 9.7 | 0.0 | 9.7 | 155.0 | 121.6 | 33.4 | 25.6 | 7.8 | 1 | 1424 | TR | NA | NA | NA | NA | U | Y | Y | Y | B | B | TILL |
| -39 | 6.1 | 0.0 | 6.1 | 76.3 | 62.4 | 13.9 | 8.7 | 5.2 | 1 | 172 | TR | NA | NA | NA | NA | U | Y | Y | Y | BB | GB | TILL |
| 18639R | 5.4 | 0.0 | 5.4 | 125.5 | 102.1 | 23.4 | 18.4 | 5.0 | 1 | 157 | TR | NA | NA | NA | NA | U | Y | Y | Y | B | B | TILL |
| -641 | 5.0 | 0.0 | 5.0 | 120.8 | 100.7 | 20.1 | 15.7 | 4.4 | 2 | 24 | | | | | | | | | | | | |
| 18751C | 0.4 | 0.0 | 0.4 | 53.2 | 52.0 | 1.2 | 0.9 | 0.3 | 0 | NA | TR | NA | NA | NA | NA | S | M | Y | N | B | NA | SAND |

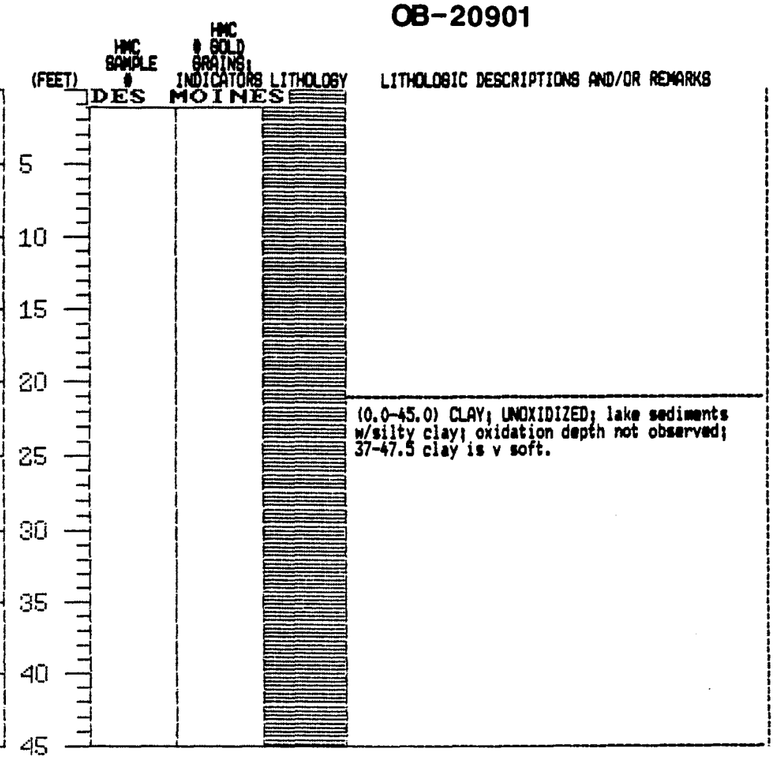
GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

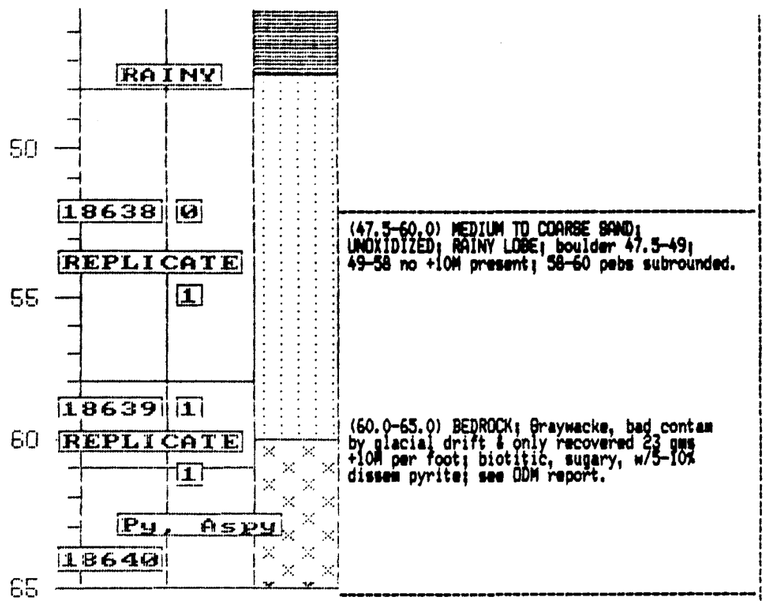
| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | NUMBER OF GRAINS ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18638 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18638R | N | 200 X 400 | 54 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | | 1 | 25.6 | 1424 | |
| -39 | N | 75 X 125 | 20 C | 1 | | | | | | 1 | | | PHOTO REFERENCE #130 |
| | | | | | | | | | | 1 | 8.7 | 172 | |
| 18639R | Y | 100 X 150 | 25 C | 1 | | | | | | 1 | | | EST. 5% PYRITE<br>150 GRAINS<br>ARSENOPYRITE |
| | | | | | | | | | | 1 | 18.4 | 157 | |
| -641 | Y | 50 X 50 | 10 C | | 1 | | 1 | | | 2 | | | EST. 20% PYRITE<br>1% ARSENOPYRITE<br>(FINE) |
| | | | | | | | | | | 2 | 15.7 | 24 | |
| 18751C | N | NO VISIBLE GOLD | | | | | | | | | | | |

FIELDNOTE SUMMARY LOG OB-20901, MUD ROTARY

| [ IN NON MAG HMC | | | | ][ IN -63 MICRON | | | | | | | | ][ IN MAG FRAC ] | | | | NON MAG -63 | | -63 NON MAG HMC | MAG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ^200 As | ^500 Cu | ^5 Sb | ^25 Mo | ^6000 Ba | ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 Fe% | ^500 Ni | ^50 Pb | ^100 Mo | ^500 Au | ^20 Au | ^100 g/kg | ^10 g/kg | ^2 g/kg |
| | | | | | | | | | | | | | | | | | | | |




Appendix 8-62B.




RECLEANED 58-61

SLUICE BOX 48-65

18751C 0

18641 2

Py, Aspy

1 IRG

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY DESC | LEGAL | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18638 | 20901 | 48-58 | 10. | M | O | SE-NE | 14 | 63 | 20 | SL | RL. MED. TO C. SAND | 48-58 | 0.0 | 11900.0 | -2.0 | 30.5 | 7.7 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18638R | 20901 | 48-58 | 10.0 | M | O | SE-NE | 14 | 63 | 20 | SL | RL. MED. TO C. SAND | 48-58 | 1.0 | 9700.0 | -2.0 | 25.6 | 7.8 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18639 | 20901 | 58-61 | 3. | M | O | SE-NE | 14 | 63 | 20 | SL | RL. MED. TO C. SAND | 58-61 | 1.0 | 6100.0 | -2.0 | 8.7 | 5.2 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18639R | 20901 | 58-61 | 3.0 | M | O | SE-NE | 14 | 63 | 20 | SL | RL. MED. TO C. SAND | 58-61 | 1.0 | 5400.0 | -2.0 | 18.4 | 5.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18751C | 20901 | 58-61 | 3. | M | O | SE-NE | 14 | 63 | 20 | SL | SPECIAL SAMPLE | 58-61 | 0.0 | 400.0 | -2.0 | 0.9 | 0.3 | -1.0 | -1.0 | -1 | -1 | -1 | RECLEANED +10M MAT'L |
| 18640 | 20901 | 61-65 | 4. | M | O | SE-NE | 14 | 63 | 20 | SL | BEDROCK | | -1.0 | -1.0 | -2.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18641 | 20901 | 48-65 | 17. | M | O | SE-NE | 14 | 63 | 20 | SL | SLUICE BOX | 48-65 | 2.0 | 5000.0 | -2.0 | 15.7 | 4.4 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18638 | 54 | 0.19 | 817 | 320 | 8600 | 30.40 | 280 | 280 | 430 | 180 | 0 | 23 | -10 | 6 | -0.5 | 0 | -10 | 0.8 | 2000 | 545 | 76 | 9 | 38 | 52 | 3 | 190.0 | 21.9 | 3 | 22.10 |
| 18639 | 69 | 0.10 | 396 | 180 | 9700 | 13.80 | 110 | 280 | 220 | 110 | 0 | 22 | -10 | 5 | -0.5 | 0 | -10 | 0.5 | 400 | 255 | 43 | 8 | 31 | 61 | 2 | 87.0 | 10.4 | 1 | 16.80 |
| 18639R | -23 | 0.30 | 499 | 270 | 8700 | 22.20 | 200 | 230 | 180 | 110 | 0 | 13 | -10 | 5 | -0.5 | 0 | 23 | 0.7 | 700 | 360 | 64 | 7 | 65 | 99 | 4 | 120.0 | 12.7 | 3 | 13.60 |
| 18751C | 17 | 0.22 | 268 | 290 | 11000 | 29.00 | 190 | 190 | 180 | 130 | 0 | 24 | -10 | 4 | -0.5 | 0 | -10 | 1.6 | 700 | 193 | 28 | 6 | 71 | 72 | 3 | 71.0 | 8.7 | 2 | 0.85 |
| 18641 | -31 | 0.36 | 949 | 370 | 8200 | 28.70 | 350 | 500 | 380 | 140 | 0 | 28 | -30 | 8 | -0.5 | 0 | -10 | -0.8 | 800 | 714 | 140 | 10 | 100 | 109 | 3 | 240.0 | 30.6 | 3 | 11.30 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | AS | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18638 | 0.380 | 2.70 | 2200 | 220 | 66 | 350 | 0.1 | 12 | -0.5 | 8 | 2.5 | 0.8 |
| 18639 | 0.880 | 3.20 | 1500 | 560 | 92 | 310 | -1 | 98 | 3.0 | 10 | 0.0 | 0.9 |
| 18639R | 0.530 | 3.20 | 1400 | 190 | 61 | 290 | -0.1 | 23 | -0.5 | 14 | 2.1 | 0.9 |

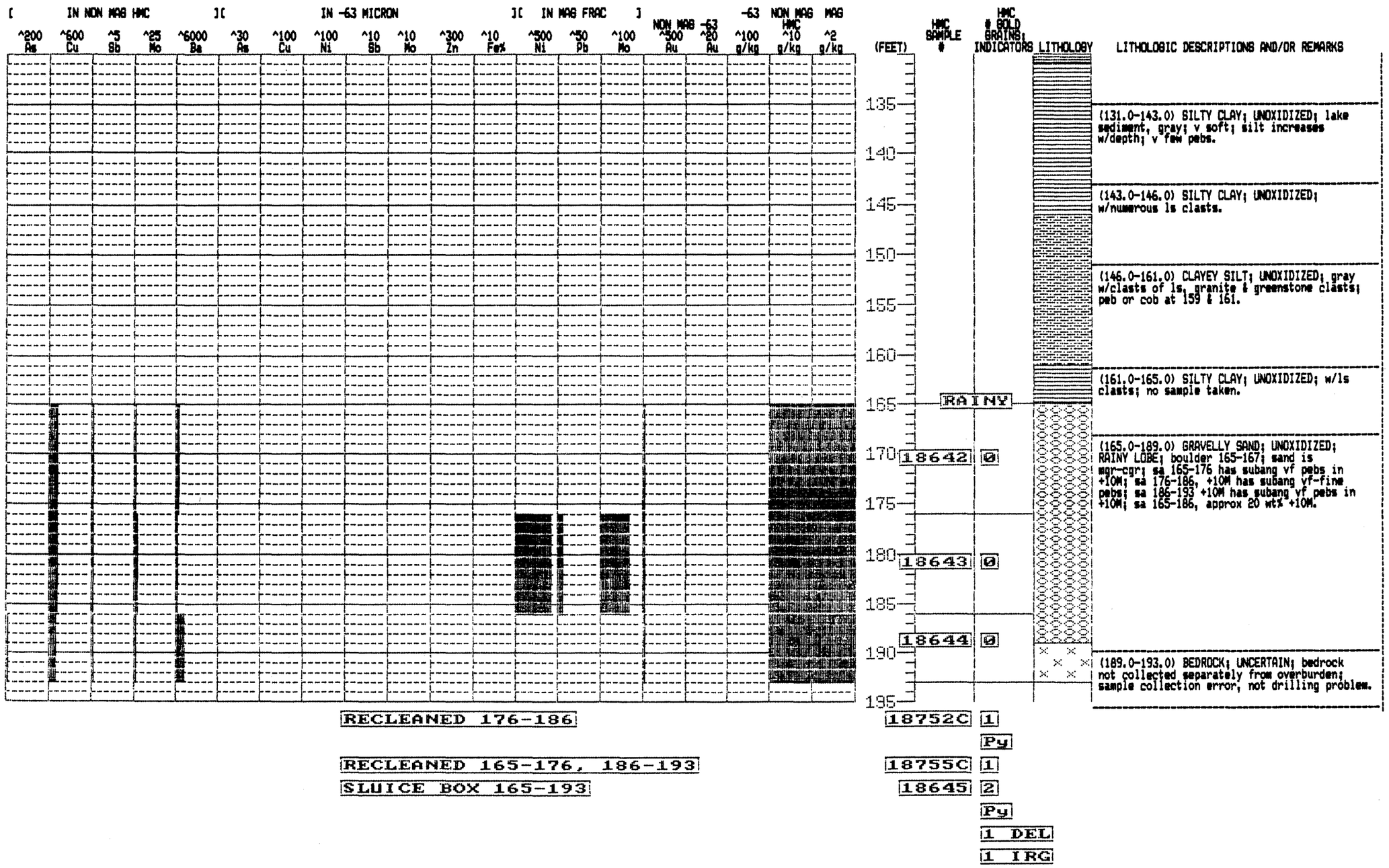
BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18640 | -7 | -0.2 | 2.0 | 800 | 0.0 | 2 | 40.0 | 0.0 | 100 | 20 | 0 | 3 | -100 | 4.0 | 25 | 0.0 | 2 | 71 | 0 | 0.00 | 0.0 | -10 | 0 | 3.70 | -1.0 | -10 | 0.0 | 5.4 | -10 | -2 | 1.3 | 0 | 0 | 0 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18640 | 37 | 17 | 75 | 0 | 1.5 | 0 | 0 | 0 | 0.00 | 4 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | -2 | 0.00 | 0 |

FIELDNOTE SUMMARY LOG OB-20603, MUD ROTARY



Appendix 8-54C.

MASTER FILE

| SAMPLE NUMBER | DN NUMBER | SAMPLE INTERVAL | ST | D | S | FORTY DESC | LEGAL | | | COUNTY | DRIFT TYPE | ASSAY FTG | BOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18642 | 20603 | 165-176 | 11. | N | O | SE-SW | 32 | 63 | 21 | SL | RL. GVL. SAND | 165-176 | 0.0 | 11300.0 | -2.0 | 153.7 | 24.9 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18643 | 20603 | 176-186 | 10. | N | O | SE-SW | 32 | 63 | 21 | SL | RL. GVL. SAND | 176-186 | 0.0 | 9800.0 | -2.0 | 165.1 | 27.8 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18752C | 20603 | 176-186 | 10. | N | O | SE-SW | 32 | 63 | 21 | SL | SPECIAL SAMPLE | 176-186 | 1.0 | 15400.0 | -2.0 | 166.1 | 25.9 | -1.0 | -1.0 | -1 | -1 | -1 | RECLEANED +10M MAT'L |
| 18644 | 20603 | 186-193 | 7. | N | O | SE-SW | 32 | 63 | 21 | SL | RL. GVL. SAND | 186-193 | 0.0 | 9600.0 | -2.0 | 115.5 | 44.2 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18755C | 20603 | 165-193 | -2.0 | N | O | SE-SW | 32 | 63 | 21 | SL | SPECIAL SAMPLE | 165-193 | 1.0 | 10200.0 | -2.0 | 208.9 | 27.7 | -1.0 | -1.0 | -1 | -1 | -1 | SI=165-176 & 186-193 |
| 18645 | 20603 | 165-193 | 28. | N | O | SE-SW | 32 | 63 | 21 | SL | SLUICE BOX | 165-193 | 3.0 | 4700.0 | -2.0 | 101.8 | 28.2 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18642 | -12 | 0.65 | 384 | 160 | 3000 | 8.20 | 50 | 110 | 120 | 150 | 0 | 3 | -10 | 1 | -0.5 | 0 | -10 | -0.2 | 400 | 193 | 21 | 3 | 5 | 20 | -2 | 17.0 | 4.2 | 14 | 112.00 |
| 18643 | -14 | 0.63 | 432 | 130 | 4100 | 9.70 | 60 | 110 | 110 | 150 | 0 | 3 | -10 | 2 | -0.5 | 0 | -10 | -0.2 | 300 | 222 | 21 | 2 | 7 | 23 | -2 | 18.0 | 4.4 | 17 | 121.00 |
| 18752C | -20 | 0.70 | 504 | 180 | 4400 | 11.60 | 60 | 110 | 130 | 180 | 0 | 4 | -10 | 2 | -0.5 | 0 | -10 | -0.5 | 200 | 254 | 28 | 4 | -14 | 18 | -2 | 18.0 | -2.9 | 11 | 117.00 |
| 18644 | -16 | 0.60 | 0 | 170 | 3500 | 10.50 | 70 | 110 | 93 | 170 | 0 | 4 | -10 | 1 | -0.5 | 0 | -10 | -0.3 | 1100 | 276 | 24 | 4 | 8 | 20 | -2 | 27.0 | 4.3 | 12 | 13.20 |
| 18755C | 47 | 0.78 | 523 | 180 | 3400 | 12.70 | 60 | 94 | 72 | 160 | 0 | 7 | -10 | 2 | -0.5 | 0 | -10 | 0.8 | 600 | 258 | 30 | 2 | -10 | 17 | -2 | 21.0 | 4.5 | 20 | 150.00 |
| 18645 | -33 | 0.78 | 873 | 270 | 3500 | 14.20 | 90 | 150 | 150 | 140 | 0 | 10 | -20 | 7 | -0.5 | 0 | -10 | 0.7 | 500 | 430 | 51 | -3 | 55 | 25 | -2 | 43.0 | 10.6 | 22 | 75.50 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18643 | 2.000 | 1.30 | 1200 | 420 | 110 | 160 | -1 | 68 | -0.5 | 6 | 2.8 |

**Appendix 8-55A.** DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-20604

Drilling Completion Date 1/8/87

LOCATION (see map at right)

S-T-R NE¼-NW¼-17-63N-21W

County St. Louis

Quadrangle Silverdale 7.5

Regional Survey Area Orr

HOLE PARAMETERS

Surface Elevation 1295 ft.

Total Depth 127 ft.

Elevation, Top of Precambrian Bedrock

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-126 | Des Moines Lobe Gl. Drift | | | |
| 126-127 | Rainy Lobe Gl. Drift | | | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type:

Thin Section Description:

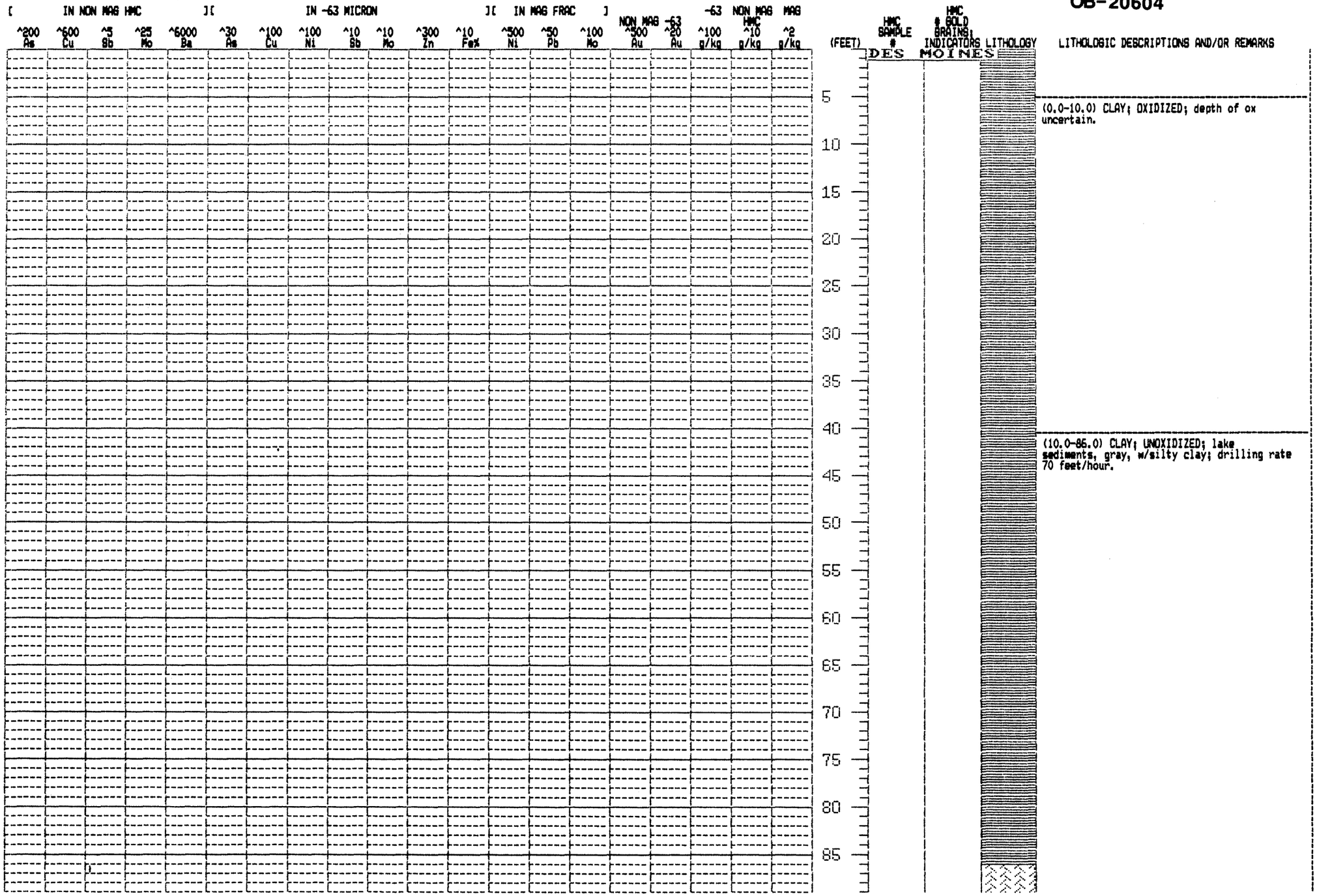


**No samples obtained for heavy mineral concentration.**

FIELDNOTE SUMMARY LOG OB-20604, MUD ROTARY

# OB-20604

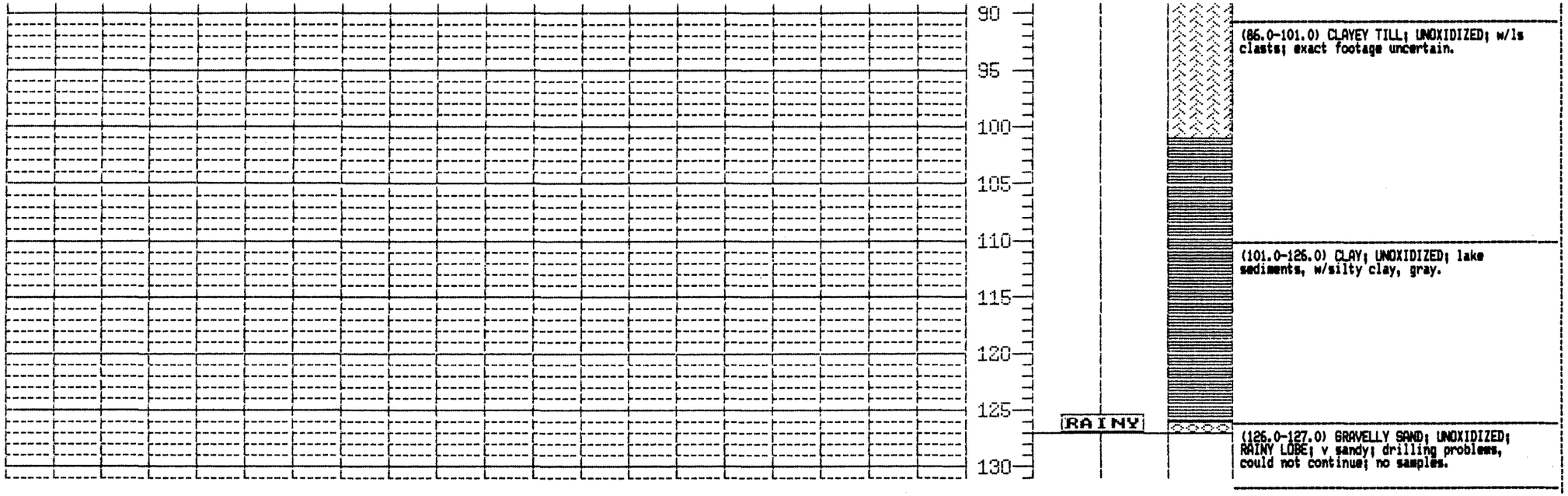
Appendix 8-55B.




LITHOLOGIC DESCRIPTIONS AND/OR REMARKS

(0.0-10.0) CLAY; OXIDIZED; depth of ox uncertain.

(10.0-86.0) CLAY; UNOXIDIZED; lake sediments, gray, w/silty clay; drilling rate 70 feet/hour.


90
95
100
105
110
115
120
125
130
RAINY
(86.0-101.0) CLAYEY TILL; UNOXIDIZED; w/ls clasts; exact footage uncertain.
(101.0-126.0) CLAY; UNOXIDIZED; lake sediments, w/silty clay, gray.
(126.0-127.0) GRAVELLY SAND; UNOXIDIZED; RAINY LOBE; v sandy; drilling problems, could not continue; no samples.

**Appendix 8-56A.** DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-20702

Drilling Completion Date 12/18/86

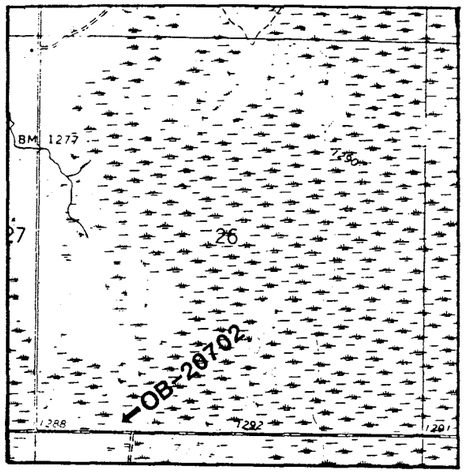
LOCATION (see map at right)

S-T-R SW¼-SW¼-26-62N-21W

County St. Louis

Quadrangle Meadowbrook 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1290 ft.

Total Depth 133 ft.

Elevation, Top of Precambrian Bedrock 1162.5 ft.

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-96 | Des Moines Lobe Gl. Drift | | | |
| 96-127.5 | Rainy Lobe Gl. Drift | F | B,C | C = Ag,Ni,Cu |
| 127.5-133 | Bedrock | F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Uncertain

Thin Section Description: #18630



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | M.I. CONC | | | AU | | DESCRIPTION | | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | CLAST | | | | | MATRIX | | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % | | | | S/U | SD | ST | CY | COLOR | | |
| | | | | | | | | | | | | V/S | GR | LS | OT | | | | | SD | CY | |
| 18626 | 5.8 | 0.3 | 5.5 | 246.1 | 220.5 | 25.6 | 22.6 | 3.0 | 0 | | NA | P | 60 | 40 | NA | NA | U | Y | Y | Y | B | B | TILL |
| 18626R | 4.4 | 0.3 | 4.1 | 174.6 | 145.0 | 29.6 | 25.8 | 3.8 | 0 | | NA | P | 75 | 25 | NA | NA | U | Y | Y | Y | BNB | BNB | TILL |
| -27 | 15.0 | 0.4 | 14.6 | 290.7 | 224.3 | 66.4 | 53.6 | 12.8 | 0 | | NA | C | 20 | 80 | NA | NA | U | Y | Y | Y | B | GB | TILL |
| -28 | 13.3 | 0.2 | 13.1 | 266.0 | 197.3 | 68.7 | 52.9 | 15.8 | 3 | | 188 | F | 60 | 40 | NA | NA | U | Y | Y | Y | B | GB | TILL |
| 18628R | 10.7 | 0.0 | 10.7 | 214.9 | 139.4 | 75.5 | 58.7 | 16.8 | 0 | | NA | TR | NA | NA | NA | NA | U | Y | Y | Y | GB | GB | TILL |
| -29 | 10.3 | 0.0 | 10.3 | 242.9 | 181.0 | 61.9 | 46.3 | 15.6 | 0 | | NA | TR | NA | NA | NA | NA | U | Y | Y | Y | B | GB | TILL |
| -631 | 3.0 | 0.0 | 3.0 | 96.3 | 63.2 | 33.1 | 25.9 | 7.2 | 2 | | 2 | | | | | | | | | | | | |
| 18748C | 19.1 | 0.0 | 19.1 | 376.5 | 340.1 | 36.4 | 11.5 | 24.9 | 0 | | NA | TR | NA | NA | NA | NA | S | C | Y | N | GB | NA | SAND |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18626 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18626R | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -27 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -28 | Y | 100 X 125 | 22 C | | 1 | | | | | 1 | | | EST. 1% PYRITE |
| | • | 100 X 150 | 25 C | 1 | | | | | | 1 | | | 250 GRAINS |
| | | 100 X 200 | 29 C | 1 | | | | | | 1 | | | ARSENOPYRITE |
| | | | | | | | | | | 3 | 52.9 | .188 | PHOTO REFERENCE #129 |
| 18628R | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -29 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -631 | Y | 25 X 25 | 5 C | | 2 | | | | | 2 | | | EST. 5% PYRITE |
| | | | | | | | | | | 2 | 25.9 | 2 | 0.5% ARSENOPYRITE (FINE) |
| 18748C | N | NO VISIBLE GOLD | | | | | | | | | | | |

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FIELDNOTE SUMMARY LOG OB-20702, MUD ROTARY

# OB-20702

Appendix 8-56B.

[ IN NON MAG HMC ][ IN -63 MICRON ][ IN MAG FRAC ]

| ^200 Au | ^500 Cu | ^5 Sb | ^25 Mo | ^6000 Ba | ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 FeX | ^500 Ni | ^50 Pb | ^100 Mo | NON MAG ^500 Au | -63 ^20 Au | -63 ^100 g/kg | NON MAG HMC ^10 g/kg | MAG ^2 g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | |
| | | 1 | | | | | | | | | | | | | | | | | |

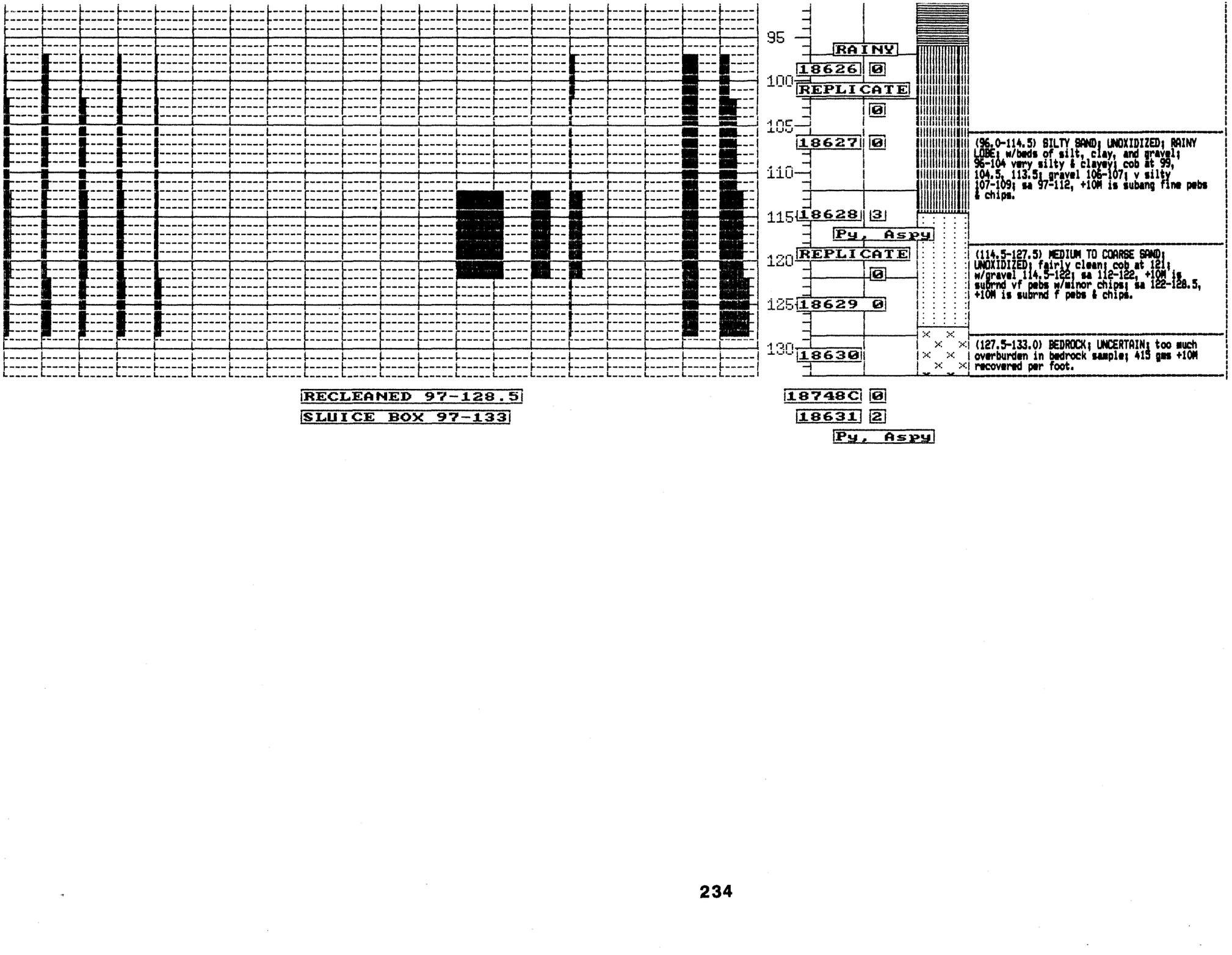
(FEET) | HMC SAMPLE # | HMC # GOLD GRAINS; INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS

DES MOINES

5 10 15 20 35 30 35 40 45 50 55 60 65 70 75 80 85 90

(0.0-24.0) CLAY; OXIDIZED; not completely oxidized, gray zones; softer clay 17-24.

(24.0-96.0) CLAY; UNOXIDIZED; lake sediments, gray, w/silty clay; drilling rate 25 feet per hour.


95
100
105
110
115
120
125
130
RAINY
18626 0
REPLICATE
0
18627 0
18628 3
Py, Aspy
REPLICATE
0
18629 0
18630
(96.0-114.5) SILTY SAND; UNOXIDIZED; RAINY LOBE; w/beds of silt, clay, and gravel; 96-104 very silty & clayey; cob at 99, 104.5, 113.5; gravel 106-107; v silty 107-109; sa 97-112, +10M is subang fine pebs & chips.
(114.5-127.5) MEDIUM TO COARSE SAND; UNOXIDIZED; fairly clean; cob at 121; w/gravel 114.5-122; sa 112-122, +10M is subrnd vf pebs w/minor chips; sa 122-128.5, +10M is subrnd f pebs & chips.
(127.5-133.0) BEDROCK; UNCERTAIN; too much overburden in bedrock sample; 415 gms +10M recovered per foot.
RECLEANED 97-128.5
SLUICE BOX 97-133
18748C 0
18631 2
Py, Aspy

Appendix 8-56C.

## MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | B | FORTY DESC | LEGAL | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18626 | 20702 | 97-102 | 5. | M | O | SW-SW | 26 | 62 | 21 | SL | RL. SILTY SAND | 97-102 | 0.0 | 5800.0 | -2.0 | 22.6 | 3.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18626R | 20702 | 97-102 | 5.0 | M | O | SW-SW | 26 | 62 | 21 | SL | RL. SILTY SAND | 97-102 | 0.0 | 4400.0 | -2.0 | 25.8 | 3.8 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18627 | 20702 | 102-112 | 10. | M | O | SW-SW | 26 | 62 | 21 | SL | RL. SILTY SAND | 102-112 | 0.0 | 15000.0 | -2.0 | 53.6 | 12.8 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18628 | 20702 | 112-122 | 10. | M | O | SW-SW | 26 | 62 | 21 | SL | RL. MED. TO C. SAND | 112-122 | 3.0 | 13300.0 | -2.0 | 52.9 | 15.8 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18628R | 20702 | 112-122 | 10.0 | M | O | SW-SW | 26 | 62 | 21 | SL | RL. MED. TO C. SAND | 112-122 | 0.0 | 10700.0 | -2.0 | 58.7 | 16.8 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18629 | 20702 | 122-128.5 | 6.5 | M | O | SW-SW | 26 | 62 | 21 | SL | RL. MED. TO C. SAND | 122-128.5 | 0.0 | 10300.0 | -2.0 | 46.3 | 15.6 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18630 | 20702 | 128.5-133 | 4.5 | M | O | SW-SW | 26 | 62 | 21 | SL | BEDROCK | | -1.0 | -1.0 | -2.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18748C | 20702 | 97-128.5 | 31.5 | M | O | SW-SW | 26 | 62 | 21 | SL | SPECIAL SAMPLE | 97-128.5 | 0.0 | 19100.0 | -2.0 | 11.5 | 24.9 | -1.0 | -1.0 | -1 | -1 | -1 | RECLEANED +10M MAT'L |
| 18631 | 20702 | 97-133 | 36. | M | O | SW-SW | 26 | 62 | 21 | SL | SLUICE BOX | 97-133 | 2.0 | 3000.0 | -2.0 | 25.9 | 7.2 | -1.0 | -1.0 | -1 | -1 | -1 | |

## NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18626 | 66 | 0.32 | 221 | 120 | 8400 | 8.80 | 30 | 120 | 97 | 150 | 0 | 9 | -10 | 2 | 3.5 | 0 | -10 | 0.2 | 200 | 111 | 11 | -1 | 44 | 42 | -2 | 22.0 | 2.1 | 4 | 20.00 |
| 18626R | -16 | 0.74 | 360 | 250 | 7800 | 16.00 | 60 | 110 | 130 | 160 | 0 | 22 | 10 | 2 | -0.5 | 0 | -10 | 1.0 | 500 | 194 | 21 | 3 | 37 | 73 | -2 | 35.0 | 6.3 | 6 | 6.94 |
| 18627 | -18 | 0.42 | 564 | 430 | 8700 | 19.60 | 60 | 120 | 96 | 130 | 0 | 22 | -10 | 3 | 0.5 | 0 | -10 | 0.8 | -400 | 335 | 43 | 10 | 28 | 46 | -2 | 90.0 | 10.4 | 4 | 39.20 |
| 18628 | 160 | 0.31 | 629 | 570 | 9800 | 22.00 | 60 | 120 | 80 | 120 | 0 | 28 | 30 | 4 | -0.5 | 0 | -10 | 1.0 | -400 | 388 | 49 | 14 | 25 | 54 | -2 | 130.0 | 10.1 | 4 | 38.80 |
| 18629 | -19 | 0.38 | 614 | 490 | 8700 | 21.00 | 100 | 170 | 150 | 130 | 0 | 23 | -10 | 5 | -0.5 | 0 | -10 | 0.9 | 1000 | 337 | 50 | 7 | 23 | 51 | -2 | 99.0 | 10.3 | 4 | 33.90 |
| 18748C | -19 | 0.38 | 563 | 530 | 8100 | 23.40 | 70 | 110 | 70 | 140 | 0 | 17 | -10 | 3 | -0.5 | 0 | -10 | 0.8 | 400 | 337 | 44 | 7 | 20 | 54 | -2 | 110.0 | 6.3 | 1 | 81.20 |
| 18631 | 90 | 0.36 | 874 | 780 | 7000 | 23.00 | 80 | 140 | 110 | 180 | 0 | 19 | -10 | 4 | -0.5 | 0 | -10 | 0.8 | 600 | 514 | 79 | 13 | 120 | 66 | -2 | 160.0 | 12.6 | 9 | 19.50 |

## MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18628 | 1.000 | 6.70 | 1500 | 520 | 65 | 480 | -1 | 48 | 6.5 | 12 | 1.2 |

## BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18630 | -7 | -0.2 | 2.0 | 800 | 0.0 | 1 | 32.0 | 0.0 | 120 | 10 | 0 | 2 | -100 | 3.9 | 20 | 0.0 | 1 | 58 | 0 | 0.00 | 0.0 | -10 | 0 | 3.40 | -1.0 | -10 | 0.0 | 3.8 | -10 | -2 | 0.8 | 0 | 0 | 0 |

## BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18630 | 32 | 20 | 67 | 0 | 1.0 | 0 | 0 | 0 | 0.00 | 3 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | -2 | 0.00 | 0 |

## Appendix 8-57A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-20704

Drilling Completion Date 12/17/86

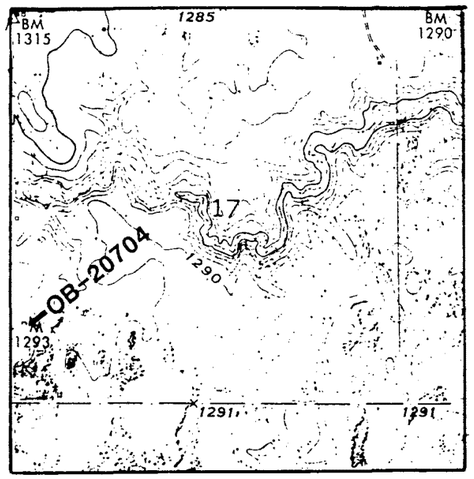
LOCATION (see map at right)

S-T-R SW¼-SW¼-17-62N-21W

County St. Louis

Quadrangle Bear River 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1290 ft.

Total Depth 102 ft.

Elevation, Top of Precambrian Bedrock 1192 ft.

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-80 | Des Moines Lobe Gl. Drift | | | |
| 80-98 | Rainy Lobe Gl. Drift | F | B,C | C = Ag |
| 98-102 | Bedrock | F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Graywacke. Dark gray, moderately to weakly foliated graywacke. Grain size 0.05-0.1 sugar, 0.2-1.0 relict sand. Sugary texture with 20% relict sand. Comprised of 20% biotite, 60% qtz.-plag. sugar and 20% relict sand including 5-10% blue to colorless qtz., 5% plag., and 5% cherty lithics. 0.5% dissem. py. 0.1% dissem. magnetite. (By ODM, see report in Appendix)

Thin Section Number: #18624.



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) TABLE SPLIT | +10 CHIPS | TABLE FEED | WEIGHT (GRAMS DRY) TABLE CONC | M. I. CONC M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | AU NO. V.G. | CALC PPB | DESCRIPTION CLAST SIZE | CLAST % V/S | GR | LS | OT | MATRIX S/U | SD | ST | CY | COLOR SD | CY | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18622R | 8.7 | 0.0 | 8.7 | 294.0 | 168.3 | 125.7 | 108.5 | 17.2 | 1 | 35 | TR | NA | NA | NA | NA | U | Y | Y | Y | GB | GB | TILL |
| -23 | 6.7 | 0.2 | 6.5 | 241.0 | 161.3 | 79.7 | 68.8 | 10.9 | 0 | NA | P | 60 | 40 | NA | NA | U | Y | Y | Y | B | BGN | TILL |
| -22 | 10.1 | 0.4 | 9.7 | 348.8 | 233.3 | 115.5 | 98.5 | 17.0 | 1 | 220 | C | 50 | 50 | NA | NA | U | Y | Y | Y | B | BGN | TILL |
| -625 | 3.8 | 0.0 | 3.8 | 131.1 | 89.9 | 41.2 | 32.4 | 8.8 | 1 | 1 | | | | | | | | | | | | |
| 18747C | 7.8 | 0.1 | 7.7 | 214.8 | 145.8 | 69.0 | 59.2 | 9.8 | 0 | NA | G | 70 | 30 | NA | NA | U | Y | Y | N | B | NA | TILL |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -22 | Y | 150 X 350 | 46 C | 1 | | | | | | 1 | | | EST. 3% PYRITE |
| | | | | | | | | | | | | | 700 GRAINS |
| | | | | | | | | | | 1 | 98.5 | 220 | ARSENOPYRITE |
| | | | | | | | | | | | | | PHOTO REFERENCE #129 |
| 18622R | N | 125 X 150 | 27 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | | 1 | 108.5 | 35 | |
| -23 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 625 | Y | 25 X 25 | 5 C | | | | 1 | | | 1 | | | EST. 15% PYRITE |
| | | | | | | | | | | | | | 4% ARSENOPYRITE |
| | | | | | | | | | | 1 | 32.4 | 1 | PHOTOMICROGRAPH |
| | | | | | | | | | | | | | FILM REFERENCE #137 |
| 18747C | N | NO VISIBLE GOLD | | | | | | | | | | | |

FIELDNOTE SUMMARY LOG OB-20704, MUD ROTARY

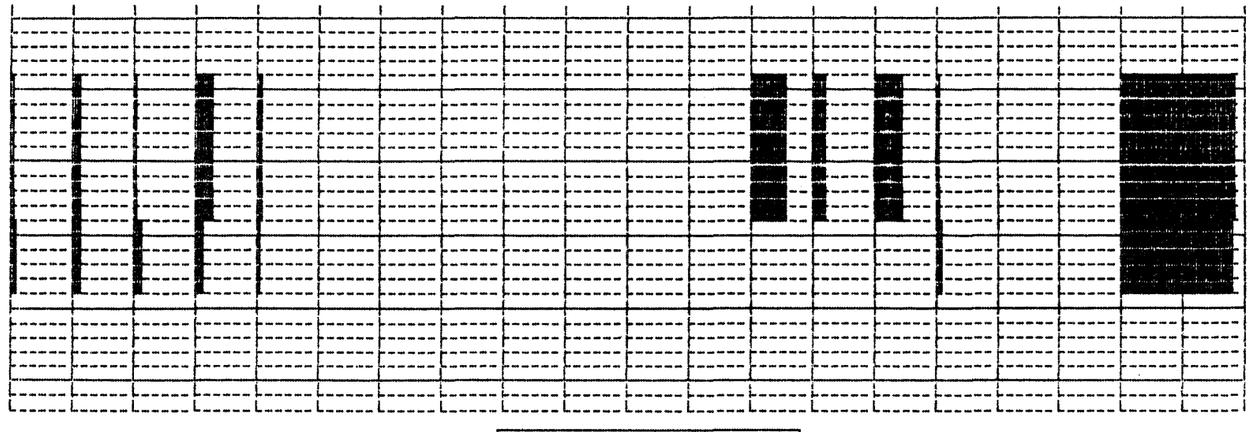
# OB-20704

Appendix 8-57B.

[ IN NON MAG HMC ][ IN -63 MICRON ][ IN MAG FRAC ]

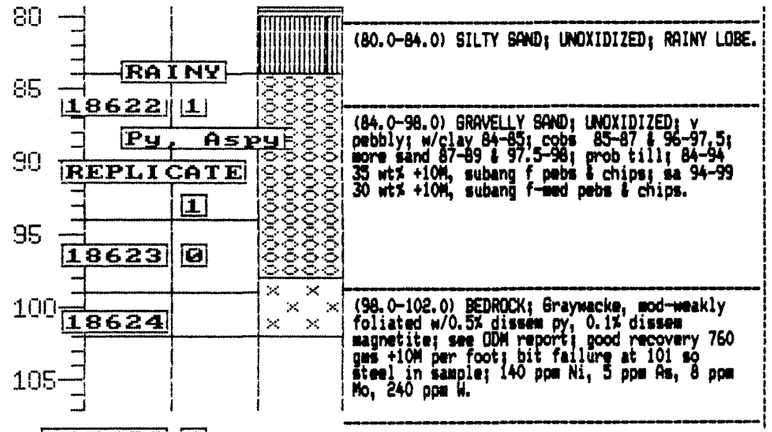
| ^200 As | ^500 Cu | ^5 Sb | ^25 Mo | ^6000 Ba | ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 FeX | ^500 Ni | ^50 Pb | ^100 Mo | NON MAG ^500 Au | -63 ^20 Au | -63 ^100 g/kg | NON MAG HMC ^10 g/kg | MAG ^2 g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | |

| (FEET) | HMC SAMPLE # | HMC # GOLD GRAINS; INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|---|
| | | DES MOINES | | |
| 5 | | | | (0.0-10.0) CLAY; OXIDIZED; depth of ox uncertain. |
| 10 | | | | |
| 15 | | | | |
| 20 | | | | |
| 25 | | | | |
| 30 | | | | |
| 35 | | | | |
| 40 | | | | (10.0-80.0) CLAY; UNOXIDIZED; lake sediments w/silty clay; some ls granules at 30; drilling rate w/drag bit in clay 38 ft per hour; softer clay 51-58. |
| 45 | | | | |
| 50 | | | | |
| 55 | | | | |
| 60 | | | | |
| 65 | | | | |
| 70 | | | | |
| 75 | | | | |



RECLEANED 84-99

SLUICE BOX 84-102




(80.0-84.0) SILTY SAND; UNOXIDIZED; RAINY LOBE.

(84.0-98.0) GRAVELLY SAND; UNOXIDIZED; v pebbly; w/clay 84-85; cobs 85-87 & 96-97.5; more sand 87-89 & 97.5-98; prob till; 84-94 35 wt% +10M, subang f pebs & chips; sa 94-99 30 wt% +10M, subang f-med pebs & chips.

(98.0-102.0) BEDROCK; Graywacke, mod-weakly foliated w/0.5% disseм py, 0.1% disseм magnetite; see ODM report; good recovery 760 gms +10M per foot; bit failure at 101 so steel in sample; 140 ppm Ni, 5 ppm As, 8 ppm Mo, 240 ppm W.

Appendix 8-57C.

## MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18622 | 20704 | 84-94 | 10. | M | O | SW-SW | 17 | 62 | 21 | SL | RL. GVL. SAND | 84-94 | 1.0 | 10100.0 | -2.0 | 98.5 | 17.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18622R | 20704 | 84-94 | 10.0 | M | O | SW-SW | 17 | 62 | 21 | SL | RL. GVL. SAND | 84-94 | 1.0 | 8700.0 | -2.0 | 108.5 | 17.2 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18747C | 20704 | 84-99 | 15. | M | O | SW-SW | 17 | 62 | 21 | SL | SPECIAL SAMPLE | 84-99 | 0.0 | 7800.0 | -2.0 | 59.2 | 9.8 | -1.0 | -1.0 | -1 | -1 | -1 | RECLEANED +10M MAT'L |
| 18623 | 20704 | 94-99 | 5. | M | O | SW-SW | 17 | 62 | 21 | SL | RL. GVL. SAND | 94-99 | 0.0 | 6700.0 | -2.0 | 68.8 | 10.9 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18624 | 20704 | 99-102 | 3. | M | O | SW-SW | 17 | 62 | 21 | SL | BEDROCK | | -1.0 | -1.0 | -2.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18625 | 20704 | 84-102 | 18. | M | O | SW-SW | 17 | 62 | 21 | SL | SLUICE BOX | 84-102 | 1.0 | 3800.0 | -2.0 | 32.4 | 8.8 | -1.0 | -1.0 | -1 | -1 | -1 | |

## NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18622 | 21 | 0.58 | 555 | 180 | 4700 | 10.90 | 40 | 120 | 66 | 170 | 0 | 5 | -10 | 7 | -0.5 | 0 | -10 | -0.3 | 500 | 262 | 25 | 6 | 110 | 26 | -2 | 33.0 | 4.5 | 10 | 72.20 |
| 18747C | -15 | 0.60 | 486 | 230 | 4300 | 14.90 | 70 | 160 | 57 | 190 | 0 | 13 | -10 | 3 | -0.5 | 0 | -10 | 0.8 | 400 | 225 | 27 | 5 | 180 | 22 | -2 | 27.0 | 3.3 | 8 | 43.30 |
| 18623 | 49 | 0.52 | 421 | 270 | 4100 | 14.60 | 70 | 210 | 67 | 150 | 0 | 15 | -10 | 3 | -0.5 | 0 | -10 | 0.7 | -300 | 210 | 23 | 5 | 240 | 25 | -2 | 29.0 | 4.3 | 10 | 50.30 |
| 18625 | -26 | 0.55 | 756 | 310 | 4000 | 15.70 | 80 | 180 | 77 | 170 | 0 | 13 | -90 | 7 | -0.5 | 0 | -10 | -0.5 | -400 | 409 | 48 | 6 | 630 | 26 | -2 | 48.0 | 4.0 | 9 | 48.70 |

## MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18622 | 1.300 | 2.50 | 1200 | 290 | 74 | 230 | -1 | 43 | 1.5 | 10 | 1.7 |

## BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18624 | -7 | 0.3 | 5.0 | 800 | 0.0 | 2 | 52.0 | 0.0 | 70 | 30 | 0 | -2 | -100 | 4.6 | 29 | 0.0 | 8 | 140 | 0 | 0.00 | 0.0 | -10 | 0 | 3.00 | -1.0 | -10 | 0.0 | 4.8 | -10 | 240 | 1.3 | 0 | 0 | 0 |

## BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FED % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18624 | 45 | 17 | 79 | 0 | 1.5 | 0 | 0 | 0 | 0.00 | 3 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | -2 | 0.00 | 0 |

**Appendix 8-58A.** DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-20705

Drilling Completion Date 2/7/87

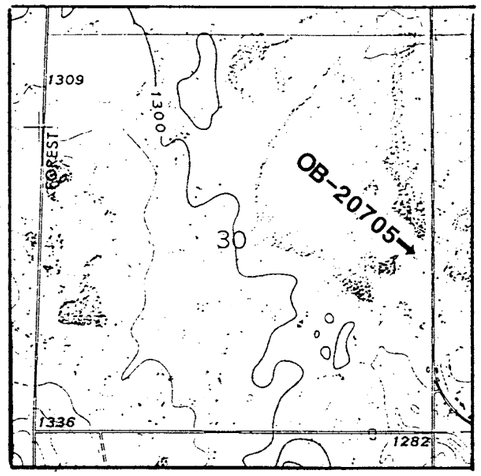
LOCATION (see map at right)

S-T-R NE¼-SE¼-30-62N-21W

County St. Louis

Quadrangle Bear River 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1290 ft.

Total Depth 217 ft.

Elevation, Top of Precambrian Bedrock

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-78 | Des Moines Lobe Gl. Drift | | | |
| 78-217 | Rainy Lobe Gl. Drift | F | B,C | B = Se |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type:

Thin Section Description:



# HEAVY MINERAL CONCENTRATE REPORT

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) TABLE SPLIT | +10 CHIPS | TABLE FEED | WEIGHT (GRAMS DRY) TABLE CONC | M.I. LIGHTS | M. I. CONC TOTAL | NON MAG | MAG | AU NO. V.G. | AU CALC PPB | DESCRIPTION CLAST SIZE | CLAST % V/S | GR | LS | OT | MATRIX S/U | SD | ST | CY | COLOR SD | CY | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18728 | 9.7 | 0.6 | 9.1 | 106.6 | 64.8 | 41.8 | 31.0 | 10.8 | 0 | NA | P | 50 | 50 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -729 | 11.5 | 0.6 | 10.9 | 175.5 | 144.8 | 30.7 | 23.4 | 7.3 | 0 | NA | C | 50 | 50 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -730 | 10.6 | 0.9 | 9.7 | 165.6 | 121.9 | 43.7 | 34.6 | 9.1 | 1 | 1626 | C | 45 | 55 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -731 | 8.1 | 0.4 | 7.7 | 144.7 | 85.0 | 59.7 | 46.1 | 13.6 | 0 | NA | P | 55 | 45 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -732 | 11.0 | 0.2 | 10.8 | 181.3 | 115.8 | 65.5 | 49.9 | 15.6 | 0 | NA | P | 20 | 80 | NA | NA | U | Y | Y | Y | B | GB | TILL |
| -733 | 12.6 | 0.2 | 12.4 | 177.7 | 122.3 | 55.4 | 44.5 | 10.9 | 0 | NA | P | 35 | 65 | NA | NA | U | Y | Y | N | B | NA | TILL |
| -734 | 9.8 | 0.0 | 9.8 | 239.0 | 136.6 | 102.4 | 88.5 | 13.9 | 0 | NA | TR | NA | NA | NA | NA | S | M,C | Y | N | B | NA | SAND |
| -735 | 12.2 | 0.1 | 12.1 | 209.3 | 128.2 | 81.1 | 70.4 | 10.7 | 0 | NA | P | 45 | 55 | NA | NA | S | M,C | Y | N | B | NA | SAND |
| 18736 | 8.4 | 0.4 | 8.0 | 200.3 | 121.5 | 78.8 | 69.2 | 9.6 | 0 | NA | P | 35 | 65 | NA | NA | U | Y | Y | N | B | NA | TILL |
| 18737 | 4.9 | 0.0 | 4.9 | 156.2 | 98.6 | 57.6 | 43.9 | 13.7 | 1 | 15 | | | | | | | | | | | | |

**GOLD CLASSIFICATION**

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18728 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -729 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -730 | N | 250 X 450 | 61 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | | 1 | 34.6 | 1626 | |
| -731 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -732 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -733 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -734 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -735 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18736 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18737 | Y | 75 X 75 | 15 C | | 1 | | | | | 1 | | | EST. 7% PYRITE 15 GRAINS |
| | | | | | | | | | | 1 | 43.9 | 15 | ARSENOPYRITE |

FIELDNOTE SUMMARY LOG OB-20705, MUD ROTARY

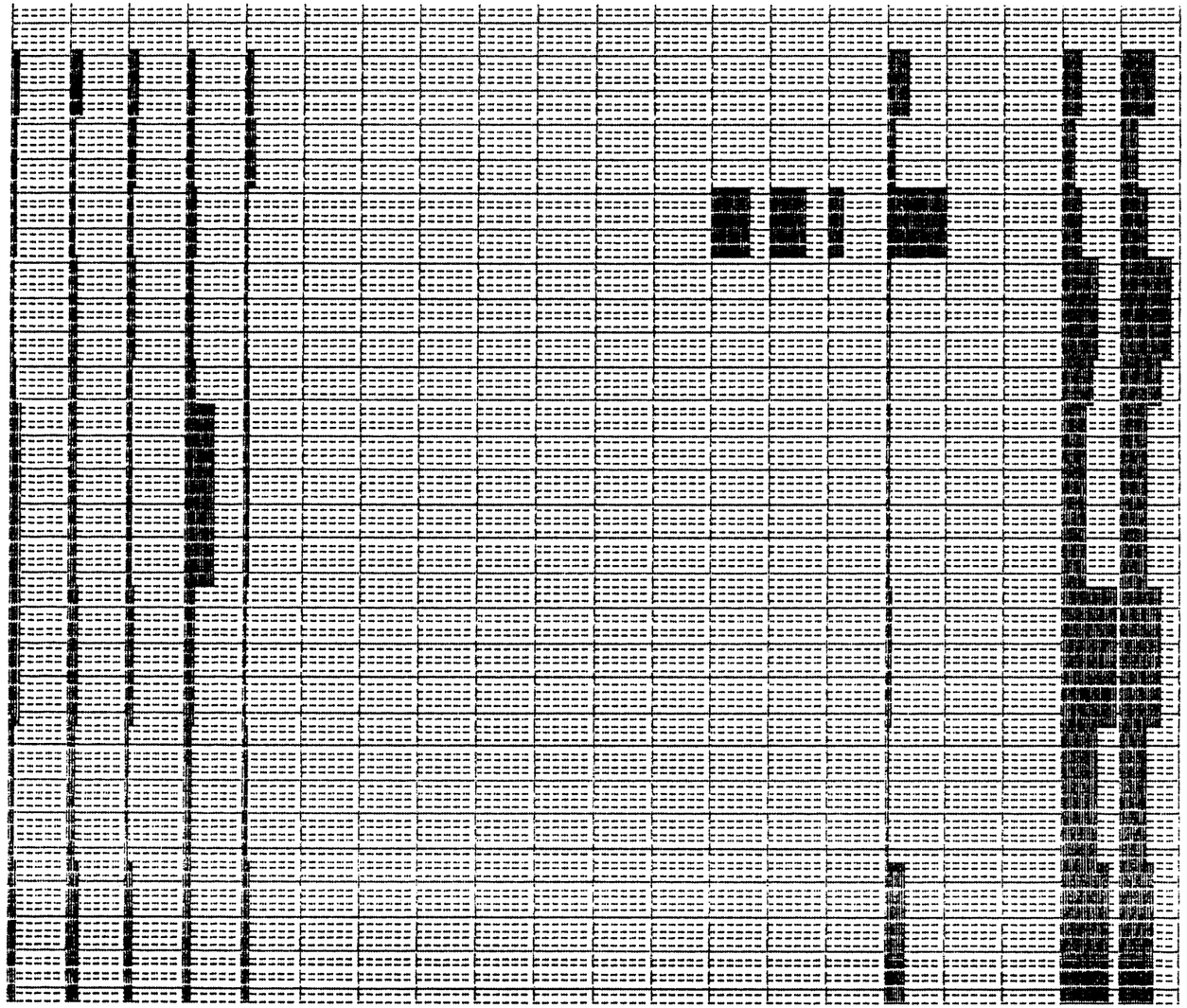
[ IN NON MAG HMC ]I IN -63 MICRON ]I IN MAG FRAC ]

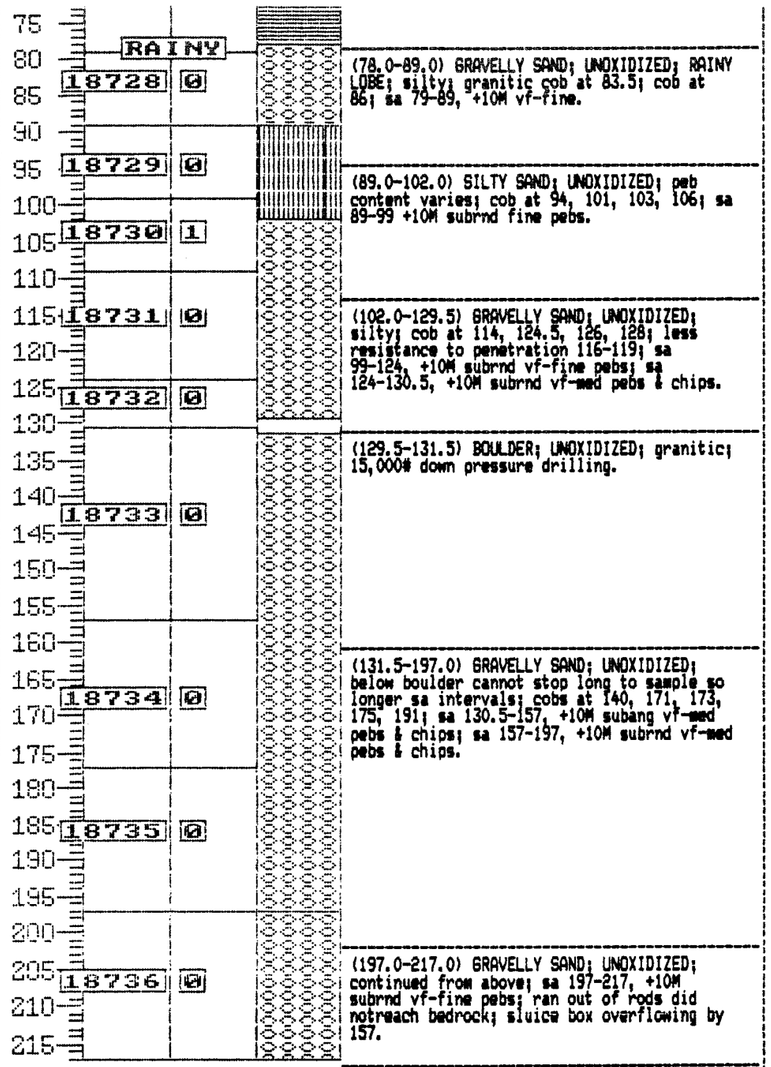
| ^200 As | ^600 Cu | ^5 Sb | ^25 Mo | ^5000 Ba | ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 Fe% | ^300 Ni | ^50 Pb | ^100 Mo | NON MAG -63 ^500 Au | -63 ^20 Au | -63 ^100 g/kg | NON MAG HMC ^10 g/kg | MAG ^2 g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | |

# OB-20705

| (FEET) | HMC SAMPLE # | HMC # GOLD GRAINS; INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|---|
| | | DES MOINES | | |
| 5 | | | | (0.0-6.0) CLAY; OXIDIZED; lake sediments, w/6 inches peat on top. |
| 10 | | | | |
| 15 | | | | |
| 20 | | | | |
| 25 | | | | |
| 30 | | | | |
| 35 | | | | |
| 40 | | | | |
| 45 | | | | (6.0-78.0) CLAY; UNOXIDIZED; lake sediments, w/silty clay, gray; cob at 19 & 26; sl reddish color at 50; transition to gravelly sand 78-79. |
| 50 | | | | |
| 55 | | | | |
| 60 | | | | |
| 65 | | | | |
| 70 | | | | |

Appendix 8-58B.




(78.0-89.0) GRAVELLY SAND; UNOXIDIZED; RAINY LOBE; silty; granitic cob at 83.5; cob at 86; sa 79-89, +10M vf-fine.

(89.0-102.0) SILTY SAND; UNOXIDIZED; peb content varies; cob at 94, 101, 103, 106; sa 89-99 +10M subrnd fine pebs.

(102.0-129.5) GRAVELLY SAND; UNOXIDIZED; silty; cob at 114, 124.5, 126, 128; less resistance to penetration 116-119; sa 99-124, +10M subrnd vf-fine pebs; sa 124-130.5, +10M subrnd vf-med pebs & chips.

(129.5-131.5) BOULDER; UNOXIDIZED; granitic; 15,000# down pressure drilling.

(131.5-197.0) GRAVELLY SAND; UNOXIDIZED; below boulder cannot stop long to sample so longer sa intervals; cobs at 140, 171, 173, 175, 191; sa 130.5-157, +10M subang vf-med pebs & chips; sa 157-197, +10M subrnd vf-med pebs & chips.

(197.0-217.0) GRAVELLY SAND; UNOXIDIZED; continued from above; sa 197-217, +10M subrnd vf-fine pebs; ran out of rods did notreach bedrock; sluice box overflowing by 157.

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18728 | 20705 | 79-89 | 10. | M | D | NE-SE | 30 | 62 | 21 | SL | RL. GVL. SAND | 79-89 | 0.0 | 9700.0 | -2.0 | 31.0 | 10.8 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18729 | 20705 | 89-99 | 10. | M | D | NE-SE | 30 | 62 | 21 | SL | RL. SILTY SAND | 89-99 | 0.0 | 11500.0 | -2.0 | 23.4 | 7.3 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18730 | 20705 | 99-109 | 10. | M | D | NE-SE | 30 | 62 | 21 | SL | RL. GVL. SAND | 99-109 | 1.0 | 10600.0 | -2.0 | 34.6 | 9.1 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18731 | 20705 | 109-124 | 15. | M | D | NE-SE | 30 | 62 | 21 | SL | RL. SILTY SAND | 109-124 | 0.0 | 8100.0 | -2.0 | 46.1 | 13.6 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18732 | 20705 | 124-130.5 | 6.5 | M | D | NE-SE | 30 | 62 | 21 | SL | RL. GVL. SAND | 124-130.5 | 0.0 | 11000.0 | -2.0 | 49.9 | 15.6 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18733 | 20705 | 130.5-157 | 26.5 | M | D | NE-SE | 30 | 62 | 21 | SL | RL. GVL. SAND | 130.5-157 | 0.0 | 12600.0 | -2.0 | 44.5 | 10.9 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18734 | 20705 | 157-177 | 20. | M | D | NE-SE | 30 | 62 | 21 | SL | RL. GVL. SAND | 157-177 | 0.0 | 9800.0 | -2.0 | 88.5 | 13.9 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18735 | 20705 | 177-197 | 20. | M | D | NE-SE | 30 | 62 | 21 | SL | RL. GRAVEL | 177-197 | 0.0 | 12200.0 | -2.0 | 70.4 | 10.7 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18736 | 20705 | 197-217 | 20. | M | D | NE-SE | 30 | 62 | 21 | SL | RL. GVL. SAND | 197-217 | 0.0 | 8400.0 | -2.0 | 69.2 | 9.6 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18737 | 20705 | 79-217 | -3.0 | M | D | NE-SE | 30 | 62 | 21 | SL | SLUICE BOX | 79-217 | 1.0 | 4900.0 | -2.0 | 43.9 | 13.7 | -1.0 | -1.0 | -1 | -1 | -1 | ST(-3)=138 |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18728 | 180 | 0.39 | 0 | 380 | 7400 | 17.00 | 70 | 130 | 130 | 170 | 0 | 20 | 50 | 3 | -0.5 | 0 | -10 | 0.8 | 600 | 398 | 45 | 7 | 8 | 28 | -2 | 110.0 | 9.1 | 3 | 11.40 |
| 18729 | 68 | 0.27 | 0 | 490 | 11000 | 20.80 | 60 | 120 | 56 | 160 | 0 | 12 | 30 | 3 | -0.5 | 0 | -10 | 0.7 | -1000 | 409 | 54 | 12 | 9 | 38 | -2 | 150.0 | 6.0 | 2 | 10.80 |
| 18730 | 1300 | 0.40 | 0 | 360 | 8600 | 17.80 | 60 | 120 | 54 | 160 | 0 | 13 | -10 | 4 | -0.5 | 0 | -10 | 0.4 | 300 | 289 | 38 | 6 | -5 | 20 | -2 | 84.0 | 7.8 | 3 | 10.90 |
| 18731 | -18 | 0.51 | 0 | 260 | 6800 | 14.50 | 50 | 110 | 60 | 160 | 0 | 10 | -10 | 3 | -0.5 | 0 | -10 | 0.5 | 300 | 264 | 37 | 5 | 6 | 21 | -2 | 58.0 | 6.1 | 6 | 11.70 |
| 18732 | -18 | 0.47 | 0 | 300 | 6700 | 16.70 | 60 | 110 | 66 | 170 | 0 | 15 | -20 | 4 | -0.5 | 0 | -10 | 0.4 | 500 | 330 | 45 | 8 | 8 | 29 | -2 | 86.0 | 45.0 | 5 | 11.80 |
| 18733 | -18 | 0.27 | 0 | 320 | 10000 | 22.30 | 70 | 130 | 71 | 160 | 0 | 29 | 20 | 12 | -0.5 | 0 | -10 | 0.4 | -400 | 302 | 34 | 8 | 6 | 28 | -2 | 96.0 | 11.5 | 4 | 9.76 |
| 18734 | 49 | 0.15 | 0 | 190 | 12000 | 20.40 | 50 | 110 | 89 | 140 | 0 | 33 | -10 | 4 | -0.5 | 0 | -10 | 0.5 | 300 | 191 | 21 | 2 | 5 | 34 | -2 | 46.0 | 4.3 | 9 | 12.40 |
| 18735 | -14 | 0.14 | 0 | 180 | 12000 | 20.40 | 50 | 110 | 76 | 140 | 0 | 17 | -10 | 3 | -0.5 | 0 | -10 | 0.3 | 400 | 180 | 19 | 4 | 4 | 50 | -2 | 50.0 | 4.9 | 6 | 11.90 |
| 18736 | 170 | 0.12 | 0 | 180 | 12000 | 23.30 | 60 | 110 | 120 | 140 | 0 | 26 | -10 | 3 | -0.5 | 0 | -10 | 0.7 | 600 | 182 | 25 | 3 | -4 | 48 | -2 | 53.0 | 4.9 | 8 | 11.60 |
| 18737 | 42 | 0.41 | 737 | 330 | 7500 | 16.80 | 60 | 130 | 82 | 170 | 0 | 17 | -10 | 4 | -0.5 | 0 | -10 | -0.4 | -300 | 395 | 55 | 12 | 21 | 27 | -2 | 100.0 | 8.9 | 9 | 33.60 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18730 | 1.400 | 4.50 | 1400 | 320 | 36 | 330 | -1 | 23 | -0.5 | 29 | 0.9 |

**Appendix 8-59A.** DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-20801

Drilling Completion Date 2/11/86

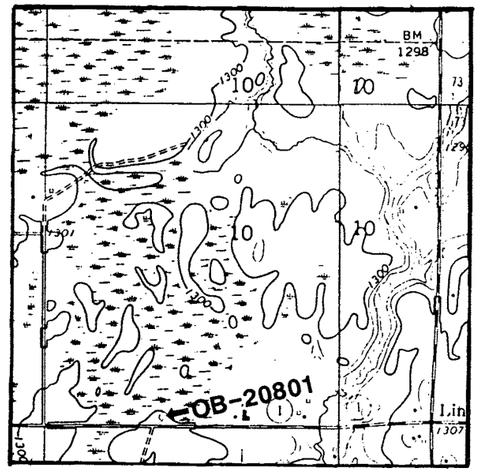
LOCATION (see map at right)

S-T-R SE¼-SW¼-10-62N-20W

County St. Louis

Quadrangle Meadowbrook 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1300 ft.

Total Depth 137 ft.

Elevation, Top of Precambrian Bedrock Not known

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-50.5 | Des Moines Lobe Gl. Drift | No | No | |
| 50.5-139 | Rainy Lobe Gl. Drift | F | B,C | B = Au,As,Ag,Sb W,Pb,Bi,Se,Cr, Fe,Ni,Cu,Sn<br>C = Ag,As,Pb,Mo, Se,Cu,Ni,Cr |

Gold particle micrographs from Scanning Electron Microscope are also available.

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type:

Thin Section Description:



# OB-20801

## HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18605 | 11.0 | 5.4 | 5.6 | 163.3 | 162.1 | 21.2 | 16.7 | 4.5 | 2 | 101 | C | 90 | 10 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -06 | 11.6 | 0.0 | 11.6 | 299.4 | 254.7 | 44.7 | 35.6 | 9.1 | 6 | 1160 | TR | NA | NA | NA | NA | U | Y | Y | Y | B | B | TILL |
| 18606R | 16.0 | 0.0 | 16.0 | 404.4 | 322.1 | 82.3 | 68.0 | 14.3 | 2 | 31 | TR | NA | NA | NA | NA | U | Y | Y | Y | GB | GB | TILL |
| -07 | 13.1 | 0.1 | 13.0 | 344.3 | 302.1 | 42.2 | 34.3 | 7.9 | 0 | NA | P | 50 | 50 | NA | NA | U | Y | Y | Y | GB | GB | TILL |
| -08 | 12.8 | 0.0 | 12.8 | 339.1 | 289.7 | 49.4 | 37.6 | 11.8 | 0 | NA | TR | NA | NA | NA | NA | U | Y | Y | Y | B | B | TILL |
| -09 | 13.7 | 0.0 | 13.7 | 203.9 | 151.0 | 52.9 | 39.9 | 13.0 | 3 | 35 | TR | NA | NA | NA | NA | U | Y | Y | Y | B | B | TILL |
| 18609R | 10.5 | 0.0 | 10.5 | 154.9 | 116.4 | 38.5 | 29.8 | 8.7 | 3 | 78 | TR | NA | NA | NA | NA | U | Y | Y | Y | B | B | TILL |
| -10 | 7.9 | 0.0 | 7.9 | 172.9 | 139.9 | 33.0 | 30.1 | 2.9 | 0 | NA | TR | NA | NA | NA | NA | U | Y | Y | Y | B | BGN | TILL |
| 18611 | 12.8 | 0.2 | 12.6 | 158.8 | 54.6 | 104.2 | 49.2 | 55.0 | 7 | 48 | P | 70 | 30 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -12 | 7.2 | 0.0 | 7.2 | 198.1 | 148.8 | 49.3 | 46.7 | 2.6 | 2 | 5 | TR | NA | NA | NA | NA | U | Y | Y | Y | BGN | BGN | TILL |
| 18612R | 13.0 | 0.0 | 13.0 | 233.6 | 134.2 | 99.4 | 94.5 | 4.9 | 13 | 125 | TR | NA | NA | NA | NA | U | Y | Y | Y | GNB | GNB | TILL |
| 18613 | 3.3 | 0.0 | 3.3 | 107.8 | 79.7 | 28.1 | 22.9 | 5.2 | 25 | 228 | | | | | | | | | | | | |
| 18744C | 13.3 | 0.1 | 13.2 | 309.5 | 262.8 | 46.7 | 38.7 | 8.0 | 0 | NA | G | 75 | 25 | NA | NA | U | Y | Y | N | B | NA | TILL |

## GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18605 | Y | 50 X 50 | 10 C | | 1 | | | | | 1 | | | EST. 30% PYRITE |
| | | 75 X 125 | 20 C | | 1 | | | | | 1 | | | 2% ARSENOPYRITE |
| | | | | | | | | | | | | | PHOTO REFERENCE #130 |
| | | | | | | | | | | 2 | 16.7 | 101 | |
| -06 | Y | 50 X 50 | 10 C | | | | 2 | | | 2 | | | EST. 35% PYRITE |
| | | 100 X 200 | 29 C | | 1 | | | | | 1 | | | 2% PYRITE |
| | | 125 X 125 | 25 C | | 1 | | | | | 1 | | | PHOTO REFERENCE #129 |
| | | 150 X 250 | 38 C | 1 | | | | | | 1 | | | |
| | | 250 X 250 | 46 C | | 1 | | | | | 1 | | | |
| | | | | | | | | | | 6 | 35.6 | 1160 | |
| 18606R | Y | 75 X 75 | 15 C | | 1 | | | | | 1 | | | EST. 20% PYRITE |
| | | 75 X 125 | 20 C | 1 | | | | | | 1 | | | 0.5% ARSENOPYRITE |
| | | | | | | | | | | 2 | 68.0 | 31 | |
| -07 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -08 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -09 | Y | 25 X 25 | 5 C | 1 | | | | | | 1 | | | EST. 20% PYRITE |
| | | 50 X 75 | 13 C | 1 | | | | | | 1 | | | |
| | | 75 X 100 | 18 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | | 3 | 39.9 | 35 | |
| 18609R | Y | 25 X 75 | 10 C | 1 | | | | | | 1 | | | EST. 10% PYRITE |
| | | 75 X 75 | 15 C | 1 | | | | | | 1 | | | 0.25% ARSENOPYRITE |
| | | 100 X 100 | 20 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | | 3 | 29.8 | 78 | |
| -10 | Y | NO VISIBLE GOLD | | | | | | | | | | | EST. 75% PYRITE |
| 18611 | Y | 25 X 25 | 5 C | | | | | 3 | | 3 | | | EST. 80% PYRITE, CRYSTALLINE |
| | | 25 X 50 | 8 C | | | | | 2 | | 2 | | | 500 GRAINS ARSENOPYRITE (FINE) |
| | | 50 X 100 | 15 C | 1 | | | | | | 1 | | | 100 GRAINS ARSENOPYRITE (COARSE) |
| | | 75 X 125 | 20 C | 1 | | | | | | 1 | | | PHOTOMICROGRAPH AVAILABLE |
| | | | | | | | | | | | | | FILM REFERENCE #136 |
| | | | | | | | | | | 7 | 49.2 | 48 | |
| -12 | Y | 25 X 25 | 5 C | 1 | | | | | | 1 | | | EST. 65% PYRITE |
| | | 50 X 50 | 10 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | | 2 | 46.7 | 5 | |



## GOLD CLASSIFICATION CONT.

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18612R | Y | 25 X 25 | 5 C | | | | | | 4 | 4 | | | EST. 60% PYRITE |
| | | 25 X 50 | 8 C | | | | | | 3 | 3 | | | 1000 GRAINS ARSENOPYRITE |
| | | 50 X 50 | 10 C | | | | | | 1 | 1 | | | |
| | | 50 X 75 | 13 C | | | | | | 2 | 2 | | | |
| | | 75 X 75 | 15 C | | | | | | 1 | 1 | | | |
| | | 100 X 125 | 22 C | | | | | 1 | | 1 | | | |
| | | 150 X 200 | 34 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | | 13 | 94.5 | 125 | |
| 18613 | Y | 25 X 25 | 5 C | | 1 | | | 1 | 5 | 7 | | | EST. 40% PYRITE |
| | | 25 X 50 | 8 C | | 1 | | | | 1 | 2 | | | 1% ARSENOPYRITE |
| | | 25 X 75 | 10 C | | | | | 3 | | 3 | | | PHOTOMICROGRAPH AVAILABLE |
| | | 25 X 125 | 15 C | | 1 | | | | | 1 | | | FILM REFERENCE #138 |
| | | 50 X 50 | 10 C | 1 | 1 | | | | 4 | 6 | | | |
| | | 50 X 75 | 13 C | | | 2 | | 2 | 1 | 5 | | | |
| | | 75 X 75 | 15 C | | 1 | | | | | 1 | | | |
| | | | | | | | | | | 25 | 22.9 | 228 | |
| 18744C | Y | NO VISIBLE GOLD | | | | | | | | | | | EST. 60% PYRITE |
| | | | | | | | | | | | | | 300 GRAINS |
| | | | | | | | | | | | | | ARSENOPYRITE |

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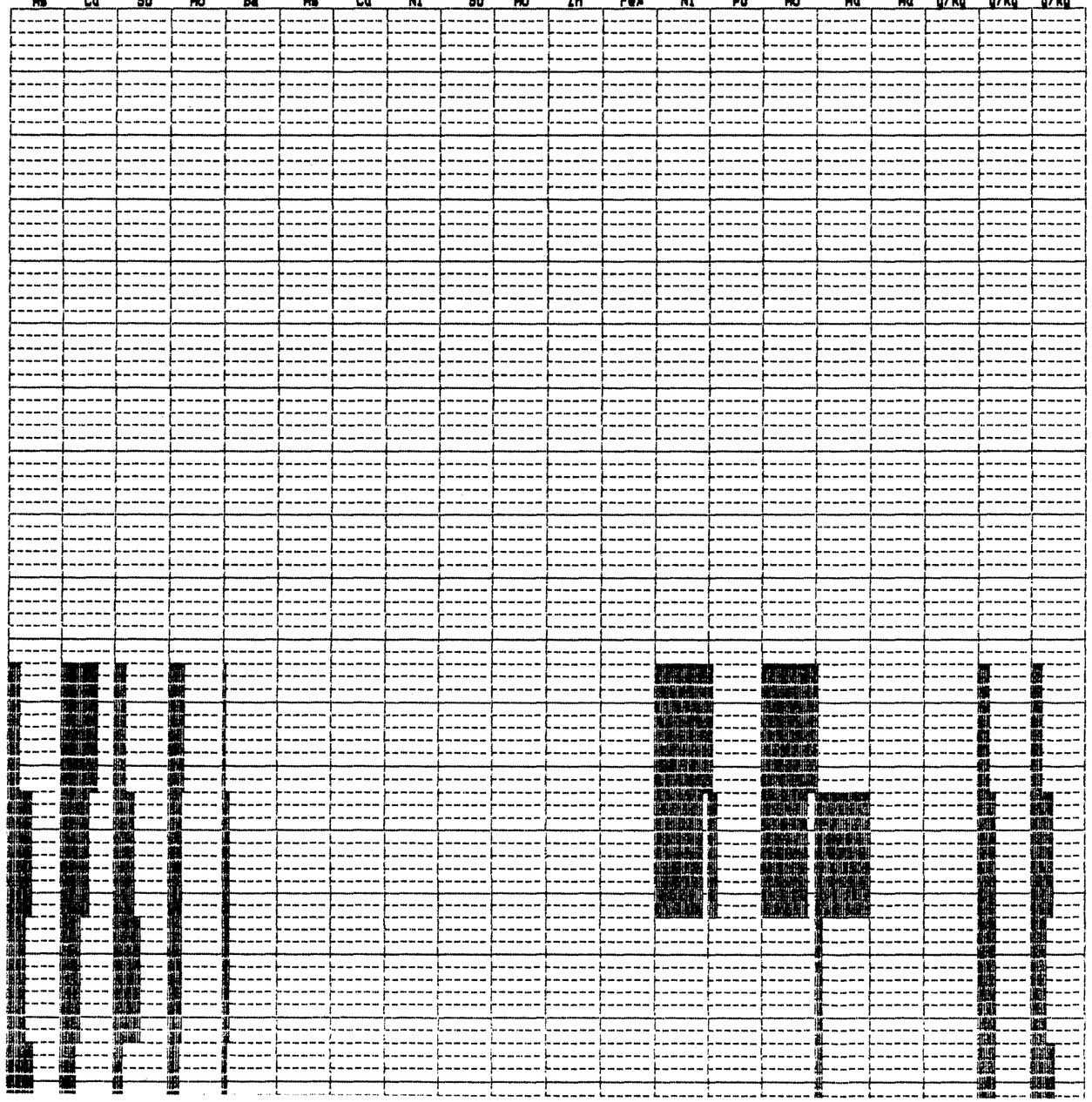
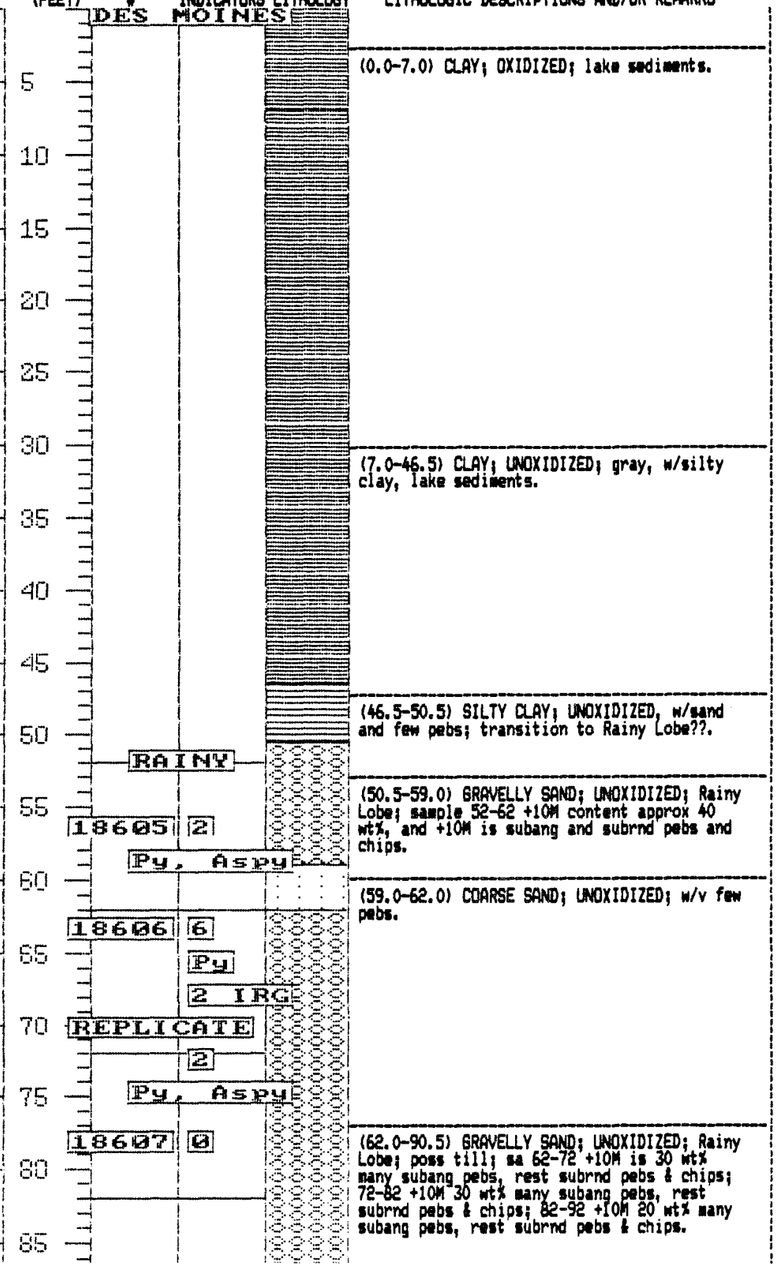
FIELDNOTE SUMMARY LOG OB-20801, MUD ROTARY

# OB-20801

Appendix 8-59B.




LITHOLOGIC DESCRIPTIONS AND/OR REMARKS

(0.0-7.0) CLAY; OXIDIZED; lake sediments.

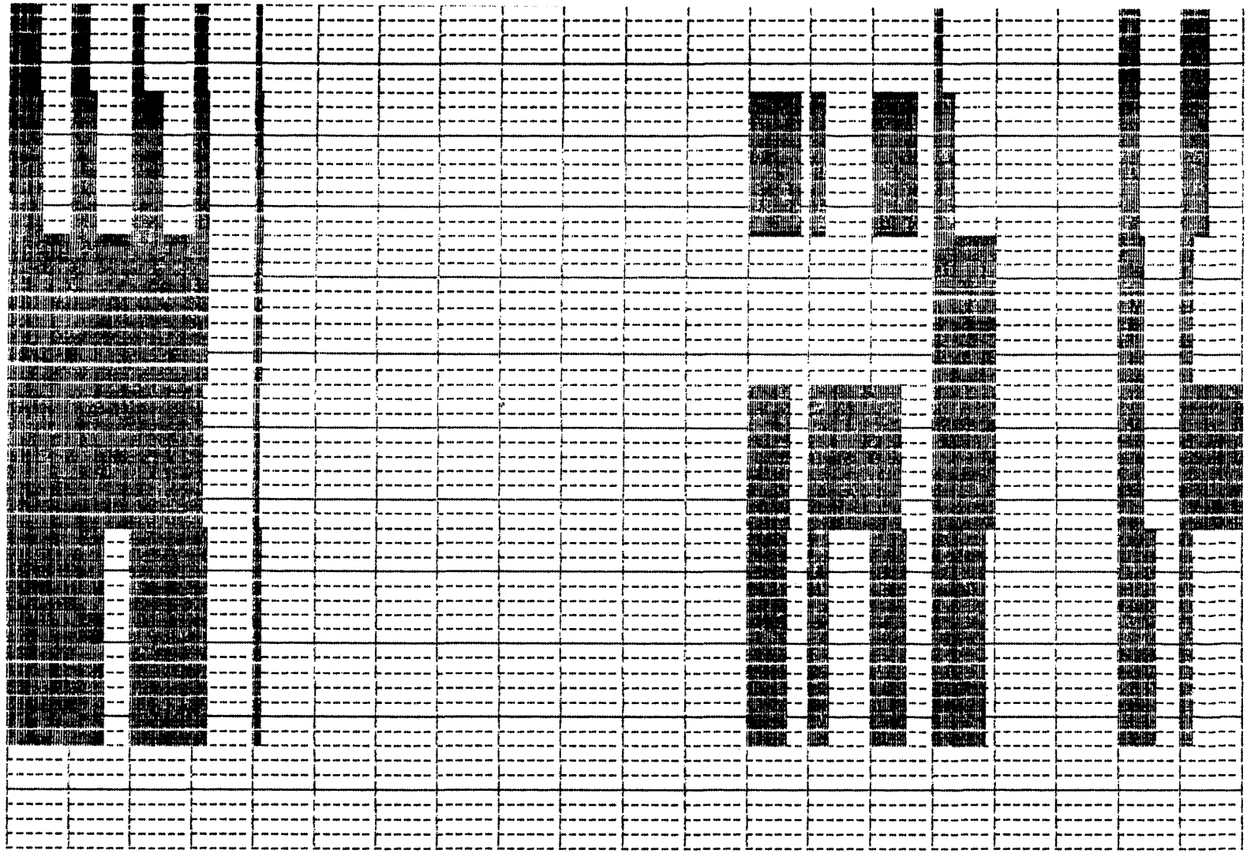
(7.0-46.5) CLAY; UNOXIDIZED; gray, w/silty clay, lake sediments.

(46.5-50.5) SILTY CLAY; UNOXIDIZED, w/sand and few pebs; transition to Rainy Lobe??.

(50.5-59.0) GRAVELLY SAND; UNOXIDIZED; Rainy Lobe; sample 52-62 +10M content approx 40 wt%, and +10M is subang and subrnd pebs and chips.

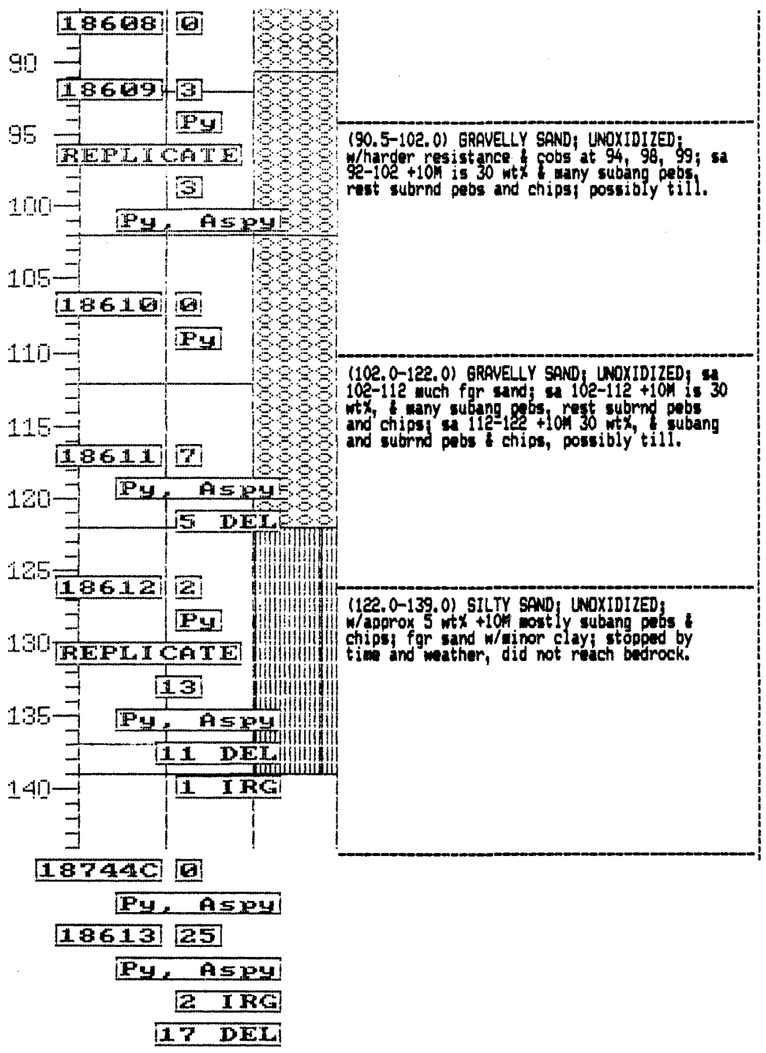
(59.0-62.0) COARSE SAND; UNOXIDIZED; w/v few pebs.

(62.0-90.5) GRAVELLY SAND; UNOXIDIZED; Rainy Lobe; poss till; sa 62-72 +10M is 30 wt% many subang pebs, rest subrnd pebs & chips; 72-82 +10M 30 wt% many subang pebs, rest subrnd pebs & chips; 82-92 +10M 20 wt% many subang pebs, rest subrnd pebs & chips.



RECLEANED 52-137

SLUICE BOX 52-137




(90.5-102.0) GRAVELLY SAND; UNOXIDIZED; w/harder resistance & cobs at 94, 98, 99; sa 92-102 +10M is 30 wt% & many subang pebs, rest subrnd pebs and chips; possibly till.

(102.0-122.0) GRAVELLY SAND; UNOXIDIZED; sa 102-112 much fgr sand; sa 102-112 +10M is 30 wt%, & many subang pebs, rest subrnd pebs and chips; sa 112-122 +10M 30 wt%, & subang and subrnd pebs & chips, possibly till.

(122.0-139.0) SILTY SAND; UNOXIDIZED; w/approx 5 wt% +10M mostly subang pebs & chips; fgr sand w/minor clay; stopped by time and weather, did not reach bedrock.

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18605 | 20801 | 52-62 | 10. | M | D | SE-SW | 10 | 62 | 20 | SL | RL. GVL. SAND | 52-62 | 2.0 | 11000.0 | -2.0 | 16.7 | 4.5 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18605R | 20801 | 52-62 | 10.0 | M | D | SE-SW | 10 | 62 | 20 | SL | RL. GVL. SAND | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 18606 | 20801 | 62-72 | 10. | M | D | SE-SW | 10 | 62 | 20 | SL | RL. GVL. SAND | 62-72 | 6.0 | 11600.0 | -2.0 | 35.6 | 9.1 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18606R | 20801 | 62-72 | 10.0 | M | D | SE-SW | 10 | 62 | 20 | SL | RL. GVL. SAND | 62-72 | 2.0 | 1600.0 | -2.0 | 68.0 | 14.3 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18607 | 20801 | 72-82 | 10. | M | D | SE-SW | 10 | 62 | 20 | SL | RL. GVL. SAND | 72-82 | 0.0 | 13100.0 | -2.0 | 34.3 | 7.9 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18608 | 20801 | 82-92 | 10. | M | D | SE-SW | 10 | 62 | 20 | SL | RL. GVL. SAND | 82-92 | 0.0 | 12800.0 | -2.0 | 37.6 | 11.8 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18608R | 20801 | 82-92 | 10.0 | M | D | SE-SW | 10 | 62 | 20 | SL | RL. GVL. SAND | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 18609 | 20801 | 92-102 | 10. | M | D | SE-SW | 10 | 62 | 20 | SL | RL. GVL. SAND | 92-102 | 3.0 | 13700.0 | -2.0 | 39.9 | 13.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18609R | 20801 | 92-102 | 10.0 | M | D | SE-SW | 10 | 62 | 20 | SL | RL. GVL. SAND | 92-102 | 3.0 | 10500.0 | -2.0 | 29.8 | 8.7 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18610 | 20801 | 102-112 | 10. | M | D | SE-SW | 10 | 62 | 20 | SL | RL. GVL. SAND | 102-112 | 0.0 | 7900.0 | -2.0 | 30.1 | 2.9 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18611 | 20801 | 112-122 | 10. | M | D | SE-SW | 10 | 62 | 20 | SL | RL. GVL. SAND | 112-122 | 7.0 | 12800.0 | -2.0 | 49.2 | 55.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18612 | 20801 | 122-137 | 15. | M | D | SE-SW | 10 | 62 | 20 | SL | RL. GVL. SAND | 122-137 | 2.0 | 7200.0 | -2.0 | 46.7 | 2.6 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18612R | 20801 | 122-137 | 15.0 | M | D | SE-SW | 10 | 62 | 20 | SL | RL. GVL. SAND | 122-137 | 13.0 | 13000.0 | -2.0 | 94.5 | 4.9 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18744C | 20801 | 52-137 | 85. | M | D | SE-SW | 10 | 62 | 20 | SL | SPECIAL SAMPLE | 52-137 | 0.0 | 13300.0 | -2.0 | 38.7 | 8.0 | -1.0 | -1.0 | -1 | -1 | -1 | RECLEANED +10M MAT'L |
| 18613 | 20801 | 52-137 | 85. | M | D | SE-SW | 10 | 62 | 20 | SL | SLUICE BOX | 52-137 | 25.0 | 3300.0 | -2.0 | 22.9 | 5.2 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18605 | 25 | 0.08 | 211 | 350 | 7500 | 13.30 | 160 | 270 | 410 | 110 | 0 | 41 | -10 | 7 | 1.0 | 0 | -10 | 1.1 | 300 | 124 | -2 | 3 | 550 | 66 | 4 | 49.0 | 5.4 | 2 | 15.40 |
| 18606 | 910 | 0.17 | 647 | 890 | 9300 | 30.30 | 310 | 260 | 320 | 110 | 0 | 90 | -20 | 6 | 1.0 | 0 | -10 | 1.9 | -600 | 396 | 48 | 12 | 690 | 69 | 3 | 160.0 | 14.1 | 3 | 26.00 |
| 18607 | 58 | 0.16 | 577 | 630 | 9400 | 26.50 | 220 | 210 | 210 | 120 | 0 | 67 | -10 | 6 | -0.5 | 0 | -10 | 2.4 | -600 | 373 | 51 | 10 | 610 | 75 | 2 | 140.0 | 15.6 | 3 | 25.50 |
| 18608 | 67 | 0.17 | 878 | 640 | 11000 | 25.40 | 190 | 190 | 160 | 110 | 0 | 98 | -30 | 5 | -0.5 | 0 | -10 | 0.9 | 400 | 564 | 78 | 8 | 400 | 81 | -2 | 230.0 | 23.9 | 3 | 27.60 |
| 18609 | 160 | 0.21 | 824 | 1700 | 9400 | 27.90 | 250 | 260 | 240 | 140 | 0 | 100 | 40 | 6 | -0.5 | 0 | -10 | 2.4 | -600 | 529 | 74 | 10 | 610 | 70 | 3 | 220.0 | 19.1 | 3 | 29.30 |
| 18610 | 600 | 0.15 | 339 | 1500 | 3500 | 39.20 | 730 | 470 | 660 | 440 | 0 | 320 | -20 | 5 | 1.0 | 0 | -10 | 6.3 | -600 | 181 | 60 | -4 | 230 | 93 | 7 | 71.0 | 12.0 | 4 | 22.20 |
| 18611 | 690 | 0.07 | 0 | 490 | 2400 | 34.50 | 560 | 550 | 660 | 170 | 0 | 490 | 30 | 4 | 2.0 | 0 | 35 | 4.8 | 400 | 143 | 39 | 5 | 210 | 187 | 7 | 60.0 | 6.0 | 4 | 12.90 |
| 18612 | 420 | 0.17 | 192 | 400 | 1800 | 34.80 | 690 | 570 | 330 | 140 | 0 | 360 | -10 | 6 | 1.5 | 0 | -10 | 10.0 | 600 | 124 | 92 | -3 | 91 | 151 | 10 | 47.0 | 9.5 | 6 | 34.40 |
| 18744C | 190 | 0.19 | 456 | 880 | 7400 | 35.50 | 410 | 280 | 350 | 150 | 0 | 160 | -20 | 7 | -0.5 | 0 | 71 | 4.5 | -600 | 293 | 35 | 9 | 1100 | 192 | 4 | 100.0 | 7.7 | 3 | 28.30 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | AS | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18605 | 1.300 | 2.70 | 2200 | 580 | 130 | 290 | 1 | 94 | 2.0 | 4 | 0.0 | 0.4 |
| 18605R | 0.950 | 2.50 | 2300 | 230 | 120 | 290 | 0.3 | 35 | -0.5 | 8 | 5.8 | 0 |
| 18606 | 0.990 | 3.50 | 2500 | 440 | 88 | 370 | -1 | 82 | 3.0 | 8 | 0.0 | 0.8 |
| 18606R | 0.680 | 3.00 | 3000 | 170 | 79 | 440 | 0.2 | 26 | -0.5 | 8 | 4.8 | 8.9 |
| 18607 | 0.730 | 3.50 | 1900 | 160 | 75 | 410 | -0.1 | 21 | -0.5 | 14 | 4.2 | 0 |
| 18608R | 0.530 | 3.50 | 1700 | 160 | 70 | 410 | -0.1 | 18 | -0.5 | 12 | 3.4 | 0 |
| 18609 | 1.000 | 4.00 | 2100 | 420 | 74 | 370 | 1 | 71 | 3.0 | 10 | 0.0 | 0.9 |
| 18609R | 0.510 | 3.30 | 2100 | 150 | 64 | 290 | 0.1 | 17 | -0.5 | 12 | 6.1 | 0.8 |
| 18610 | 0.760 | 2.80 | 2500 | 240 | 130 | 340 | 0.4 | 66 | -0.5 | 12 | 15.0 | 0 |
| 18611 | 0.960 | 3.00 | 1900 | 350 | 110 | 280 | -1 | 49 | -0.5 | 48 | 0.0 | 4.3 |
| 18612 | 0.900 | 3.20 | 2300 | 330 | 87 | 350 | 2 | 56 | 2.5 | 16 | 0.0 | 0.4 |
| 18612 | 0.460 | 2.80 | 2500 | 210 | 90 | 380 | 0.7 | 37 | -0.5 | 22 | 30.0 | 0.4 |

**Appendix 8-60A.** DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-20803

Drilling Completion Date 12/19/86

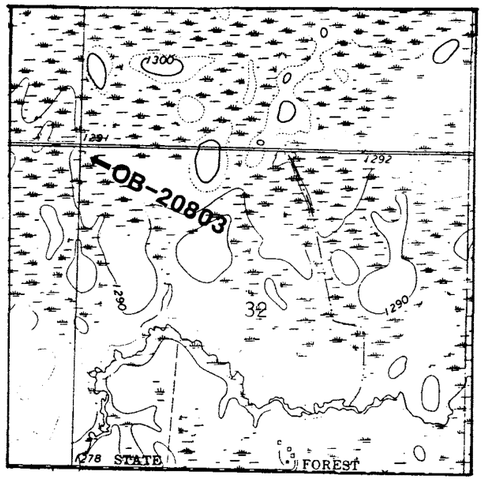
LOCATION (see map at right)

S-T-R NW¼-NW¼-32-62N-20W

County St. Louis

Quadrangle Meadowbrook 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1290 ft.

Total Depth 129 ft.

Elevation, Top of Precambrian Bedrock 1166 ft.

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-4 | Organic Sediments | | | |
| 4-90.5 | Des Moines Lobe Gl. Drift | | | |
| 90.5-124 | Rainy Lobe Gl. Drift | F | B,C | B = Au,As,Sb,Pb<br>C = Ag |
| 124-129 | Bedrock | F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Uncertain, probably Graywacke. Light gray and well foliated. Sugar 0.1%, relict sand to 0.5%. Sugary with 5% relict sand grains. Comprised of 80% qtz.-plag. sugar, 5% relict sand grains (mostly plag.), and 15% biotite to (mostly) chlorite. 0.1% dissem. py. (By ODM, see report in Appendix)

Thin Section Number: #18636.



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | MATRIX | | | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18732 | 9.9 | 0.0 | 9.9 | 151.4 | 115.3 | 36.1 | 29.1 | 7.0 | 0 | NA | TR | NA | NA | NA | NA | U | Y | Y | Y | B | B | TILL |
| -33 | 19.6 | 0.0 | 19.6 | 289.4 | 219.7 | 69.7 | 57.1 | 12.6 | 0 | NA | TR | NA | NA | NA | NA | U | Y | Y | Y | GB | GB | TILL |
| -34 | 16.9 | 0.0 | 16.9 | 233.7 | 166.9 | 66.8 | 53.3 | 13.5 | 0 | NA | TR | NA | NA | NA | A | U | Y | Y | Y | GB | GB | TILL |
| -35 | 13.3 | 0.0 | 13.3 | 259.7 | 216.4 | 43.3 | 36.1 | 7.2 | 0 | NA | TR | NA | NA | NA | NA | U | Y | Y | Y | GB | GB | TILL |
| -637 | 3.6 | 0.0 | 3.6 | 96.1 | 65.4 | 30.7 | 24.7 | 6.0 | 4 | 50 | | | | | | | | | | | | |
| 18749C | 10.5 | 0.0 | 10.5 | 129.1 | 96.6 | 32.5 | 29.7 | 2.8 | 0 | NA | TR | NA | NA | NA | NA | S | C | Y | N | B | NA | SAND |
| 18750C | 19.1 | 0.0 | 19.1 | 343.2 | 270.1 | 73.1 | 58.8 | 14.3 | 2 | 133 | TR | NA | NA | NA | NA | U | Y | Y | Y | GB | GB | TILL |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18732 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -33 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -34 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -35 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -637 | Y | 25 X 25 | 5 C | | 1 | | | | | 1 | | | EST. 10% PYRITE |
| | | 50 X 50 | 10 C | | | | | | 1 | 1 | | | 800 GRAINS |
| | | 50 X 75 | 13 C | 1 | | | | | | 1 | | | ARSENOPYRITE |
| | | 50 X 100 | 15 C | | 1 | | | | | 1 | | | (FINE) |
| | | | | | | | | | | 4 | 24.7 | 50 | |
| 18749C | Y | NO VISIBLE GOLD | | | | | | | | | | | EST. 7% PYRITE |
| 18750C | Y | 25 X 50 | 8 C | | 1 | | | | | 1 | | | EST. 10% PYRITE |
| | | 125 X 225 | 34 C | | 1 | | | | | 1 | | | |
| | | | | | | | | | | 2 | 58.8 | 133 | |

FIELDNOTES SUMMARY LOG OB-20803, MUD ROTARY

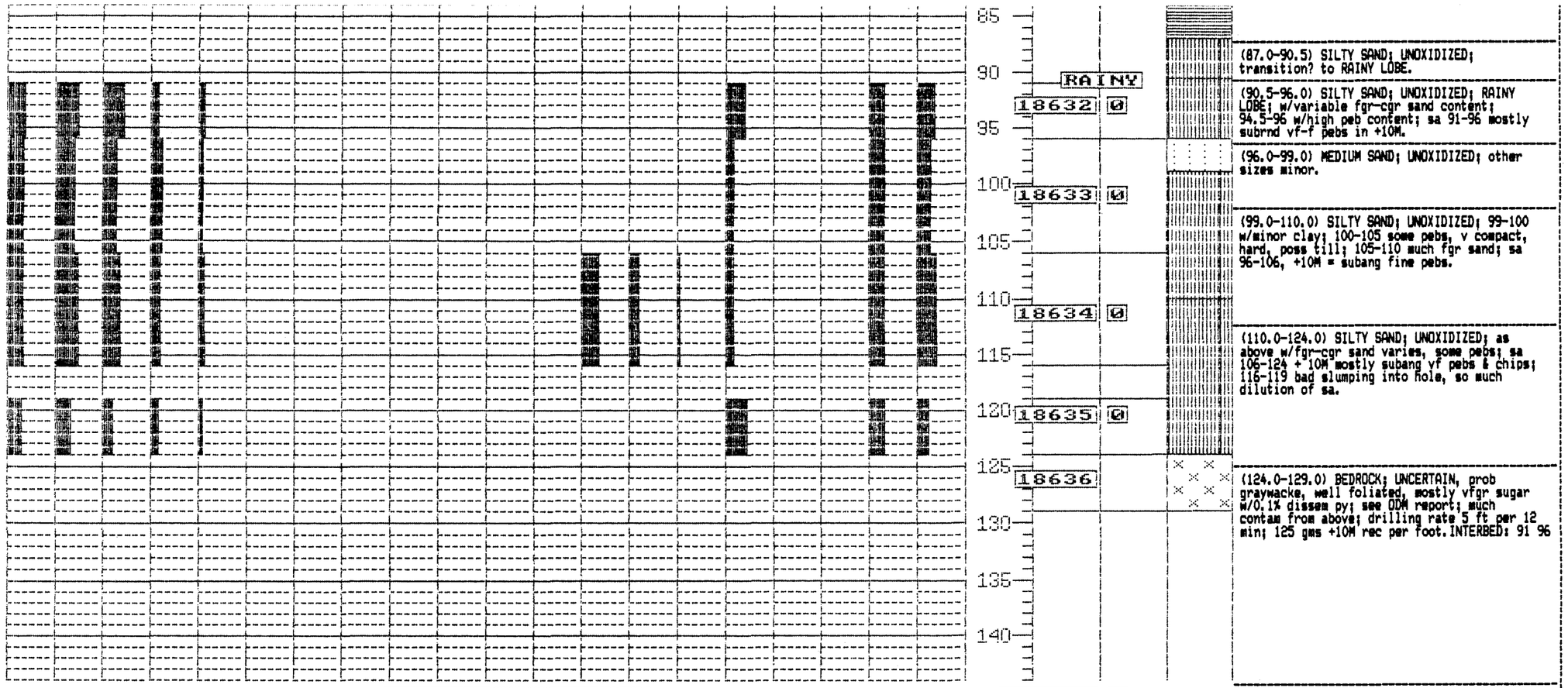
[ IN NON MAG HMC ][ IN -63 MICRON ][ IN MAG FRAC ]

| ^200 As | ^600 Cu | ^5 Sb | ^25 Mo | ^6000 Ba | ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 Fe% | ^500 Ni | ^50 Pb | ^100 Mo | NON MAG ^500 Au | -63 ^20 Au | -63 ^100 g/kg | NON MAG HMC ^10 g/kg | MAG ^2 g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

# OB-20803

Appendix 8-60B.

| (FEET) | HMC SAMPLE # | HMC # GOLD GRAINS; INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|---|
| 5 | | | DES MOINES | (0.0-4.0) ORGANIC SEDIMENTS; peat. |
| 10 | | | | (4.0-17.0) CLAY; OXIDIZED; only slight ox, still grayish, harder than usual to penetration. |
| 15 | | | | |
| 20 | | | | |
| 25 | | | | |
| 30 | | | | |
| 35 | | | | |
| 40 | | | | |
| 45 | | | | |
| 50 | | | | |
| 55 | | | | |
| 60 | | | | |
| 65 | | | | |
| 70 | | | | |
| 75 | | | | |
| 80 | | | | (17.0-87.0) CLAY; UNOXIDIZED; lake sediments, w/silty clay; drilling rate = 25 ft/hour; 79-87 softer clay. |




RECLEANED 106-116 — 18750C 2 Py

RECLEANED 91-124 — 18749C 0 Py

SLUICE BOX 91-129 — 18637 4 Py, Aspy; 1 DEL

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18632 | 20803 | 91-96 | 5. | M | O | NW-NW | 32 | 62 | 20 | SL | RL. SILTY SAND | 91-96 | 0.0 | 9900.0 | -2.0 | 29.1 | 7.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18633 | 20803 | 96-106 | 10. | M | O | NW-NW | 32 | 62 | 20 | SL | RL. SILTY SAND | 96-106 | 0.0 | 19600.0 | -2.0 | 57.1 | 12.6 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18634 | 20803 | 106-116 | 10. | M | O | NW-NW | 32 | 62 | 20 | SL | RL. SILTY SAND | 106-116 | 0.0 | 16900.0 | -2.0 | 53.3 | 13.5 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18750C | 20803 | 106-116 | 10. | M | O | NW-NW | 32 | 62 | 20 | SL | SPECIAL SAMPLE | 106-116 | 2.0 | 19100.0 | -2.0 | 58.8 | 14.3 | -1.0 | -1.0 | -1 | -1 | -1 | RECLEANED +10M MAT'L |
| 18635 | 20803 | 119-124 | 5. | M | O | NW-NW | 32 | 62 | 20 | SL | RL. SILTY SAND | 119-124 | 0.0 | 13300.0 | -2.0 | 36.1 | 7.2 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18636 | 20803 | 124-129 | 5. | M | O | NW-NW | 32 | 62 | 20 | SL | BEDROCK | | -1.0 | -1.0 | -2.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18749C | 20803 | 91-124 | 33. | M | O | NW-NW | 32 | 62 | 20 | SL | SPECIAL SAMPLE | 91-124 | 0.0 | 10500.0 | -2.0 | 29.7 | 2.8 | -1.0 | -1.0 | -1 | -1 | -1 | RECLEANED +10M MAT'L |
| 18637 | 20803 | 91-129 | 38. | M | O | NW-NW | 32 | 62 | 20 | SL | SLUICE BOX | 91-129 | 4.0 | 3600.0 | -2.0 | 24.7 | 6.0 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18632 | 200 | 0.25 | 822 | 820 | 9700 | 27.10 | 240 | 250 | 290 | 140 | 0 | 75 | -10 | 4 | 0.5 | 0 | -10 | 2.3 | 700 | 514 | 91 | 6 | 26 | 69 | 2 | 200.0 | 19.3 | 3 | 21.40 |
| 18633 | 88 | 0.17 | 568 | 750 | 10000 | 23.80 | 200 | 240 | 250 | 130 | 0 | 63 | -20 | 6 | 0.5 | 0 | -10 | 1.4 | 400 | 359 | 53 | 9 | 8 | 123 | 3 | 140.0 | 14.2 | 3 | 41.70 |
| 18634 | 86 | 0.15 | 635 | 960 | 10000 | 25.60 | 210 | 240 | 290 | 120 | 0 | 63 | -10 | 5 | -0.5 | 0 | -10 | 1.9 | 600 | 409 | 57 | 11 | 12 | 46 | 2 | 160.0 | 15.0 | 3 | 39.10 |
| 18750C | 100 | 0.16 | 656 | 1100 | 9800 | 29.80 | 240 | 210 | 250 | 150 | 0 | 99 | -10 | 5 | -0.5 | 0 | -10 | 1.6 | -600 | 465 | 72 | 12 | 20 | 66 | 3 | 170.0 | 14.8 | 3 | 43.00 |
| 18635 | 220 | 0.18 | 542 | 970 | 10000 | 25.60 | 200 | 220 | 200 | 120 | 0 | 55 | 70 | 4 | -0.5 | 0 | -10 | 1.1 | -500 | 331 | 42 | 10 | -6 | 40 | 2 | 130.0 | 11.4 | 3 | 26.40 |
| 18749C | 35 | 0.19 | 283 | 600 | 9300 | 23.60 | 180 | 180 | 190 | 120 | 0 | 82 | -10 | 3 | -0.5 | 0 | -10 | 2.8 | 600 | 183 | 18 | 4 | -12 | 91 | 2 | 66.0 | 7.3 | 3 | 14.70 |
| 18637 | 76 | 0.19 | 835 | 930 | 8200 | 22.60 | 210 | 320 | 220 | 160 | 0 | 33 | -10 | 6 | -0.5 | 0 | -10 | -0.6 | -500 | 461 | 140 | 6 | 60 | 69 | -2 | 180.0 | 15.9 | 7 | 18.20 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18634 | 1.200 | 4.30 | 2500 | 180 | 42 | 440 | -1 | 4 | 4.0 | 10 | 0.8 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18636 | -7 | -0.2 | 2.0 | 400 | 0.0 | 2 | 37.0 | 0.0 | 130 | 20 | 0 | 3 | -100 | 5.4 | 19 | 0.0 | 1 | 86 | 0 | 0.00 | 0.0 | -10 | 0 | 3.40 | -1.0 | -10 | 0.0 | 3.9 | -10 | -2 | 0.8 | 0 | 0 | 0 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18636 | 30 | 14 | 59 | 0 | 1.0 | 0 | 0 | 0 | 0.00 | 3 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | -2 | 0.00 | 0 |

## Appendix 8-61A. DRILL HOLE SUMMARY SHEET

### IDENTIFICATION

DNR Drill Hole Number OB-20804

Drilling Completion Date 2/11/86

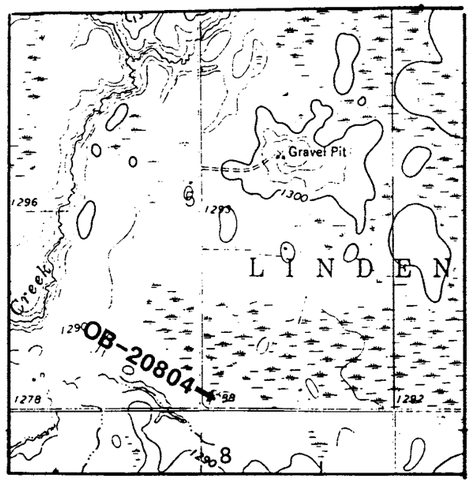
### LOCATION (see map at right)

S-T-R SW¼-SE¼-5-62N-20W

County St. Louis

Quadrangle Gheen N.W. 7.5

Regional Survey Area Orr




### HOLE PARAMETERS

Surface Elevation 1288 ft.

Total Depth 92 ft.

Elevation, Top of Precambrian Bedrock

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

### INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-64 | Des Moines Lobe Gl. Drift | | | |
| 64-92 | Rainy Lobe Gl. Drift | F | B,C | C = Ag,Ni,Co |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

### BEDROCK

Principal Rock Type:

Thin Section Description:



## HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18601 | 11.3 | 1.6 | 9.7 | 367.5 | 297.4 | 70.1 | 56.6 | 13.5 | 0 | NA | C | 85 | 15 | NA | NA | U | Y | Y | Y | BGN | BGN | TILL |
| -02 | 19.4 | 1.8 | 17.6 | 557.8 | 445.0 | 112.8 | 91.6 | 21.2 | 0 | NA | C | 90 | 10 | NA | NA | U | Y | Y | Y | GN | B | TILL |
| 18602R | 8.3 | 0.6 | 7.7 | 200.1 | 145.2 | 54.9 | 46.0 | 8.9 | 4 | 91 | P | 60 | 40 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -03 | 9.3 | 0.2 | 9.1 | 272.1 | 222.8 | 49.3 | 39.7 | 9.6 | 0 | NA | C | 85 | 15 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -04 | 3.2 | 0.2 | 3.0 | 82.9 | 71.3 | 11.6 | 9.7 | 1.9 | 0 | NA | P | 85 | 15 | NA | NA | U | Y | Y | Y | B | GN | TILL |
| 18604R | 6.4 | 0.0 | 6.4 | 164.8 | 133.5 | 31.3 | 25.0 | 6.3 | 2 | 48 | TR | NA | NA | NA | NA | U | Y | Y | Y | GB | GB | TILL |
| -621 | 2.9 | 0.0 | 2.9 | 126.1 | 96.4 | 29.7 | 22.7 | 7.0 | I | 28 | | | | | | | | | | | | |
| 18743C | 23.7 | 0.0 | 23.7 | 407.5 | 279.7 | 127.8 | 100.1 | 27.7 | 3 | 162 | TR | NA | NA | NA | NA | U | Y | Y | Y | B | B | TILL |

### GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18601 | Y | NO VISIBLE GOLD | | | | | | | | | | | EST. 35% PYRITE |
| -02 | Y | NO VISIBLE GOLD | | | | | | | | | | | EST. 30% PYRITE<br>1% ARSENOPYRITE |
| 18602R | Y | 25 X 50 | B C | | | | | | 1 | 1 | | | EST. 15% PYRITE |
| | | 50 X 50 | 10 C | | 1 | | | | | 1 | | | 150 GRAINS |
| | | 75 X 100 | 18 C | | 1 | | | | | 1 | | | ARSENOPYRITE |
| | | 75 X 175 | 25 C | | | | 1 | | | 1 | | | |
| | | | | | | | | | | 4 | 46.0 | 91 | |
| -03 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -04 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18604R | Y | 50 X 50 | 10 C | | | | 1 | | | 1 | | | EST. 15% PYRITE |
| | | 75 X 100 | 18 C | | 1 | | | | | 1 | | | 0.1% ARSENOPYRITE |
| | | | | | | | | | | 2 | 25.0 | 48 | |
| -621 | Y | 75 X 75 | 15 C | | 1 | | | | | 1 | | | EST. 15% PYRITE |
| | | | | | | | | | | 1 | | | 1000 GRAINS |
| | | | | | | | | | | 1 | 22.7 | 28 | ARSENOPYRITE |
| 18743C | Y | 25 X 25 | 5 C | | 1 | | | | | 1 | | | EST. 50% PYRITE |
| | | 25 X 75 | 10 C | | | | 1 | | | 1 | | | 300 GRAINS |
| | | 200 X 250 | 42 C | | 1 | | | | | 1 | | | ARSENOPYRITE |
| | | | | | | | | | | 3 | 100.1 | 162 | |

FIELDNOTE SUMMARY LOG OB-20804, MUD ROTARY FIRST HOLE

[ IN NON MAG HMC ][ IN -63 MICRON ][ IN MAG FRAC ]

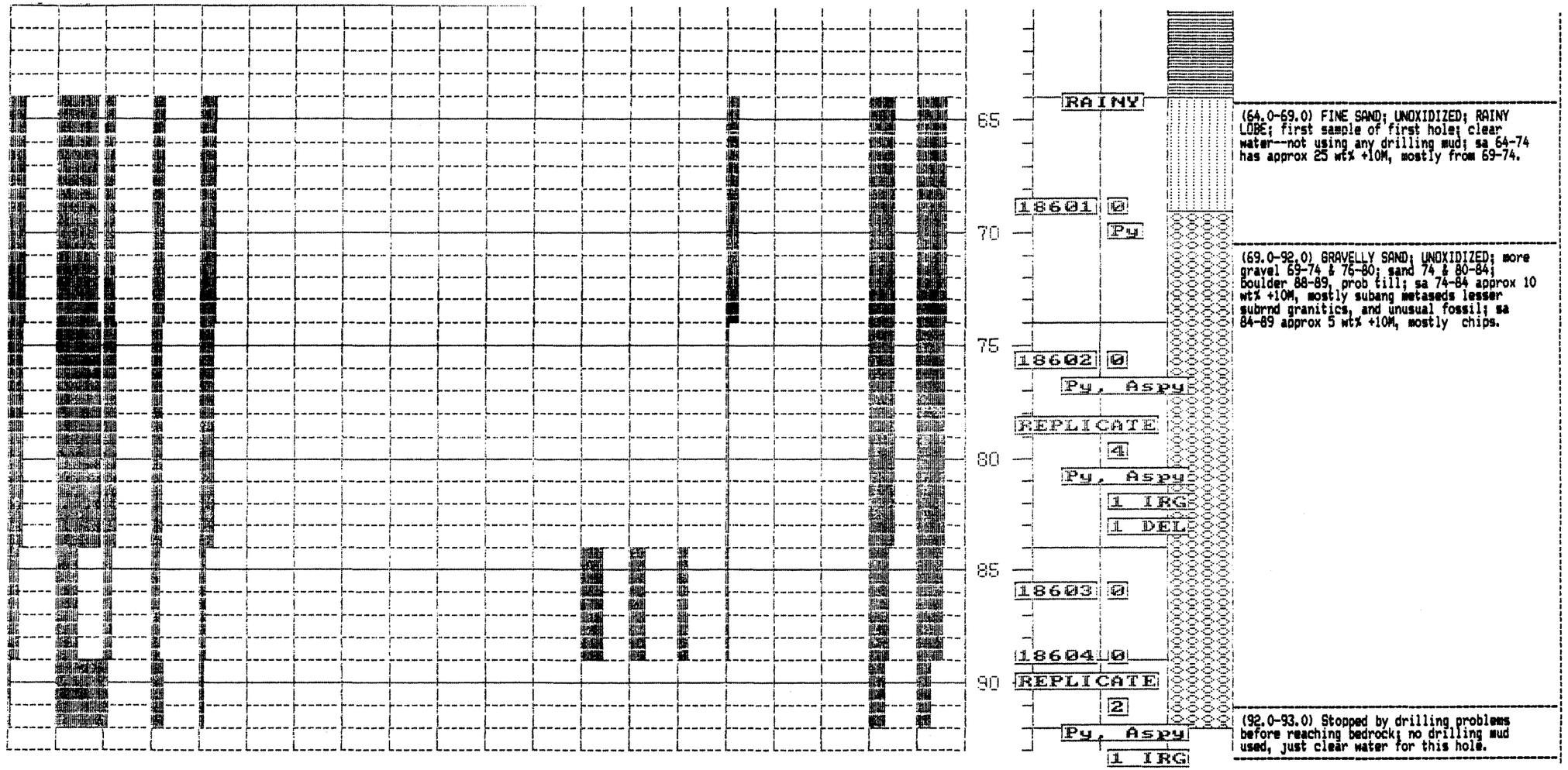
| ^200 As | ^600 Cu | ^5 Sb | ^25 Mo | ^6000 Ba | ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 Fe% | ^500 Ni | ^50 Pb | ^100 Mo | NON MAG ^500 Au | -63 ^20 Au | -63 ^100 g/kg | NON MAG HMC ^10 g/kg | MAG ^2 g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | |

| (FEET) | HMC SAMPLE # | HMC # GOLD GRAINS; INDICATORS | LITHOLOGY |
|---|---|---|---|
| | DES MOINES | | |
| 5 | | | |
| 10 | | | |
| 15 | | | |
| 20 | | | |
| 25 | | | |
| 30 | | | |
| 35 | | | |
| 40 | | | |
| 45 | | | |
| 50 | | | |
| 55 | | | |
| 60 | | | |

OB-20804

LITHOLOGIC DESCRIPTIONS AND/OR REMARKS

Appendix 8-61B.




RECLEANED 74-92

18743C 3
Py, Aspy
1 IRG

SLUICE BOX 64-92

18621 1
Py, Aspy

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY DESC | LEGAL | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18601 | 20804 | 64-74 | 10. | M | O | SW-SE | 5 | 62 | 20 | SL | RL. GVL. SAND | 64-74 | 0.0 | 11300.0 | | -2.0 | 56.6 | 13.5 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18602 | 20804 | 74-84 | 10. | M | O | SW-SE | 5 | 62 | 20 | SL | RL. GVL. SAND | 74-84 | 0.0 | 19400.0 | | -2.0 | 91.6 | 21.2 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18602R | 20804 | 74-84 | 10.0 | M | O | SW-SE | 5 | 62 | 20 | SL | RL. GVL. SAND | 74-84 | 4.0 | 8300.0 | | -2.0 | 46.0 | 8.9 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18743C | 20804 | 74-92 | 18. | M | O | SW-SE | 5 | 62 | 20 | SL | SPECIAL SAMPLE | 74-92 | 3.0 | 23700.0 | | -2.0 | 100.1 | 27.7 | -1.0 | -1.0 | -1 | -1 | -1 | RECLEANED +10M MAT'L |
| 18603 | 20804 | 84-89 | 5. | M | O | SW-SE | 5 | 62 | 20 | SL | RL. GVL. SAND | 84-89 | 0.0 | 9300.0 | | -2.0 | 39.7 | 9.6 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18604 | 20804 | 89-92 | 3. | M | O | SW-SE | 5 | 62 | 20 | SL | RL. GVL. SAND | 89-92 | 0.0 | 3200.0 | | -2.0 | 9.7 | 1.9 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18604R | 20804 | 89-92 | 3.0 | M | O | SW-SE | 5 | 62 | 20 | SL | RL. GVL. SAND | 89-92 | 2.0 | 6400.0 | | -2.0 | 25.0 | 6.3 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18621 | 20804 | 64-92 | 28. | M | O | SW-SE | 5 | 62 | 20 | SL | SLUICE BOX | 64-92 | 1.0 | 2900.0 | | -2.0 | 22.7 | 7.0 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18601 | 120 | 0.46 | 493 | 690 | 4300 | 30.30 | 280 | 260 | 510 | 160 | 0 | 61 | -10 | 6 | -0.5 | 0 | -10 | 1.1 | 2000 | 281 | 42 | -3 | 21 | 52 | 4 | 85.0 | 12.5 | 5 | 34.50 |
| 18602 | 22 | 0.35 | 330 | 470 | 4900 | 24.10 | 220 | 240 | 560 | 140 | 0 | 53 | 20 | 5 | -0.5 | 0 | -10 | 1.3 | 1600 | 192 | 26 | -2 | 41 | 58 | 4 | 64.0 | 6.9 | 5 | 68.70 |
| 18743C | 150 | 0.33 | 511 | 630 | 6500 | 30.40 | 250 | 230 | 470 | 140 | 0 | 52 | -10 | 5 | -0.5 | 0 | -10 | 1.0 | 1600 | 340 | 48 | 4 | 64 | 46 | 3 | 120.0 | 14.4 | 4 | 73.70 |
| 18603 | -22 | 0.24 | 647 | 460 | 7700 | 24.20 | 170 | 190 | 270 | 120 | 0 | 36 | -60 | 4 | 1.0 | 0 | -10 | 0.9 | 800 | 393 | 55 | 8 | 67 | 60 | 2 | 150.0 | 14.9 | 4 | 29.30 |
| 18604 | -9 | 0.13 | 295 | 180 | 6600 | 10.10 | 70 | 210 | 630 | 140 | 0 | 11 | -10 | 6 | 0.5 | 0 | -10 | 0.4 | 400 | 174 | 29 | 6 | 75 | 39 | 2 | 65.0 | 7.8 | 3 | 10.60 |
| 18604R | 32 | 0.24 | 490 | 470 | 9100 | 21.10 | 170 | 220 | 280 | 150 | 0 | 42 | -10 | 6 | -0.5 | 0 | -10 | 1.8 | 600 | 341 | 59 | 7 | 320 | 86 | 2 | 120.0 | 10.3 | 4 | 18.70 |
| 18621 | 62 | 0.53 | 755 | 910 | 6300 | 27.80 | 220 | 410 | 390 | 150 | 0 | 39 | -10 | 6 | -0.5 | 0 | -10 | 1.7 | 1500 | 561 | 120 | 10 | 120 | 101 | 3 | 190.0 | 19.2 | 8 | 16.90 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18603 | 0.810 | 3.80 | 1300 | 230 | 73 | 340 | -1 | 19 | 3.0 | 16 | 1.0 |

## Appendix 8-62A. DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-20901

Drilling Completion Date 12/19/86

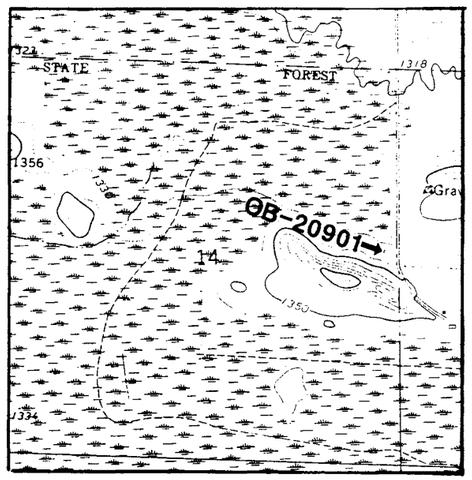
LOCATION (see map at right)

S-T-R SE¼-NE¼-14-63N-20W

County St. Louis

Quadrangle Gheen 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1335 ft.

Total Depth 65 ft.

Elevation, Top of Precambrian Bedrock 1275 ft.

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam

SEE FOLLOWING PAGES
Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-47.5 | Des Moines Lobe Gl. Drift | | | |
| 47.5-60 | Rainy Lobe Gl. Drift | F | B,C | B = Cu,Ba,Bi<br>C = Ag,Ni,Mo |
| 60-65 | Bedrock | F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Graywacke. Sample is minimum 70% overburden clast contamination. Mainly whole pebbles of gray (biotitic) to green (chloritic) wacke and pink to white granitoids (no volc.); balance is drill cuttings, possibly bedrock, of sugary biotitic graywacke containing 1% relict sand and 5-10% dissem. pyrite. (i.e.: Graywacke is all one variety, either bedrock or large boulder.) (By ODM, see report in Appendix)

Thin Section Number: #18640.



## HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18638 | 11.9 | 0.0 | 11.9 | 167.2 | 129.0 | 38.2 | 30.5 | 7.7 | 0 | NA | TR | NA | NA | NA | A | U | Y | Y | Y | BB | GB | TILL |
| 18638R | 9.7 | 0.0 | 9.7 | 155.0 | 121.6 | 33.4 | 25.6 | 7.8 | 1 | 1424 | TR | NA | NA | NA | NA | U | Y | Y | Y | B | B | TILL |
| -39 | 6.1 | 0.0 | 6.1 | 76.3 | 62.4 | 13.9 | 8.7 | 5.2 | 1 | 172 | TR | NA | NA | NA | NA | U | Y | Y | Y | BB | GB | TILL |
| 18639R | 5.4 | 0.0 | 5.4 | 125.5 | 102.1 | 23.4 | 18.4 | 5.0 | 1 | 157 | TR | NA | NA | NA | NA | U | Y | Y | Y | B | B | TILL |
| -641 | 5.0 | 0.0 | 5.0 | 120.8 | 100.7 | 20.1 | 15.7 | 4.4 | 2 | 24 | | | | | | | | | | | | |
| 18751C | 0.4 | 0.0 | 0.4 | 53.2 | 52.0 | 1.2 | 0.9 | 0.3 | 0 | NA | TR | NA | NA | NA | NA | S | M | Y | N | B | NA | SAND |

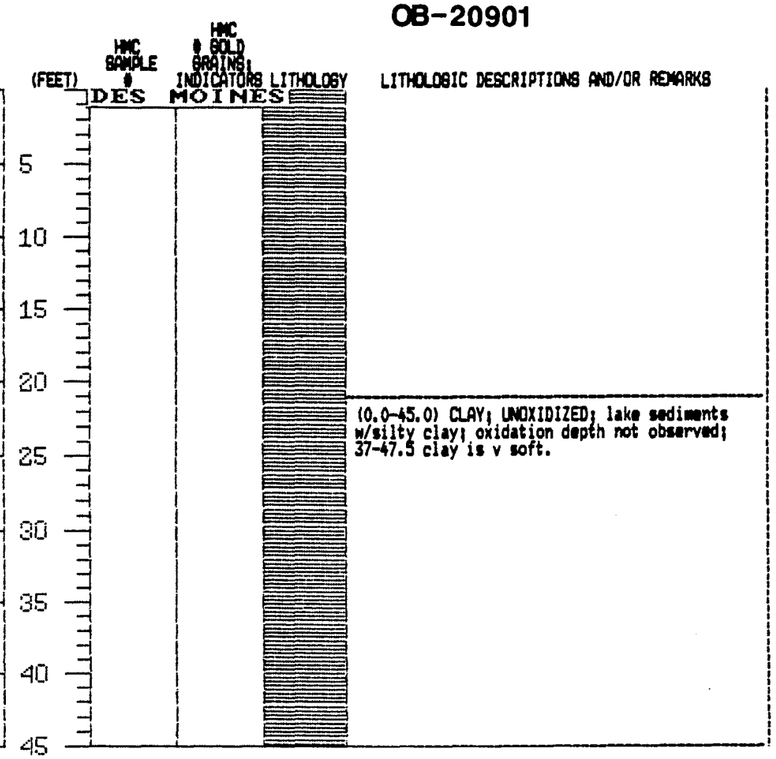
GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

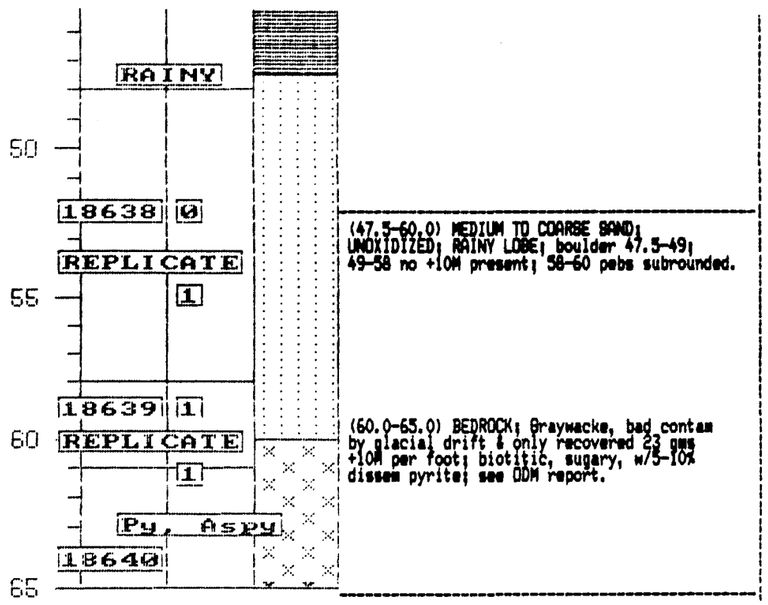
| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | NUMBER OF GRAINS ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18638 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18638R | N | 200 X 400 | 54 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | | 1 | 25.6 | 1424 | |
| -39 | N | 75 X 125 | 20 C | 1 | | | | | | 1 | | | PHOTO REFERENCE #130 |
| | | | | | | | | | | 1 | 8.7 | 172 | |
| 18639R | Y | 100 X 150 | 25 C | 1 | | | | | | 1 | | | EST. 5% PYRITE<br>150 GRAINS<br>ARSENOPYRITE |
| | | | | | | | | | | 1 | 18.4 | 157 | |
| -641 | Y | 50 X 50 | 10 C | | 1 | | 1 | | | 2 | | | EST. 20% PYRITE<br>1% ARSENOPYRITE<br>(FINE) |
| | | | | | | | | | | 2 | 15.7 | 24 | |
| 18751C | N | NO VISIBLE GOLD | | | | | | | | | | | |

FIELDNOTE SUMMARY LOG OB-20901, MUD ROTARY

| [ IN NON MAG HMC | | | | ][ IN -63 MICRON | | | | | | | | ][ IN MAG FRAC ] | | | | NON MAG -63 | | -63 NON MAG HMC | MAG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ^200 As | ^500 Cu | ^5 Sb | ^25 Mo | ^6000 Ba | ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 Fe% | ^500 Ni | ^50 Pb | ^100 Mo | ^500 Au | ^20 Au | ^100 g/kg | ^10 g/kg | ^2 g/kg |
| | | | | | | | | | | | | | | | | | | | |




Appendix 8-62B.




RECLEANED 58-61

SLUICE BOX 48-65

18751C 0

18641 2

Py, Aspy

1 IRG

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY DESC | LEGAL | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18638 | 20901 | 48-58 | 10. | M | O | SE-NE | 14 | 63 | 20 | SL | RL. MED. TO C. SAND | 48-58 | 0.0 | 11900.0 | -2.0 | 30.5 | 7.7 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18638R | 20901 | 48-58 | 10.0 | M | O | SE-NE | 14 | 63 | 20 | SL | RL. MED. TO C. SAND | 48-58 | 1.0 | 9700.0 | -2.0 | 25.6 | 7.8 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18639 | 20901 | 58-61 | 3. | M | O | SE-NE | 14 | 63 | 20 | SL | RL. MED. TO C. SAND | 58-61 | 1.0 | 6100.0 | -2.0 | 8.7 | 5.2 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18639R | 20901 | 58-61 | 3.0 | M | O | SE-NE | 14 | 63 | 20 | SL | RL. MED. TO C. SAND | 58-61 | 1.0 | 5400.0 | -2.0 | 18.4 | 5.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18751C | 20901 | 58-61 | 3. | M | O | SE-NE | 14 | 63 | 20 | SL | SPECIAL SAMPLE | 58-61 | 0.0 | 400.0 | -2.0 | 0.9 | 0.3 | -1.0 | -1.0 | -1 | -1 | -1 | RECLEANED +10M MAT'L |
| 18640 | 20901 | 61-65 | 4. | M | O | SE-NE | 14 | 63 | 20 | SL | BEDROCK | | -1.0 | -1.0 | -2.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18641 | 20901 | 48-65 | 17. | M | O | SE-NE | 14 | 63 | 20 | SL | SLUICE BOX | 48-65 | 2.0 | 5000.0 | -2.0 | 15.7 | 4.4 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18638 | 54 | 0.19 | 817 | 320 | 8600 | 30.40 | 280 | 280 | 430 | 180 | 0 | 23 | -10 | 6 | -0.5 | 0 | -10 | 0.8 | 2000 | 545 | 76 | 9 | 38 | 52 | 3 | 190.0 | 21.9 | 3 | 22.10 |
| 18639 | 69 | 0.10 | 396 | 180 | 9700 | 13.80 | 110 | 280 | 220 | 110 | 0 | 22 | -10 | 5 | -0.5 | 0 | -10 | 0.5 | 400 | 255 | 43 | 8 | 31 | 61 | 2 | 87.0 | 10.4 | 1 | 16.80 |
| 18639R | -23 | 0.30 | 499 | 270 | 8700 | 22.20 | 200 | 230 | 180 | 110 | 0 | 13 | -10 | 5 | -0.5 | 0 | 23 | 0.7 | 700 | 360 | 64 | 7 | 65 | 99 | 4 | 120.0 | 12.7 | 3 | 13.60 |
| 18751C | 17 | 0.22 | 268 | 290 | 11000 | 29.00 | 190 | 190 | 180 | 130 | 0 | 24 | -10 | 4 | -0.5 | 0 | -10 | 1.6 | 700 | 193 | 28 | 6 | 71 | 72 | 3 | 71.0 | 8.7 | 2 | 0.85 |
| 18641 | -31 | 0.36 | 949 | 370 | 8200 | 28.70 | 350 | 500 | 380 | 140 | 0 | 28 | -30 | 8 | -0.5 | 0 | -10 | -0.8 | 800 | 714 | 140 | 10 | 100 | 109 | 3 | 240.0 | 30.6 | 3 | 11.30 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | AS | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18638 | 0.380 | 2.70 | 2200 | 220 | 66 | 350 | 0.1 | 12 | -0.5 | 8 | 2.5 | 0.8 |
| 18639 | 0.880 | 3.20 | 1500 | 560 | 92 | 310 | -1 | 98 | 3.0 | 10 | 0.0 | 0.9 |
| 18639R | 0.530 | 3.20 | 1400 | 190 | 61 | 290 | -0.1 | 23 | -0.5 | 14 | 2.1 | 0.9 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18640 | -7 | -0.2 | 2.0 | 800 | 0.0 | 2 | 40.0 | 0.0 | 100 | 20 | 0 | 3 | -100 | 4.0 | 25 | 0.0 | 2 | 71 | 0 | 0.00 | 0.0 | -10 | 0 | 3.70 | -1.0 | -10 | 0.0 | 5.4 | -10 | -2 | 1.3 | 0 | 0 | 0 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18640 | 37 | 17 | 75 | 0 | 1.5 | 0 | 0 | 0 | 0.00 | 4 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | -2 | 0.00 | 0 |

**Appendix 8-63A.** DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-20902

Drilling Completion Date 12/15/86

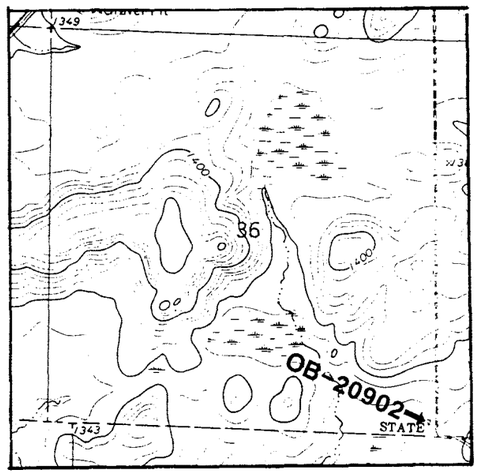
LOCATION (see map at right)

S-T-R SE¼-SE¼-36-63N-20W

County St. Louis

Quadrangle Gheen 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1340 ft.

Total Depth 29.5 ft.

Elevation, Top of Precambrian Bedrock 1316.5 ft.

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-10 | Des Moines Lobe Gl. Drift | | | |
| 10-23.5 | Rainy Lobe Gl. Drift | F | B,C | B = Au,W<br>C = Ag,Mo,Ni |
| 23.5-29.5 | Bedrock | | | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Graywacke. Dark gray, well foliated to schistose graywacke. Relict sand 0.2-0.3, secondary sugar 0.05-0.1 and garnet 0.5. Sugary texture with relict sand. Comprised of 25% biotite, 75% qtz.-plag. sugar, less than 1% relict qtz. sand grains and 0-1% garnet metacrysts. 0.2% dissem. pyrite. (By ODM, see report in Appendix)

Thin Section Number: #18616.



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | DESCRIPTION | | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | CLAST | | | | | MATRIX | | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18614 | 3.6 | 0.1 | 3.5 | 150.9 | 143.0 | 7.9 | 6.4 | 1.5 | 0 | NA | P | 80 | 20 | NA | NA | U | Y | Y | Y | B | B | TILL |
| 18614R | 2.1 | 0.1 | 2.0 | 58.1 | 51.7 | 6.4 | 5.1 | 1.3 | 0 | NA | P | 85 | 15 | NA | NA | U | Y | Y | Y | GB | GB | TILL |
| -15 | 8.0 | 0.1 | 7.9 | 310.7 | 287.5 | 23.2 | 19.1 | 4.1 | 0 | NA | P | 85 | 15 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -617 | 3.8 | 0.0 | 3.8 | 142.8 | 122.1 | 20.7 | 17.8 | 2.9 | 0 | NA | | | | | | | | | | | | |
| 18745C | 4.1 | 0.0 | 4.1 | 95.0 | 87.6 | 7.4 | 6.5 | 0.9 | 0 | NA | TR | NA | NA | NA | NA | U | Y | Y | Y | GYB | GYB | TILL |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | NUMBER OF GRAINS: ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18614 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18614R | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -15 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 18617 | Y | NO VISIBLE GOLD | | | | | | | | | | | EST. 30% PYRITE 2% ARSENOPYRITE |
| 18745C | Y | NO VISIBLE GOLD | | | | | | | | | | | EST. 10% PYRITE |

FIELDNOTE SUMMARY LOG OB-20902, MUD ROTARY

# OB-20902

Appendix 8-63B.

[ IN NON MAG HMC ]

| ^200 As | ^500 Cu | ^3 Sb | ^25 Mo | ^6000 Ba |
|---|---|---|---|---|

][ IN -63 MICRON ]

| ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 Fe% |
|---|---|---|---|---|---|---|

][ IN MAG FRAC ]

| ^500 Ni | ^50 Pb | ^100 Mo |
|---|---|---|

NON MAG -63

| ^500 Au | ^20 Au |
|---|---|

-63

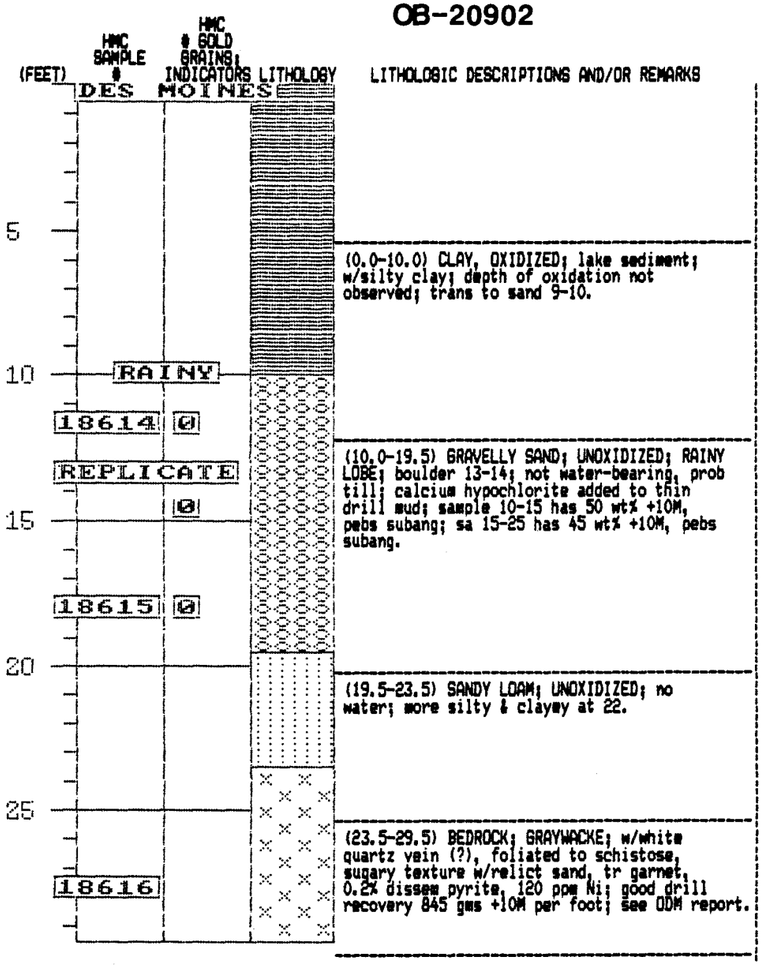
| ^100 g/kg |
|---|

NON MAG HMC

| ^10 g/kg |
|---|

MAG

| ^2 g/kg |
|---|




LITHOLOGIC DESCRIPTIONS AND/OR REMARKS

(0.0-10.0) CLAY, OXIDIZED; lake sediment; w/silty clay; depth of oxidation not observed; trans to sand 9-10.

(10.0-19.5) GRAVELLY SAND; UNOXIDIZED; RAINY LOBE; boulder 13-14; not water-bearing, prob till; calcium hypochlorite added to thin drill mud; sample 10-15 has 50 wt% +10M, pebs subang; sa 15-25 has 45 wt% +10M, pebs subang.

(19.5-23.5) SANDY LOAM; UNOXIDIZED; no water; more silty & clayey at 22.

(23.5-29.5) BEDROCK; GRAYWACKE; w/white quartz vein (?), foliated to schistose, sugary texture w/relict sand, tr garnet, 0.2% disseminated pyrite, 120 ppm Ni; good drill recovery 845 gms +10M per foot; see ODM report.

RECLEANED 10-20 — 18745C @ Py

SLUICE BOX 10-29.5 — 18617 @ Py, Aspy

Appendix 8-63C.

## MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY DESC | LEGAL | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18614 | 20902 | 10-15 | 5. | M | O | SE-SE | 36 | 63 | 20 | SL | RL. GVL. SAND | 10-15 | 0.0 | 3600.0 | -2.0 | 6.4 | 1.5 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18614R | 20902 | 10-15 | 5.0 | M | O | SE-SE | 36 | 63 | 20 | SL | RL. GVL. SAND | 10-15 | 0.0 | 2100.0 | -2.0 | 5.1 | 1.3 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18745C | 20902 | 10-20 | 10. | M | O | SE-SE | 36 | 63 | 20 | SL | SPECIAL SAMPLE | 10-20 | 0.0 | 4100.0 | -2.0 | 6.5 | 0.9 | -1.0 | -1.0 | -1 | -1 | -1 | RECLEANED +10M MAT'L |
| 18615 | 20902 | 15-20 | 5. | M | O | SE-SE | 36 | 63 | 20 | SL | RL. GVL. SAND | 15-20 | 0.0 | 8000.0 | -2.0 | 19.1 | 4.1 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18616 | 20902 | 25-29.5 | 4.5 | M | O | SE-SE | 36 | 63 | 20 | SL | BEDROCK | | -1.0 | -1.0 | -2.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18617 | 20902 | 10-29.5 | 19.5 | M | O | SE-SE | 36 | 63 | 20 | SL | SLUICE BOX | 10-29.5 | 0.0 | 3800.0 | -2.0 | 17.8 | 2.9 | -1.0 | -1.0 | -1 | -1 | -1 | |

## NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18614 | 240 | 0.12 | 204 | 170 | 11000 | 9.40 | 40 | 130 | 110 | 98 | 0 | 12 | -10 | 6 | -0.5 | 0 | -10 | 0.7 | 400 | 112 | 19 | 4 | 550 | 56 | -2 | 44.0 | 4.7 | 2 | 7.95 |
| 18614R | 66 | 0.31 | 518 | 370 | 10000 | 21.20 | 110 | 130 | 92 | 110 | 0 | 24 | -30 | 8 | -0.5 | 0 | -10 | 1.4 | -700 | 310 | 68 | -1 | 1400 | 56 | -2 | 110.0 | 12.4 | 2 | 3.63 |
| 18745C | -38 | 0.19 | 296 | 290 | 24000 | 25.10 | 300 | 230 | 260 | 140 | 0 | 44 | -20 | 7 | -0.5 | 0 | -10 | 1.1 | -600 | 181 | 36 | 6 | 750 | 51 | 3 | 71.0 | 12.0 | 2 | 4.46 |
| 18615 | -15 | 0.09 | -5 | 190 | 21000 | 13.70 | 120 | 250 | 270 | 97 | 0 | 16 | 30 | 8 | -0.5 | 0 | -10 | 0.8 | -300 | 143 | -2 | 4 | 1000 | 48 | 2 | 53.0 | 5.4 | 2 | 17.20 |
| 18617 | 80 | 0.24 | 461 | 390 | 13000 | 26.40 | 280 | 290 | 320 | 120 | 0 | 29 | -20 | 18 | -0.5 | 0 | -10 | 1.3 | -1200 | 334 | 80 | 6 | 5400 | 56 | 2 | 120.0 | 15.8 | 5 | 12.90 |

## MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18615 | 1.100 | 2.70 | 2100 | 900 | 120 | 290 | -1 | 190 | 2.0 | 6 | 0.5 |

## BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18616 | -7 | -0.2 | 2.0 | 600 | 0.0 | 1 | 41.0 | 0.0 | 160 | 30 | 0 | 3 | -100 | 7.6 | 22 | 0.0 | 3 | 120 | 0 | 0.00 | 0.0 | -10 | 0 | 2.80 | -1.0 | -10 | 0.0 | 5.1 | -10 | 54 | 5.6 | 0 | 0 | 0 |

## BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18616 | 92 | 15 | 110 | 0 | 1.5 | 0 | 0 | 0 | 0.00 | 3 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | -2 | 0.00 | 0 |

**Appendix 8-64A.** DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-20904

Drilling Completion Date 1/9/87

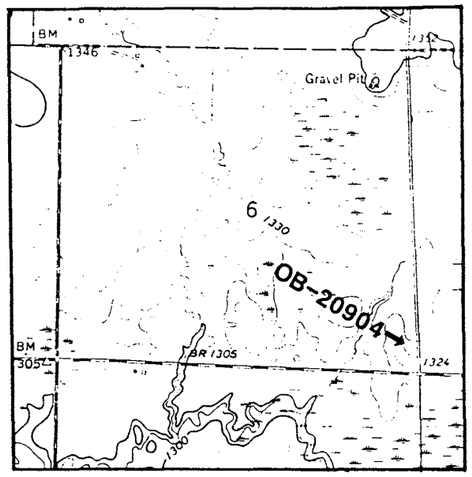
LOCATION (see map at right)

S-T-R SE¼-SE¼-6-63N-20W

County St. Louis

Quadrangle Gheen N.W. 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1325 ft.

Total Depth 125 ft.

Elevation, Top of Precambrian Bedrock

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-100 | Des Moines Lobe Gl. Drift | | | |
| 100-125 | Rainy Lobe Gl. Drift | F | B,C | B = Pb,Bi,Sn |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type:

Thin Section Description:



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18659 | 7.0 | 0.9 | 6.1 | 311.2 | 289.5 | 21.7 | 19.6 | 2.1 | 0 | NA | P | 50 | 50 | NA | NA | U | Y | Y | Y | B | B | TILL |
| -660 | 6.0 | 0.0 | 6.0 | 212.3 | 191.8 | 20.5 | 17.8 | 2.7 | 1 | 11 | TR | NA | NA | NA | NA | U | Y | Y | Y | B | B | TILL |
| 18660R | 10.0 | 0.0 | 10.0 | 196.9 | 157.7 | 39.2 | 34.8 | 4.4 | 0 | NA | TR | NA | NA | NA | NA | U | Y | Y | Y | GB | GB | TILL |
| -661 | 4.5 | 0.0 | 4.5 | 12.6 | 9.1 | 3.5 | 3.0 | 0.5 | 0 | NA | TR | NA | NA | NA | NA | U | Y | Y | Y | B | B | TILL |
| -662 | 1.9 | 0.0 | 1.9 | 76.4 | 70.5 | 5.9 | 5.5 | 0.4 | 0 | NA | | | | | | | | | | | | |
| 18757C | 9.5 | 0.0 | 9.5 | 253.2 | 220.6 | 32.6 | 29.7 | 2.9 | 1 | 13 | TR | NA | NA | NA | NA | U | Y | Y | Y | B | B | TILL |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | NUMBER OF GRAINS ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18659 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -660 | Y | 50 x 50 | 10 C | | 1 | | | | | 1 | | | EST. 5% PYRITE |
| | | | | | | | | | | 1 | 17.8 | 11 | |
| 18660R | Y | NO VISIBLE GOLD | | | | | | | | | | | EST. 10% PYRITE |
| -661 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -662 | Y | NO VISIBLE GOLD | | | | | | | | | | | EST. 5% PYRITE, 200 GRAINS ARSENOPYRITE, 2 GRAINS BORNITE |
| 18757C | Y | 50 X 75 | 13 C | | 1 | | | | | 1 | | | EST. 7% PYRITE |
| | | | | | | | | | | 1 | 29.7 | 13 | |

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FIELDNOTE SUMMARY LOG OB-20904, MUD ROTARY

OB-20904

Appendix 8-64B.

[ IN NON MAG HMC ]

| ^200 As | ^600 Cu | ^5 Sb | ^25 Mo | ^5000 Ba |
|---|---|---|---|---|

[ IN -63 MICRON ]

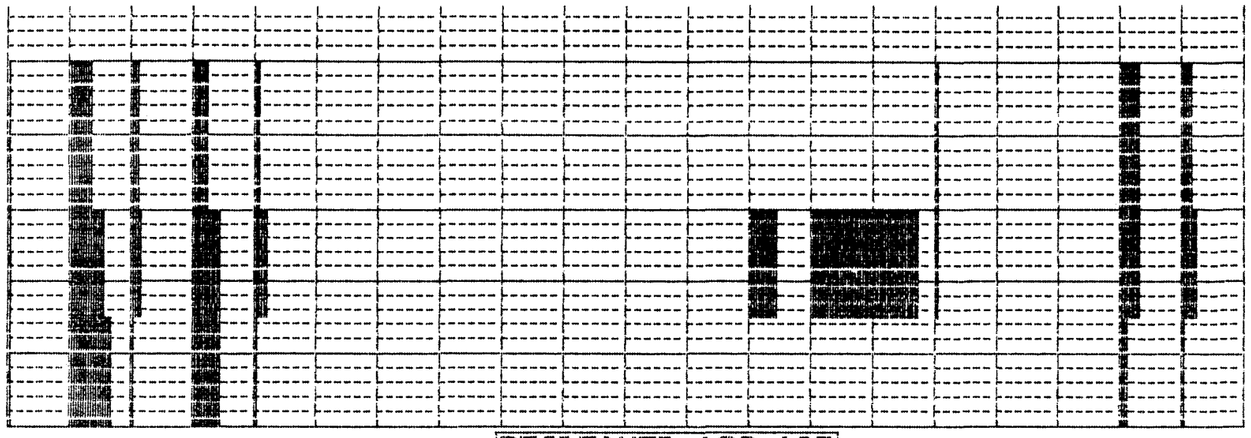
| ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 FeX |
|---|---|---|---|---|---|---|

[ IN MAG FRAC ]

| ^500 Ni | ^50 Pb | ^100 Mo | NON MAG ^500 Au | -63 ^20 Au |
|---|---|---|---|---|

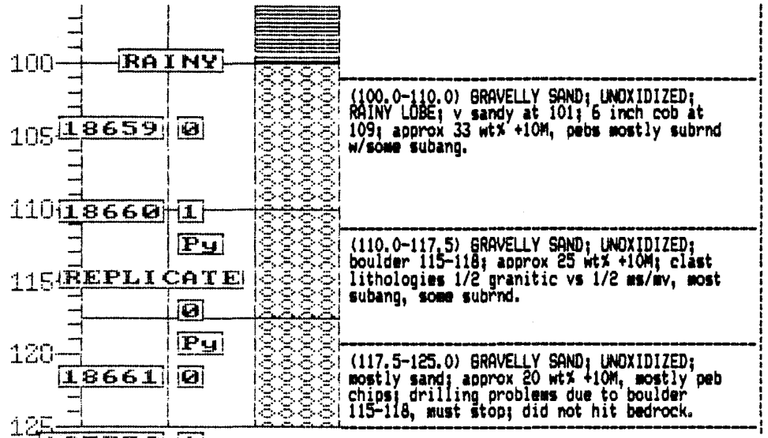
| -63 ^100 g/kg | NON MAG HMC ^10 g/kg | MAG ^2 g/kg |
|---|---|---|

| (FEET) | HMC SAMPLE # | HMC # GOLD GRAINS; INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|---|
| 5 | | DES MOINES | | |
| 10 | | | | (0.0-15.0) CLAY; OXIDIZED; depth of oxidation uncertain. |
| 15 | | | | |
| 20 | | | | |
| 25 | | | | |
| 30 | | | | |
| 35 | | | | |
| 40 | | | | (15.0-100.0) CLAY; OXIDIZED; with silty clay, gray. |
| 45 | | | | |
| 50 | | | | |
| 55 | | | | |
| 60 | | | | |
| 65 | | | | |
| 70 | | | | |
| 75 | | | | |
| 80 | | | | |
| 85 | | | | |
| 90 | | | | |
| 95 | | | | |



RECLEANED 100-125

SLUICE BOX 105-125




(100.0-110.0) GRAVELLY SAND; UNOXIDIZED; RAINY LOBE; v sandy at 101; 6 inch cob at 109; approx 33 wt% +10M, pebs mostly subrnd w/some subang.

(110.0-117.5) GRAVELLY SAND; UNOXIDIZED; boulder 115-118; approx 25 wt% +10M; clast lithologies 1/2 granitic vs 1/2 ms/mv, most subang, some subrnd.

(117.5-125.0) GRAVELLY SAND; UNOXIDIZED; mostly sand; approx 20 wt% +10M, mostly peb chips; drilling problems due to boulder 115-118, must stop; did not hit bedrock.

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18659 | 20904 | 100-110 | 10. | M | D | SE-SE | 6 | 63 | 20 | SL | RL. GVL. SAND | 100-110 | 0.0 | 7000.0 | -2.0 | 19.6 | 2.1 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18660 | 20904 | 110-117.5 | 7.5 | M | D | SE-SE | 6 | 63 | 20 | SL | RL. GVL. SAND | 110-117.5 | 1.0 | 6000.0 | -2.0 | 17.8 | 2.7 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18660R | 20904 | 110-117.5 | 7.5 | M | D | SE-SE | 6 | 63 | 20 | SL | RL. GVL. SAND | 110-117.5 | 0.0 | 10000.0 | -2.0 | 34.8 | 4.4 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18661 | 20904 | 117.5-125 | 7.5 | M | D | SE-SE | 6 | 63 | 20 | SL | RL. GVL. SAND | 117.5-125 | 0.0 | 4500.0 | -2.0 | 3.0 | 0.5 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18757C | 20904 | 100-125 | 25. | M | D | SE-SE | 6 | 63 | 20 | SL | SPECIAL SAMPLE | 100-125 | 1.0 | 9500.0 | -2.0 | 29.7 | 2.9 | -1.0 | -1.0 | -1 | -1 | -1 | RECLEANED +10M MAT'L |
| 18662 | 20904 | 100-125 | 25. | M | D | SE-SE | 6 | 63 | 20 | SL | SLUICE BOX | 100-125 | 0.0 | 1900.0 | -2.0 | 5.5 | 0.4 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18659 | 21 | 0.17 | 0 | 170 | 11000 | 28.00 | 100 | 140 | 210 | 120 | 0 | 11 | -10 | 6 | -0.5 | 0 | -10 | 0.6 | 400 | 148 | 15 | -2 | 270 | 55 | -2 | 45.0 | 7.7 | 3 | 14.40 |
| 18660 | -19 | 0.21 | 0 | 130 | 12000 | 28.80 | 160 | 190 | 340 | 110 | 0 | 10 | 20 | 11 | -0.5 | 0 | 83 | 0.8 | 1100 | 314 | 27 | 7 | 130 | 129 | -2 | 66.0 | 10.5 | 3 | 12.60 |
| 18661 | -5 | -0.05 | 0 | -50 | 7900 | 4.70 | 50 | 300 | 410 | 230 | 0 | 6 | 10 | 11 | 1.5 | 0 | -10 | -0.2 | 200 | 77 | 9 | -1 | 11 | 65 | 4 | 16.0 | 3.0 | 1 | 2.37 |
| 18757C | 97 | 0.25 | 459 | 260 | 9100 | 31.10 | 190 | 130 | 190 | 110 | 0 | 21 | -30 | 9 | -0.5 | 0 | -10 | -1.0 | 900 | 266 | 21 | -4 | -30 | 48 | 2 | 65.0 | 6.4 | 3 | 22.00 |
| 18662 | -38 | 0.28 | 1210 | 380 | 9400 | 37.40 | 370 | 320 | 450 | 220 | 0 | 22 | -30 | 18 | 1.0 | 0 | -10 | -0.2 | 1100 | 716 | 82 | -4 | 190 | 66 | 2 | 190.0 | 33.5 | 3 | 3.91 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18660 | 1.100 | 2.30 | 1100 | 220 | 160 | 170 | -1 | 73 | -0.5 | 49 | 0.5 |

**Appendix 8-65A.** DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-20906

Drilling Completion Date 12/16/86

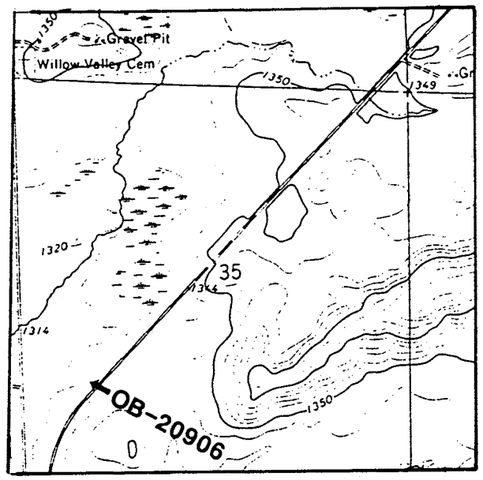
LOCATION (see map at right)

S-T-R NW¼-SW¼-35-63N-20W

County St. Louis

Quadrangle Gheen 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1330 ft.

Total Depth 33 ft.

Elevation, Top of Precambrian Bedrock 1302.5 ft.

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-23 | Des Moines Lobe Gl. Drift | | | |
| 23-27.5 | Rainy Lobe Gl. Drift | F | B,C | B = Au,Ni,Cu,Pb,Bi<br>C = Ag |
| 27.5-33 | Bedrock | F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Siltstone. Dark gray, schistose siltstone. Sugar 0.05. Sugary texture; no relict sand. Comprised of 20-50% (av. 30%) biotite and 70% qtz.-plag. sugar. 1% dissem. py. (By ODM, see report in Appendix)

Thin Section Number: #18619.



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | MATRIX | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18618 | 30.8 | 0.0 | 30.8 | 295.6 | 207.1 | 88.5 | 71.2 | 17.3 | 6 | 114 | TR | NA | NA | NA | NA | U | Y | Y | Y | BGN | BGN | TILL |
| 18618R | 9.7 | 0.0 | 9.7 | 136.5 | 102.1 | 34.4 | 28.4 | 6.0 | 2 | 4 | TR | NA | NA | NA | NA | U | Y | Y | Y | GNB | GNB | TILL |
| -620 | 4.7 | 0.0 | 4.7 | 156.6 | 130.1 | 26.5 | 22.3 | 4.2 | 4 | 144 | | | | | | | | | | | | |
| 18746C | 0.5 | 0.0 | 0.5 | 12.5 | 12.4 | 0.1 | 0.1 | 0.0 | 0 | NA | TR | NA | NA | NA | NA | S | F | Y | Y | B | B | SAND&CLAY |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18618 | Y | 25 X 25 | 5 C | | | | | | 1 | 1 | | | EST. 65% PYRITE |
| | | 25 X 50 | 8 C | | 1 | | 1 | | | 2 | | | PHOTO REFERENCE #127 |
| | | 50 X 50 | 10 C | | 1 | | | | | 1 | | | |
| | | 100 X 100 | 20 C | 1 | | | | | | 1 | | | |
| | | 100 X 225 | 31 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | | 6 | 71.2 | 114 | |
| 18618R | Y | 25 X 25 | 5 C | | | | | | 1 | 1 | | | EST. 15% PYRITE |
| | | 25 X 50 | 8 C | | | | | | 1 | 1 | | | 150 GRAINS ARSENOPYRITE |
| | | | | | | | | | | 2 | 28.4 | 4 | |
| 18620 | Y | 25 X 25 | 5 C | | | | 1 | | | 1 | | | |
| | | 50 X 50 | 10 C | | | | 1 | | | 1 | | | EST. 35% PYRITE |
| | | 100 X 100 | 20 C | 1 | 1 | | | | | 2 | | | 0.5% ARSENOPYRITE |
| | | | | | | | | | | 4 | 22.3 | 144 | |
| 18746C | Y | NO VISIBLE GOLD | | | | | | | | | | | EST. 70% PYRITE |

FIELDNOTE SUMMARY LOG OB-20906, MUD ROTARY

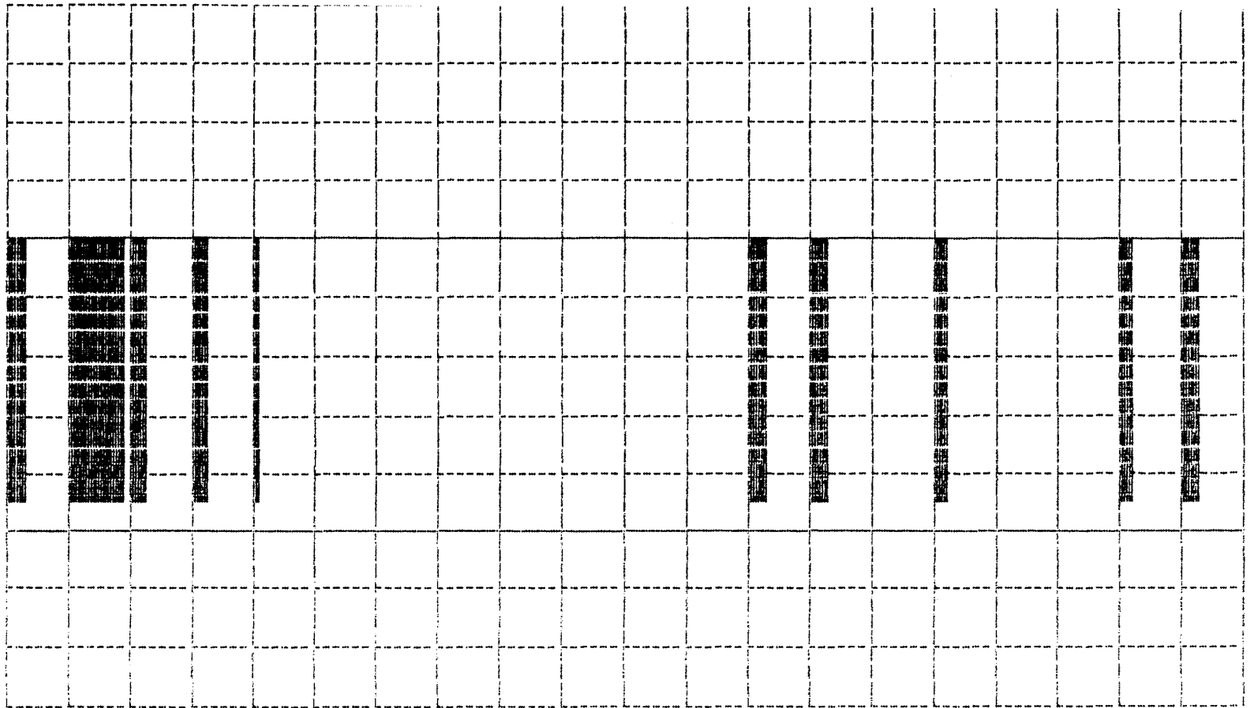
# OB-20906

Appendix 8-65B.

[ IN NON MAG HMC ][ IN -63 MICRON ][ IN MAG FRAC ] -63 NON MAG MAG

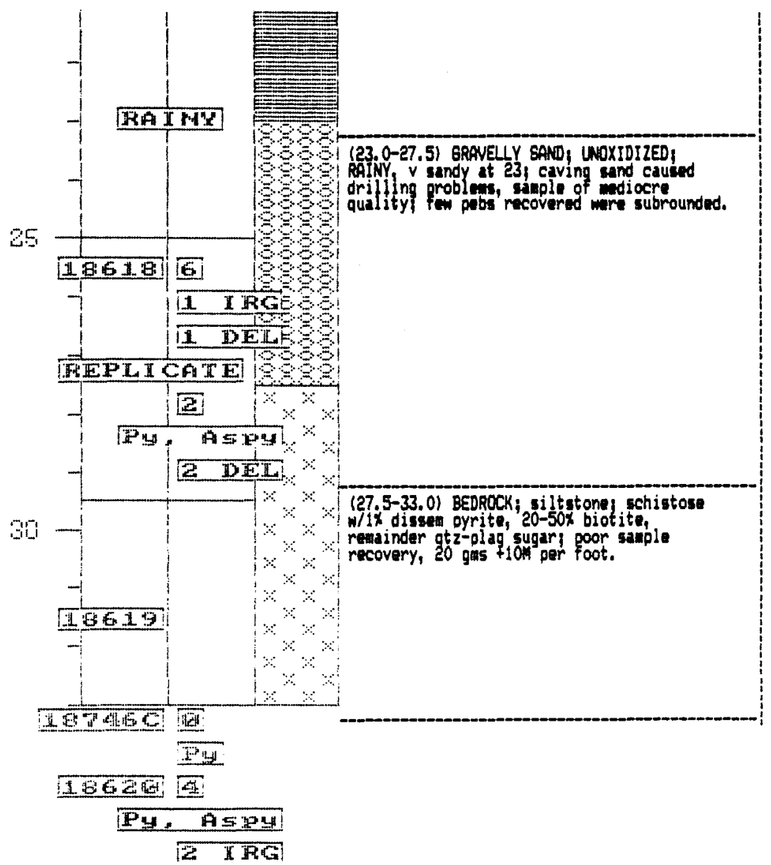
| ^200 Ag | ^500 Cu | ^5 Sb | ^25 Mo | ^6000 Ba | ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 FeX | ^500 Ni | ^50 Pb | ^100 Mo | NON MAG ^500 Au | -63 ^20 Au | ^100 g/kg | NON MAG HMC ^10 g/kg | MAG ^2 g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | |

| (FEET) | HMC SAMPLE # | HMC # GOLD GRAINS; INDICATORS | LITHOLOGY | LITHOLOGIC DESCRIPTIONS AND/OR REMARKS |
|---|---|---|---|---|
| | DES MOINES | | | |
| 5 | | | | |
| 10 | | | | |
| 15 | | | | |
| 20 | | | | (18.0-23.0) CLAY; UNOXIDIZED; w/silty clay, gray. |



RECLEANED 25-29.5

SLUICE BOX




(23.0-27.5) GRAVELLY SAND; UNOXIDIZED; RAINY, v sandy at 23; caving sand caused drilling problems, sample of mediocre quality; few pebs recovered were subrounded.

(27.5-33.0) BEDROCK; siltstone; schistose w/1% dissem pyrite, 20-50% biotite, remainder qtz-plag sugary; poor sample recovery, 20 gms +10M per foot.

**Appendix 8-65C.**

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY DESC | LEGAL | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18618 | 20906 | 25-29.5 | 4.5 | M | O | NW-SW | 35 | 63 | 20 | SL | RL. GVL. SAND | 25-29.5 | 6.0 | 30800.0 | -2.0 | 71.2 | 17.3 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18618R | 20906 | 25-29.5 | 4.5 | M | O | NW-SW | 35 | 63 | 20 | SL | RL. GVL. SAND | 25-29.5 | 2.0 | 9700.0 | -2.0 | 28.4 | 6.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18746C | 20906 | 25-29.5 | 4.5 | M | O | NW-SW | 35 | 63 | 20 | SL | SPECIAL SAMPLE | 25-29.5 | 0.0 | 500.0 | -2.0 | 0.1 | 0.0 | -1.0 | -1.0 | -1 | -1 | -1 | RECLEANED +10M MAT'L |
| 18619 | 20906 | 29.5-33 | 3.5 | M | O | NW-SW | 35 | 63 | 20 | SL | BEDROCK | | -1.0 | -1.0 | -2.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18620 | 20906 | 25-33 | 8. | M | O | NW-SW | 35 | 63 | 20 | SL | SLUICE BOX | 25-33 | 4.0 | 4700.0 | -2.0 | 22.3 | 4.2 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18618 | 110 | 0.11 | 530 | 390 | 8300 | 26.10 | 400 | 480 | 520 | 130 | 0 | 59 | -20 | 6 | 0.5 | 0 | -10 | 1.2 | 500 | 363 | 64 | 9 | 110 | 138 | 7 | 140.0 | 14.8 | 2 | 51.90 |
| 18746C | 36 | 0.12 | 759 | 730 | 0 | 40.60 | 350 | 0 | 0 | 0 | 0 | 82 | -20 | 0 | 0.0 | 0 | 0 | 2.3 | -600 | 355 | 79 | 8 | 870 | 0 | 0 | 160.0 | 14.8 | 0 | 0.08 |
| 18620 | 120 | 0.26 | 580 | 450 | 7600 | 28.70 | 400 | 390 | 410 | 160 | 0 | 63 | -20 | 0 | 3.5 | 0 | 0 | 1.4 | 800 | 435 | 110 | 7 | 210 | 0 | 0 | 160.0 | 16.9 | 5 | 16.60 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18618 | 0.780 | 3.00 | 1900 | 150 | 63 | 350 | 1 | -1 | 2.0 | 14 | 0.6 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18619 | -6 | -0.2 | -1.0 | 600 | 0.0 | 2 | 44.0 | 0.0 | 90 | 10 | 0 | 3 | -100 | 3.4 | 22 | 0.0 | -1 | 58 | 0 | 0.00 | 0.0 | -10 | 0 | 3.30 | -1.0 | -10 | 0.0 | 4.7 | -10 | 4 | 1.3 | 0 | 0 | 0 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18619 | 40 | 17 | 61 | 0 | 1.5 | 0 | 0 | 0 | 0.00 | 3 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | -2 | 0.00 | 0 |

**Appendix 8-66A.** DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-21002

Drilling Completion Date 1/15/87

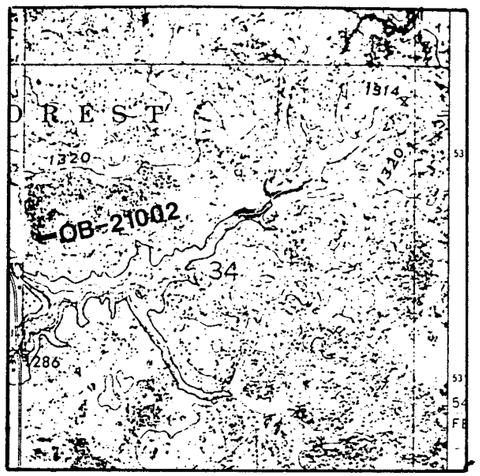
LOCATION (see map at right)

S-T-R SW¼-NW¼-34-64N-21W

County St. Louis

Quadrangle Silverdale 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1310 ft.

Total Depth 122 ft.

Elevation, Top of Precambrian Bedrock 1193 ft.

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-95.5 | Des Moines Lobe Gl. Drift | | | |
| 95.5-117 | Rainy Lobe Gl. Drift | F | B,C | B = Ba,Pb,Cu,Ni<br>C = Mo,Ni |
| 117-122 | Bedrock | F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Metagraywacke. 90% whole pebbles up to 2cm diameter, 10% cuttings of coarser clasts; lithologies are 70% varied graywacke, 30% varied granite, no amphibolite. (By ODM, see report in Appendix)

Thin Section Number: #18678.



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18675 | 8.8 | 2.3 | 6.5 | 124.6 | 110.5 | 14.1 | 11.9 | 2.2 | 0 | NA | P | 85 | 15 | TR | NA | U | | Y | Y | Y | GB | GB | TILL |
| -676 | 8.5 | 2.0 | 6.5 | 82.5 | 70.3 | 12.2 | 9.3 | 2.9 | 0 | NA | C | 80 | 20 | NA | NA | U | Y | | Y | Y | GB | GB | TILL |
| -677 | 8.6 | 0.2 | 8.4 | 69.9 | 47.4 | 22.5 | 17.9 | 4.6 | 0 | NA | P | 80 | 20 | NA | NA | U | | Y | Y | Y | GB | GB | TILL |
| -679 | 4.0 | 0.0 | 4.0 | 126.9 | 104.9 | 22.0 | 19.0 | 3.0 | 4 | 573 | | | | | | | | | | | | | |

GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18675 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -676 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -677 | Y | NO VISIBLE GOLD | | | | | | | | | | | EST. 20% PYRITE |
| -679 | Y | 50 X 50 | 10 C | | 1 | | | | | 1 | | | EST. 25% PYRITE |
| | | 75 X 75 | 15 C | | 1 | | | | | 1 | | | 125 GRAINS |
| | | 100 X 175 | 27 C | | 1 | | | | | 1 | | | ARSENOPYRITE |
| | | 125 X 200 | 31 C | | | | 1 | | | 1 | | | |
| | | | | | | | | | | 4 | 19.0 | 573 | |

FIELDNOTE SUMMARY LOG OB-21002, MUD ROTARY

# OB-21002

Appendix 8-66B.

[ IN NON MAG HMC ]

| ^200 Hg | ^600 Cu | ^5 Sb | ^25 Mo | ^6000 Ba | ^30 As | ^100 Cu | ^100 Ni | ^10 Sb | ^10 Mo | ^300 Zn | ^10 FeX |
|---|---|---|---|---|---|---|---|---|---|---|---|

[ IN -63 MICRON ]

| ^500 Ni | ^50 Pb | ^100 Mo | NON MAG ^500 Au | -63 ^20 Au | -63 ^100 g/kg | NON MAG HMC ^10 g/kg | MAG ^2 g/kg |
|---|---|---|---|---|---|---|---|

[ IN MAG FRAC ]

(FEET)

HMC SAMPLE #

HMC # GOLD GRAINS INDICATORS

DES MOINES

LITHOLOGY

LITHOLOGIC DESCRIPTIONS AND/OR REMARKS

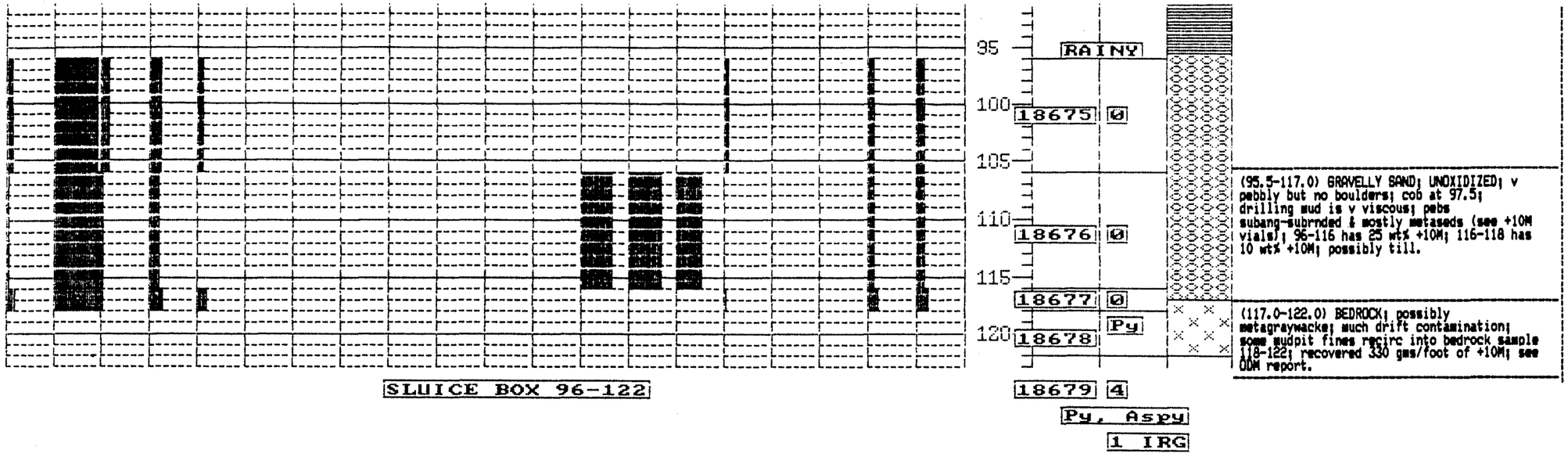
(0.0-13.0) CLAY; OXIDIZED; lake sediments, brown.

(13.0-22.0) CLAY; UNOXIDIZED; lake sediments, gray, w/silty clay.

(22.0-49.0) CLAYEY TILL; UNOXIDIZED; v clayey.

(49.0-71.0) NO OBSERVATIONS POSSIBLE.

(71.0-95.5) CLAY; UNOXIDIZED; lake sediments; v soft from 78 down.


SLUICE BOX 96-122


95
RAINY
100
18675
0
105
110
18676
0
115
18677
0
Py
120
18678
18679
4
Py, Aspy
1 IRG
(95.5-117.0) GRAVELLY SAND; UNOXIDIZED; v pebbly but no boulders; cob at 97.5; drilling mud is v viscous; pebs subang-subrnded & mostly metaseds (see +10M vials); 96-116 has 25 wt% +10M; 116-118 has 10 wt% +10M; possibly till.
(117.0-122.0) BEDROCK; possibly metagraywacke; much drift contamination; some sudpit fines recirc into bedrock sample 118-122; recovered 330 gms/foot of +10M; see ODM report.

**Appendix 8-66C.**

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18675 | 21002 | 96-106 | 10. | M | O | SW-NW | 34 | 64 | 21 | SL | RL. GVL. SAND | 96-106 | 0.0 | 8800.0 | -2.0 | 11.9 | 2.2 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18676 | 21002 | 106-116 | 10. | M | O | SW-NW | 34 | 64 | 21 | SL | RL. GVL. SAND | 106-116 | 0.0 | 8500.0 | -2.0 | 9.3 | 2.9 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18677 | 21002 | 116-118 | 2.0 | M | O | SW-NW | 34 | 64 | 21 | SL | RL. GVL. SAND | 116-118 | 0.0 | 8600.0 | -2.0 | 17.9 | 4.6 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18678 | 21002 | 118-122 | 4. | M | O | SW-NW | 34 | 64 | 21 | SL | BEDROCK | | -1.0 | -1.0 | -2.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18679 | 21002 | 96-122 | 26. | M | O | SW-NW | 34 | 64 | 21 | SL | SLUICE BOX | 96-122 | 4.0 | 4000.0 | -2.0 | 19.0 | 3.0 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU ppb | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18675 | 39 | 0.18 | 0 | 530 | 13000 | 34.10 | 260 | 350 | 550 | 190 | 0 | 25 | 20 | 6 | -0.5 | 0 | -10 | 0.8 | -600 | 359 | 52 | 6 | 21 | 66 | 2 | 120.0 | 17.5 | 1 | 8.81 |
| 18676 | -5 | -0.05 | 0 | -50 | 10000 | 6.50 | 70 | 480 | 910 | 130 | 0 | 11 | -10 | 5 | 0.5 | 0 | -10 | -0.2 | -100 | 77 | 10 | 1 | 8 | 141 | 4 | 27.0 | 2.6 | 1 | 2.80 |
| 18677 | -20 | 0.16 | 0 | 370 | 9500 | 37.60 | 380 | 450 | 750 | 130 | 0 | 35 | 20 | 7 | -0.5 | 0 | -10 | -0.2 | 1100 | 472 | 80 | 7 | 24 | 123 | 3 | 180.0 | 24.5 | 2 | 12.90 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18676 | 0.910 | 2.20 | 1400 | 330 | 91 | 190 | -1 | 52 | -0.5 | 34 | 0.3 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU ppb | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18678 | -6 | -0.2 | -1.0 | 400 | 0.0 | 1 | 31.0 | 0.0 | 60 | 10 | 0 | 3 | -100 | 2.2 | 19 | 0.0 | 4 | 55 | 0 | 0.00 | 0.0 | -10 | 0 | 3.50 | -1.0 | -10 | 0.0 | 4.4 | -10 | -2 | 0.9 | 0 | 0 | 0 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18678 | 30 | 21 | 41 | 0 | 4.0 | 0 | 0 | 0 | 0.00 | 4 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | -2 | 0.00 | 0 |

**Appendix 8-67A.** DRILL HOLE SUMMARY SHEET

IDENTIFICATION

DNR Drill Hole Number OB-21005

Drilling Completion Date 1/16/87

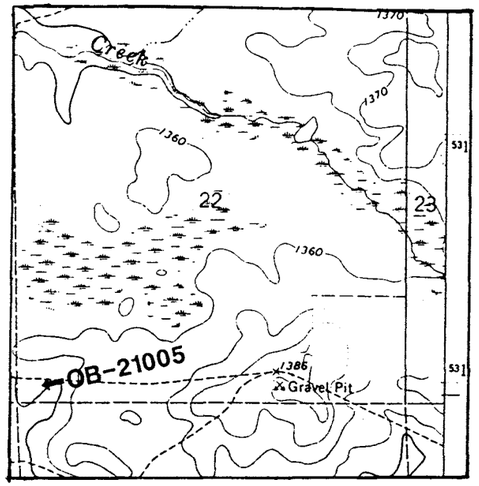
LOCATION (see map at right)

S-T-R SW¼-SW¼-22-64N-21W

County St. Louis

Quadrangle Nett Lake 7.5

Regional Survey Area Orr




HOLE PARAMETERS

Surface Elevation 1352 ft.

Total Depth 76 ft.

Elevation, Top of Precambrian Bedrock 1281 ft.

Drilling Method Mud Rotary

Sample Diameter 4.5 inch

Sample Collection Method Slurry: Trough with Dam

SEE FOLLOWING PAGES

Sample Types, Intervals, Chemical Data, Gold Grain Counts, Graphic Summary Log

INFORMATION SUMMARY

| Interval Feet | Interpretation | Library Samples Available | Subsamples Tested | Significant Geochem Samples |
|---|---|---|---|---|
| 0-44 | Des Moines Lobe Gl. Drift | | | |
| 44-71 | Rainy Lobe Gl. Drift | F | B,C | B = Cu,Ni,Sb,Bi As,Ba,Pb<br>C = Ni,Mo |
| 71-76 | Bedrock | F | I | |

A = -63 microns fraction
B = Heavy Minerals, Nonmag
C = Heavy Minerals, Mag
D = Sluice Box Composite
E = Skeletonized Grab Sample in Core Box
F = Interval Cuttings in Bucket
G = Core
H = Thin Section
I = (Bedrock or Drift) Split of "Wholerock" Sample

BEDROCK

Principal Rock Type: Metagraywacke. Medium gray, weakly foliated metagraywacke. Grain size from 0.2-0.4 where discernible (boundaries of lithic sand grains indistinct). Sandy, not sugary texture. Comprised of 10% qtz. sand grains, 70% lithic sand grains (int. volc. where discernible) and 15-20% chlorite. 1% vein calcite. 0.1% disemm. py. and 0.2% vein pyrite. (By ODM, see report in Appendix)

Thin Section Number: #18682.



# HEAVY MINERAL CONCENTRATE REPORT

(SEE LEGEND IN APPENDIX)

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 18680 | 7.5 | 0.5 | 7.0 | 154.1 | 139.6 | 14.5 | 11.8 | 2.7 | 0 | NA | P,G | 90 | 10 | NA | NA | U | Y | Y | Y | GB | GB | TILL |
| -681 | 8.8 | 0.8 | 8.0 | 144.3 | 141.3 | 3.0 | 2.6 | 0.4 | 0 | NA | P,G | 95 | 5 | NA | NA | U | Y | Y | Y | GN | GN | TILL&BDK |
| -683 | 4.7 | 0.0 | 4.7 | 148.2 | 141.5 | 6.7 | 5.7 | 1.0 | 0 | NA | | | | | | | | | | | | |

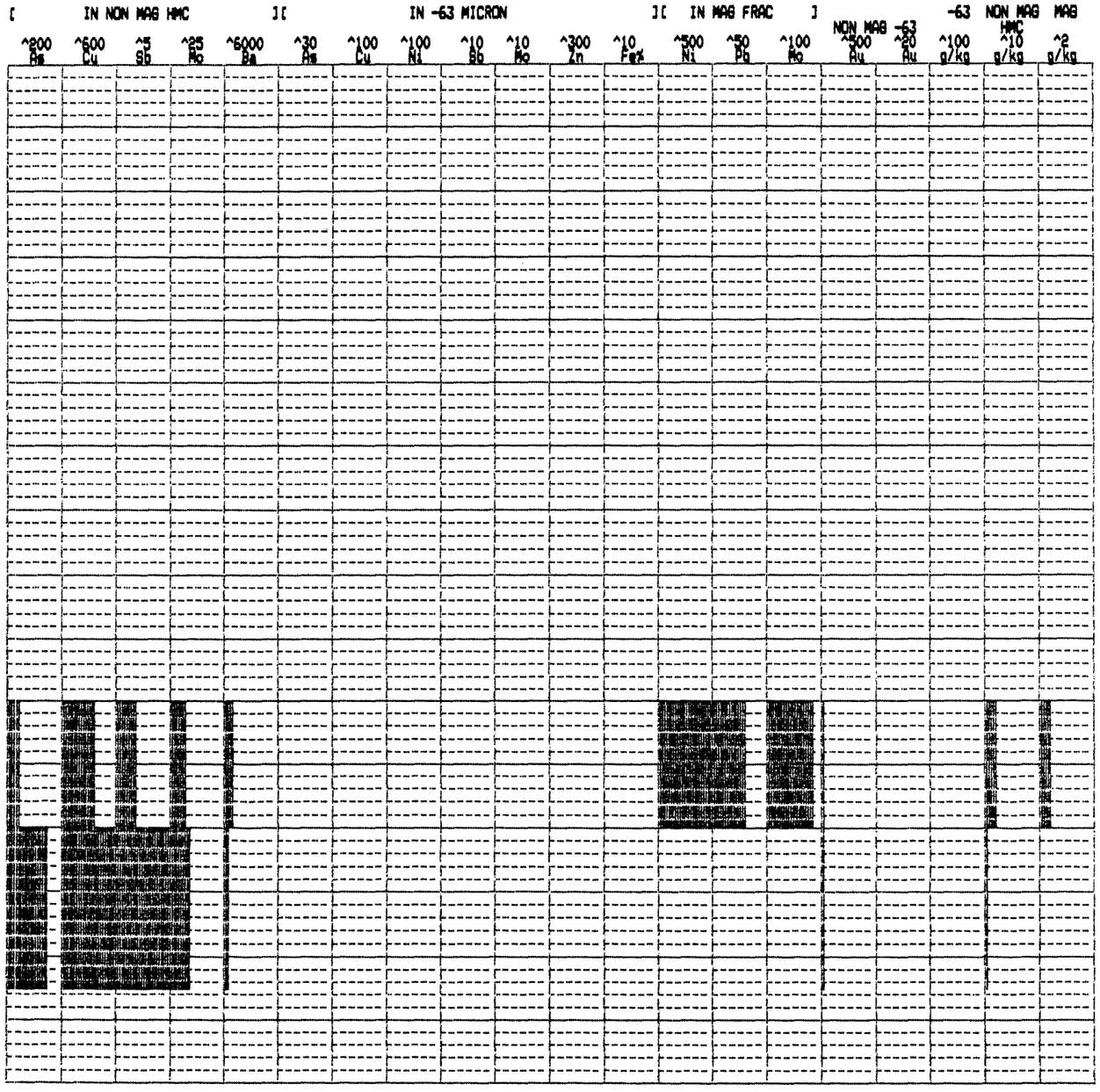
GOLD CLASSIFICATION

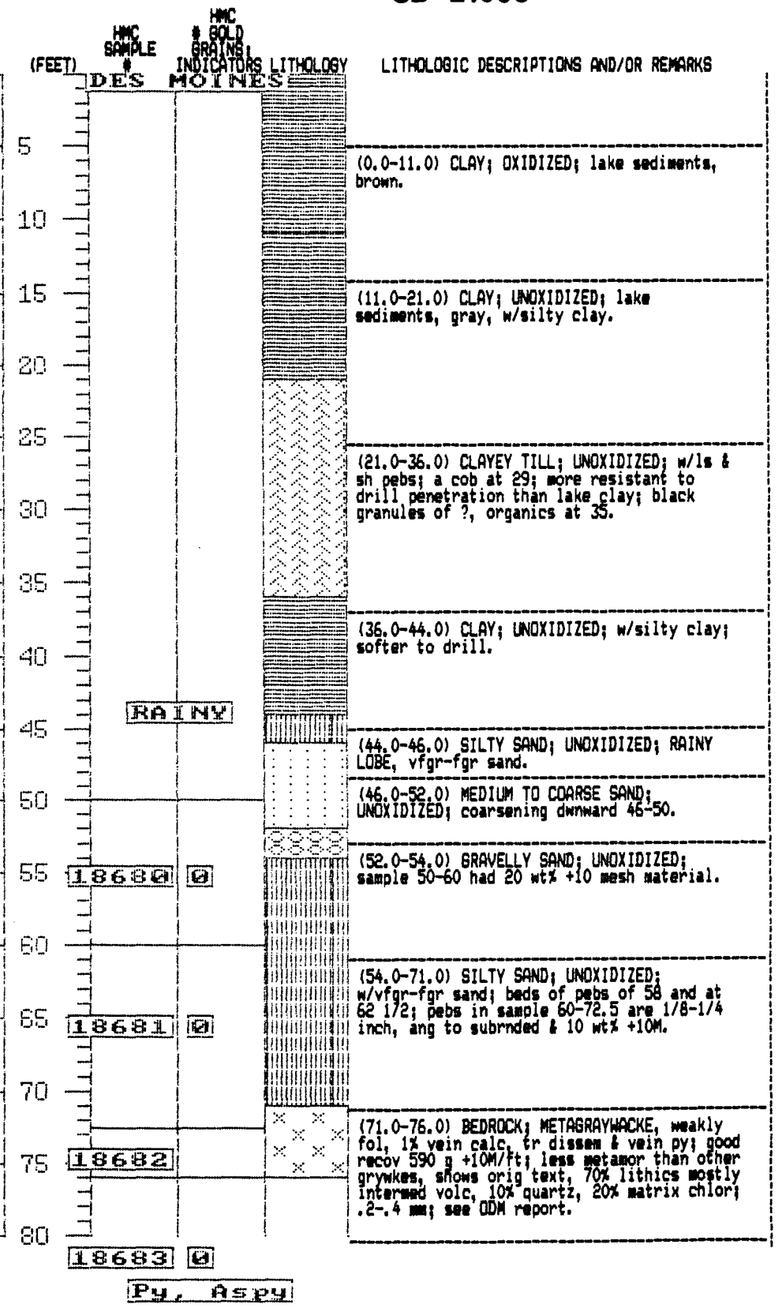
VISIBLE GOLD FROM SHAKING TABLE AND PANNING

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | NUMBER OF GRAINS: ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18680 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -681 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| -683 | Y | NO VISIBLE GOLD | | | | | | | | | | | EST. 5% PYRITE<br>1 GRAIN GALENA |

FIELDNOTE SUMMARY LOG OB-21005, MUD ROTARY

# OB-21005




LITHOLOGIC DESCRIPTIONS AND/OR REMARKS

(0.0-11.0) CLAY; OXIDIZED; lake sediments, brown.

(11.0-21.0) CLAY; UNOXIDIZED; lake sediments, gray, w/silty clay.

(21.0-36.0) CLAYEY TILL; UNOXIDIZED; w/ls & sh pebs; a cob at 29; more resistant to drill penetration than lake clay; black granules of ?, organics at 35.

(36.0-44.0) CLAY; UNOXIDIZED; w/silty clay; softer to drill.

(44.0-46.0) SILTY SAND; UNOXIDIZED; RAINY LOBE, vfgr-fgr sand.

(46.0-52.0) MEDIUM TO COARSE SAND; UNOXIDIZED; coarsening downward 46-50.

(52.0-54.0) GRAVELLY SAND; UNOXIDIZED; sample 50-60 had 20 wt% +10 mesh material.

(54.0-71.0) SILTY SAND; UNOXIDIZED; w/vfgr-fgr sand; beds of pebs of 58 and at 62 1/2; pebs in sample 60-72.5 are 1/8-1/4 inch, ang to subrnded & 10 wt% +10M.

(71.0-76.0) BEDROCK; METAGRAYWACKE, weakly fol, 1% vein calc, tr dissem & vein py; good recov 590 g +10M/ft; less metamor than other grywkes, shows orig text, 70% lithics mostly intermed volc, 10% quartz, 20% matrix chlor; .2-.4 mm; see ODM report.

**Appendix 8-67C.**

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY DESC | LEGAL | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18680 | 21005 | 50-60 | 10. | M | O | SW-SW | 22 | 64 | 21 | SL | RL. SILTY SAND | 50-60 | 0.0 | 7500.0 | -2.0 | 11.8 | 2.7 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18681 | 21005 | 60-72.5 | 12.5 | M | O | SW-SW | 22 | 64 | 21 | SL | RL. SILTY SAND | 60-72.5 | 0.0 | 8800.0 | -2.0 | 2.6 | 0.4 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18682 | 21005 | 72.5-76 | 3.5 | M | O | SW-SW | 22 | 64 | 21 | SL | BEDROCK | | -1.0 | -1.0 | -2.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |
| 18683 | 21005 | 50-76 | 26. | M | O | SW-SW | 22 | 64 | 21 | SL | SLUICE BOX | 50-76 | 0.0 | 4700.0 | -2.0 | 5.7 | 1.0 | -1.0 | -1.0 | -1 | -1 | -1 | |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18680 | -23 | 0.22 | 0 | 330 | 12000 | 34.10 | 180 | 270 | 350 | 240 | 0 | 38 | -10 | 7 | -0.5 | 0 | -10 | 1.9 | 1000 | 512 | 97 | 12 | 24 | 123 | 2 | 180.0 | 22.4 | 2 | 8.85 |
| 18681 | -16 | 0.30 | 0 | 240 | 9000 | 34.50 | 270 | 400 | 1700 | 150 | 0 | 140 | 40 | 9 | 1.0 | 0 | -10 | 12.0 | -400 | 558 | 85 | -4 | 18 | 226 | 5 | 160.0 | 21.6 | 0 | 2.27 |
| 18683 | -32 | 0.27 | 1380 | 510 | 10000 | 39.30 | 300 | 320 | 520 | 220 | 0 | 75 | -30 | 7 | -0.5 | 0 | -10 | 3.0 | 800 | 814 | 150 | 10 | 53 | 119 | 3 | 310.0 | 39.9 | 1 | 4.36 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18680 | 0.830 | 2.50 | 1300 | 570 | 140 | 200 | -1 | 83 | -0.5 | 30 | 0.4 |

BEDROCK ANALYSIS (PPM)

| SAMPLE NUMBER | AU PPB | SB | AS | BA | BR | CD | CE | CS | CR | CO | EU | HF | IR | FE % | LA | LU | MO | NI | RB | SM | SC | SE | AGR | NA % | TA | TE | TB | TH | SN | W | U | YB | ZNR | ZR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18682 | -7 | 0.3 | -1.0 | 500 | 0.0 | 1 | 45.0 | 0.0 | 120 | 20 | 0 | 4 | -100 | 4.9 | 26 | 0.0 | 2 | 81 | 0 | 0.00 | 0.0 | -10 | 0 | 3.40 | 1.0 | -10 | 0.0 | 4.6 | -10 | 5 | 1.4 | 0 | 0 | 0 |

BEDROCK ANALYSIS (PPM) CONTINUED

| SAMPLE NUMBER | CU | PB | ZN | MN | AG | SNR | LI | BE | CO2 % | NA | MG | AL % | SIO2 % | S | CL | K | CA | FEO % | NIR | SR | NB | MOR | BAR | TAR | BI | LOI % | FE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18682 | 53 | 11 | 86 | 0 | 2.0 | 0 | 0 | 0 | 0.00 | 3 | 0 | 0.00 | 0.0 | 0.00 | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0.0 | -2 | 0.00 | 0 |

## Appendix 8-68A

Samples 17557-17564 of the Rainy lobe were taken from surface exposures in gravel pits or cuts along the Littlefork River during an early reconnaissance of the area. These are not drill samples. The site maps for these are available along with site maps for each drill hole.



# HEAVY MINERAL CONCENTRATE REPORT

OVERBURDEN DRILLING MANAGEMENT LIMITED  LABORATORY SAMPLE LOG

| SAMPLE NO. | WEIGHT (KG.WET) | | | WEIGHT (GRAMS DRY) | | | | | AU | | DESCRIPTION | | | | | | | | | | | CLASS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | M. I. CONC | | | | | CLAST | | | | | MATRIX | | | | | | |
| | TABLE SPLIT | +10 CHIPS | TABLE FEED | TABLE CONC | M.I. LIGHTS | CONC. TOTAL | NON MAG | MAG | NO. V.G. | CALC PPB | SIZE | % V/S | % GR | % LS | % OT | S/U | SD | ST | CY | COLOR SD | COLOR CY | |
| 17557 | 8.5 | 1.2 | 7.3 | 255.9 | 220.7 | 35.2 | 28.2 | 7.0 | 6 | 345 | GP | 40 | 60 | NA | NA | U | Y | Y | Y | B | B | TILL |
| 17558 | 6.5 | 1.2 | 5.3 | 118.8 | 98.4 | 20.4 | 19.3 | 1.1 | 1 | 591 | G | 30 | 70 | NA | NA | U | Y | Y | Y | B | B | TILL |
| 17559 | 7.9 | 0.4 | 7.5 | 158.0 | 103.8 | 54.2 | 45.8 | 8.4 | 0 | NA | G | 85 | 15 | NA | NA | U | Y | Y | Y | GB | GB | TILL |
| 17560 | 6.6 | 0.2 | 6.4 | 182.5 | 111.5 | 71.0 | 52.5 | 18.5 | 0 | NA | G | 30 | 70 | NA | NA | S | F | Y | Y | B | B | SAND |
| 17561 | 4.4 | 1.0 | 3.4 | 169.3 | 148.4 | 20.9 | 16.9 | 4.0 | 0 | NA | G | 35 | 65 | NA | NA | U | Y | Y | Y | B | B | TILL |
| 17562 | 5.7 | 1.4 | 4.3 | 70.4 | 51.0 | 19.4 | 14.8 | 4.6 | 0 | NA | G | 40 | 60 | NA | NA | S | M | Y | Y | B | B | SAND |
| 17563 | 5.7 | 1.4 | 4.3 | 251.4 | 236.7 | 14.7 | 11.5 | 3.2 | 0 | NA | G | 35 | 65 | NA | NA | U | Y | Y | N | BN | BN | TILL |
| 17564 | 7.1 | 0.6 | 6.5 | 143.8 | 107.4 | 36.4 | 29.3 | 7.1 | 0 | NA | G | 30 | 70 | NA | NA | U | Y | Y | Y | B | B | TILL |

## GOLD CLASSIFICATION

VISIBLE GOLD FROM SHAKING TABLE AND PANNING

NUMBER OF GRAINS

| SAMPLE # | PANNED Y/N | DIAMETER | THICKNESS | ABBRADED T | ABBRADED P | IRREGULAR T | IRREGULAR P | DELICATE T | DELICATE P | TOTAL | NON MAG GMS | CALC V.G. ASSAY PPB | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17557 | | 25 X 25 | 5 C | | 1 | | | | | 1 | | | |
| | | 25 X 50 | 8 C | | 1 | | | | | 1 | | | PHOTO MICROGRAPH |
| | | 25 X 75 | 10 C | | 1 | | | | | 1 | | | FILM REFERENCE #145 |
| | | 50 X 50 | 10 C | | | | | | 1 | 1 | | | AVAILABLE |
| | | 100 X 100 | 20 C | 1 | | | | | | 1 | | | |
| | | 150 X 200 | 34 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | | 6 | 28.2 | 345 | |
| 17558 | N | 150 X 250 | 38 C | 1 | | | | | | 1 | | | |
| | | | | | | | | | | 1 | 19.3 | 591 | |
| 17559 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 17560 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 17561 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 17562 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 17563 | N | NO VISIBLE GOLD | | | | | | | | | | | |
| 17564 | N | NO VISIBLE GOLD | | | | | | | | | | | |

MASTER FILE

| SAMPLE NUMBER | DH NUMBER | SAMPLE INTERVAL | ST | D | G | FORTY | LEGAL DESC | | | COUNTY | DRIFT TYPE | ASSAY FTG | GOLD GRAINS | WT (g) HMC | WT (g) FEED | WT (g) +10FEED | WT (g) NONMAG | WT (g) MAG | WT(g) -63uM | WT (g) -63FEED | WT % -63uM | WT % +10 | WT % SAND | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17557 | SS | 0-1.5 | 1.5 | | | SE-NE | 31 | 68 | 24 | K | RL. SANDY GVL. TILL | 0-1.5 | 6.0 | 8500.0 | 1200.0 | 28.2 | 7.0 | -1.0 | -1.0 | -1 | 14 | -1 | SURF SAMP |
| 17558 | SS | 0-1.5 | 1.5 | | | SE-SW | 25 | 68 | 25 | K | RL. SANDY GVL. TILL | 0-1.5 | 1.0 | 6500.0 | 1200.0 | 19.3 | 1.1 | -1.0 | -1.0 | -1 | 18 | -1 | SURF SAMP |
| 17559 | SS | 0-1.0 | 1.0 | | | SW-NE | 25 | 68 | 25 | K | RL. SANDY GVL. TILL | 0-1.0 | 0.0 | 7900.0 | 400.0 | 45.8 | 8.4 | -1.0 | -1.0 | -1 | 5 | -1 | SURF SAMP |
| 17560 | SS | 0-1.5 | 1.5 | | | SE-SW | 10 | 68 | 25 | K | RL. MED. TO C. SAND | 0-1.5 | 0.0 | 6600.0 | 200.0 | 52.5 | 18.5 | -1.0 | -1.0 | -1 | 3 | -1 | SURF SAMP |
| 17561 | SS | 0-1.5 | 1.5 | | | SE-SW | 10 | 68 | 25 | K | RL. GVL. SAND | 0-1.5 | 0.0 | 4400.0 | 100.0 | 16.9 | 4.0 | -1.0 | -1.0 | -1 | 2 | -1 | SURF SAMP |
| 17562 | SS | 5-7 | 2.0 | | | NW-SW | 19 | 68 | 25 | K | RL. GVL. SAND | 5-7 | 0.0 | 5700.0 | 1400.0 | 14.8 | 4.6 | -1.0 | -1.0 | -1 | 25 | -1 | SURF SAMP |
| 17563 | SS | 8-13 | 5.0 | | | NW-SW | 19 | 68 | 25 | K | RL. GVL. SAND | 8-13 | 0.0 | 5700.0 | 1400.0 | 11.5 | 3.2 | -1.0 | -1.0 | -1 | 25 | -1 | SURF SAMP |
| 17564 | SS | 5-10 | 5.0 | | | NW-SW | 19 | 68 | 25 | K | RL. MED. TO C. SAND | 5-10 | 0.0 | 7100.0 | 600.0 | 29.3 | 7.1 | -1.0 | -1.0 | -1 | 8 | -1 | SURF SAMP |

NONMAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | AU PPB | NA % | CE | CR | MN | FE | CO | NI | CU | ZN | ZN2 | AS | SE | MO | AG | AG2 | SN | SB | BA | LA | HF | TA | W | PB | BI | TH | U | WT g/kg | ASSAY WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17557 | 568 | -1.20 | 3280 | 560 | 702 | 27.00 | 88 | 130 | 30 | -200 | 16 | -14 | -36 | -12 | 0.4 | -19 | -690 | 22.9 | -340 | 2520 | 140 | 12 | -39 | 26 | 0 | 934.0 | 44.0 | 3 | 17.93 |
| 17558 | 390 | -1.70 | 4640 | 650 | 590 | 33.00 | 35 | -120 | 26 | -430 | 52 | -20 | -44 | -18 | 0.1 | -26 | -970 | 1.2 | -470 | 3720 | 160 | 9 | -56 | 23 | 0 | 0.0 | 46.0 | 3 | 13.76 |
| 17559 | 32 | -0.34 | 490 | 270 | 768 | 28.00 | 280 | 200 | 130 | -200 | 36 | 28 | -10 | -6 | 2.4 | -11 | -200 | -0.2 | -100 | 260 | 80 | 8 | -21 | 12 | 0 | 85.7 | 13.0 | 6 | 34.68 |
| 17560 | 63 | 0.29 | 270 | 500 | 644 | 24.00 | 69 | 77 | 16 | -200 | 22 | 9 | -10 | -4 | 0.2 | -5 | -200 | 0.6 | -100 | 130 | 62 | 9 | -19 | 8 | 0 | 45.0 | 9.1 | 8 | 39.90 |
| 17561 | -21 | -0.38 | 460 | 440 | 702 | 23.00 | 67 | 89 | 14 | 210 | 18 | -9 | -10 | -6 | -0.1 | -14 | -200 | 0.7 | -100 | 190 | 60 | 9 | -28 | 5 | 0 | 57.0 | 11.0 | 4 | 12.56 |
| 17562 | 220 | -0.42 | 450 | 500 | 570 | 24.00 | 71 | -65 | 16 | 290 | 14 | -9 | -10 | -6 | -0.2 | -14 | -200 | -0.2 | -100 | 240 | 60 | 8 | -29 | 8 | 0 | 102.0 | 14.0 | 3 | 10.61 |
| 17563 | -23 | -0.50 | 620 | 390 | 552 | 21.00 | 65 | -68 | 33 | -200 | 41 | -10 | -10 | -7 | -0.1 | -15 | -200 | -0.2 | -220 | 310 | 38 | 6 | -30 | 10 | 0 | 132.0 | 14.0 | 2 | 8.21 |
| 17564 | 180 | -0.41 | 620 | 470 | 552 | 24.00 | 79 | 92 | 22 | -200 | 14 | -8 | -10 | -5 | -0.2 | -12 | -200 | 0.4 | -100 | 320 | 59 | 7 | -25 | 6 | 0 | 120.0 | 16.0 | 4 | 22.26 |

MAGNETIC HEAVY MINERAL CONCENTRATE (PPM)

| SAMPLE NUMBER | MGO % | TIO2 % | CR | NI | CU | ZN | SE | MO | AG | PB | WT g/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 17557 | 0.633 | 4.76 | 1900 | 119 | 40 | 310 | -5 | 1 | -0.5 | 253 | 0.8 |
| 17558 | 1.060 | 9.43 | 3200 | 201 | 38 | 783 | -5 | 1 | -0.5 | 250 | 0.2 |

The above samples of the Rainy lobe were taken from surface exposures in gravel pits or cuts along the Littlefork River during an early reconnaissance of the area. These are not drill samples. The site maps for these are available along with site maps for each drill hole.

## *APPENDIX 8-2.* LOGS OF ROTASONIC DRILL CORE
BY GARY MEYER, MGS

OB-101 — Logged 1/21/86

SW1/4 SE1/4 sec. 16, T. 157 N., R. 25 W.
Surface elev. 1141 ± 5 ft.

| Depth (feet) From | To | Geological Description | Texture | Munsell color |
|---|---|---|---|---|
| 0 | 2.5 | Peat--fibrous, woody | | 2.5Y2/1 |
| | | St. Louis Sublobe | | |
| 2.5 | 3.5 | Clay, probably till leached of carb.; noncalc., slightly calc. by 3', gley color | clay | 7.5Y3/1 to 5G4/1 by 3' |
| 3.5 | 107.5 | Clayey till; abundant carb. pebbles; calc., mottled; much carb.; seems more pebbles, more sand than typical; crystalline pebbles fairly common; some med. pebbles noted from 15' inc. some shale pebbles; much more shale than in other St. Louis tills seen up to now, common as carb. Lens of lake clay 29' to 31', apparently very few pebbles, sticky; sand parting at 55'; till is relatively "dry", stiff; till could approach loam below sand; mod. calc.; little lignite at 62.5', several large pebbles from 63' to 66' inc. shale, very large shale pebble at 68'; several large carb. pebbles from 74'to 75' but not great amount of med. to large pebbles; shale not quite as obvious from 75' but still common; large granite pebble at 91'; sand seems to increase w/depth; dk cobble at 93', other large pebbles, large dk cobble at 105'; apparently getting larger rocks--shale still common as is carb.; several large carb. pebbles toward bottom; somewhat more clayey at bottom, but break fairly sharp | clay to clay loam<br>clay loam by 25'<br>clay loam to loam by 55'<br>loam by 75'or so | 2.5Y6/2 overall<br>2.5Y5/3 by 9'<br>2.5Y4/1 by 13'<br>5Y4/1 by 25' |
| 107.5 | 117.5 | Lake clay, mod. calc., lot of carb. pebbles, may be very clayey till; much more clay, much less sand than till above; granite pebble at 110.5'; but very few grains from 109'; shiny, massive clay; till parting at 111', also little silt, till is as above; calc., some lighter gray silt laminae, not regularly spaced however; clay beds are dominant; silt beds increase w/depth in thickness & percentage of total; interbeds of sand toward bottom 6" or so | silty clay<br>clay by 109' | 5Y4/1<br>silt beds 5Y5/1 |
| 117.5 | 123 | Very fine to fine dirty sand; micaceous lake sand; some med. sand by 119', clean micaceous med. sand in last foot or so; could be till layer at 120'--loamy, mod. calc. | sand | 5Y6-5/1 |
| 123 | 125 | Loamy to clayey till w/lake clay interbeds or lenses, also pebbly zones; calc. | clay loam | 5Y4/1 |

OB-101 (continued)

| | | | | |
|---|---|---|---|---|
| | | Rainy Lobe | | |
| 125 | 126 | Sandy till--dk cobbles, slightly calc.--could be Rainy till (no more than a foot) or till mixed w/local rock | sandy loam to sandy clay loam | 5Y5/1 |
| 126 | | Bedrock | | |

## *APPENDIX 8-2.*

OB-102 Logged 1/21/86

SW1/4 SW1/4 sec. 12, T. 156 N., R. 25 W.
Surface elev. 1164 ± 5 ft.

| Depth From | Depth To | Geological Description | Texture | Munsell color |
|---|---|---|---|---|
| 0 | 0.5 | Organics, black | | |
| | | **St. Louis Sublobe** | | |
| 0.5 | 1.5 | Clay, probably B horizon in leached till; noncalc. | clay | 5Y3/1 |
| 1.5 | 31 | Mottled clay till w/carb. pebbles, mod. calc., streaks of lt gray, Fe stains; large crystalline pebble at 4', noted shale grain at 10', not too many; calc. by 7', shale pebble at 13.5'; fair amount of crystalline pebbles, several large pebbles 15.5' to 17', large granite pebble at 22.5', but mostly small pebbles; some shale | clay loam | 5Y5/3<br>2.5Y4/2 by 7'<br>5Y4/1 by 15' or so |
| 31 | 32 | Clay lens or interbed; few grains, pebbles | clay | 5Y4/2-1 |
| 32 | 131.5 | Clayey till, as above, calc., more shale pebbles than till above; lignite pebble at 43'; still about same texture; large shale pebble at 47.5'; more large shale pebbles below; granite cobble at 58.5'; till seems more loamy; large carb. pebbles 63' to 64', also lignite pebble; horizontal jointing developed by 60'; still some shale, but not as common as in OB-101; some grit but still clay loam by 68'; lignite pebbles noted occ.; 79' to 83' noted number of large pebbles inc. several shale; calc; crystalline cobble at 89'; shale pebble at 108'; from 110' shale fairly common, occ. lignite; 113.5' to 114', two cobbles, carb. and crystalline; massive till but seems to have zones more pebbly than others, seems to get little more gritty w/depth; dirty sand parting at 125'; at 131' seems more sandy, could be inclusions of fine silty sand in till | clay loam<br>clay loam to loam by 85'<br>loam by 119'? gradational | 5Y4/2-1<br>5Y4/1 by 45' or so |
| 131.5 | 157 | Till seems more clayey than above, w/somewhat fewer pebbles; calc.; still fair amount of med. to large pebbles; some shale, carb. common; last 1.5' or so contained several lake clay interbeds or inclusions | clay loam | " |
| 157 | 159 | Lake clay; thin till layer at about 157.5'; very loamy fine to med. sand lamina in last 6" or so; mod. calc. to base | clay | -- |
| | | **Rainy Lobe** | | |
| 159 | 162.5 | Very sandy till; cobbly in top 6", apparently wave-washed; some cobbles below; slightly calc.; noted med. carb. pebble + smaller carb. grains | sand | 5Y5/1 |

OB-102 (continued)

| | | | | |
|---|---|---|---|---|
| 162.5 | 166 | Mostly med. to coarse sand, some very coarse and small pebbles; occ. cobbles | sand | 5Y6/1 |
| 166 | 168.5 | As above, fairly clean sand w/fair amount of large pebbles; fines probably <10%; could be till but very sandy | " | " |
| 168.5 | 169.5 | Clean med. to coarse sand; only small pebbles; could be "barrel wash" | " | " |
| 169.5 | 174.5 | Med. to coarse sand; very little fines, several carb. pebbles; from 170' to 171' several silt to silty sand laminae, apparently indicating fluvial origin for sand; cobbles at 172', 172.5', 174.5'; some are quite smooth | " | " |
| 174.5 | 176 | Seems slightly more fines; cobbly 175' to 175.5', but cobbles could have fallen in ahead of casing; couple inches of silty very fine sand at 176'; carb. pebble noted | " | " |
| 176 | 177 | Fining-upward sequence, coarse sand to silty very fine sand; few small carb. pebbles | sand to loamy sand | -- |
| 177 | 177.5 | Fining up, med. to coarse sand to silty fine sand | sand to loamy sand | -- |
| 177.5 | 178.3 | Fining up, very coarse sand to med. sand, last few inches finely laminated silt + clayey silt; some pebbly (carb.) layers could be "flow" material, slightly calc.; basically fluvial w/minor lacustrine; "rugose" coral noted in coarse sand, much sand is quartz | sand to silt | 5Y5/1 |
| 178.3 | 181 | Inch or so of very fine sand then med. sand below, homogeneous; noted only couple pebbles toward top | sand | -- |
| 181 | 182.5 | Thin clay layer at 181'; large pebble few inches below, then med. to coarse sand, some small pebbles; silty zones apparently related to weathered schist pebbles in sand, which give greenish cast to sand in places | sand | -- |
| 182.5 | 183.5 | Loamy sandy till, slightly calc., apparently Rainy lobe, no more than a foot; compact, definitely more fines than above, slightly "greener" than sand | loamy sand | 5Y5/1 |
| 183.5 | | Bedrock | | |

OB-103
Logged 1/16/86
SE¼SW¼ sec. 19, T. 69 N., R. 26 W.
Surface elev. 1111 ± 5 ft.

| Depth (feet) From | To | Geological Description | Texture | Munsell color |
|---|---|---|---|---|
| | | No core to 65' | | |
| | | St. Louis Sublobe | | |
| 65 | 78 | Clayey till, common carb. pebbles, calc.; most pebbles small, nothing large; appears uniform | clay | 5Y4/1 |
| 78 | 89 | As above, a few large pebbles noted; occ. shale, many carb. pebbles; calc. | clay | 2.5Y4/1 |
| 89 | 91 | Transitional, very clayey till; some carb. pebbles | clay | " |
| 91 | 95 | Lake clay, slightly calc., vague bedding | clay | 5Y4/1 |
| 95 | 98 | Pebbly clay--at top of core run so probably not in place | -- | -- |
| 98 | 103 | Lake clay; slightly calc., vague bedding | clay | 2.5Y4/1 |
| 103 | 111 | As above; mod. calc. "pure" clay; noted pebble at 106'; very shiny, sticky clay | " | 2.5Y4/1-2 by 105' |
| 111 | 118 | As above, small carb. pebble at 113', a few other grains; mod. to slightly calc.; somewhat more silt from about 115' | " | 2.5Y4/1 |
| 118 | 119.5 | Loamy sediment; slightly calc., grades up to clay | loam | 2.5Y4/1 |
| | | Rainy Lobe | | |
| 119.5 | 122 | Cobbly gravelly sandy loam till, slightly calc.; mostly dk pebbles | sandy loam, loamy sand by 120' | 5Y5/2 |
| 122 | | Bedrock | | |

OB-104
Logged 1/22/86
SW¼SW¼ sec. 16, T. 68 N., R. 26 W.
Surface elev. 1148 ± 5 ft.

| epth (feet) From | To | Geological Description | Texture | Munsell color |
|---|---|---|---|---|
| | | Thin organics on top | | |
| | | St. Louis Sublobe | | |
| 0 | 25.5 | Clayey till; leached to about 1' where slightly calc. with visible dolograins; more pebbles and more crystalline pebbles than clayey tills farther east; shale pebble 5'; mottled w/lt-gray bands from 3', calc. by 3'; shale fairly common; mostly small pebbles, occ. med.; pebbles fairly common; large carb. pebble at 13'; few other good sized pebbles below; shale uncommon but present; gneissic cobble at 22', then seems little coarser below to 23', then clayey; lake clay at about 24.5'-24.8' then clayey till to 25.5' | clay to clay loam<br>clay loam 22'-23' then clay | 5Y4/3 2.5Y5/2 by 1' 5/2-4/2 by 6' 2.5Y4/1 by 14.5 |
| 25.5 | 30 | Lake clay, shiny "pure" clay; calc.; few silt laminae but mostly shiny sticky clay, no grains; may be little more silt by 29' | clay | 5Y4/1 2.5Y4/1 by 29' |
| 30 | 30.5 | Clayey till--apparently as till above, calc.; abrupt upper and lower contacts | clay | " |
| 30.5 | 34 | Clayey silt, then few inches of pebbly clay which could be till, then silt at 31 feet; little very fine silty sand below pebbly clay; coarsens downward to very fine sandy silt | silt loam | 2.5Y5/1 5Y5/1 by 31.5' |
| 34 | 55 | Very clayey till, fairly abrupt upper contact, maybe an inch or so; calc.; seems more clayey, less pebbly than till above; little sand inclusion at 39.5'; noted couple shale pebbles; pebble content seems to pick up a little from 45.5'; at 47.5'-48.5' several beds or lenses of sand & pebble-rich till; could be flow till; couple shale pebbles noted at base | clay | 2.5Y4/1 (close to 5Y) |
| 55 | 56 | Med. sand, abrupt upper contact; silty w/shale pebbles; gray | loamy sand | -- |
| 56 | 60 | Very clayey till--some pebbles, not a lot of sand; blocky; mod. calc. to calc. | clay | 5Y4/1 |
| 60 | 60.8 | Very dk gray med. to coarse shale-rich sand, some layers are mostly shale; some small shale pebbles; interbedded w/clay in last few inches; coarse sand is mainly shale | sand | 5Y3/1 |

OB-104 (continued)

| | | | | |
|---|---|---|---|---|
| 60.8 | 67 | Very clayey till, calc., apparently as above; med. sand lens at 62', pebbly zone at 63.7' w/carb.; sand parting at 64.3', couple large pebbles below; sand parting at 64.7'; shale seems fairly common | clay | 5Y4/1 |
| 67 | 69 | Coarse sandy pebbly clayey till; much carb., some shale pebbles, possibly from sand unit below | loam to sandy clay loam | 5Y4/1 |
| 69 | 69.5 | Fine to med. sand--dirty | sand | gray |
| 69.5 | 71.5 | Clayey till as above 67' some shale, calc. | clay | 5Y4/1 |
| 71.5 | 73.5 | Gravelly till as 67' to 69'; much carb. + shale pebbles; few inches of gravel-free clay at 73' | sandy clay loam to clay loam | " |
| 73.5 | 75 | Loamy coarse sand + fine gravel, pebble lithology as above; little clayey "till" at 74.2' | loamy sand | -- |
| 75 | 77.5 | Coarse gravelly sandy loamy till, pebble lithology as above; could be layered toward top | sandy loam | 5Y4/1-3/1 |
| 77.5 | 81 | Lake clay, calc., a few grains; lighter colored than above till; large pebble at 79.5', another at 80', but very few other grains; silty in last foot or so | silty clay to silt loam | 5Y4/1 |
| | | Rainy Lobe | | |
| 81 | 89 | Gray silty fine to med. sand; contained large pebble at 81.5'; probably Rainy till, slightly calc.; cobble at 82'; pebbles fairly common, but no cobbles to about 88'; cobbly + pebbly in last foot or so, mainly granitics & dark metamorphics | loamy sand | -- |
| 89 | | Bedrock | | |

OB-105
SE¼SW¼ sec. 28, T. 68 N., R. 25 W.
Surface elev. 1188 ± 5 ft.

Logged 1/15/86

| Depth (feet) From | To | Geological Description | Texture | Munsell color |
|---|---|---|---|---|
| 0 | 1 | Sandy loam, some gravel; apparently disturbed material as drilled in road | sandy loam (fill) | 10YR3/3 |
| | | St. Louis Sublobe | | |
| 1 | 4 | Clayey till; apparently carb. pebbles leached out, not too many other pebbles; slightly calc.? | clay loam | 10YR4/4 |
| 4 | 9 | Clayey till; carb. pebbles common, also granite, others; "good" till; shale not obvious--noted one pebble at 8'; large granite pebble at 5.5', secondary carb. near base; mod. calc. | clay loam | 10YR5/3-4 |
| 9 | 10 | Same till mixed w/underlying sand | sandy clay loam | 10YR5/3-4 |
| 10 | 14.5 | Sand, coarse; a few dolomite pebbles | sand | 2.5Y5/3 |
| 14.5 | 16 | Mottled clayey till, transition to unoxidized | clay loam | 10YR4/4 + 2.5Y4/2 |
| 16 | 18 | Clayey till, calc.; dolomite pebbles common; transitional to underlying sand | " | 2.5Y4/1 |
| | | Rainy Lobe | | |
| 18 | 19.5 | Med. to coarse sand, slightly calc. | sand | 2.5Y5/3 |
| 19.5 | 23 | Med. sand, some coarse | " | " |
| 23 | 24 | Fine sand, noncalc. | " | 2.5Y5/2 |
| 24 | 25.5 | Med. sand | " | 5/3 |
| 25.5 | 26 | Beds of med. & fine sand; mica flakes | " | 5/2 |
| 26 | 27 | Fine sand w/very fine silty sand bed toward bottom | " | -- |
| 27 | 29 | Med. to coarse sand, very slightly calc. | " | 5/3 |
| 29 | 38.5 | Coarse to very coarse sand, some granules, slightly calc. | " | " |
| 38.5 | 41 | Coarse to very coarse sand, fair amount of med. sand | " | " |
| 41 | 43.5 | Med. to coarse sand | " | " |

OB-105 (continued)

| Depth (feet) From | To | Geological Description | Texture | Munsell color |
|---|---|---|---|---|
| 43.5 | 45 | Coarse to very coarse sand--some Fe staining | sand | 2.5Y5/3 |
| 45 | 46.5 | Med. to coarse sand | " | " |
| 46.5 | 47.5 | Coarse gray sand | " | 2.5Y5/2 |
| 47.5 | 49 | Coarse to very coarse gravelly sand, fining up; sharp contact at base | " | " |
| 49 | 50 | Fine sand to very fine sand, slightly calc. | " | 2.5Y5/1 |
| 50 | 51 | Med. sand w/beds of very fine sand | " | " |
| 51 | 52 | Coarse sand w/few granules, small pebbles, very slightly calc. | " | " |
| 52 | 56 | Alternating layers of med. and coarse to very coarse sand | " | " |
| 56 | | Bedrock | " | " |

OB-106
SW1/4 NW1/4 sec. 19, T. 69 N., R. 25 W.
Surface elev. 1106 ± 5 ft.

Logged 1/15/86

| Depth (feet) From | To | Geological Description | Texture | Munsell color |
|---|---|---|---|---|
| | | St. Louis Sublobe | | |
| 0 | 4 | Clay, some silt: more silty in last foot or so; noncalc. | silty clay | 2.5Y5/3 |
| 4 | 6.5 | Fine silty sand, very fine toward top; color banded, noncalc. | loamy sand to sand | 2.5Y5/4 |
| 6.5 | 7.2 | Clay, calc.; about 8" to 9" of sand in base of clay | clay | 2.5Y5/4 |
| 7.2 | 8.0 | Pebbly coarse sand; much carb.; pebbles are small | sand | 7.5Y5/1-2 |
| 8.0 | 9.0 | Silty clay; mottles, Fe stain; few sand beds toward base | silty clay | 10Y5/1 + 5Y5/2 |
| 9.0 | 11.0 | Medium to very coarse sand; little fine gravel, much carb.; few clay beds toward top | sand | -- |
| 11.0 | 13.0 | Clay, silty; mod. calc.; trace organics? | silty clay | 5Y4/1 |
| 13.0 | 13.5 | Med. to very coarse sand; carb. rich, fine pebbles, calc. | sand | 2.5Y5/2 |
| 13.5 | 15 | Med to coarse sand | " | " |
| 15 | 18 | Med. to very coarse sand, carb. rich, fine gravel; pebble line at base? | " | " |
| 18 | 19.5 | Med. to coarse sand; seems to have organic blobs, including small bits of wood | " | -- |
| 19.5 | 23 | Clay loam till, seems more silty toward top; couple large granite pebbles, one shale pebble, calc. | clay loam to clay | 2.5Y4/1 |
| 23 | 24 | Clay, mod. calc., little to no bedding--contains some grains; may be less than 1' thick | clay | 5Y4/1 |
| 24 | 58 | Very clayey till; carb. pebbles most common; calc.; several med. pebbles noted, but most are small; mod. calc. by 40' | clay | 2.5Y4/1 5Y4/1 by 31' |
| 58 | 82 | As above; large carb. pebble at 62'; carb. cobble at 63'; small crystalline cobble at 74'; noted some small sandy brownish blobs toward bottom, could be incorporated till? | clay | 2.5Y4/1 |
| 82 | 86 | Lake clay--clear contact--lt & dk beds w/varying clay content; slightly calc. | clay | 5Y4/1+3/1 |

OB-106 (continued)

| | | | | |
|---|---|---|---|---|
| 86 | 91 | More massive & clayey--still bedded but more clay | clay | 5Y4/1-4/2 |
| 91 | 98.5 | As above, mod. calc.; silt laminae 93-94'; otherwise massive sticky clay; only very few grains noted; noted carb. grain toward bottom; some silt, very fine sand laminae toward base | clay | " |
| | | Rainy Lobe | | |
| 98.5 | 108 | Loamy sandy till; pebbly at upper contact, small loamy gradational zone in top few inches; slightly calc.; till contains much fine to med. sand; large black cobble w/sulfides at 100'; fewer pebbles + cobbles from about 102'; still loamy sand; fair amount of fine to med. pebbles, but not too many larger; many of larger pebbles appear similar to bedrock; very sandy till, or possibly poorly sorted gravelly sand | loamy sand | 2.5GY5/1 |
| 108 | | Bedrock | | |

OB-107
NE¼ SE¼ sec. 29, T. 68 N., R. 24 W.
Surface elev. 1152 ± 5 ft.

Logged 1/16/86

| Depth (feet) From | To | Geolcgical Description | Texture | Munsell color |
|---|---|---|---|---|
| | | St. Louis Sublobe | | |
| 0 | 2 | Clay, organics | clay | 10YR3/1 |
| 2 | 3 | Clay; very few grains; lake sediment; noncalc. | clay | 2.5Y5/3 |
| 3 | 5 | Clayey till; apparently bedded w/thin clay beds (2.5Y5/1); pebbles fairly common, mostly carb.; could be flow till & lake sediments; mod. calc. | clay | 2.5Y5/3 |
| 5 | 9.5 | Mostly clayey till; carb. pebbles, large one toward bottom; mottled; fairly large shale pebble at base | clay | " |
| 9.5 | 12 | Clay & silt loam beds, mottled | clay + silt loam | 5Y5/1 + 2.5Y5/3 |
| 12 | 13.5 | Silt loam, mottled, mod. calc. | silt loam | 2.5Y5/4 + 5Y6/2 |
| 13.5 | 21 | Clayey till; fair amount of pebbles, mostly carb.; calc., mottled | clay loam to clay | 2.5Y5/3 to 2.5Y4/3-2 |
| 21 | 35 | Clayey till as above, seems to be somewhat more clayey from 20'; carb. most obvious, but some crystalline; noted shale grain; calc. | clay | 2.5Y4/1 by 16' |
| 35 | 48.5 | As above, very clayey; mostly carb. pebbles, none very large; noted one small lignite grain; pebbly zone at base | " | 2.5Y4/1 |
| 48.5 | 49.5 | Bedded clay + silt; some till?; transition zone; "till" probably pebble dropstones | clay | 5Y4/1 |
| 49.5 | 59 | Lake clay, mod. to slightly calc., thinly bedded; bed of silty clay, highly calc., 5Y5/1 at 50', but mostly very clayey, no sand grains noticeable, shiny; thinly bedded w/lighter + darker beds; till "pod" at about 55.5' is full of carb. grains and sandy; probably fell from ice | clay | " |
| 59 | 62 | Lake clay, mod. calc.; somewhat lighter than above, more silty? | clay | 5Y5/1 |
| 62 | 63.5 | Mostly clay, but thin beds of silt, mod. calc; fine sand beds interbedded w/clay in last few inches | " | " |

OB-107 (continued)

| | | | | |
|---|---|---|---|---|
| | | Rainy Lobe | | |
| 63.5 | 65 | Fine to med. sand, very slightly calc. | sand | 2.5Y5/1 |
| 65 | 80 | Med. sand | " | -- |
| 80 | 83 | Med. to coarse sand | " | -- |
| 83 | 89 | Coarse sand; coarse to very coarse by 86'; very slightly calc. | " | -- |
| 89 | 97 | Med. sand, very slightly calc.; some coarse sand; gray | " | -- |
| 97 | 102 | Coarse sand, gray | " | -- |
| 102 | 115 | Med. sand, noncalc.; very uniform; not much coarse; gray | " | -- |
| 115 | 117 | Coarse sand, gray | " | -- |
| 117 | 121 | Med. to coarse sand, gray | " | -- |
| 121 | 132 | Fine to med. sand, gray | " | -- |
| 132 | 138 | Med. sand, gray | " | -- |
| 138 | 142 | Fine to med. sand, gray | " | -- |
| 142 | | Bedrock | | |

OB-108
NW¼NE¼ sec. 16, T. 69 N., R. 24 W.
Surface elev. 1118 ± 5 ft.

Logged 1/22/86

| Depth (feet) From | To | Geological Description | Texture | Munsell color |
|---|---|---|---|---|
| 0 | 1 | Fill: organics & sandy loam full of carb. pebbles | | |
| | | St. Louis Sublobe | | |
| 1 | 4 | Several inches of med. sand then silt, clayey, non-calc., to silt; has some very fine sand | silt loam | 2.5Y5/2<br>5/3 by 2' |
| 4 | 6.5 | Fe stained, silty clay; very slightly calc. | silty clay | 5Y5/2 |
| 6.5 | 7.8 | Inch or so of med. sand on top, then silt loam below, as in sequence above; by 7' silty clay again, only very slightly calc. at most | sand to silty clay | 2.5Y5/3<br>silt<br>2.5Y5/2<br>clay |
| 7.8 | 10 | Basically clay but seems to have little sand; no pebbles, mod. calc. | silty clay to clay | 2.5Y5/3 |
| 10 | 12 | Clay; obscure bedding, number of large secondary carb. nodules; mottled, calc. | clay | 2.5Y5/2 |
| 12 | 76 | Very clayey till; med. carb. pebble at top; some carb. pebbles but very clayey, mottled, banded to about 15', then unoxidized; occ. med. to large carb. pebbles, few crystalline, but generally small; seems to be silt bed few inches thick above unoxidized till; calc., have not noted any shale; good horizontal jointing by 40' or so | clay | 2.5Y4/1<br>by 15' |
| 76 | 79 | Silty med. to coarse sand to 77' then layers of clay and sand; some small pebbles, carb.-rich sand | sand -<br>& clay - | 2.5Y5/2-1<br>5Y4/1 |
| 79 | 83 | Silty med. to coarse sand as above | sand | |
| 83 | 84 | Sand as above & clay layers (till layers?) | | |
| 84 | 90.5 | Till as from 12' to 76'; very clayey; pebbles mostly carb.; calc. | clay | 2.5Y4/1 |
| 90.5 | 93 | Lake clay, slightly darker than above, shiny; mod. calc; 92' to 92.5' some grains; rest is lake clay | clay | 5Y4/1-3/1 |
| | | Rainy Lobe | | |
| 93 | 96 | Laminated clay, slightly calc.; silt in last 6" or so is 5Y5/1 and slightly calc. | " | " |
| 96 | 99 | Med. sand; silt bed in first few inches; coarse sand in last 6" | sand | -- |

OB-108 (continued)

| | | | | |
|---|---|---|---|---|
| 99 | 100.5 | Silty very fine to fine sand; possibly some silt beds; coarse pebbly sand in basal 1" to 2"; slightly calc. | loamy sand | 5Y4/1 |
| 100.5 | 103 | Loamy pebbly sandy till for 6" or so, then seems cleaner; slightly calc.; sand or somewhat washed till to about 103'; contains some pebbles, cobbles; very slightly to noncalc. | loamy sand to sand | 5Y5/1 |
| 103 | 116 | Loamy sandy till; several cobbles (dk metamorphics); sandy loam at top; slightly to very slightly calc.; by 110', cobbly pebbly sandy till, cobbles mostly are dark to gneissic; large cobble at 114.5' | loamy sand | 5Y5/1 |
| 116 | 117 | Primarily med. sand, dirty; start of new day so may not be good sample | sand | " |
| 117 | 118 | Dirty sand & gravel; a lot of darks; not sure if till | gravelly sand | " |
| 118 | 123 | Cobbly gravelly till | loamy sand | " |
| 123 | 124 | Cobble zone; dk metamorphics to gneissic | | |
| 124 | 126 | Typical Rainy till; gravelly, slightly calc. | loamy sand | " |
| 126 | 131.5 | Coarse sand & gravel, large pebbles, lot of darks & granites. Cobbly sandy gravel from 128', including some large cobbles | gravelly sand to gravel | -- |
| 131.5 | | Bedrock--gneissic | | |

OB-109
SE¼SE¼sec. 16, T. 69 N., R. 23 W.
Surface elev. 1155 ± 5 ft.

Logged 1/22/86

| Depth (Feet) From | To | Geological Description | Texture | Munsell color |
|---|---|---|---|---|
| | | Thin organics on top | | |
| | | St. Louis Sublobe | | |
| 0 | 38 | Extremely clayey till; slightly calc. near top. Dolomite grains by 1.5'; few pebbles above that; pebbles + grains (mostly carb.) are rare, but enough to be till; calc. to mod. calc. by 2', hard, stiff; much mottling from 12.5', yellower w/gray streaks: Mn stains? Fe stains; gypsum crystals associated w/gray mottles; carb. cobble at 17'; calc. by 17', almost all grains are carb.; last sign of staining gone by 24'; shale pebble at 21', only one noted in hole; oxidation zone 2" to 3" wide (2.5Y5/3) at 26'; small granitic cobble at 27'--seemed few more crystalline pebbles below, but still very clayey; quite calc. by 26'; pebble content seems even less from about 27.5'--very few until about 33.5', mostly only sand + small pebbles | clay | 10YR5/3<br>2.5Y5/3<br>by 1.5'<br>2.5Y5/2<br>by 2.5'<br>4/2 by 5'<br>2.5Y5/3<br>by 12.5<br>+ mottles<br>of 10YR5/3<br>+ N5/0<br>2.5Y4/1 by<br>21' |
| 38 | 39.5 | Sandy zone of same (?) till; lots of carb. grains; crumbly, apparently no bedding; calc. | loam | 2.5Y5/1 |
| 39.5 | 44 | Till as above; very clayey w/mostly carb. pebbles | clay | 2.5Y4/1 |
| 44 | 45 | Till as above; calc. sandy loam beds, probably inclusions, but basically same till to bedrock; few more pebbles at base | clay minor sandy loam | " |
| 45 | | Bedrock | | |

OB-110
NW¼SE¼ sec. 12, T. 68 N., R. 24 W.
Surface elev. 1155 ± 5 ft.

Logged 1/16/86

| Depth (feet) From | To | Geological Description | Texture | Munsell color |
|---|---|---|---|---|
| 0 | 1 | Organic clay loam | clay loam | 10YR3/1 |
| | | St. Louis Sublobe | | |
| 1 | 2 | Clayey lake sediment--apparently few grains; carb. could be leached; noncalc. | " " | 2.5Y5/2 |
| 2 | 3 | Clay--apparently lake sediments, slightly calc., no grains noted | clay | 2.5Y5/3 |
| 3 | 5 | Clay till w/thin clay beds (2.5Y5/1)--flow till?; mod. calc.; pebbles mostly carb.; fair amount of sand in clay, noted little shale | clay | " |
| 5 | 12 | Clay till as above, but apparently no more clay beds; pebbles as above; calc. from 10'; quite clayey but is till | clay | 2.5Y5/2 by 7' |
| 12 | 25 | As above, but fair amount of granitic pebbles; carb. still dominant | " | 2.5Y4/1 by 16' |
| 25 | 33 | Possibly slightly more clayey till, calc.; several med. pebbles at 29'; large granite pebble at about 33' | " | " |
| 33 | 37.5 | Apparently lake clay; shiny, more clayey than above but still fair amount of grains, some pebbles; grains appear to be in groups; clay breaks differently than till above; mod. calc. | " | 5Y4/1 |
| | | Rainy Lobe | | |
| 37.5 | 42 | Lake sediment, good bedding, only very few grains; slightly calc.; few silt laminae below 41'; fine sand partings in last few inches, few pebbles | " | " |
| 42 | 45 | Cobbly gravelly loamy sandy till, slightly calc. | loamy sand | 5Y5/1 |
| 45 | 50 | Sandy loam--only small pebbles--could all be sluff | sandy loam | 5Y5/1 |
| 50 | 52 | Cobbly gravelly sandy loam till, slightly calc.; noted a few carb. grains | sandy loam | 5Y5/1 |
| 52 | 54 | Bedrock or regolith--possibly reworked or powdered | | |
| 54 | | Bedrock | | |

OB-202
SE¼SW¼ sec. 16, T. 63 N., R. 23 W.
Surface elev. 1338 ± 5 ft.

Logged 1/13/86

| Depth (feet) From | To | Geological Description | Texture | Munsell color |
|---|---|---|---|---|
| | | St. Louis Sublobe | | |
| 0 | 0.5 | Lake sediment; noncalc., no pebbles, no bedding | clay | 5Y5/2 |
| 0.5 | 4 | Till; small pebbles common: dolomite, few darks, few red granites: highly calc.; no large pebbles | " | mottled 5Y5/3 2.5Y5/3 by 2' |
| 4 | 8 | As above; a few larger pebbles, mottled gray, Fe staining, highly calc.; noted one shale pebble | " | " |
| 8 | 12.5 | As above, but color change and calc. by about 10' | " | 2.5Y4/2 + 4/1 by 10' |
| 12.5 | 14 | Stiff clay; a few large carb. pebbles; most pebbles are carb.; thin oxidized silt layer, a few Fe stains, highly calc.; couple shale pebbles | " | 2.5Y4/1 |
| 14 | 16 | Core disturbed, softer than above | " | mottled 2.5Y4/2 |
| 16 | 21 | Till as above clay; granite pebble and carb. pebbles; 2.5Y4/2 from 20' | " | mottled 2.5Y4/2 + 4/3 |
| 21 | 26 | As above, but stiffer from 21'-22'; lignite, shale pebbles | " | 2.5Y4/2 |
| 26 | 29 | As above; several large carb. pebbles; horizontal joints closely spaced; dark pebbles, gneissic pebbles. Texture could range to clay loam for this till | " | 2.5Y4/1 from 26.5' |
| 29 | 33 | As above; shale and carb. pebbles | " | " |
| 33 | 38 | As above; large chert pebble, granite cobble; not as stiff as above; calc. | clay loam | " |
| 38 | 42.5 | As above; shale grains | " | " |
| 42.5 | 51 | Sandy loam till - very calc.; dirty sand parting at 45', large pebble also; below parting have loam till and sandy loam till, and loamy sand parting at 47.5'; loam till below black cobble at 48'; much carb. in till, generally more pebbly than intervals above | sandy loam + loam little loamy sand | 2.5Y4/2 2.5Y4/1 from 47.5' |

)B-202 (continued)

| | | | | |
|---|---|---|---|---|
| 51 | 58.5 | Clayey till; gradational contact, still some pebbles, not stiff; calc., more clayey than any of above intervals | clay | " |
| 58.5 | 65.5 | As above, soft; shale grain, carb. grains; till could range to silty clay as appears to have fair amount of silt; lignite grain | " | " |
| 65.5 | 68 | Soft, more grit in till, possibly to silty clay loam; dolomite cobble about 67'; loam by 67.5' | clay loam | " |
| 68 | 69.5 | Mush - very soft loamy texture, not many pebbles, very wet | loam | " |
| | | Rainy Lobe | | |
| 69.5 | 73.5 | Very sandy till; lighter color, slightly calc.; dk metamorphic cobble at 72.5'; dk pebbles; noted one small carb. grain; ranges from sandy loam to loamy sand | very sandy loam | 2.5Y5/1 |
| 73.5 | 78.5 | Moist till, slightly less sandy than above; concretion at 74' is 2.5Y5/1 , slightly calc., not very hard; little more sandy from 75.5'; also seems dryer from 75.5'; more pebbles from 76.5'. Some Fe staining, could be post-coring; dk pebbles common | sandy loam | 2.5Y4/1 ranges to 4/2 2.5Y4/1 - 5/1 by 75.5' |
| 78.5 | 80 | Noncalc. sandy till; cobbles of schist with pyrite common | sandy loam to loamy sand | 2.5Y4/1 - 4/2 |
| 80 | 83 | Sample has dried out, otherwise as above; another dk cobble; fines are prob. mostly silt "rock flour" | " | " |
| 83 | 86 | Sandy loam till, may range to loamy sand; quartz vein and schist cobble at 83', lot of dk pebbles; rotten granite at 85.5', dk cobble at 85' | sandy loam | 2.5Y4-5/1 |
| 86 | 86.5 | Silty, pebbly, coarse sand lens 6"-10" thick | loamy sand | 2.5Y5/2 |
| 86.5 | 87.5 | Sandy loam till; granite cobble, large slate pebble | very sandy loam | " |
| 87.5 | 90 | Sandy till, noncalc.; fair amount of granitic pebbles, some dk pebbles; couple small granitic to gneissic cobbles | " | 2.5Y5/1 |
| 90 | 93 | As above, rocky from 92'; dk cobbles, also granitic | " | " |
| 93 | 98 | Seems coarser from about 92', more gravel and cobbles: gneissic cobble at 97.5', pegmatitic cobble at 97' | " | " |



)B-202 (continued)

| | | | | |
|---|---|---|---|---|
| 98 | 104 | Seems a little more sandy; noncalc.; fairly rocky; large gneissic cobble at 100' | loamy sand | " |
| 104 | 105.5 | Fine to coarse sand; post-sampling oxidation; noncalc.; trace fine gravel; fining-upward sequence | sand | gray |
| 105.5 | 107.5 | Loamy sand till; some pebbles, noncalc. | loamy sand | 2.5Y5/1 - 6/1 |
| 107.5 | 110 | As above, but not as many pebbles, not as rocky; rich in sand; dk metamorphic cobble at top | " | " |
| 110 | 111 | As above, but more pebbles | " | " |
| 111 | 118.5 | Sand seam at top, then as above, noncalc.; many coarse granite and dk metamorphic pebbles, red granite pebble at 114', small chert or carb. pebble at 111.5', granitic cobble at 116' | " | 2.5Y5/1 |
| 118.5 | 119.5 | Less than 1' of fine to coarse sand; fairly clean lens 8"-10" thick | sand | 2.5Y6/2 |
| 119.5 | 122 | Sandy till; some pebbles, cobbles | sandy loam | 2.5Y4/1 |
| 122 | 122.5 | Rocky sandy till | gravelly sandy loam | " |
| 122.5 | | Bedrock | | |

OB-204
SE¼SE¼ sec. 17, T. 63 N., R. 22 W.
Surface elev. 1289 ± 5 ft.

Logged 1/14/86

| Depth (feet) From | To | Geological Description | Texture | Munsell color |
|---|---|---|---|---|
| 0 | 1 | Leaf litter, organics, little peat at base | | |
| | | St. Louis Sublobe | | |
| 1 | 4 | Lake clay; calc., wet; couple dolomite grains at 2.5' | clay | 2.5Y5/3 |
| 4 | 7 | Lake clay; calc., few small wood fragments; peat parting at 5.5', could be out of place; little secondary carb. at 6' | " | 2.5Y6/2 |
| 7 | 11 | Laminated, slightly mottled clay with laminae of lighter colored fines | " | 5Y4/1 by 6' mottled 2.5Y4/2-4/3 |
| 11 | 16 | Clayey till; sand floating in fine matrix; calc., no laminations; still only small pebbles, mostly dolomite | " | " |
| 16 | 23 | As above, very clayey; few pebbles present are small; calc.; horizontal breaks in core | " | 2.5Y4/2-1 from 21' |
| 23 | 27.5 | As above; picking up more pebbles by 25'; still very clayey; one large dolomite pebble noted, most pebbles are carb.; rip up clasts, band of sandy silt at base | " | 2.5Y4/1 |
| 27.5 | 30.5 | Lake clay; laminated; very few grains toward top, then none; calc. | " | " |
| 30.5 | 33 | Start noticing a few grains and small pebbles; seems too clayey for till | " | " |
| 33 | 36 | Slightly darker gray clay; some laminations, very few grains; seems more clayey, thus the darker color in top few inches - 2.5Y3/1; very thin carb. laminae along bedding planes | " | " |
| 36 | 38 | Very sticky, shiny clay, very fine, mod. calc.; no grains noted | " | " |
| 38 | 41 | As above, but start noticing some grains, chiefly dolomite; still sticky, much clay, little silt | " | " |
| 41 | 44 | As above, but no grains noted until about 42.5' where thin area of concentrated grains; otherwise massive clay with obscure laminations | " | " |

OB-204 (continued)

| | | | | |
|---|---|---|---|---|
| 44 | 50 | A very few grains toward top then very massive clay; has bedding but texture doesn't appear to vary; no grains noted; one carb. granule toward bottom | clay | 2.5Y4/1 |
| 50 | 54 | Massive lake clay; only a very few sand grains noted; calc. | " | " |
| 54 | 60.5 | Lake clay; massive, no grains noted; calc. | " | 2.5Y4/1 5Y5/1 by 56' |
| 60.5 | 64 | Pebble line then a more gritty clay for a few inches, then massive shiny clay to about 61.5' where gets somewhat gritty, matrix is more silty; probably closer to source; fair amount of sand grains; noted couple dolomite pebbles; could possibly be "flow till" | " | 5Y5/1 |
| 64 | 65 | Silty lake deposit; clay is more silty than above | " | 5Y5/1 |
| 65 | 69 | Clayey till; some grains; carb. and dk "slate" pebbles; large granite pebble at 66.5', large carb. pebble at 68'; some zones are more silty; ranges to clay loam or silty clay loam; 7.5YR6/3 noncalc. clay bleb about 67.5' | clay - clay loam | 5Y4/1 |
| 69 | 73 | As above, clayey till; seems less carb. than first clayey till; more granitic and dk mafic pebbles; mod. calc., slightly calc. by 71' | clay | 5Y5/1 |
| 73 | 79 | Clayey till as above; small cobble at 74.5' is bluish with much sulfide; other pebbles nearby; large carb. and granite pebbles from 76'-78'; mod. to slightly calc.; last 6" more pebbly, gradational | " | " |
| 79 | 80 | Transition zone; mostly noncalc.; greenish sandy loam with inclusions of slightly calc. clayey till with carb. grains; could be some loamy sand at base (non-till) | sandy loam | 2.5GY4/1-5/1 |
| | | Rainy Lobe | | |
| 80 | 82 | Sandy loam till; several large pebbles, cobbles; noncalc. | " | " |
| 82 | 83 | Coarse cobbly loamy sand till; mostly dk but some gneissic pebbles; little sand at base is 7.5Y5/2; till color from ground-up rocks | loamy sand | 5GY4/1 |
| 83 | 85 | Poor sample; mostly clayey till from above; stuck in barrel? | " | " |
| 85 | 87 | Coarse loamy sand till with some cobbles; mostly dk schist pebbles; noncalc.; lighter colored sand inclusions | " | " |

OB-204 (continued)

| | | | | |
|---|---|---|---|---|
| 87 | 95 | As above; many phyllitic to schistose dk cobbles with much sulfide; some zones coarser than others | loamy sand | 7.5Y5/2 + 1 |
| 95 | | Bedrock, schist, fine | | |

OB-206
SW¼SW¼ sec. 22, T. 63 N., R. 21 W.
Surface elev. 1301 ± 5 ft.

Logged 1/23/86

| Depth (feet) From | To | Geological Description | Texture | Munsell color |
|---|---|---|---|---|
| 0 | 0.5 | Organic--peat, black | | |
| | | St. Louis Sublobe | | |
| 0.5 | 2.5 | Silty clay--seems to have some grit; noncalc. | silty clay | 10YR5/2 to 1' then 5Y5/2 |
| 2.5 | 3.0 | Silty very fine to fine sand | loamy sand | -- |
| 3.0 | 20 | Clay; mottled and some obscure laminae from 4'; calc. by 4'; well-developed thin laminations recognizable by 5'; seems to be mostly clay w/lesser or greater amounts of silt, could range to silty clay; noted first dropstone carb. pebble at 12.5' w/several carb. grains nearby; granite pebble at 14.5'; laminations not as obvious from 12', but still present | clay | 5Y5/3<br>2.5Y4/1 by 9' |
| 20 | 29 | Varved clay and silt, about 1:1 ratio to start, then silt becomes dominant w/depth; large carb. pebble at 26', 1" to 2" of sandy loam till? just below pebble; few other pebbles at about 27' in varved clay + silt; occ. carb. grains below | clay + silt | 5Y4/1-clay 5/1-silt |
| 29 | 30.5 | Laminations not as regular; silty clay, clay, clayey silt + silt; carb. dropstones at 30.5' | clay to silt | 5Y5/1 + 4/1 |
| 30.5 | 32.5 | Mostly silty clay; several pebbles; small gneissic cobble at about 32'; some dk-gray clay beds below | silty clay | 5Y5/1 to 5Y4/1 |
| 32.5 | 37 | Silty clay till (?); sand peppered in clay; seems more silty than other St. Louis tills; calc.; a few large pebbles; more clayey w/depth | silty clay to silty clay loam | 5Y5/2-1 |
| 37 | 63 | By 37' or so seems more clayey, less grit; still occ. large pebbles; other grains; difficult to pick exact contact, if any; still could be very clayey till as no obvious bedding; calc.; couple large pebbles at 42'; if is till is exceptionally clayey; if is lake clay is massive w/many dropstones; breaks in horizontal joints; granitic cobble at 48'; few other small carb. pebbles; shale pebble at 53', other pebbles in vicinity; seems a little more silty from 54' to 55.5', looks little more like till; more silty again from 56.5'; sandy zone 60' to 60.5' (clay loam) has small dk cobble at base | clay | 5Y5/1-4/1 |

OB-206 (continued)

| | | | | |
|---|---|---|---|---|
| 63 | 65 | More silty than above; silt; contact fairly abrupt; large granite pebble at 65', others present; calc. | silt loam | 5Y5/1 |
| 65 | 75 | Sample not retrieved; only little sticky clay; probably silt to fine sand | -- | -- |
| 75 | 82.5 | Top few inches mainly silt, then grades to silty till; appears same as 32.5'-37', but more sand + pebbles; more sandy w/depth; mod. calc. to calc.; quite gravelly at 79.5' to 81.5' including small cobble and some large carb. pebbles, large dk pebble at 81.5' | silty clay loam to sandy clay loam by 79.5' | 5Y5/1-4/1 |
| 82.5 | 94 | Lake clay; granite pebble, other grains at 85', otherwise smooth clay; could have some obscure bedding; some definite bedding by 87': very rare grains; calc.; small dk cobble at 92'; large pebble below | clay | " |
| 94 | 94.5 | Dk-gray laminated clay, more "pure" than above | clay | 5Y4/1 |
| | | Rainy Lobe | | |
| 94.5 | 100 | Clay, greenish slightly calc., w/reddish bed (non-calc.) near top--5YR5/3-2 or 7.5YR5/3-2 | clay | 5Y5/1 |
| 100 | 101.5 | Silt mainly; slightly calc. | silt | -- |
| 101.5 | 103 | Very fine sand + very fine silty sand + silt (?); thinly laminated | loamy sand + sand | -- |
| 103 | 107.5 | Fine to medium sand | sand | -- |
| 107.5 | 108 | Last 6" at most a greenish gravelly sandy till?; slightly calc., compact | loamy sand | 10Y5/2 |
| 108 | | Bedrock | | |

OB-207
NE¼NE¼ sec. 16, T. 62 N., R. 21 W.
Surface elev. 1283 ± 5 ft.

Logged 1/22/86

| Depth (feet) From | To | Geological Description | Texture | Munsell color |
|---|---|---|---|---|
| | | Few inches of black loam on top | | |
| | | St. Louis Sublobe | | |
| 0 | 68.5 | Lake clay, calc., from below loam; some obscure bedding or banding evident by 5'; "dry", no grains noted; extremely hard to split; generally massive, few laminae noted from 30' to 31'; very few grains noted below 28', granite pebble at 34', carb. pebble at 40', few other grains but clearly lake sediment. Two carb. pebbles at 47.5', 51.5'; sand grain every foot or so, exceptionally rare; darker clay bed ½" thick at 57.5' and others about 1' above & below, but no regular alternation apparent; pebble at 64.5', also inch or so band of gritty clay containing fair amount of fine sand | clay | 2.5Y5/3 2.5Y6/3 by 4' 2.5Y5/2 by 8' may range to 6/2 in places 2.5Y4/2 by 24' 2.5Y4/1 by 25' 5Y4/1 by 56'--probably sooner |
| 68.5 | 70.5 | Dk-gray clay, less silty than above; few dropstones, appears laminated; mod. calc. | clay | 5Y4-3/1 |
| | | Rainy Lobe | | |
| 70.5 | 71.3 | Lt-greenish clay; vague bedding, slightly calc. | clay | 5Y5/1-2 |
| 71.3 | 71.6 | Reddish + greenish clay, only a few recognizable (non-calc.) red beds which seem to fade w/depth, less distinguishable; texture seems about same between red & green beds | " | 5YR5/3 to 7.5YR5/3 |
| 71.6 | 78.5 | Greenish clay; possibly little more silty than above; noncalc.; laminated, but not obviously; silt by 78' if not sooner | silty clay to silt | 5Y5/2 7.5Y5/2 by 73' |
| 78.5 | 84 | Laminated silt + clay--probably are true varves; silt about twice as thick as clay but ranges from 1:1 to 3:1; noncalc.; noted one dropstone | silt to clay | 7.5Y5/2 |
| 84 | 88.5 | Varves less distinct; still some clay laminae, but mostly silt; can feel clay better than see it; noncalc.; seems to be coarsening downward to very fine sandy silt | silt, minor clay to silt loam | " |

OB-207 (continued)

| | | | | |
|---|---|---|---|---|
| 88.5 | 91.5 | Fine to very fine sand, quartz-rich; appears laminated with silty sand beds; large granite pebble at 89.5'; med. sand bed at 91' coarsens in last few inches, grades to underlying unit | sand to loamy sand | 5Y5/2-1 |
| 91.5 | 93.5 | Loamy gravelly sandy till, sharp basal contact; slightly calc., compact; fairly certain is till | loamy sand | 7.5Y5/2-1 |
| 93.5 | 97.5 | Very coarse sand to 94'; then silty fine sand few inches thick, underlain by coarse sand; med. sand by 95'; silty in last few inches | sand | -- |
| 97.5 | 104.5 | Gravelly sandy till; fair amount of fines; compact; slightly calc.; drilled through large cobble at 102'; not many big rocks, however | loamy sand | 5GY4/1 to 7.5Y5/2 by 100 ft. |
| 104.5 | 107 | Very cobbly till?--probably mostly reworked bedrock; slightly to mod. calc. | " | " |
| 107 | 108 | Coarse gravelly sand--prob. mostly reworked bedrock | gravelly sand | -- |
| 108 | | Bedrock | | |

OB-208
SE1/4SW1/4 sec. 27, T. 62 N., R. 20 W.
Surface elev. 1298 ± 5 ft.

Logged 1/14/86

| Depth (feet) From | To | Geological Description | Texture | Munsell color |
|---|---|---|---|---|
| 0 | 0.5 | Few inches of organic debris over granite cobble; may be fill | | |
| | | Rainy Lobe | | |
| 0.5 | 1.5 | Silt, noncalc.; (loess?) | silt loam | 2.5Y6/3 |
| 1.5 | 2.5 | Silt, noncalc.; (loess?); close to 7.5YR4/6; sharp basal contact | " | 10YR4/6 |
| 2.5 | 10 | Sand, fine to very fine; silty zones; noncalc. | sand | 10YR5/3 2.5Y6/2 by 8' |
| 10 | 10.5 | Very fine sand; abrupt contacts above and below | " | 10YR5/3 |
| 10.5 | 12.5 | Fine sand, noncalc.; very abrupt contact at base | " | 2.5Y6/2 |
| 12.5 | 14 | Poorly sorted gravelly sand; large pebbles to small cobbles (mostly dk metamorphics) and fine to coarse sand; few small pebbles; noncalc. | gravelly sand | 2.5Y6/3 |
| 14 | 16 | Wet fine sand | sand | 2.5Y6/4 |
| 16 | 17 | Wet coarse sand with fine pebbles; abrupt contact with above | " | 2.5Y6/3 |
| 17 | 20.5 | Silty fine to coarse sand, pebbly with several large pebbles; poorly sorted | " | -- |
| 20.5 | 24 | Clean pebbly, med. to coarse sand; abrupt contact; many schist pebbles; all grains are Rainy lobe; no dolomite | " | -- |
| 24 | 25 | Silty pebbly fine to coarse sand; abrupt contacts | " | -- |
| 25 | 25.5 | Fine sand | " | 2.5Y5/3 |
| 25.5 | 28 | Clean, coarse, gravelly sand with silty zones; coarser pebbles 27'-28' | " | -- |
| 28 | 30 | Mostly fine sand, some pebbles | " | -- |
| 30 | 32 | Fine sand | " | -- |
| 32 | 36 | Fine to med. sand | " | 2.5Y6/3 |
| 36 | 38.5 | Fine sand | " | 2.5Y6/1 |

OB-208 (continued)

| | | | | |
|---|---|---|---|---|
| 38.5 | 47 | Fine to med. sand | sand | 2.5Y6/1 |
| 47 | 50 | Mostly fine sand | " | " |
| 50 | 50.1 | Laminated silt and clay (2.5Y3/1); noncalc. | silt & clay | 2.5Y3/1 + 2.5Y5/2 |
| 50.1 | 52 | Fine sand, noncalc. | sand | 2.5Y6/1 |
| 52 | 62.5 | Fine sand, some med. sand; abrupt basal contact; small clay clasts at 54', 58' | " | " |
| 62.5 | 64 | Very fine sandy silt | silt loam | 2.5Y5/1 |
| 64 | 64.5 | Very fine sand | sand | " |
| 64.5 | 67.2 | Fine sand, noncalc. | " | " |
| 67.2 | 67.3 | Laminated silt and clay | silt & clay | -- |
| 67.3 | 67.9 | Fine sand | sand | -- |
| 67.9 | 68.5 | Laminated silt and clay and fine sand | silt, clay, sand | 5Y4/1 for clay |
| 68.5 | 71 | Fine sand; no med. or coarser sand | | |
| 71 | 73 | Laminated sandy silt, minor clay, and very fine silty sand; pebble at 72.5' | loam, loamy sand, clay | 5Y4/1 for clay |
| 73 | 75 | Clean, very fine sand | sand | 2.5Y8/1 dry |
| 75 | 75.5 | Mostly clay; laminated | clay | 5Y4/1 |
| 75.5 | 76 | Very wet fine sand | sand | -- |
| 76 | 79 | Silt loam, very wet, clay to very fine sand; noncalc.; sample is mushy, so hard to tell if laminated | silt loam | 5Y5/1 |
| 79 | 82 | Fine silty sand | sand | " |
| 82 | 82.5 | Silty clay | clay | 5Y4/1 |
| 82.5 | 84 | Silty fine sand | sand | -- |
| 84 | 84.5 | Very fine sand with clay laminae | " | -- |

OB-208 (continued)

| | | | | |
|---|---|---|---|---|
| 84.5 | 85.5 | Clean very fine sand | sand | -- |
| 85.5 | 88 | Obscurely bedded silt and clay; clay layers are minor | silt, clay | 5Y5/2, 5Y4/1 |
| 88 | 92.5 | Very fine sand, quick; clay beds at 89.5', 90.5' about 1" thick; clay parting at 92.5' | sand | -- |
| 92.5 | 93 | Fine sand | " | -- |
| 93 | 97 | Very fine sand | " | -- |
| 97 | 103 | Coarse cobbly gravelly dirty sand till; granitic and dk metamorphic clasts | gravelly sand | 5Y5/1 |
| 103 | 108 | Cobbles, gravel: gneiss, dk metamorphics, metavolcanics, schists; 1' gravelly sand toward bottom - washed till? | gravel | -- |
| 108 | 113 | Not much preserved; loamy till; noncalc.; could be Rainy till which incorporated underlying clay, soil | loam | 2.5Y4/1 |
| 113 | | Bedrock | | |

OB-209
NE¼SE¼ sec. 16, T. 63 N., R. 20 W.
Surface elev. 1346 ± 5 ft.

Logged 1/15/86

| Depth (feet) From | To | Geological Description | Texture | Munsell color |
|---|---|---|---|---|
| | | Few inches of roots and organic clay | | |
| | | St. Louis Sublobe | | |
| 0 | 4 | Only 1' core recovered; organic-rich clay | clay | 2.5Y4/1 |
| 4 | 7.5 | Clay, calc.; thin silt beds lighter and more calc.; clay band from 5'-5.5' is 2.5Y4/1; laminated by 5' (noticeable); bedding not as obvious6'-7'; some gley colors; by 7' pure clay beds are thin, more silty beds dominant | clay & silty clay loam | 2.5Y6/2 to 2.5Y5/2 - 5/3 |
| 7.5 | 14 | Varved clay as above; clayey silt about twice as thick as clay beds; noted weathered schist pebble at 13'. About 2-3 varve couplets/inch; gley colors gone by 10.5' | " | 5Y5/2 silt 5Y4/2 clay |
| 14 | 17 | Wet sticky core; mod. calc.; still appears to be laminated clays; carb. pebble 15', grain at 14' | " | 2.5Y5/2 |
| 17 | 18.5 | Very fine sandy silt, mod. calc.; clay bed(s) in middle, and toward bottom; obscure bedding, interbedded with clay toward base | silt loam | 5Y5/2 |
| 18.5 | 20 | Dk-gray clay, slightly calc.; obscure bedding | clay | 5Y4/1 |
| 20 | 22 | Very thinly laminated slightly calc. clay and lighter colored clayey silt (more calc.); granite pebble at 20.5' | " | " |
| 22 | 25 | Lake clay; appears more massive than above, but bedding is present | " | 5Y4/1-2 |
| 25 | 28.5 | As above; very rare sand grains; bedding more distinct by 27'; increasing silt from 28', 5 to 6 pebbles noted at 28.5' | " | 5Y4/1 |
| 28.5 | 34.5 | Silty clay with beds of clay; slightly calc. to mod. calc.; a few silt laminae from 33' to 34.5' | silty clay & clay from 28' | 5Y4/1 |
| 34.5 | 39.5 | Clay, some bedding; pebble at 36.5'; somewhat more silt by 36', more distinct bedding from about 38'; mod. calc. | clay | " |

B-209 (continued)

| | | Rainy Lobe | | |
|---|---|---|---|---|
| 39.5 | 52 | Fine sand, noncalc.; much biotite mica in sand; some medium sand, which seems to increase downward | sand | 5Y5/2-1 |
| 52 | 54 | Med. to coarse sand; gravel toward bottom, also silt layer toward bottom; noncalc. | " | -- |
| 54 | 55 | Interbedded med. to coarse sand and very fine silty sand (sandy silt) | sand & loamy sand | -- |
| 55 | 60 | Dirty fine and med. sand | sand | -- |
| 60 | 67 | Coarse sand, noncalc. Layer of large pebbles at 64' includes one small cobble; coarse to very coarse sand below pebbles | " | 5Y5/1 |
| 67 | 73 | Coarse sand and gravel; very fine sand layer at 68', then coarse cobbly sand and gravel to about 71.5', where not quite as cobbly, but still quite gravelly | gravelly sand | -- |
| 73 | 74 | Fine sand | sand | -- |
| 74 | 75 | Cobbly fine to med. sand; poorly sorted | gravelly sand | -- |
| 75 | 76 | Very fine to fine sand | sand | -- |
| 76 | 78 | Coarse sand fining upward to med. sand | " | -- |
| 78 | 82 | Very coarse gravelly sand; gravel is dominated by dk metamorphics | gravelly sand | 5Y5/2 |
| 82 | 95 | Very cobbly gravelly sand, similar to 74'-75'; dirty, could be "washed" till as so poorly sorted; cobbles mostly dk metamorphics; much fine sand; 93'-94' better sorted, gravelly sand | " | " |
| 95 | 97 | Med. sand grading up to fine sand by 96' (fine to 96', then med., some coarse); sluff? | sand | -- |
| 97 | 99.5 | Gravelly fine sand; sluff? | " | -- |
| 99.5 | 102 | Dirty sandy cobbles and gravel | gravel | -- |
| 102 | 105 | Gravelly sandy loam till; apparently unwashed till, otherwise as above; boulder at base | sandy loam | 5Y5/1 |
| 105 | | Bedrock, not sure if any regolith, possibly broken on top | | |

OB-210
SW¼SE¼ sec. 25, T. 64 N., R. 21 W.
Surface elev. 1367 ± 5 ft.

Logged 1/15/86

| Depth (feet) From | To | Geological Description | Texture | Munsell color |
|---|---|---|---|---|
| | | Started in shallow ditch | | |
| | | St. Louis Sublobe | | |
| 0 | 10 | Clayey till; very few pebbles & grains, but too many for lake sediment; one large pebble at 2.5'. Carb. grains common but not dominant; secondary carb. by 2', calc. by 1.5'; gets more silty w/depth | clay to silty clay | 2.5Y5/3 2.5Y5/4 by 1' 2.5Y5/3 by 4' |
| 10 | 12.5 | Silt to very fine sandy silt; abrupt contact; fewer grains than above | silt loam | 2.5Y5/3 |
| 12.5 | 14 | Very fine sand | sand | " |
| 14 | 16 | Silty clay; wet; a few grains; mod. calc. | silty clay | " |
| 16 | 18.5 | Very fine silty sand, few inches of transition at top; mod. calc. | sand | " |
| 18.5 | 21.5 | Unoxidized very fine silty sand; 5Y3/1 clay beds from about 20' are 1/2" or so thick | " | 5Y5/1 |
| | | Rainy Lobe | | |
| 21.5 | 23 | Clay, slightly calc.; silty clay by 22.5'; thinly bedded | clay | 5Y4/1 |
| 23 | 25.5 | Silty clay & thin silt beds--not true varves?; "classic" varves by 24.5'; clay is pure, silt is pure | clay + silt | 5Y2/1-clay + 5Y6/1-silt |
| 25.5 | 28 | Clayey silt to very fine sand by 26'; a few sand grains noted in silt; very slightly calc. | silt loam to sand | 5Y5/1 |
| 28 | 28.5 | Fine sand | sand | 5Y6/1 |
| 28.5 | 29 | Very fine sand | sand | -- |
| 29 | 30 | Fine sand; a few pebbles | sand | -- |
| 30 | 36 | Fine sand w/granules & pebbles, some are large; apparently poorly graded w/very fine to medium sand & gravel, but few intermediate clasts; no cobbles; could be till w/much fine sand; abundant dk metamorphic pebbles; compact | gravelly sand | 5Y5/1 |
| 36 | 40 | Dense fine sand w/med. to coarse sand; few granules | sand | 5Y5/1 |

OB-210 (continued)

| | | | | |
|---|---|---|---|---|
| 40 | 43 | Pebbly fine to coarse sand; fewer pebbles from 41.5'; compact | sand | 5Y5/1 |
| 43 | 47 | Fine sand, some coarse; coarsens w/depth; gravelly sand by 45' with med. gravel; compact | " " | " " |
| 47 | 48 | Cobbly dirty sandy gravel--angular cobbles--could be till; | sandy gravel | " |
| 48 | 49 | Greenish rocky silt--could be broken rock or regolith or reworked regolith | | 5GY5/1 |
| 49 | | Bedrock | | |

OB-211
NW1/4SE1/4 sec. 22, T. 64 N., R. 20 W.
Surface elev. 1316 ± 5 ft.

Logged 1/14/86

| Depth (feet) From | To | Geological Description | Texture | Munsell color |
|---|---|---|---|---|
| 0 | 0.5 | Woody organic clay | | |
| | | St. Louis Sublobe | | |
| 0.5 | 3.5 | Gritty lake clay; root fragments; noted one carb. pebble at 3.0'; highly calc. | clay | 5Y5/3 |
| 3.5 | 10 | As above, gray color; large roots at 8', occ. sand grains | clay | 5Y5/1, some mottles to 5Y5/2 5/0 around roots at 8-9' |
| 10 | 12 | As above, mottled, iron stains; a few dolomite pebbles toward bottom; calc. | " | -- |
| 12 | 13.5 | Loamy layer with carb. pebbles (till?) for about 1" then 4" laminated slightly calc. clay, then clayey noncalc. silt | clay to silty clay loam | 2.5Y5/2 loamy layer 5Y4/1 clay 2.5Y5/2 silt |
| 13.5 | 16 | Clay, calc.; obscure thin beds, shiny surfaces; few thin silt laminae (2.5Y6-7/1); only slightly calc. from about 15'; no grains noted; occ. tiny wood fragments | clay | 2.5Y4/1 |
| 16 | 18.5 | Clay; interbedded pure clay (slightly calc.) and more silty clay (calc.); no grains noted | " | 5Y4/1 & 5Y5/1 |
| 18.5 | 22 | Clayey silt with some clay beds which increase in number below 20.5'; slightly calc.; no sand noted | silty clay loam | 5Y5/1 |
| 22 | 25 | As above, clayey silt to silt, some clay beds; mod. calc.; all silt from 23' except minor clay layer and granite pebble at 24' | silt | " |
| | | Rainy Lobe | | |
| 25 | 30 | Very fine sand | sand | -- |
| 30 | 32.5 | Silty clay loam and clay beds; last 6" or so was more a silt loam which contained one granule | silty clay loam | 5Y4/1 & 5/1 |
| 32.5 | 34.5 | Very fine sand, quick; laminated with 1" thick clay beds at 33.5'; med. sand parting below clay then more very fine sand | sand | -- |

OB-211 (continued)

| | | | | |
|---|---|---|---|---|
| 34.5 | 36 | Bedded silt loam and clay; slightly calc. | silt loam & clay | -- |
| 36 | 40 | Gravelly loamy sand till; some cobbles noncalc. | loamy sand | 2.5Y5/1-2 |
| 40 | 41 | Dirty gravelly sand till; lighter colored | sand to loamy sand | -- |
| 41 | 46 | Gravelly loamy sand till; some cobbles; noncalc. | loamy sand | 2.5Y5/2-1 |
| 46 | 52 | More cobbly from 46' | " | " |
| 52 | 54 | Seems to have a little more fines; still gravelly loamy sand till; hard, compact till when dried out | " | " |
| 54 | 54.5 | Silt and till, noncalc. | " | 5Y5/2 |
| 54.5 | 56 | Cobbly gravelly loamy sand till | " | 5Y4/2 |
| 56 | | Bedrock | | |

OB-212
SE¼SE¼ sec. 36, T. 63 N., R. 21 W.
Surface elev. 1291 ± 5 ft.

Logged 1/14/86

| Depth (feet) From | To | Geological Description | Texture | Munsell color |
|---|---|---|---|---|
| | | Top few inches woody black organic clay | | |
| | | St. Louis Sublobe | | |
| 0 | 1 | Clay; no grains noted; noncalc. | clay | 7.5Y5/1 |
| 1 | 4 | Clay; calc.; carb. grains common; apparently lake sediment | " | 2.5Y5/4-5/3 mottled gray 2.5Y 5/2 by 1.5 w/5/4 - 5/3 mottles |
| 4 | 15 | Clay; calc.; secondary carb.; traces of disturbed bedding; lacks sand grains; mottles end by 13'; noted few grains, one pebble about 11', very few grains below | " | 2.5Y4/1 top 6" then 5Y5/2 with 2.5Y5/4 mottles |
| 15 | 25 | Stiff clay, difficult to split, "pure"; noted small granule at 19'; mod. calc. by 20'; granite pebble at 20', few carb. grains below | " | 5Y4/1 |
| 25 | 31 | As above, clay with very rare sand grains; small dolomite pebble at 30'; mod. calc. | " | " |
| 31 | 35 | As above, massive clay; dk pebble at 32', other grains very rare, few small dolomite pebbles; mod. calc. | " | " |
| 35 | 41 | Massive clay as above; large granite pebble at about 36.5'; more grains with depth? Thin 1/2" fine sandy silt parting at 40.5'; less calc. with depth? | " | " |
| 41 | 45 | As above, slightly calc. by 43'; granite pebble and some carb. at 42.3'; other occ. grains; several pebbles at base | " | " |
| 45 | 57 | Missing 9' of core; what is present is mostly soft clay, harder in last foot or so | " | " |
| 57 | 59 | Lake clay, fairly soft; large granite pebble, small carb. pebble and grains toward top with few below | " | " |
| 59 | 65 | Massive stiff clay, mod. calc.; several grains toward top; slightly more gritty parting at 64.5' | " | " |
| 65 | 71 | Massive clay, not quite as stiff as above, slightly calc.; no grains noted | " | " |
| 71 | 73.5 | As above, massive clay; lt-gray, calc., clayey silt parting at 72.5' | clay | 5Y4/1 |
| | | Rainy Lobe | | |
| 73.5 | 74 | Varved red noncalc. clay with gray clay | " | 5YR4/2 & 2.5Y4/1 |
| 74 | 77 | Clay, lighter than above; slightly calc.; more silty than above; a few thin "red" beds from 76' | " | 2.5Y4/1 |
| 77 | 80 | Very slightly calc. clay, more silty than above; fairly soft | " | 5Y5/1 |
| 80 | 82 | Till, top 6" or so fairly clayey; sand loam till, gravelly, but no large pebbles or cobbles | sand loam | 5Y5/2 |
| 82 | 84 | Sandy loam till as above, noncalc.; somewhat gravelly, few small cobbles | " | 5Y4/2 |
| 84 | 87 | Somewhat more gravelly than above | " | " |
| 87 | 97 | As above; becomes more rocky with depth, seems somewhat "greener" | " | 5Y4/3 |
| 97 | 100 | More loamy than above, dense; still gravelly; could be transitional zone between two tills; noncalc.; many granite pebbles | sandy loam to loam | 2.5Y4/3 |
| 100 | 104 | Loamy gravelly till; oxidized color, noncalc.; rock types appear same as above; dense; many granite pebbles, cobbles; also (as compared to holes already seen) granite is abundant in sand fraction. More rocky from 101', probably cored boulder or several cobbles; basically reworked bedrock and regolith | loam | 2.5Y4/4 |
| 104 | 107 | Crushed rock with zones of reddish to dark-green clayey regolith; upper part could be reworked by glacier (transition zone) | | |
| 107 | 116 | Bedrock, weathered | | |

## *APPENDIX 8-3.* HP-41C PROGRAM FOR REFLECTION SEISMIC ALGORITHM

```
01♦LBL "SEIS 12"
02 "LABEL"
03 PROMPT
04 "VU"
05 PROMPT
06 STO 00
07 "VS"
08 PROMPT
09 STO 01
10 +
11 RCL 01
12 RCL 00
13 -
14 X<>Y
15 /
16 SQRT
17 "XC"
18 PROMPT
19 2
20 /
21 *
22 STO 02
23 "DU="
24 ARCL X
25 AVIEW

26♦LBL 01
27 "DS"
28 PROMPT
29 STO 03
30 RCL 01
31 /
32 RCL 02
33 RCL 00
34 /
35 +
36 STO 04
37 RCL 03
38 RCL 01
39 *
40 RCL 02
41 RCL 00
42 *
43 +
44 RCL 04
45 /
46 STO 05

47♦LBL 02
48 "T"
49 PROMPT
50 X↑2
51 STO 06
52 "X"
53 PROMPT
54 X↑2
55 STO 07
56 RCL 05
57 RCL 06
58 *
59 RCL 07
60 -
61 4
62 /
63 SQRT
64 "DS="
65 ARCL X
66 AVIEW
67 STO 08
68 RCL 03
69 X>Y?
70 GTO 03
71 "X<Y?"
72 GTO 04
73 X=Y?
74 GTO 01

75♦LBL 03
76 RCL 03
77 5
78 -
79 STO 03
80 GTO 05

81♦LBL 05
82 RCL 01
83 /
84 RCL 02
85 RCL 00
86 /
87 +
88 STO 04
89 RCL 03
90 RCL 01
91 *
92 RCL 02
93 RCL 00
94 *
95 +
96 RCL 04
97 /
98 RCL 06
99 *
100 RCL 07
101 -
102 4
103 /
104 SQRT
105 "DS="
106 ARCL X
107 AVIEW
108 RCL 03
109 X(=Y?
110 GTO 01
111 GTO 03

112♦LBL 04
113 RCL 03
114 5
115 +
116 STO 03
117 GTO 06

118♦LBL 06
119 RCL 01
120 /
121 RCL 02
122 RCL 00
123 /
124 +
125 STO 04
126 RCL 03
127 RCL 01
128 *
129 RCL 02
130 RCL 00
131 *
132 +
133 RCL 04
134 /
135 RCL 06
136 *
137 RCL 07
138 -
139 4
140 /
141 SQRT
142 "DS="
143 ARCL X
144 AVIEW
145 STO 08
146 RCL 03
147 X(=Y?
148 GTO 04
149 RCL 08
150 RCL 03
151 -
152 "X(=0?"
153 GTO 01
154 GTO 04
155 END
```

```
                XEQ "SEIS 12"
LABEL
SAMPLE
                          RUN
VU
          1,415.0000      RUN
VS
          6,000.0000      RUN
XC
             32.3000      RUN
DU=12.6995
DS
            650.0000      RUN
T
               .2605      RUN
X
            328.0000      RUN
DS=734.6557
DS=734.8675
DS=735.0762
DS=735.2821
DS=735.4850
DS=735.6851
DS=735.8824
DS=736.0770
DS=736.2689
DS=736.4582
DS=736.6449
DS=736.8291
DS=737.0109
DS=737.1903
DS=737.3673
DS=737.5420
DS=737.7144
DS=737.8846
DS=738.0526
DS                        RUN
            780.0000      RUN
T
               .2605      RUN
X
            328.0000      RUN
DS=739.3230
DS=739.1710
DS=739.0172
DS=738.8614
DS=738.7037
DS=738.5440
DS=738.3823
DS=738.2185
DS=738.0526
DS=737.8846
DS
```

DS = DEPTH SATURATED LAYER
DU = DEPTH UNSATURATED LAYER
T = ARRIVAL TIME IN SECONDS
VS = VELOCITY SATURATED LAYER
VU = VELOCITY UNSATURATED LAYER
X = SHOT TO GEOPHONE DISTANCE
XC = CRITICAL DISTANCE

## APPENDIX B: HP-41C PROGRAM FOR REFRACTION SEISMIC ALGORITHM

```
01♦LBL "SEIS 11"
02 "LABEL"
03 PROMPT
04 "STA "
05 PROMPT
06 STO 00

07♦LBL 15
08 FS? 14
09 GTO 16
10 FS? 15
11 GTO 17
12 "N STA"
13 PROMPT
14 STO 12
15 "TT V2?"
16 PROMPT
17 STO 06
18 "V1?"
19 PROMPT
20 STO 01
21 "V2 DD?"
22 PROMPT
23 STO 02
24 /
25 ASIN
26 RCL 01
27 "V2 UD?"
28 PROMPT
29 STO 03
30 /
31 ASIN
32 -
33 2
34 /
35 "DIP L2="
36 ARCL X
37 AVIEW
38 STO 04
39 COS
40 RCL 02
41 *
42 RCL 03
43 *
44 2
45 *
46 RCL 03
47 RCL 02
48 +
49 /
50 "TRUE V2="
51 ARCL X
52 AVIEW
53 STO 05
54 SF 14

55♦LBL 16
56 FS? 15
57 GTO 17
58 "TD V2 DD?"
59 PROMPT
60 "TD V2 UD?"
61 PROMPT
62 +
63 STO 07
64 RCL 06
65 -
66 2
67 /
68 "DTD1="
69 ARCL X
70 AVIEW
71 STO 08

72♦LBL 18
73 1000
74 /
75 RCL 01
76 *
77 RCL 01
78 RCL 05
79 /
80 ASIN
81 COS
82 /
83 "DEPTH Z1="
84 ARCL X
85 AVIEW
86 STO 09
87 FS? 16
88 GTO 22
89 FS? 18
90 GTO 20
91 FS? 17
92 GTO 19
93 "V3?"
94 PROMPT
95 STO 10
96 "TT V3?"
97 PROMPT
98 STO 11
99 SF 17

100♦LBL 19
101 "TD V3 DD?"
102 PROMPT
103 "TD V3 UD?"
104 PROMPT
105 +
106 RCL 11
107 -
108 2
109 /
110 "DTD12="
111 ARCL X
112 AVIEW

113♦LBL 21
114 RCL 08
115 -
116 1000
117 /
118 RCL 05
119 *
120 RCL 05
121 RCL 10
122 /
123 ASIN
124 COS
125 /
126 "DEPTH Z2="
127 ARCL X
128 AVIEW
129 RCL 09
130 +
131 "Z1+Z2="
132 ARCL X
133 AVIEW
134 FS? 19
135 GTO 22
136 GTO 23

137♦LBL 17
138 "DTD1"
139 PROMPT
140 STO 08
141 GTO 18

142♦LBL 20
143 "DTD 12"
144 PROMPT
145 GTO 21

146♦LBL 22
147 1
148 ST+ 00
149 RCL 00
150 RCL 12
151 X=Y?
152 CF 14
153 "STA "
154 RCL 00
155 ARCL X
156 AVIEW
157 FS? 19
158 GTO 15
159 RCL 00
160 RCL 12
161 X=Y?
162 GTO 15
163 FS? 16
164 GTO 16

165♦LBL 23
166 END
```

```
                SF 16
            XEQ "SEIS 11"
LABEL
SAMPLE
                          RUN
STA
               1.00       RUN
N STA
               7.00       RUN
TT V2?
              40.00       RUN
V1?
           2,921.00       RUN
V2 DD?
           4,762.00       RUN
V2 UD?
           6,897.00       RUN
DIP L2=4.68
TRUE V2=5,338.18
TD V2 DD?
               7.00       RUN
TD V2 UD?
              46.00       RUN
DTD1=2.50
DEPTH Z1=8.73
STA 2.00
TD V2 DD?
              40.00       RUN
TD V2 UD?
              15.00       RUN
DTD1=3.50
DEPTH Z1=12.22
STA 3.00
TD V2 DD?

                SF 19
            XEQ "SEIS 11"
LABEL
SAMPLE
                          RUN
STA
               1.00       RUN
N STA
               7.00       RUN
TT V2?
              40.00       RUN
V1?
           2,921.00       RUN
V2 DD?
           4,762.00       RUN
V2 UD?
           6,897.00       RUN
DIP L2=4.68
TRUE V2=5,338.18
TD V2 DD?
               7.00       RUN
TD V2 UD?
              46.00       RUN
DTD1=2.50
DEPTH Z1=8.73
V3?
          15,868.00       RUN
TT V3?
             114.00       RUN
TD V3 DD?
              58.00       RUN
TD V3 UD?
             114.00       RUN
DTD12=29.00
DEPTH Z2=151.01
Z1+Z2=159.74
STA 2.00
TD V2 DD?
              40.00       RUN
TD V2 UD?
              15.00       RUN
DTD1=3.50
DEPTH Z1=12.22
TD V3 DD?
              60.00       RUN
TD V3 UD?
             100.00       RUN
DTD12=27.00
DEPTH Z2=133.92
Z1+Z2=146.14
STA 3.00
TD V2 DD?
```

DD = DOWN DIP
DTD1 = DELAY TIME LAYER ONE
DTD12 = DELAY TIME LAYERS ONE AND TWO
STA = STATION
TT = TOTAL TIME
UD = UP DIP
V1 = VELOCITY LAYER ONE
V2 = VELOCITY LAYER TWO
V3 = VELOCITY LAYER THREE

Appendix 9-1. A brief compilation of the regional geology of the Vermilion district.

The Vermilion district, as exposed 30 to 60 miles along strike to the east of the Orr area, consists of a thick succession of subaqueous volcanic rocks and derivative sedimentary rocks formed during the interval 2750-2700 Ma ago (Sims, 1976). It is bordered on the south by the Giants Range batholith, on the north by the Vermilion Granitic Complex, and on the east by the Saganaga batholith. This greenstone belt is composed of a volcanic-sedimentary pile formed by the coalescence of distinct volcanic centers (see Schulz, 1980, for the volcanic evolution of this belt). The central portion contains two mafic volcanic units (Ely Greenstone and Newton Lake formation) with minor volcanogenic sedimentary rocks, whereas the eastern and western parts contain major portions of dacitic volcanic rocks and derivative graywackes (Lake Vermilion and Knife Lake formations). The literature has discussions on different geographic parts of the district (east, central, and west), so it is useful to note the spatial relations of the formations in each part. There are a number of intrusive and extrusive rocks (felsic to ultramafic) spatially associated with the Knife Lake Group which have not yet been assigned to that group or to any formation in the district (Green, 1982). Morey (1980) lists five distinct episodes of intrusive activity in the Vermilion district and adjacent areas: (1) synvolcanic rocks, including metadiabase and hypabyssal porphyries having a wide range in composition; (2) syntectonic granitic rocks of the Saganaga and Giants Range batholiths; (3) late- or post-tectonic syenitic rocks and related lamprophyres; (4) post-tectonic quartz monzonitic rocks of the Giants Range batholith and alkalic plutons such as the Linden pluton to the west of Tower; and (5) diabasic dikes of Middle Precambrian age and basalt dikes of Late Precambrian age. Several periods of folding accompanied the emplacement of the oldest plutonic rocks (Sims, 1976; Green and Schulz, 1982; Sims and Southwick, 1980). In the western part of the district, two generations of folds have been identified (Sims, 1972, pp. 56-58; Ojakangas, Sims and Hooper, 1978). The supracrustal rocks were metamorphosed to greenschist and locally to upper amphibolite facies during the periods of folding and granite intrusion. Extensive faulting occurred during and following the late emplacement of monzonite and syenite into the supracrustal rocks (Sims, 1976). The metamorphic grade within the greenschist facies generally increases toward bounding granite masses or major faults (Morey, 1978). However, mineralogic zoning is not well developed in the supracrustal rocks, mainly because of differences in their bulk chemistry. Retrograde metamorphism is also widespread in the supracrustal rocks (op. cit.). The quartzofeldspathic rocks contain chlorite, muscovite, albite, quartz, and epidote, whereas the mafic rocks contain chlorite, calcite, tremolite or actinolite, epidote, and quartz. Relict augite and labradorite are common in the mafic rocks, as are zoned plagioclase and relict hornblende in the felsic volcanic and clastic rocks (op. cit.).

Appendix 9-2. Outline of analytical methods.

A. HMC - Nonmagnetic Fraction

X-Ray Assay Laboratories, Ltd.

| Element Symbol | Lower Detection Limit | Subsample Weight Assayed(g) | Extraction | Assay Method | Applicable Sample Numbers |
|---|---|---|---|---|---|
| Au | 5 ppb | 3/4 split | Unknown | NA | S.N. between |
| Na | .05 % | .5 | Unknown | NA | 16801-18757 |
| Ce | 3-5 ppm | .5 | Unknown | NA | (18604A-18757, |
| | | | | | 18601-18643, |
| | | | | | 18617-18737) |
| Cr | 50 ppm | .5 | Unknown | NA | |
| Mn | 1 ppm | .5 | Unknown | DCP | |
| Fe | .5 % | .5 | Unknown | NA | |
| Co | 10 ppm | .5 | Unknown | NA | |
| Ni | 1 ppm | .5 | Unknown | DCP | |
| Cu | 1 ppm | .5 | Unknown | DCP | |
| Zn | 1 ppm | .5 | Unknown | DCP | |
| As | 1 ppm | .5 | Unknown | NA | |
| Se | 10 ppm | .5 | Unknown | NA | |
| Mo | 1 ppm | .5 | Unknown | DCP | (18611-18736, |
| | | | | | 18646-18724) |
| Mo | 1 ppm | .5 | Unknown | ICPMS | (18601-18643, |
| | | | | or PMS | 18604A-18757, |
| | | | | | 18617-18737) |
| Ag | .5 ppm | .5 | Unknown | DCP | |
| Sn | 10 ppm | .5 | Unknown | ICPMS or PMS | |
| Sb | .2 ppm | .5 | Unknown | NA | |
| Cs | 2 ppm | .5 | Unknown | NA | (18611-18736) |
| | | | | | (18646-18724) |
| Ba | 100 ppm | .5 | Unknown | NA | |
| La | 5 ppm | .5 | Unknown | NA | Summary: |
| Ir | 100 ppb | .5 | Unknown | NA | All Rotasonic |
| Hf | 2 ppm | .5 | Unknown | NA | Samples, Orr |
| Ta | 1 ppm | .5 | Unknown | NA | & Littlefork |
| W | 2 ppm | .5 | Unknown | NA | and all Mud |
| Pb | 5 ppm | .5 | Unknown | ICPMS | Rotary Samples, |
| Bi | 2 ppm | .5 | Unknown | ICPMS | Orr Area |
| Th | .5 ppm | .5 | Unknown | NA | |
| U | .5 ppm | .5 | Unknown | NA | |
| W | 10 ppm | .5 | Unknown | PMS | (16801-17073) |

Note: Cs and Ce not assayed for all sample numbers (sample numbers in parentheses).
Mo assayed by two different methods (sample numbers in parentheses).

A. HMC - Nonmagnetic Fraction

Bondar-Clegg & Co., Ltd.

| Element Symbol | Lower Detection Limit | Subsample Weight Assayed(g) | Extraction | Assay Method | Applicable Sample Numbers |
|---|---|---|---|---|---|
| Au | .5 ppb | 3/4 split | NA | INAA | Sample Numbers |
| Na | .05 % | .5 | NA | INAA | Between |
| Sc | .5 ppm | .5 | NA | INAA | 18763-18837 |
| Ce | 10 ppm | .5 | NA | INAA | |
| Cr | 50 ppm | .5 | NA | INAA | Summary: |
| Mn | 1 ppm | .5 | $HCl-HNO_3$ (1:3) | AA | Littlefork Area |
| Fe | .5 % | .5 | NA | AA | Air Rotary & |
| Co | 10 ppm | .5 | NA | AA | Surface Samples |
| Ni | 50 ppm | .5 | NA | AA | 17537-18882 |
| Cu | 1 ppm | .5 | $HCl-HNO_3$ (1:3) | AA | |
| Zn | 200 ppm | .5 | NA | INAA | |
| As | 1 ppm | .5 | NA | INAA | |
| Se | 10 ppm | .5 | NA | INAA | |
| Br | 1 ppm | .5 | NA | INAA | |
| Rb | 10 ppm | .5 | NA | INAA | |
| Zr | 500 ppm | .5 | NA | INAA | |
| Mo | 2 ppm | .5 | NA | INAA | |
| Ag | 5 ppm | .5 | NA | INAA | |
| Cd | 10 ppm | .5 | NA | INAA | |
| Sn | 200 ppm | .5 | NA | INAA | |
| Sb | .2 ppm | .5 | NA | INAA | |
| Te | 20 ppm | .5 | NA | INAA | |
| Cs | 1 ppm | .5 | NA | INAA | |
| Ba | 100 ppm | .5 | NA | INAA | |
| La | 5 ppm | .5 | NA | INAA | |
| Sm | .1 ppm | .5 | NA | INAA | |
| Eu | 2 ppm | .5 | NA | INAA | |
| Tb | 1 ppm | .5 | NA | INAA | |
| Yb | 5 ppm | .5 | NA | INAA | |
| Lu | .5 ppm | .5 | NA | INAA | |
| Ir | 100 ppb | .5 | NA | INAA | |
| Hf | 2 ppm | .5 | NA | INAA | |
| Ta | 1 ppm | .5 | NA | INAA | |
| W | 2 ppm | .5 | NA | INAA | |
| Pb | 2 ppm | .5 | $HCl-HNO_3$ (1:3) | AA | |
| Th | .5 ppm | .5 | NA | INAA | |
| U | .5 ppm | .5 | NA | INAA | |
| Zn2 | 1 ppm | .5 | $HCl-HNO_3$ (1:3) | AA | |
| Ag2 | .1 ppm | .5 | $HCl-HNO_3$ (1:3) | AA | |

Appendix 9-2.

B. HMC - Magnetic Fraction

X-Ray Assay Laboratories, Ltd.

| Element Symbol | Lower Detection Limit | Subsample Weight Assayed(g) | Extraction | Assay Method | Applicable Sample Numbers |
|---|---|---|---|---|---|
| Mg | 100 ppm | .5 | Unknown | DCP | All Sample |
| Mg | .01 % MgO | .5 | Unknown | XRF | Numbers |
| Ti | 100 or 10 ppm | .5 | Unknown | DCP | Between |
| $TiO_2$ | .01 % | .5 | Unknown | XRF | 16906-18724 |
| Cr | 1 ppm | .5 | Unknown | DCP | |
| Cr | 10 ppm | .5 | Unknown | XRF | Summary: |
| Ni | 1 ppm | .5 | Unknown | DCP | All Rotasonic |
| Cu | 1 or .5 ppm | .5 | Unknown | DCP | Orr & |
| Zn | 1 or .5 ppm | .5 | Unknown | DCP | Littlefork; |
| Se | 1 ppm | .5 | Unknown | GFAA | All Mud |
| Mo | 1 ppm | .5 | Unknown | DCP | Rotary Orr |
| Ag | .5 ppm | .5 | Unknown | DCP | Area |
| Pb | 1 ppm | .5 | Unknown | DCP | |

Note: One batch of 21 samples (#18611-18724) were assayed by XRF for Mg, Ti, and Cr in replicate to compare to DCP analysis.

Bondar-Clegg & Co., Ltd.

| Element Symbol | Lower Detection Limit | Subsample Weight Assayed(g) | Extraction | Assay Method | Applicable Sample Numbers |
|---|---|---|---|---|---|
| Mg | .001 % | .5 | $HF-HClO_4-HNC_3-HCl$ | DCP | All Sample |
| Ti | .01 % | .5 | NA | XRF | Numbers |
| Cr | 2 ppm | .5 | NA | XRF | Between |
| Ni | 1 ppm | .5 | $HF-HClO_4-HNC_3-HCl$ | DCP | 18760-18882 |
| Cu | 1 ppm | .5 | $HF-HClO_4-HNC_3-HCl$ | DCP | |
| Zn | 1 ppm | .5 | $HF-HClO_4-HNC_3-HCl$ | DCP | Summary: |
| Se | 1 ppm | .5 | NA | XRF | Littlefork, |
| Mo | 1 ppm | .5 | $HF-HClO_4-HNC_3-HCl$ | DCP | Air Rotary |
| Ag | .5 ppm | .5 | $HF-HClO_4-HNC_3-HCl$ | DCP | |
| Pb | 5 ppm | .5 | $HF-HClO_4-HNC_3-HCl$ | DCP | |

C. -63 um Fraction

X-Ray Assay Laboratories, Ltd.

| Element Symbol | Lower Detection Limit | Subsample Weight Assayed(g) | Extraction | Assay Method | Applicable Sample Numbers |
|---|---|---|---|---|---|
| Au | 1 ppb | 20 | Fire Assay | FA/NA | Sample Numbers |
| V | 1 ppm | .5 | $HF-HClO_4-HNO_3-HCl$ | DCP | Between |
| Cr | 1 ppm | .5 | $HF-HClO_4-HNO_3-HCl$ | DCP | 13830-17074 |
| Mn | 1 ppm | .5 | $HF-HClO_4-HNO_3-HCl$ | DCP | |
| Fe | 1 ppm | .5 | $HF-HClO_4-HNO_3-HCl$ | DCP | |
| Co | 1 ppm | .5 | $HF-HClO_4-HNO_3-HCl$ | DCP | |
| Ni | 1 ppm | .5 | $HF-HClO_4-HNO_3-HCl$ | DCP | |
| Cu | 1 ppm | .5 | $HF-HClO_4-HNO_3-HCl$ | DCP | |
| Zn | 1 ppm | .5 | $HF-HClO_4-HNO_3-HCl$ | DCP | |
| As | 1 ppm | .5 | $HF-HClO_4-HNO_3-HCl$ | DCP | |
| Se | 1 ppm | .5 | $HF-HClO_4-HNO_3-HCl$ | ICPMS | |
| Se | 1 ppm | .5 | $HF-HClO_4-HNO_3-HCl$ | GFAA | |
| Mo | 1 ppm | .5 | $HF-HClO_4-HNO_3-HCl$ | ICPMS | |
| Ag | .5 ppm | .5 | $HF-HClO_4-HNO_3-HCl$ | ICPMS | |
| Ag | .5 ppm | .5 | $HF-HClO_4-HNO_3-HCl$ | DCP | |
| Cd | 1 ppm | .5 | $HF-HClO_4-HNO_3-HCl$ | DCP | Summary: |
| Sn | 1 ppm | .5 | $HF-HClO_4-HNO_3-HCl$ | ICPMS | All |
| Sb | 1 ppm | .5 | $HF-HClO_4-HNO_3-HCl$ | ICPMS | Rotasonic |
| Te | 1 ppm | .5 | $HF-HClO_4-HNO_3-HCl$ | ICPMS | Samples, |
| W | 1 ppm | .5 | $HF-HClO_4-HNO_3-HCl$ | ICPMS | Orr & |
| Pb | 1 ppm | .5 | $HF-HClO_4-HNO_3-HCl$ | ICPMS | Littlefork |
| Bi | 1 ppm | .5 | $HF-HClO_4-HNO_3-HCl$ | ICPMS | |
| U | 1 ppm | .5 | $HF-HClO_4-HNO_3-HCl$ | ICPMS | |
| Sn | 1 ppm | .5 | $HF-HClO_4-HNO_3-HCl$ | EMS | (14470R-14475R) |
| Sb | 1 ppm | .5 | $HF-HClO_4-HNO_3-HCl$ | DCP | (14470R-14475R) |
| Mo | 1 ppm | .5 | $HF-HClO_4-HNO_3-HCl$ | DCP | (14470R-14475R) |
| Se | 1 ppm | .5 | $HF-HClO_4-HNO_3-HCl$ | DCP | (14470R-14475R) |
| Bi | 1 ppm | .5 | $HF-HClO_4-HNO_3-HCl$ | DCP | (14470R-14475R) |
| Pb | 1 ppm | .5 | $HF-HClO_4-HNO_3-HCl$ | DCP | (14470R-14475R) |
| Te | 1 ppm | .5 | $HF-HClO_4-HNO_3-HCl$ | DCP | (14470R-14475R) |

Note: Ag, Sn, Sb, Mo, Bi, Pb, and Te assayed by two methods.
Se assayed by three methods.

Appendix 9-2.

C. -63 um Fraction

Bondar-Clegg & Co., Ltd.

| Element Symbol | Lower Detection Limit | Subsample Weight Assayed(g) | Extraction | Assay Method | Applicable Sample Numbers |
|---|---|---|---|---|---|
| Au | 1 ppb | 20 | Fire Assay | INAA | Samples No's. |
| V | 1 ppm | .5 | Mult Acid Tot Dig | ICP or DCP | Between |
| Cr | 1 ppm | .5 | Mult Acid Tot Dig | ICP or DCP | 18760-18882 |
| Mn | 1 ppm | .5 | Mult Acid Tot Dig | ICP or DCP | |
| Fe | .05 % | .5 | Mult Acid Tot Dig | ICP or DCP | |
| Co | 1 ppm | .5 | Mult Acid Tot Dig | ICP or DCP | Summary: |
| Ni | 1 ppm | .5 | Mult Acid Tot Dig | ICP or DCP | Littlefork, |
| Cu | 1 ppm | .5 | Mult Acid Tot Dig | ICP or DCP | Air Rotary |
| Zn | 1 ppm | .5 | Mult Acid Tot Dig | ICP or DCP | |
| As | 5 ppm | .5 | Mult Acid Tot Dig | ICP or DCP | |
| Se | 5 ppm | .5 | Mult Acid Tot Dig | ICP or DCP | |
| Mo | 1 ppm | .5 | Mult Acid Tot Dig | ICP or DCP | |
| Ag | .5 ppm | .5 | Mult Acid Tot Dig | ICP or DCP | |
| Cd | 1 ppm | .5 | Mult Acid Tot Dig | ICP or DCP | |
| Sn | 10 ppm | .5 | Mult Acid Tot Dig | ICP or DCP | |
| Sb | 5 ppm | .5 | Mult Acid Tot Dig | ICP or DCP | |
| Te | 10 ppm | .5 | Mult Acid Tot Dig | ICP or DCP | |
| W | 10 ppm | .5 | Mult Acid Tot Dig | ICP or DCP | |
| Pb | 5 ppm | .5 | Mult Acid Tot Dig | ICP or DCP | |
| Bi | 2 ppm | .5 | Mult Acid Tot Dig | ICP or DCP | |
| U | 10 ppm | .5 | Mult Acid Tot Dig | ICP or DCP | |

D. Bedrock

X-Ray Assay Laboratories, Ltd.

| Element Symbol | Lower Detection Limit | Subsample Weight Assayed(g) | Extraction | Assay Method | Applicable Sample Numbers |
|---|---|---|---|---|---|
| Au | 2-5 ppb | 30 | Unknown | NA | |
| Sb | .1-.2 ppm | .5 | Unknown | NA | 13852-18742 |
| As | .5-1 ppm | .5 | Unknown | NA | |
| BaR | 1 ppm | .5 | Unknown | DCP | |
| Ba | 50-100 ppm | .5 | Unknown | NA | (13852-13872) |
| Cd | 1 ppm | .5 | Unknown | DCP | |
| Ce | 3-5 ppm | .5 | Unknown | NA | Summary: |
| Cr | 20-50 ppm | .5 | Unknown | NA | Rotasonic & |
| Co | .2-5 ppm | .5 | Unknown | NA | Orr Area |
| Hf | 1-2 ppm | .5 | Unknown | NA | Mud Rotary |
| Ir | 50-100 ppm | .5 | Unknown | NA | |
| Fe | 100 ppm | .5 | Unknown | DCP | (13852-13872) |
| Fe | .2-.5 % | .5 | Unknown | NA | |
| La | 2-5 ppm | .5 | Unknown | NA | |
| MoR | 1 ppm | .5 | Unknown | ICPMS | |
| Mo | 1 ppm | .5 | Unknown | NA | (13852-13872) |
| NiR | 1 ppm | .5 | Unknown | DCP | |
| Ni | 20 ppm | .5 | Unknown | NA | (13852-13872) |
| Rb | 8 ppm | .5 | Unknown | ICPMS | (13852-13872) |
| Se | 5-10 ppm | .5 | Unknown | NA | |
| AgR | .5 ppm | .5 | Unknown | DCP | |
| Ag | 2 ppm | .5 | Unknown | NA | (13852-13872) |
| Na | 100 ppm | .5 | Unknown | DCP | (13852-13872) |
| Na | .02-.05 % | .5 | Unknown | NA | |
| Ta | 8 ppm | .5 | Unknown | ICPMS | (13852-13872) |
| TaR | .5-1 ppm | .5 | Unknown | NA | |
| Te | 10 ppm | .5 | Unknown | ICPMS | |
| Th | .2-.5 ppm | .5 | Unknown | NA | |
| Sn | 10 ppm | .5 | Unknown | ICPMS | |
| W | 1-2 ppm | .5 | Unknown | NA | |
| U | .2-.5 ppm | .5 | Unknown | NA | |
| ZnR | 1 ppm | .5 | Unknown | DCP | |
| Zn | 100 ppm | .5 | Unknown | NA | (13852-13872) |
| Cu | 1 ppm | .5 | Unknown | DCP | |
| Pb | 5 ppm | .5 | Unknown | ICPMS | |
| Mn | 2 ppm | .5 | Unknown | DCP | (13852-13872) |
| Li | 1 ppm | .5 | Unknown | AA | (13852-13872) |
| Be | 1 ppm | .5 | Unknown | DCP | (13852-13872) |
| $CO_2$ | .01 % | .5 | Unknown | WET | (13852-13872) |
| Mg | 100 ppm | .5 | Unknown | DCP | (13852-13872) |
| Al | .01 % | .5 | Unknown | DCP | (13852-13872) |
| $SiO_2$ | .01 % | .5 | Unknown | XRF | (13852-13872) |
| S | .01 % | .5 | Unknown | XRF | (13852-13872) |
| Cl | 50 ppm | .5 | Unknown | XRF | (13852-13872) |
| K | 100 ppm | .5 | Unknown | DCP | (13852-13872) |
| Ca | 100 ppm | .5 | Unknown | DCP | (13852-13872) |
| FeO | .1 % | .5 | Unknown | WET | (13852-13872) |
| Sr | 1 ppm | .5 | Unknown | DCP | (13852-13872) |
| Nb | 1 ppm | .5 | Unknown | ICPMS | (13852-13872) |
| Bi | 2 ppm | .5 | Unknown | ICPMS | (13852-13872) |
| LOI | .01 % | .5 | Unknown | XRF | (13852-13872) |

Note: Some elements were only assayed in one batch (#13852-13872)

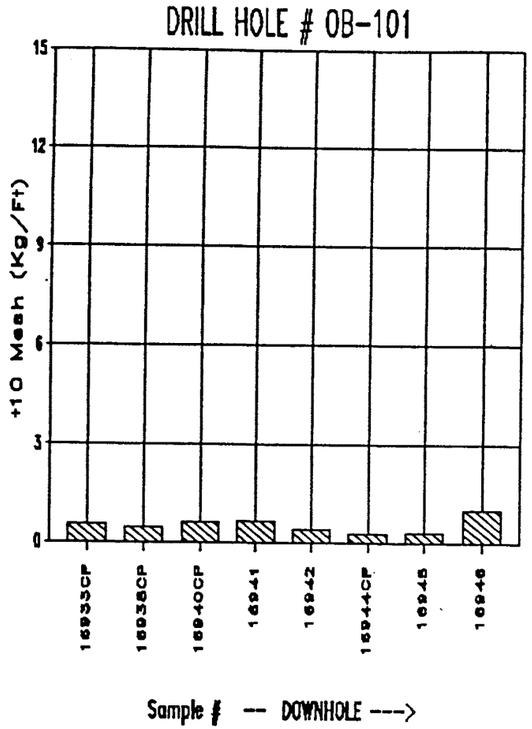
**Appendix 9-2.**

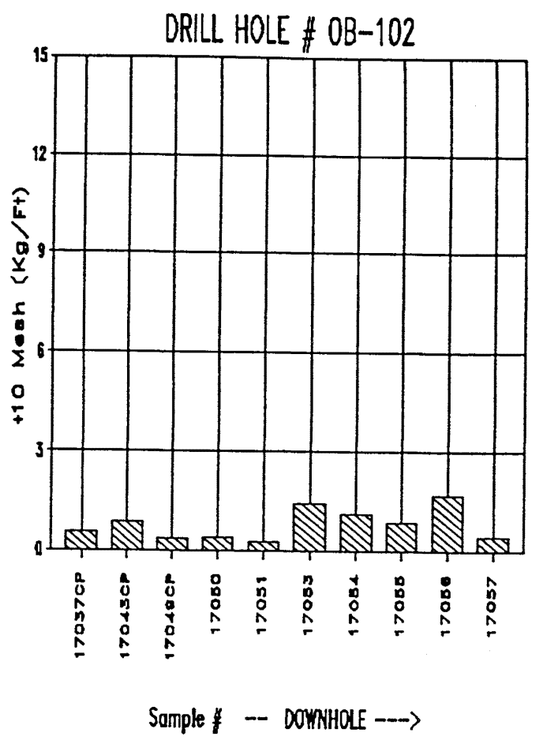
D. Bedrock

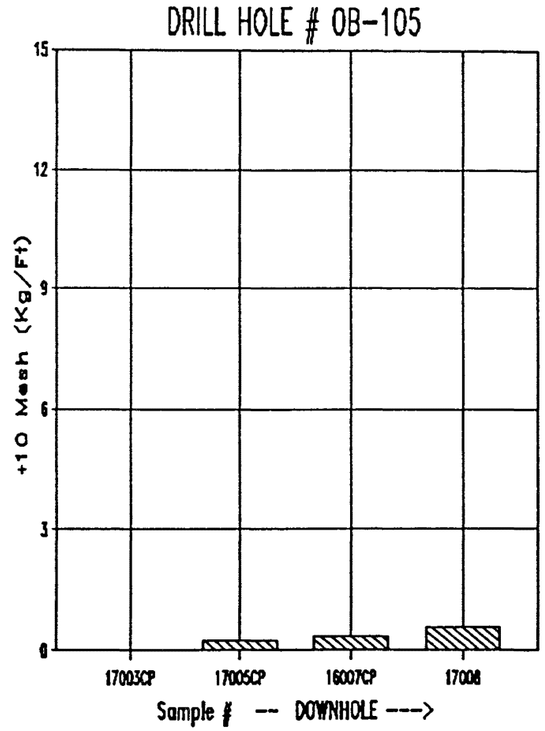
Bondar-Clegg & Company, Ltd.

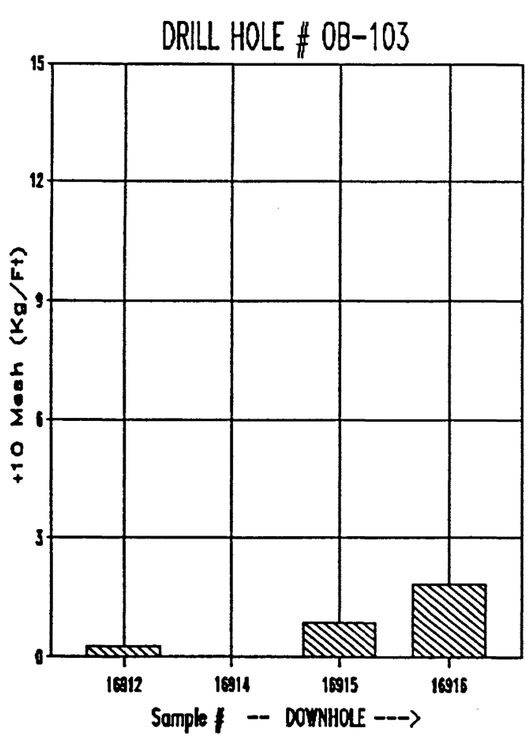
| Element Symbol | Lower Detection Limit | Subsample Weight Assayed(g) | Extraction | Assay Method | Applicable Sample Numbers |
|---|---|---|---|---|---|
| Au | 5 ppb | 30 | NA | INAA | |
| Sb | .2 ppm | 30 | NA | INAA | 19700-19710, |
| As | 1 ppm | 30 | NA | INAA | 13867 |
| Ba | 100 ppm | 30 | NA | INAA | |
| Br | 1 ppm | 30 | NA | INAA | |
| Cd | 10 ppm | 30 | NA | INAA | |
| Ce | 10 ppm | 30 | NA | INAA | Summary: |
| Cs | 1 ppm | 30 | NA | INAA | Bedrock |
| Cr | 50 ppm | 30 | NA | INAA | Rotasonic |
| Co | 10 ppm | 30 | NA | INAA | |
| Eu | 2 ppm | 30 | NA | INAA | |
| Hf | 2 ppm | 30 | NA | INAA | |
| Ir | 100 ppb | 30 | NA | INAA | |
| Fe | .5 % | 30 | NA | INAA | |
| La | 5 ppm | 30 | NA | INAA | |
| Lu | .5 ppm | 30 | NA | INAA | |
| Mo | 2 ppm | 30 | NA | INAA | |
| Ni | 50 ppm | 30 | NA | INAA | |
| Rb | 10 ppm | 30 | NA | INAA | |
| Sm | .1 ppm | 30 | NA | INAA | |
| Sc | .5 ppm | 30 | NA | INAA | |
| Se | 10 ppm | 30 | NA | INAA | |
| Ag | 5 ppm | .5 | NA | INAA | |
| AgR | .5 ppm | 30 | Mult Acid Tot Dig | DCP | |
| Na | .05 % | 30 | NA | INAA | |
| Ta | 1 ppm | 30 | NA | INAA | |
| Te | 20 ppm | 30 | NA | INAA | |
| Tb | 1 ppm | 30 | NA | INAA | |
| Th | .5 ppm | 30 | NA | INAA | |
| Sn | 200 ppm | 30 | NA | INAA | |
| SnR | 10 ppm | .5 | Mult Acid Tot Dig | DCP | |
| W | 2 ppm | 30 | NA | INAA | |
| U | .5 ppm | 30 | NA | INAA | |
| Yb | 5 ppm | 30 | NA | INAA | |
| Zn | 200 ppm | 30 | NA | INAA | |
| ZnR | 1 ppm | .5 | Mult Acid Tot Dig | DCP | |
| Zr | 500 ppm | 30 | NA | INAA | |
| Cu | 1 ppm | .5 | Mult Acid Tot Dig | DCP | |
| Pb | 5 ppm | .5 | Mult Acid Tot Dig | DCP | |
| Mn | 1 ppm | .5 | Mult Acid Tot Dig | DCP | |

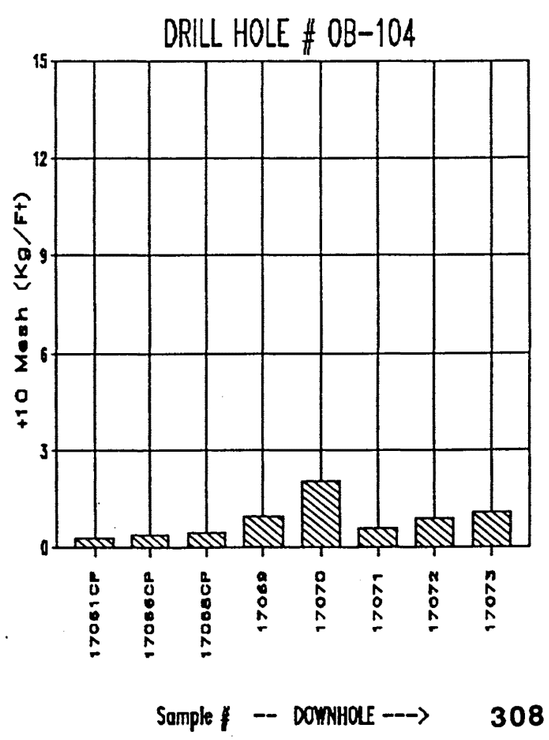
## Appendix 9-3. Graphs of +10 Mesh Content of Samples for Rotasonic and Mud Rotary Drilling.

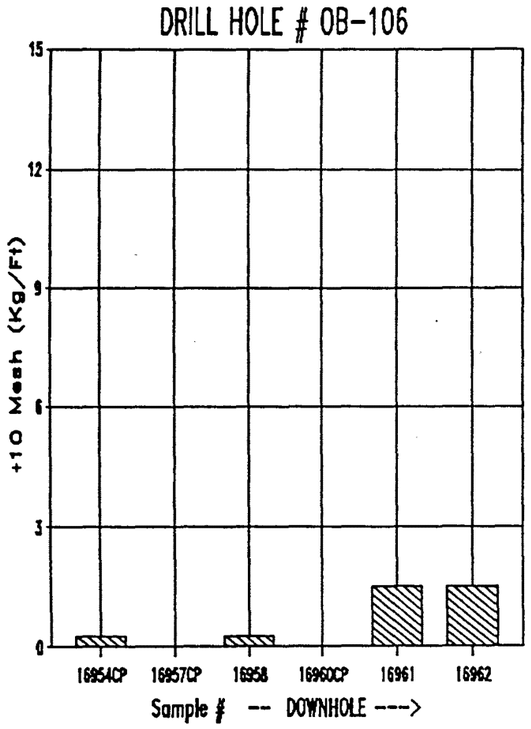


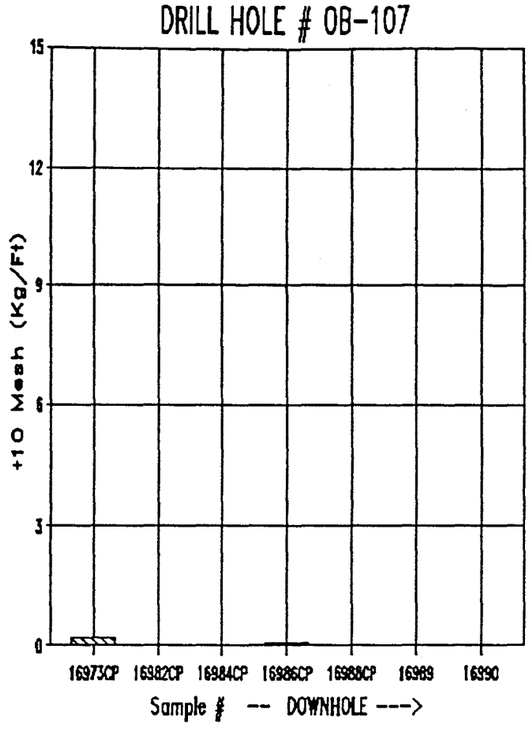



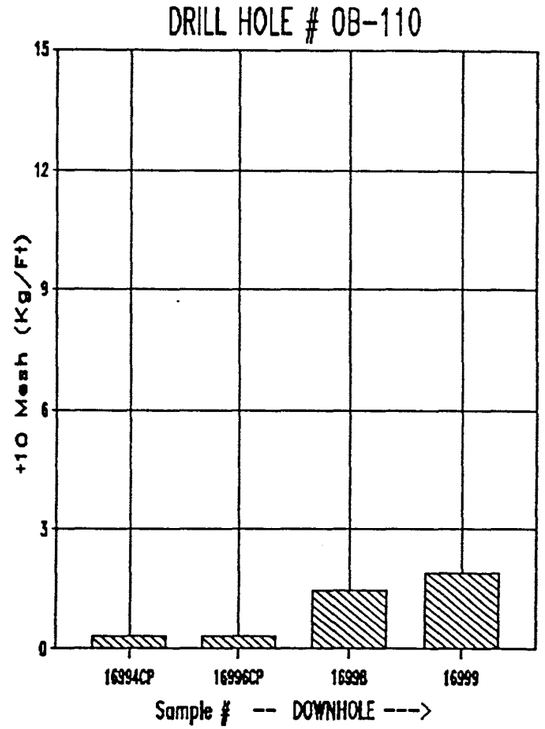



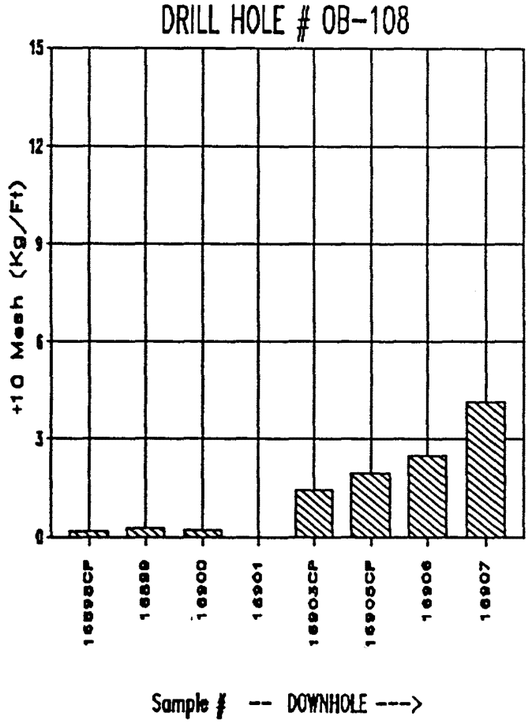



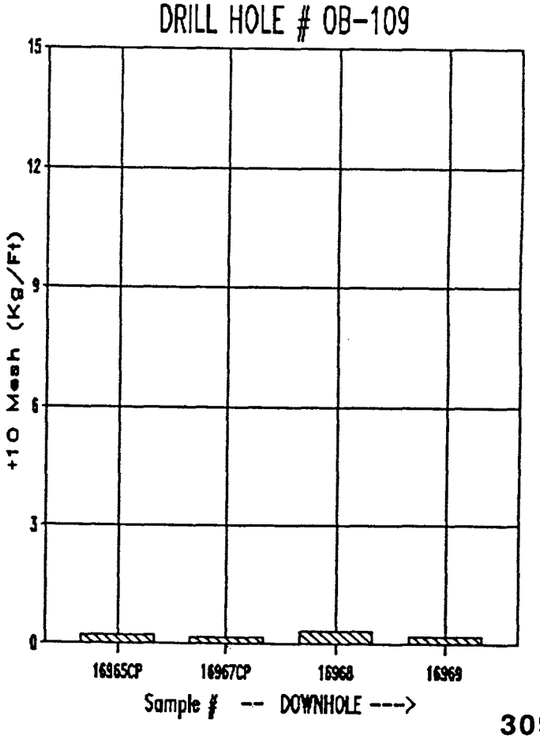



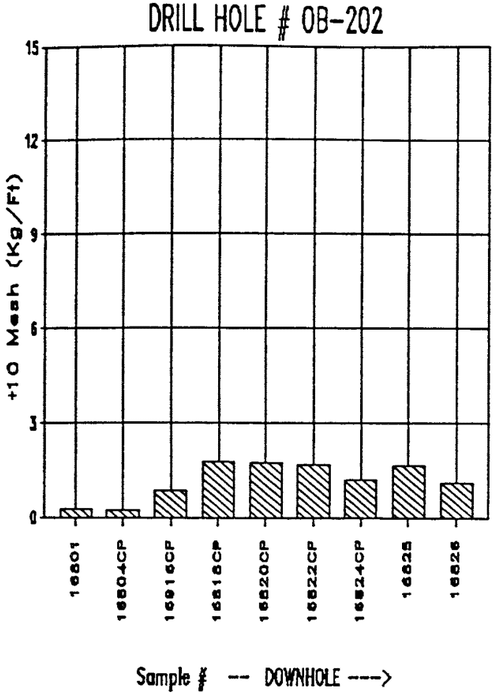

DRILL HOLE # OB-106
+10 Mesh (Kg/Ft)
0
3
6
9
12
15
16954CP
16957CP
16958
16960CP
16961
16962
Sample # -- DOWNHOLE --->

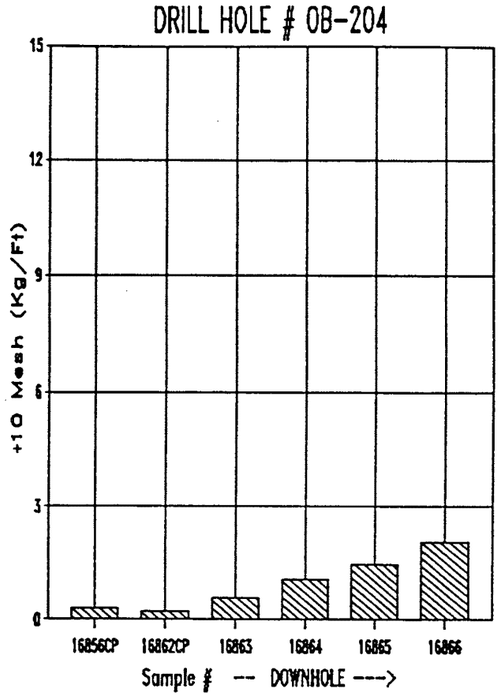

DRILL HOLE # OB-107
+10 Mesh (Kg/Ft)
0
3
6
9
12
15
16973CP
16982CP
16984CP
16986CP
16988CP
16989
16990
Sample # -- DOWNHOLE --->

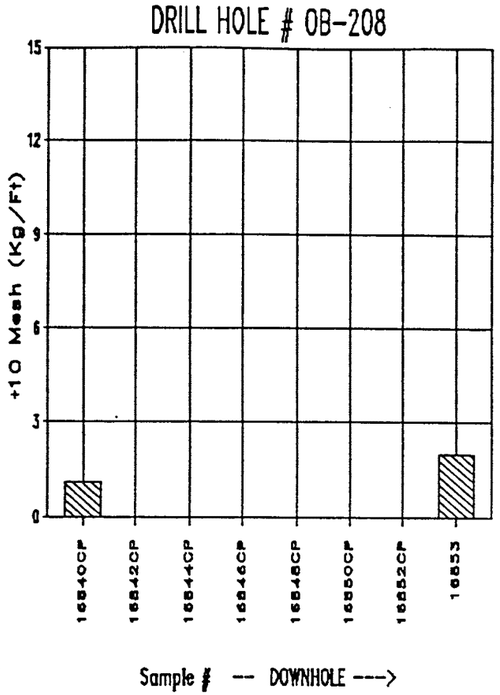

DRILL HOLE # OB-110
+10 Mesh (Kg/Ft)
0
3
6
9
12
15
16994CP
16996CP
16998
16999
Sample # -- DOWNHOLE --->

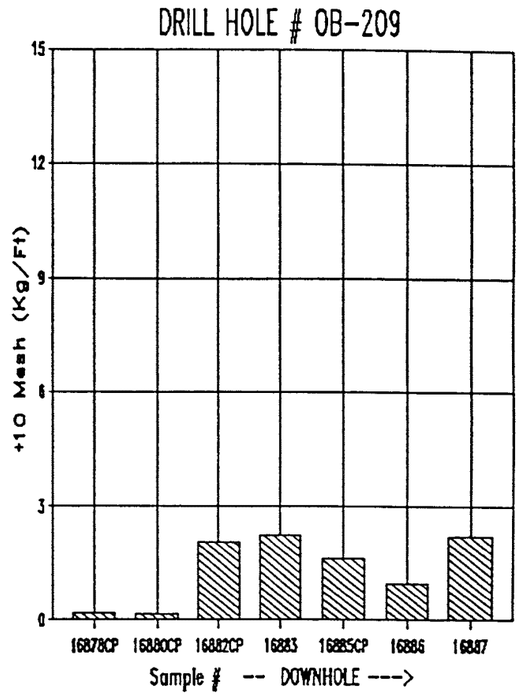

DRILL HOLE # OB-108
+10 Mesh (Kg/Ft)
0
3
6
9
12
15
16898CP
16899
16900
16901
16903CP
16905CP
16906
16907
Sample # -- DOWNHOLE --->

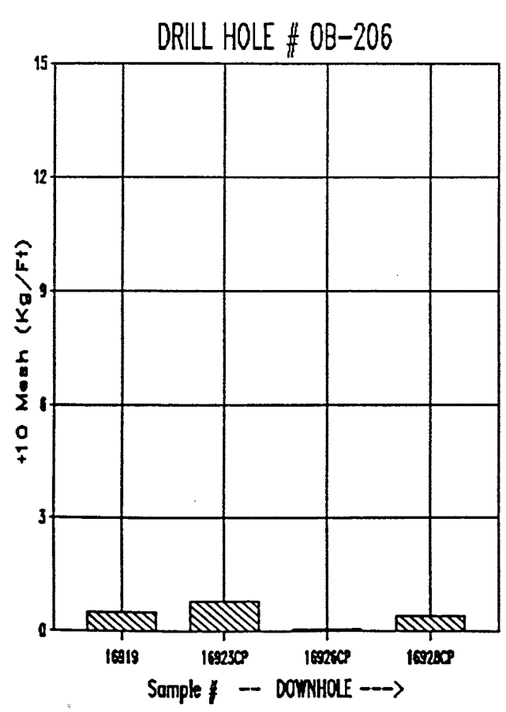

DRILL HOLE # OB-109
+10 Mesh (Kg/Ft)
0
3
6
9
12
15
16965CP
16967CP
16968
16969
Sample # -- DOWNHOLE --->

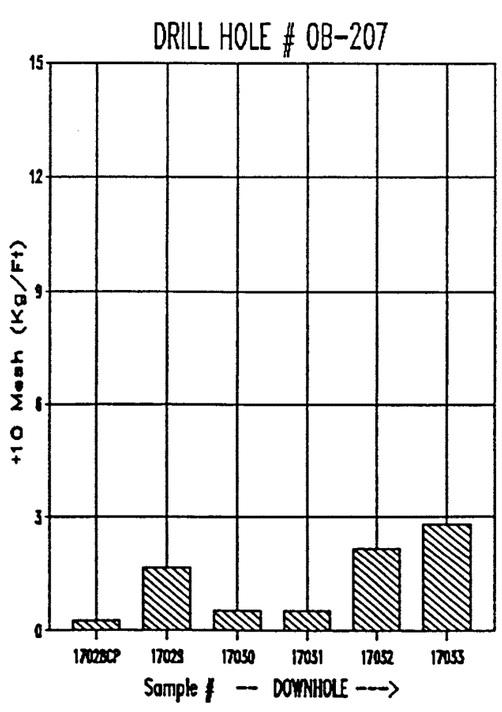

DRILL HOLE # OB-202
+10 Mesh (Kg/Ft)
0
3
6
9
12
15
16801
16804CP
16816CP
16818CP
16820CP
16822CP
16824CP
16825
16826
Sample # -- DOWNHOLE --->

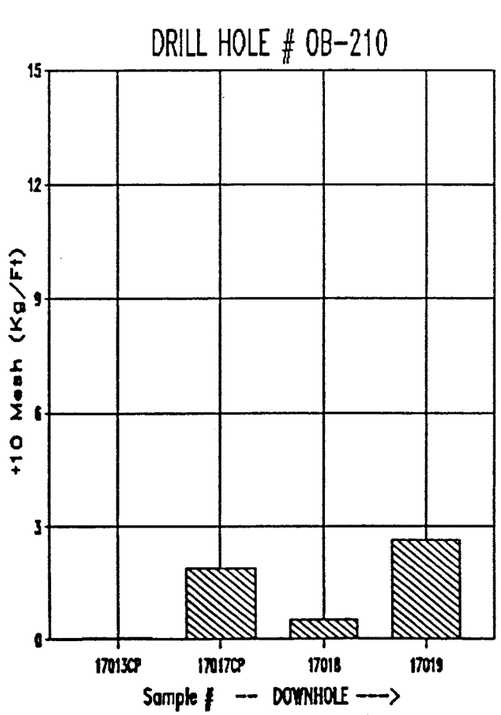

DRILL HOLE # OB-204
+10 Mesh (Kg/Ft)
0
3
6
9
12
15
16856CP
16862CP
16863
16864
16865
16866
Sample # -- DOWNHOLE --->

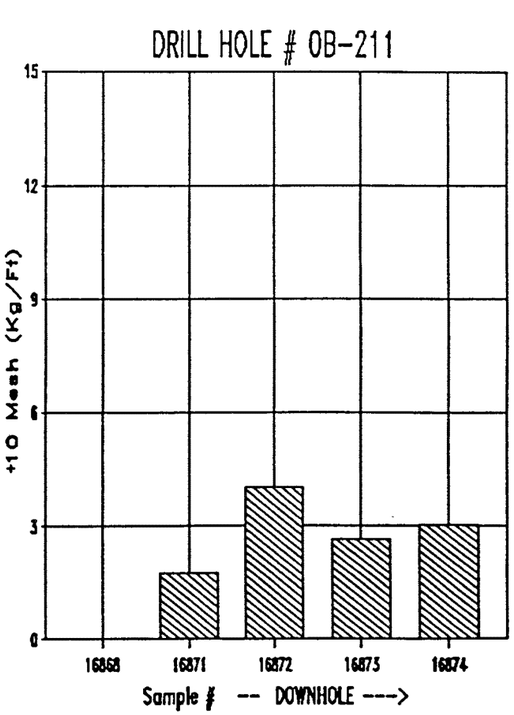

DRILL HOLE # OB-208
+10 Mesh (Kg/Ft)
0
3
6
9
12
15
16840CP
16842CP
16844CP
16846CP
16848CP
16850CP
16852CP
16853
Sample # -- DOWNHOLE --->

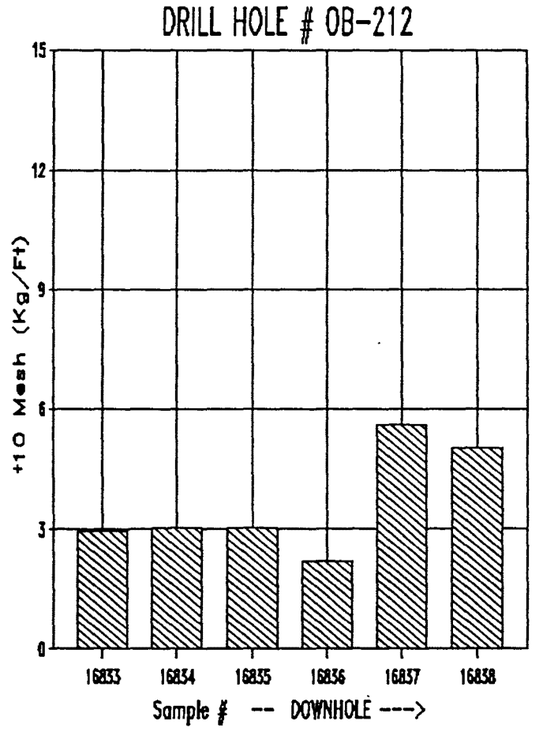

DRILL HOLE # OB-209
+10 Mesh (Kg/Ft)
0
3
6
9
12
15
16878CP
16880CP
16882CP
16883
16885CP
16886
16887
Sample # -- DOWNHOLE --->


DRILL HOLE # OB-206
+10 Mesh (Kg/Ft)
0
3
6
9
12
15
16919
16923CP
16926CP
16928CP
Sample # -- DOWNHOLE --->


DRILL HOLE # OB-207
+10 Mesh (Kg/Ft)
0
3
6
9
12
15
17028CP
17029
17030
17031
17032
17033
Sample # -- DOWNHOLE --->

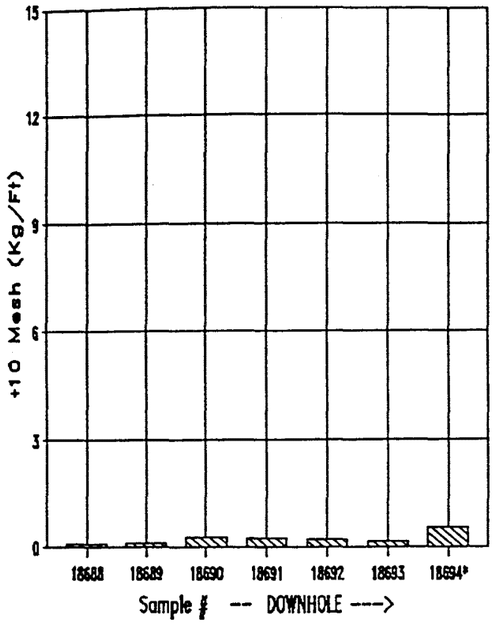

DRILL HOLE # OB-210
+10 Mesh (Kg/Ft)
0
3
6
9
12
15
17013CP
17017CP
17018
17019
Sample # -- DOWNHOLE --->


DRILL HOLE # OB-211
+10 Mesh (Kg/Ft)
0
3
6
9
12
15
16868
16871
16872
16873
16874
Sample # -- DOWNHOLE --->


DRILL HOLE # OB-212
15
12
9
6
3
0
+10 Mesh (Kg/Ft)
16853
16854
16855
16856
16857
16858
Sample # -- DOWNHOLE --->

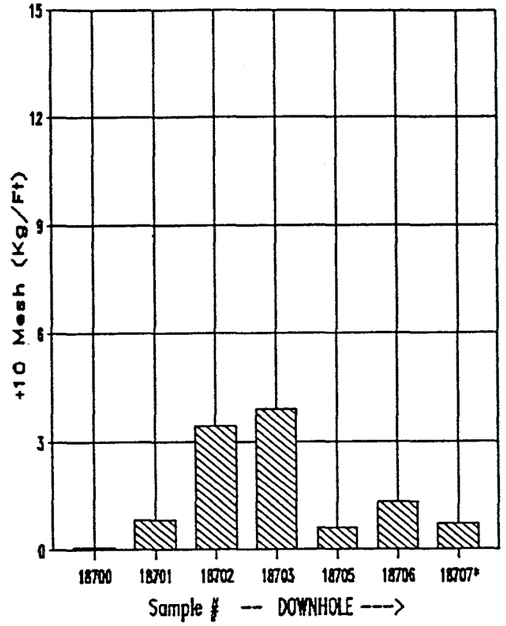
DRILL HOLE # OB-20100

* = Bedrock



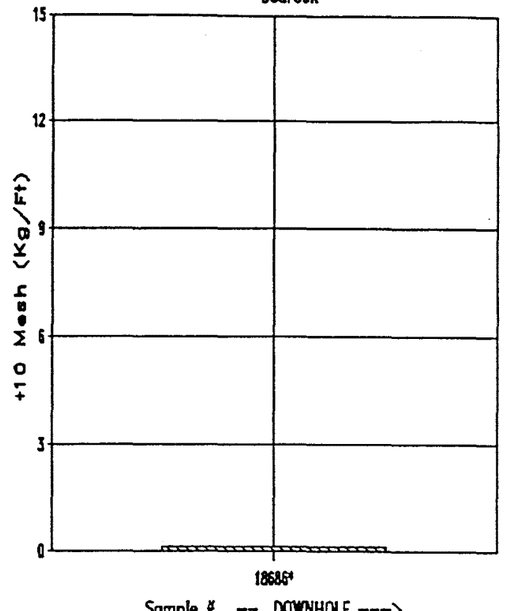

DRILL HOLE # OB-20101

* = Bedrock



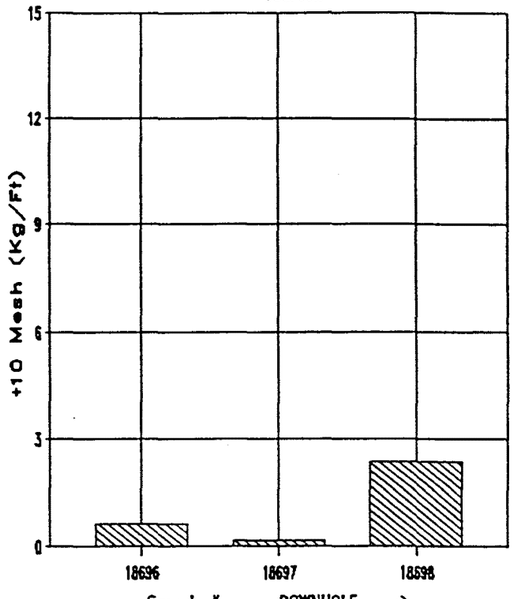

DRILL HOLE # OB-20103

* = Bedrock



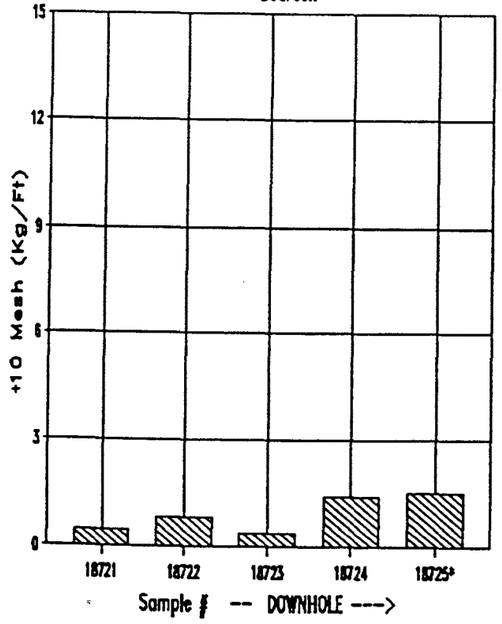

DRILL HOLE # OB-20104

* = Bedrock



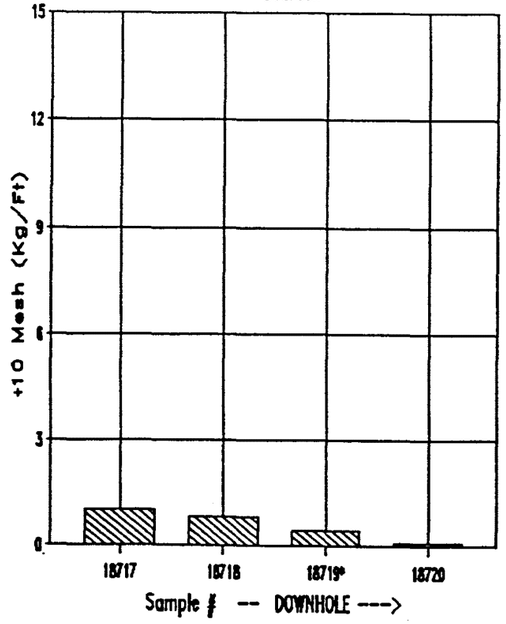

DRILL HOLE # OB-20200

* = Bedrock



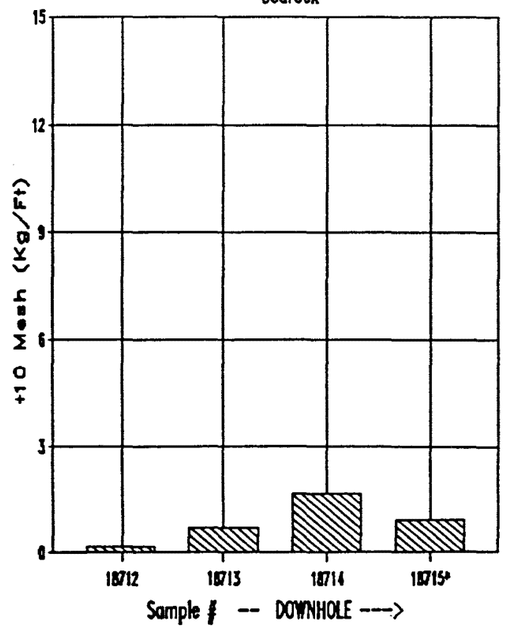

DRILL HOLE # OB-20201

* = Bedrock



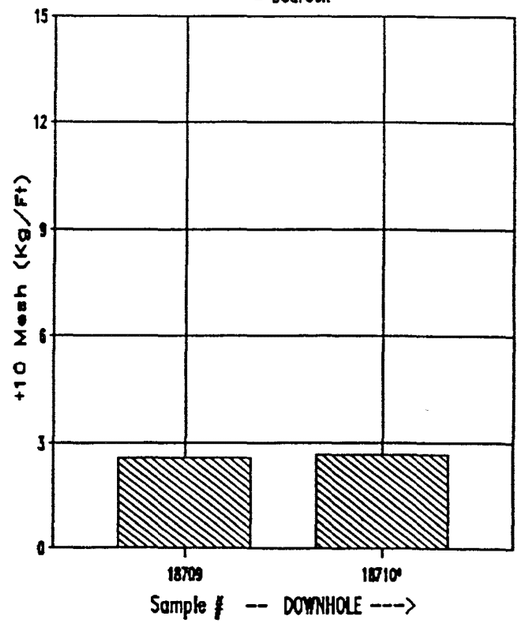

DRILL HOLE # OB-20204

* = Bedrock



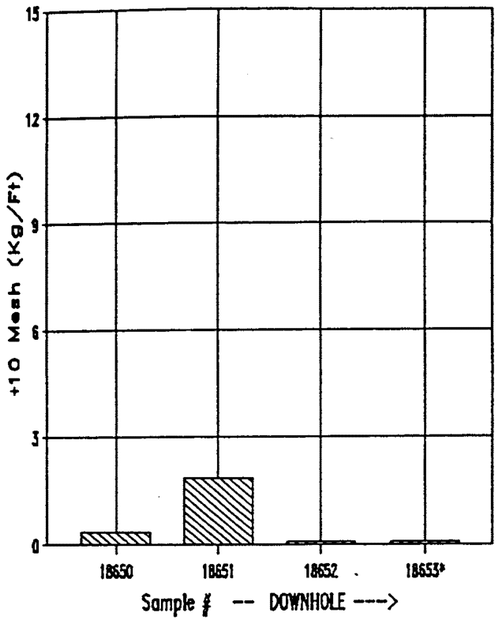

DRILL HOLE # OB-20303

* = Bedrock



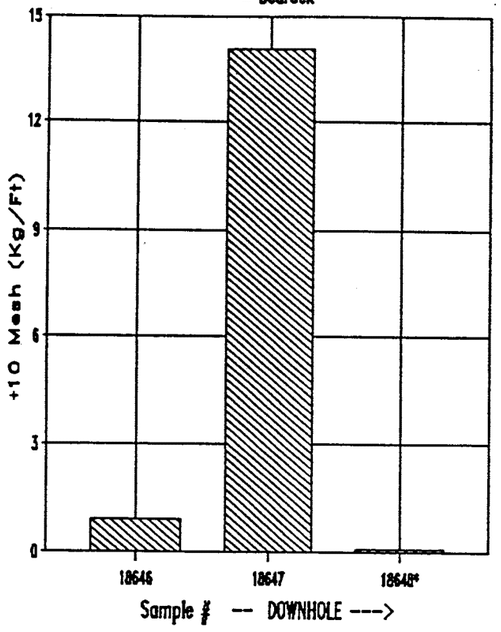
DRILL HOLE # OB-20401

* = Bedrock



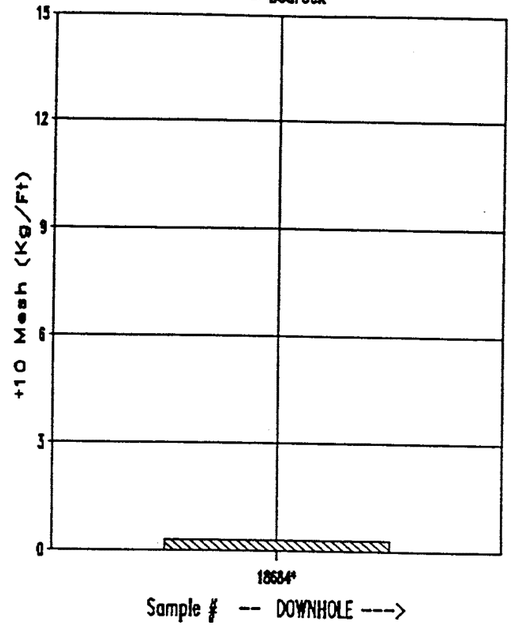

DRILL HOLE # OB-20402

* = Bedrock



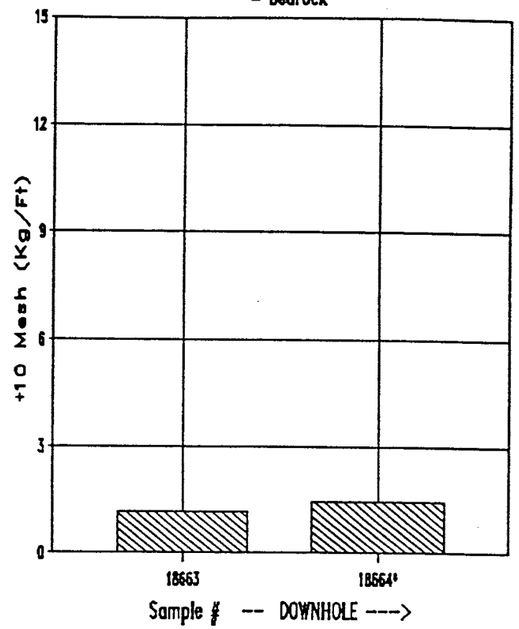

DRILL HOLE # OB-20404

* = Bedrock



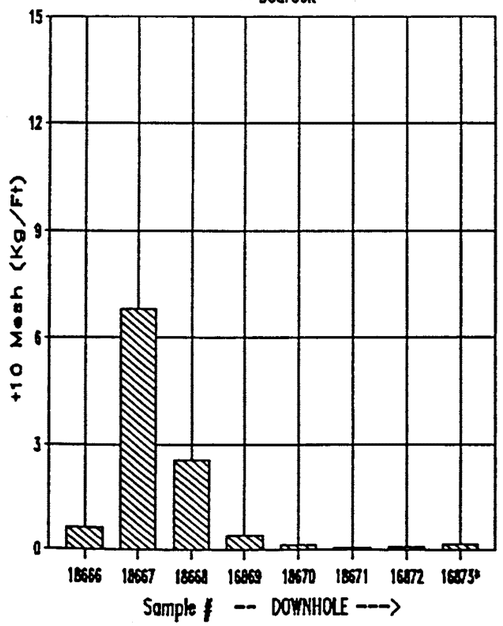

DRILL HOLE # OB-20405

* = Bedrock



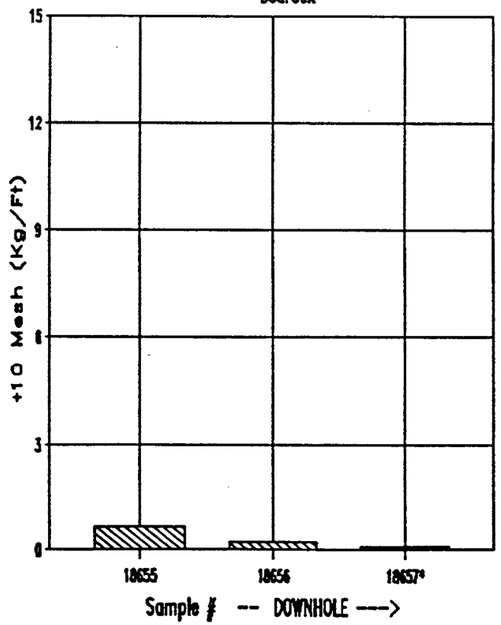

DRILL HOLE # OB-20502

* = Bedrock



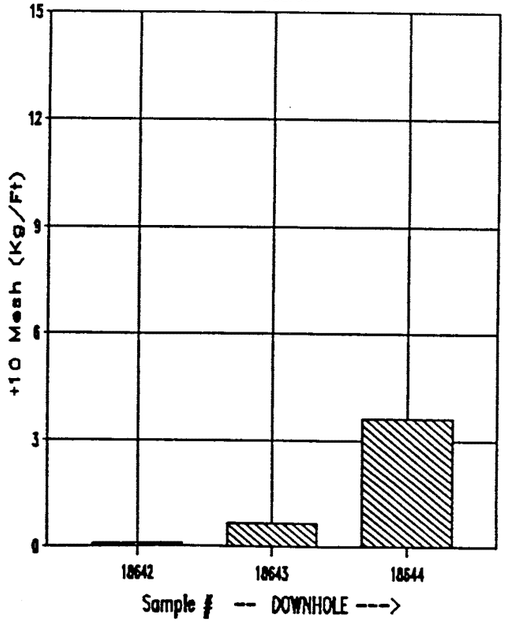

DRILL HOLE # OB-20601

* = Bedrock



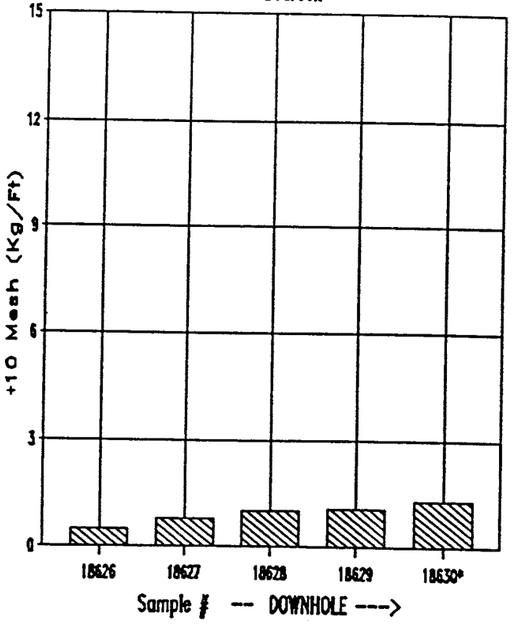

DRILL HOLE # OB-20603

* = Bedrock

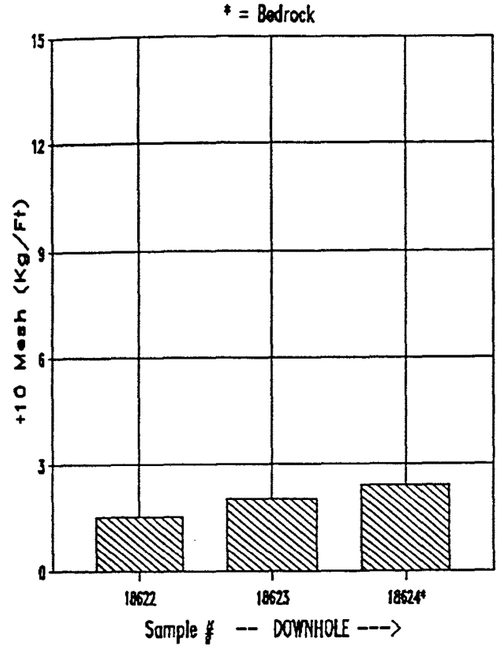



DRILL HOLE # OB-20702

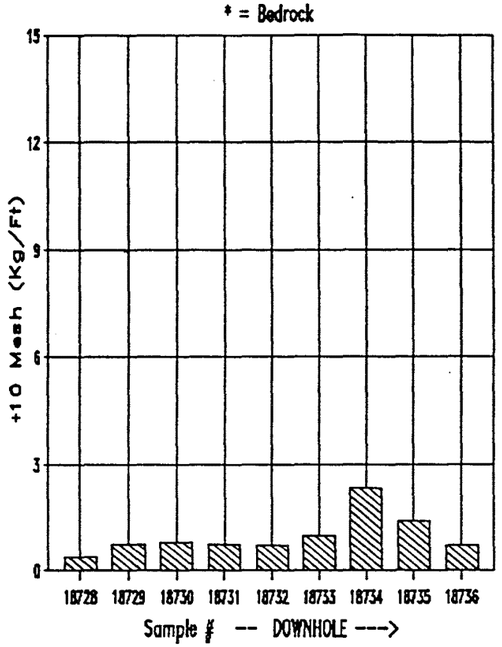
* = Bedrock



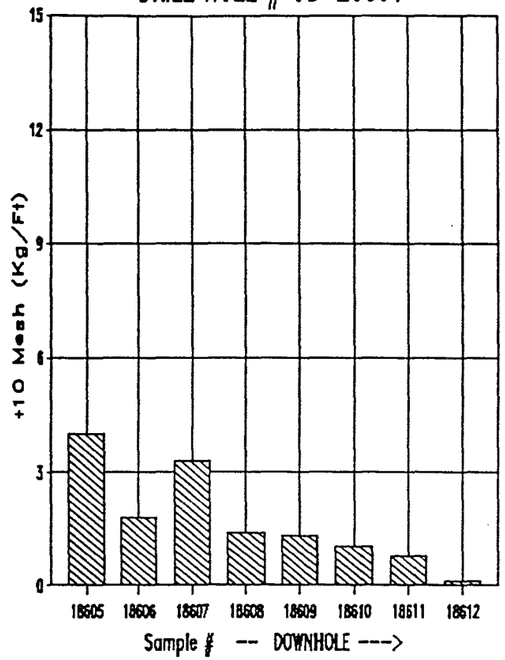
DRILL HOLE # OB-20704



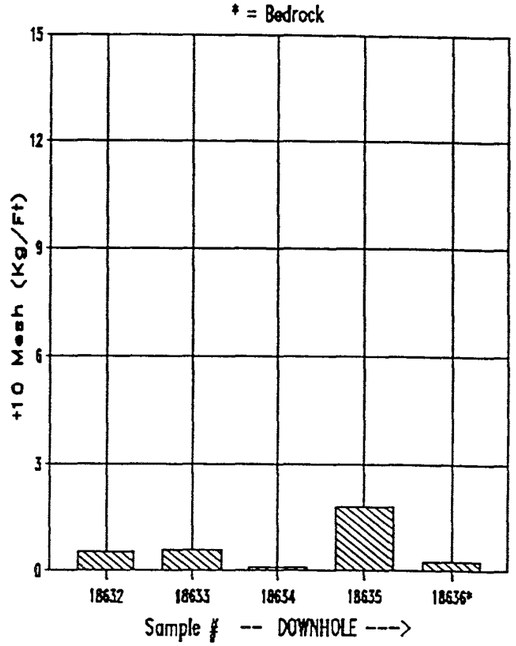

DRILL HOLE # OB-20705



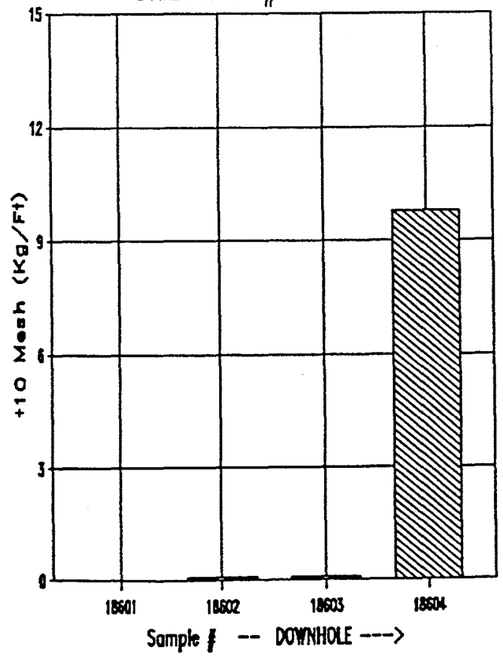

DRILL HOLE # OB-20801



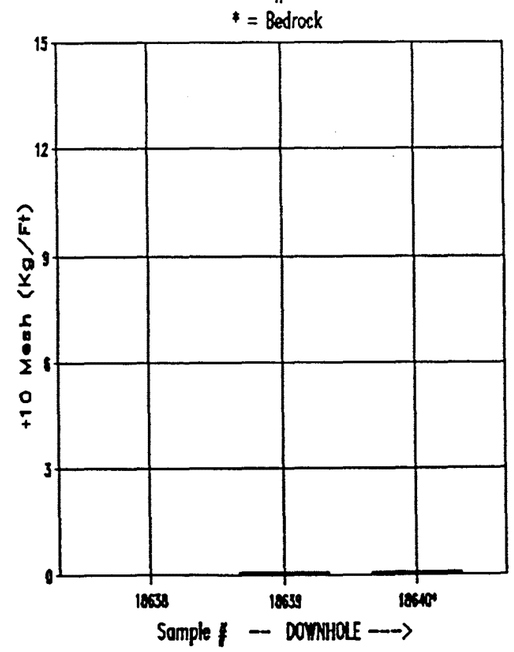

DRILL HOLE # OB-20803



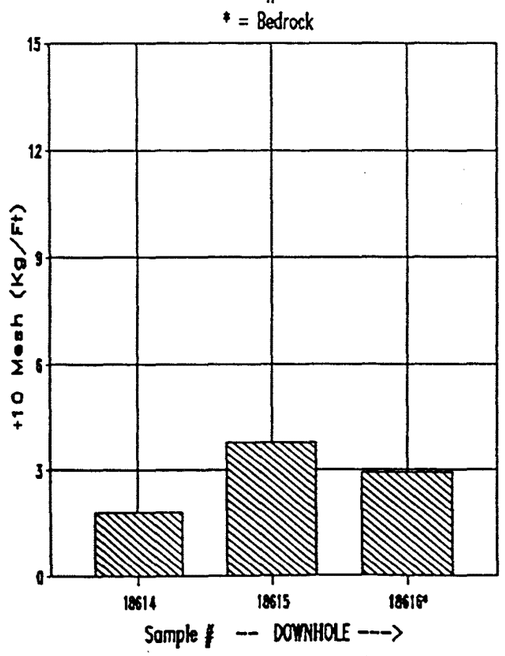

DRILL HOLE # OB-20804



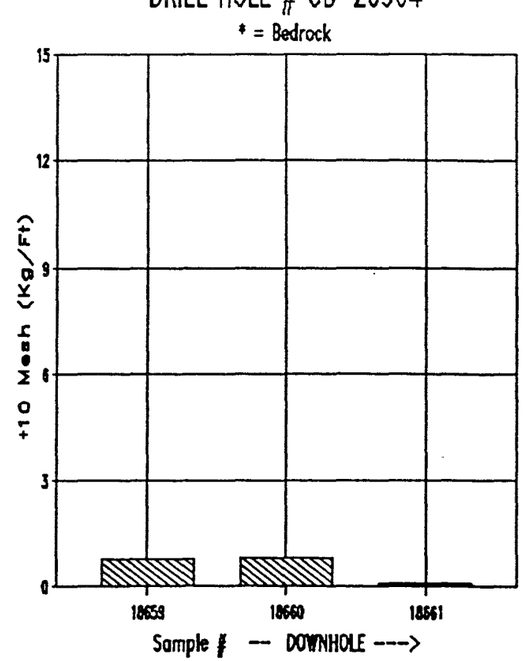

DRILL HOLE # OB-20901

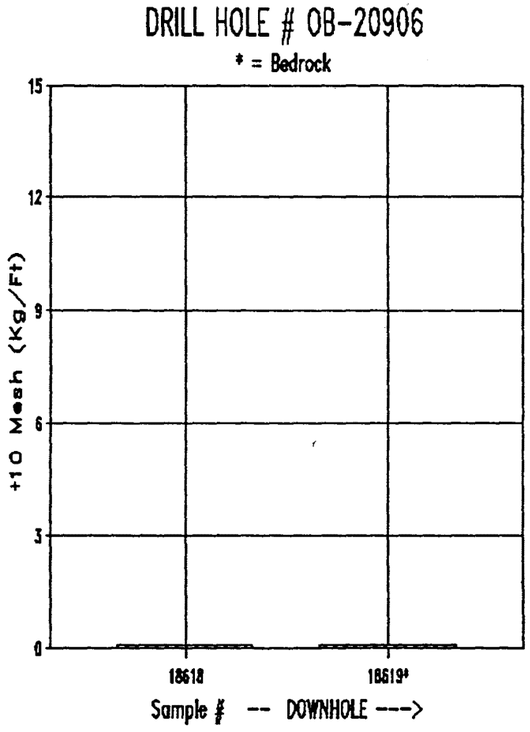


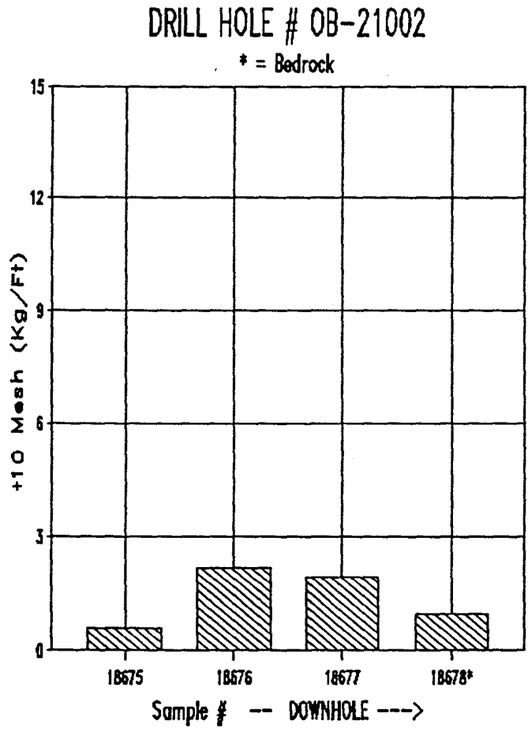

DRILL HOLE # OB-20902

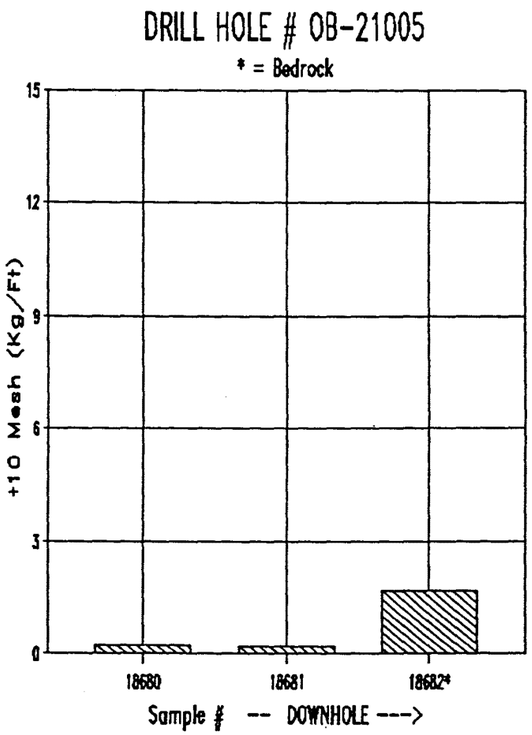



DRILL HOLE # OB-20904




DRILL HOLE # OB-20906
* = Bedrock
+10 Mesh (Kg/Ft)
15
12
9
6
3
0
18618
18619*
Sample # -- DOWNHOLE --->


DRILL HOLE # OB-21002
* = Bedrock
+10 Mesh (Kg/Ft)
15
12
9
6
3
0
18675
18676
18677
18678*
Sample # -- DOWNHOLE --->


DRILL HOLE # OB-21005
* = Bedrock
+10 Mesh (Kg/Ft)
15
12
9
6
3
0
18680
18681
18682*
Sample # -- DOWNHOLE --->

## Appendix 9-4. Gold Losses in Mud Rotary Samples

We have assembled four types of information to try to interpret the gold grain losses from the mud rotary sampling system. These include: (1) evaluation of the high gold grain counts from hole 20801 to relate losses into the sluice box there; (2) evaluation of gold grain counts in the samples and sluice box of all the other drill holes; (3) collection of the entire mudpit, as well as the regular samples and sluice box, at hole 20200 roughly 50 feet from (previous) gold-bearing Rotasonic hole 202; and (4) magnetite grain size and mass distribution from the 20200 mudpit to estimate the equivalent gold losses.

In the mud rotary drill hole 20801, 38 gold particles were counted from 1/5 to 7/10 split samples and replicate samples. Another 43 gold particles are estimated to remain (uncounted) in the complementary splits of hole 20801 in storage. The total, estimated plus actual, number of gold grains in the regular samples from hole 20801 is 81. An additional 25 gold particles were counted in the sluice box. Therefore, it is estimated that for every 3 or 4 gold grains collected in the regular sample, one additional gold grain was lost to the sluice box. Furthermore, the mass of each gold particle has been calculated and graphed in Figure 4-8. Figure 4-8C shows that the gold grain distribution of the sluice samples is skewed to the smaller sizes.

The gold grains in the samples and sluice box in the other mud rotary drill holes were also compared. In general, the holes around hole 20801 show a similar sample/sluice box gold particle ratio. Hole 20804, however, has 18 gold particles in the samples and only 1 in the sluice box. Other drill holes further away from 20801 have a different ratio (2:1, 1:1, and worst case 0:3). Such varying factors as mud mix, drilling rate, silt content of the sample, and gold grain sizes are interpreted to have caused the above variation in recovery ratios.

The previous discussion quantifies gold recovered in the sluice box, but some gold grains may have overflowed the sluice box into the mudpit. To test this, for hole 20200, the total mudpit sample, 101 pounds, was collected. No gold grains were found in the 44 pounds of mudpit sample processed with the regular HMC flowsheet. A 16½ pound sample of the mudpit was sieved (Table 40-8) and the magnetite was separated from it. The magnetite size vs. frequency distribution is graphed in Figure 4-8I. Most of the liberated magnetite lost to the mudpit is in the mass range from 1-10 ug. The estimated size gold flakes with equivalent settling velocity to these magnetite particles, as determined from Tourtelot, 1968, ranges from .47 ug to 5.52 ug or 55 microns x 11 microns (flake diameter x thickness) up to 125 microns x 25 microns. That size range of gold grains is, unfortunately, the most common found in our samples (see Figure 4-8G). In conclusion, equivalency calculations from the magnetite data from the mudpit sample indicates that some common-size gold particles could be lost to the mudpit. However, none were found in the sample tested.

Appendix 9-5. Quality and Lithology of "Bedrock" Samples from Rotary Drill Holes

By
S. A. Averill

## 1. INTRODUCTION

In December of 1986 and January of 1987, the Minnesota Department of Natural Resources conducted a regional program of rotary drilling in the northern part of the state for the purpose of heavy mineral geochemical sampling. Twenty-four chip samples that were deemed to represent bedrock intersections were submitted to Overburden Drilling Management Limited of Nepean, Ontario, Canada for logging (Appendix A). This report summarizes ODM's findings, particulary in the area of sample quality.

## 2. EQUIPMENT AND PROCEDURES

The samples were logged under a Nikon Model SMZ-10 zoom-type binocular microscope at 10 to 40X magnification using Cool White fluorescent illumination. A two-stage logging procedure was used:

1. Approximately 200 dry chips were scanned to determine the general character of the sample (degree of homogeneity, presence of veins, etc.)

2. Approximately 50 chips were immersed in water and examined in detail; colour, structure, texture, grain size and mineralogy were determined and the samples were classified using genetic rather than metamorphic names.

The lithologies present, and the number of samples of each are listed below:

| | Lithology | Number of Samples |
|---|---|---|
| 1. | Graywacke | 8 |
| 2. | Basalt | 3 |
| 3. | Andesite | 1 |
| 4. | Quartz diorite | 1 |
| 5. | Granodiorite | 2 |

These lithologies comprise only 15 of the 24 samples; the remaining nine samples appear to consist entirely of whole pebbles and drill cuttings of coarser overburden clasts (cobbles or small boulders). The principal clast lithologies present are graywacke and granodiorite, similar to bedrock units #1 and #5 respectively. Within each lithology, several varieties are present and no one variety represents more than 10 percent of the sample; thus the bedrock portion of the sample, if any, is very minor and unrecognizable. In four other samples (18636, 18640, 18652 and 18673), the proportion of lithologically unique cuttings is about 50 percent; these cuttings probably represent bedrock but could be from large boulders. In the remaining eleven samples, the proportion of unique cuttings ranges from 70 to 100 percent; all of these samples are assumed to represent bedrock.



## 4. LITHOLOGIC DESCRIPTIONS

In general, all of the rock units except granodiorite appear to have undergone amphibolite facies metamorphism; less metamorphosed samples that occur sporadically are herein assumed to be from pressure shadow areas but could be from a different volcano-sedimentary belt (ODM has not been advised of the locations of the drill holes). Most of the graywacke samples contain 0.1 to 1.0 percent pyrite; otherwise sulphide minerals are uncommon. A brief summary of each rock unit is provided below.

### 4.1 Graywacke

Most of the graywacke samples are gray, sugary schists containing about 25 percent biotite. The sugar has a grain size of 0.05 to 0.1 mm (i.e. silt-like) and consists of plagioclase and quartz. The plagioclase is generally colourless; where it is cloudy enough to be differentiated from quartz, the plagioclase:quartz ratio is about 4:1. Garnet metacrysts are present in some samples. Sample 18682 is less metamorphosed than the other graywacke samples and shows the original texture (0.2 to 0.4 mm grains) and composition (70 percent lithic grains, mainly of intermediate volcanics; 10 percent quartz grains; 20 percent matrix chlorite) of the sandstone. Some other samples that consist mainly of sugar still contain relict quartz sand but not the volcanic lithics; thus the sugar appears to be formed by the breakdown of the lithics.

### 4.2 Basalt

Only three samples are of basalt. They are all black to green amphibolites composed of 50 to 70 percent hornblende, (Sample 18710) or actinolite + hornblende (Samples 18719 and 18725), and 30 to 50 percent plagioclase. Sample 18710 is a garnet-bearing amphibolitic gneiss with 10 percent pyroxene-bearing bands.

### 4.3 Andesite

The only andesite sample, No. 18686, is a greenschist facies variety. It is medium green and slightly porphyrytic (0.5 percent plagioclase phenocrysts to 1.5 mm). The groundmass consists of 0.1 - 0.15 mm interlocking grains of plagioclase (75 percent), chlorite (20-25 percent), and quartz (2-3 percent).

**Appendix 9-5**

4.4 Quartz Diorite

The only quartz diorite sample is No. 18652. The quartz diorite resembles the amphibolitized basalt but is coarser grained (up to 1.0 mm) and has a much less mafic composition (60 percent plagioclase, 20 percent quartz, 10-20 percent hornblende, 10 percent biotite). It contains 0.5 percent disseminated pyrite.

4.5 Granodiorite

Granodiorite occurs in Samples 18657 and 18694. It is the only unfoliated rock unit present and is therefore assumed to have been emplaced after peak deformation. It is a pink rock having a grain size ranging between 0.5 and 5.0 mm. Feldspar constitutes 60-70 percent of the rock. It is mostly pink rather than white; hence the name "granodiorite" is used loosely, although if may be justified as much of the pink colouration appears to be due to hematite staining. The quartz content varies from 10 to 30 percent. Sample 18657 contains 3 percent chloritized biotite while Sample 18694 contains 10 percent chloritized hornblende and biotite.

CONCLUSIONS

The samples are of extremely variable quality. In those cases where a clean sample of bedrock chips was obtained, it is possible to glean much useful information from the chips and to classify the samples by their pre-metamorphic names. Unfortunately, many of the samples appear to consist entirely of overburden clasts rather than bedrock cuttings, and others are so severely contaminated by clasts that the presence of any bedrock cuttings is questionable. Obviously, it must have been very difficult in the field to determine the type of material that was being drilling and to decide what to sample and how to sample it. If bedrock could not be differentiated from overburden, how could one recognize stratigraphic contacts within the overburden section! Clearly future programs require either a different drilling system, or major improvements to the present one.

S.A. Averill
President

| SAMPLE NUMBER | COLOUR | STRUCTURE | GRAIN SIZE (mm) | TEXTURE | MINERALOGY: Silicates | Carbonates | Sulphides | Other | NAME |
|---|---|---|---|---|---|---|---|---|---|
| 18616 D.H. # 20702 | Dark grey | Well foliated to schistose | Relict sand: 0.2-0.5 Seriate Matrix 0.05-0.1 Garnet: 0.5 | Sugary with relict sandy | 25% biotite 75% qtz-plag. sugar <1% relict qtz. sand grains 0.1% garnet porphyroclasts | Nil | 0.2% dissem. pyrite | Nil | GRAYWACKE (20% overburden clast contam.) |
| 18619 D.H. # 20906 | Dark grey | Schistose | Sugar 0.05 | Sugary moderately relict sand | 20-30% (var. 30% biotite) 70% qtz-plag. sugar | Nil | 1% dissem. py. | Nil | SILTSTONE (30% overburden clast contam.) |
| 18624 D.H. # 20704 | Dark grey | Moderately to weakly foliated | Sugar 0.05-0.1 Relict sand 0.2-1.0 | Sugary with 20% relict sand | 20% biotite 60% qtz-plag. sugar 20% relict sand including 5-10% blue tourmalinized qtz 5% plag 5% epidote | Nil | 0.5% dissem. py. | 0.1% dissem. magnetite | GRAYWACKE (10% overburden contam.) |
| 18636 ↓ D.H. # 20803 | Light grey | Well foliated | Sugar 0.1 Relict Sand to 0.5 | Sugary with 5% relict sand grains | 90% qtz-plag. sugar 5% relict sand grains (mostly plag) 5% biotite to (mostly) chlorite | Nil | 0.1% dissem. py. | Nil | GRANWACKE BEDROCK OR BOULDER (10% overburden clast contamination) |
| 18630 D.H. # 20702 | Sample is granitic in appearance | 70-100% overburden clasts in a diorite and sugary groundmass intersected, so can't discern if any of the | | clast contamination in roughly equal proportions -- ie sandy boulders | | | | | OVER-BURDEN |

## Appendix 9-5

| SAMPLE NUMBER | COLOUR | STRUCTURE | GRAIN SIZE (mm) | TEXTURE | MINERALOGY | | | | NAME |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Silicates | Carbonates | Sulphides | Other | |
| 18640<br>D.H. # 20901 | Sample is mmmium gray (biotitic) to green (chloritic) wacke and is drill cuttings - possibly sand and 5-10% dissem. pyrite. | | 70% overburden clast contamination bedrock -- of sugary | | pink to white granite is all one variety; | -- mainly graywacke | whole pebbles of ids (no vole.); balance containing bedrock or large | 1% relict boulder). | GRAYWACKE BEDROCK OR BLDR. (70% overburden contamination |
| 18644<br>D.H. # 20603 | 50% whole pebbles and 40% graywacke, 5% mafic volcanics (amphibolite) | | 50% drill cuttings of coarser clasts; | | lithologies are | | 50-60% varied granite, | | OVER-BURDEN |
| 18648<br>D.H. # 20402 | 30% platey buff bentonite mud lumps, 70% varied graywacke, 30-40% varied granite, 10% | | pebbles and cobble cuttings -- lithologies are | | amphibolite | | | 60% | OVER-BURDEN |
| 18652<br>D.H.# 20401 | Medium gray | Well foliated | Variable 0.2-1.0 between chips | Interlocking, equi-granular at chip scale | 60% plag.,<br>20% qtz.<br>10-20 hornblende<br>10% biotite | 2% dissem. calcite | 0.5% dissem pyrite | Nil | QTZ. DIORITE BEDROCK or BOULDER (50% obvious overburden clast contam |
| 18653<br>D.H # 20401 | 70% whole pebbles, 30% granite, 50% varied host drill cuttings | | drill cuttings of coarser clasts; graywacke, 5% amphibolite. Fines | | are mostly bentonite | lithologies | are 50% varied | drill mud, | OVER-BURDEN |



| SAMPLE NUMBER | COLOUR | STRUCTURE | GRAIN SIZE (mm) | TEXTURE | MINERALOGY | | | | NAME |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Silicates | Carbonates | Sulphides | Other | |
| 18657<br>D.H. # 20601 | White to pink | Massive | 0.5-1.5 | Equigranular, interlocking | 60-70% white to pink (hem. stained) feldspar, 30% quartz, 3% chlorite n biotite | Nil | Nil | Nil | GRANO-DIORITE (40% over-burden clast contam. cuttings all granitoid |
| 18664<br>D.H # 20405 | 70% whole pebbles varied graywacke, 30- | and 40% varied | 30% drill cuttings of coarser | clasts. Lithologies are | amphibolite. | | | 60% | OVER-BURDEN |
| 18672<br>D.H. # 20502 | 30% whole pebbles, 70% 40% varied granite. | drill | cuttings of coarser | clasts. Lithologies are 60% | | | varied graywacke, | | OVER-BURDEN |
| 18673<br>D. H. # 20502 | Light gray | Well foliated | 0.1-0.3 | Sugary, no relict | 60-70% plag 15-20% qtz (coarse sugar allows differentiation of plag. from qtz.) 20% biotite | Trace dissem. calcite | 0.2% dissem. pyrite | Nil | GRAYWACKE BEDROCK OR (50% Boulder overburden clast contamination) |
| 18678<br>D. H. # 21002 | 90% whole pebbles up 70% varied graywacke, | to 2cm diameter, 10% | 30% | varied granite, no | cuttings of coarser clasts; | lithologies | are | | OVER-BURDEN |

## Appendix 9-5

| SAMPLE NUMBER | COLOUR | STRUCTURE | GRAIN SIZE (mm) | TEXTURE | MINERALOGY | | | | NAME |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Silicates | Carbonates | Sulphides | Other | |
| 18682<br>D.H. # 21005 | Medium grey | Weakly foliated | 0.2-0.4 where discernible (boundaries of lithic sand grains indistinct) | Sandy, not sugary | 10% qtz. sand grains<br>70% lithic sand grains (int. volc where discernible)<br>15-20% chlorite | 1% vein calcite | 0.1% dissem. py. and 0.2% vein pyrite | Nil | GRAYWACKE (No overburden contam.) |
| 18684<br>D.H. # 20404 | Dark grey | Well foliated | Sugar 0.05-0.15<br>Garnet metacryst 0.3-0.5 | Sugary, no relict sand grains | 75% qtz.-plag. sugar<br>25% biotite<br>Trace garnet metacrysts | Nil | 0.2% dissem pyrite | Nil | GRAYWACKE (10% overburden contaminated) |
| 18686<br>D.H. # 20103 | Medium green | Moderately foliated | Groundmass 0.1-0.15<br>Plag. phenos to 1.5 | Equigranular, interlocking recrystallized by foliation | 75% plag. including 0.5% as phenos, 25% chlorite, 2-5% visible qtz. | Nil | Nil | Nil | INT. VOLC. (ANDESITE) 40% overburden contam. |
| 18694<br>D.H. # 20100 | Pink | Massive | 1.0-5.0 | Equigranular, interlocking | 60% pink hem.-stained feld. spar<br>10% white feld.<br>10% qtz.<br>10% chloritized bt. and hornblende<br>10% epidote | Trace calcite associated with epidote | Nil | 0.1% dissem sphene | GRANODIORITE (only 5% overburden contam.) |
| 18707<br>D.H. # 20101 | 50% whole pebbles of pyrite at surface (i.e. gravel); 50% varied granite, andesite and basalt. | large size, often rounded, some limonite stained, 50% drill cuttings of coarser clasts; 30% varied biotitic greywacke, 20% | | | | | | more with fresh lithologies | OVERBURDEN (GRAVEL) |



| SAMPLE NUMBER | COLOUR | STRUCTURE | GRAIN SIZE (mm) | TEXTURE | MINERALOGY | | | | NAME |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Silicates | Carbonates | Sulphides | Other | |
| 18710<br>D.H. # 20303 | Black | Well foliated to gneissic with 5% quartz stringers | 0.1-0.5 to locally pegmatitic | Locally equigranular but hornblende generally coarser than plag.; interlocking | 70% hornblende (brown px. in 10% gneissic bands), 30% plag., 0.2% garnet | 2-3% fracture calcite | 0.5% stringer + fracture pyrite | 5% magnetite in 10% of chips only | AMPHIBOLITE (BASALT) with <5% overburden contam. |
| 18715<br>D.H. # 20204 | 50% small (0.5 cm) whole coarser clasts; lithologies 50% varied granite, 50% drill cuttings of greywacke, 10% varied amphibolite | till pebbles (subangular, often with fresh pyrite at surface), 40% varied | | | | | | | OVERBURDEN |
| 18719<br>D.H. # 20201 | Dark green | Moderately foliated | 0.2 (plag.) to 0.5 (actinolite) | Inequigranular, interlocking | 50% actinolite<br>40% plag.<br>10% chloritized biotite | 5% of chips contain 10% calcite | Nil | Nil | AMPHIBOLITE (BASALT) with 5% overburden clast contamination |
| 18725<br>D.H. # 20200 | Dark grey to green | Variably massive to well foliated | 0.2 (esp. plag.) to 0.5 (especially amphibole) | Interlocking, equigranular to inequigranular (amph. coarser than px.) to sub-diabasic | 50% hornblende (variable to actinolite)<br>40% plag.<br>10% chloritized biotite | 3% dissem. calcite | Trace py. | Nil | AMPHIBOLITE (BASALT) with 10% overburden clast contam. |
| | | | | | | | | | |

Appendix 9-6. List of the 30 highest assays for Au, As, Ni, Cu, and Zn from the total HMC nonmag samples. Column titles are SN = sample number; DH = drill hole; AF = sample interval; CDT = drift type (see individual drill hole data for drift type). For the arsenic values, the accompanying gold assay is listed. Similarly, accompanying Cu or Zn assays are listed.

## GOLD

| S.N. | DH | AF | CDT | AU |
|---|---|---|---|---|
| 18674 | 20502 | 127-208 | 39 | 350 |
| 18726 | 20200 | 71-117 | 39 | 350 |
| 18784 | 10401 | 177-181 | 11 | 350 |
| 17558 | | 0-1.5 | 11 | 390 |
| 16872 | 211 | 40-45 | 11 | 400 |
| 16822 | 202 | 94-104 | 11 | 410 |
| 18654 | 20401 | 99-113.5 | 39 | 410 |
| 16885 | 209 | 85-95 | 13 | 420 |
| 18612 | 20801 | 122-137 | 13 | 420 |
| 17557 | | 0-1.5 | 11 | 568 |
| 18610 | 20801 | 102-112 | 13 | 600 |
| 16801 | 202 | 4-9 | 21 | 640 |
| 18699 | 20104 | 106-146 | 39 | 660 |
| 18611 | 20801 | 112-122 | 13 | 690 |
| 16818 | 202 | 76-86 | 11 | 700 |
| 16916 | 103 | 119.5-122 | 11 | 730 |
| 18861 | 10202 | 112-122 | 13 | 772 |
| 18670 | 20502 | 168-183 | 15 | 790 |
| 18668B | 20502 | 139-152 | 13 | 830 |
| 18606 | 20801 | 62-72 | 13 | 910 |
| 17072 | 104 | 81-84 | 10 | 1100 |
| 18854 | 10403 | 94-99 | 11 | 1260 |
| 18730 | 20705 | 99-109 | 13 | 1300 |
| 18837 | 10503 | 70-72 | 12 | 1360 |
| 16919 | 206 | 32.5-37 | 21 | 1400 |
| 18692 | 20100 | 216-226 | 10 | 1800 |
| 18845 | 10901 | 133-135 | 13 | 1800 |
| 18808 | 10602 | 62-68 | 11 | 2840 |
| 17069 | 104 | 69.5-73 | 21 | 3400 |
| 16887 | 209 | 100-105 | 11 | 120000 |

## ARSENIC

| S.N. | DH | AF | CDT | AS | AU |
|---|---|---|---|---|---|
| 16945 | 101 | 117.5-123 | 25 | 100 | -5 |
| 17051 | 102 | 150-155 | 21 | 100 | 37 |
| 17068 | 104 | 60-69 | 21 | 100 | 60 |
| 18609 | 20801 | 92-102 | 13 | 100 | 160 |
| 18851 | 11006 | 39-44 | 11 | 105 | 99 |
| 16900 | 108 | 84-89 | 21 | 110 | -38 |
| 16898 | 108 | 66-76 | 21 | 110 | -32 |
| 16996 | 110 | 27.5-37.5 | 21 | 110 | -29 |
| 17050 | 102 | 145-150 | 21 | 110 | 22 |
| 16969 | 109 | 40-45 | 21 | 110 | 29 |
| 16848 | 208 | 65-75 | 15 | 110 | 37 |
| 18857 | 10202 | 102-112 | 13 | 111 | 72 |
| 16968 | 109 | 35-40 | 21 | 120 | 21 |
| 18816 | 10603 | 95-100 | 11 | 120 | 27 |
| 16957 | 106 | 70-77 | 21 | 130 | 73 |
| 17070 | 104 | 73-77.5 | 21 | 140 | -16 |
| 18681 | 21005 | 60-72.5 | 10 | 140 | -16 |
| 18744C | 20801 | 52-137 | 13 | 160 | 190 |
| 18819 | 10601 | 35-45 | 11 | 177 | 23 |
| 16958 | 106 | 77-82 | 21 | 180 | 30 |
| 16915 | 103 | 118-119.5 | 26 | 180 | 79 |
| 18861 | 10202 | 112-122 | 13 | 181 | 772 |
| 16852 | 208 | 85-95 | 15 | 190 | 52 |
| 16916 | 103 | 119.5-122 | 11 | 210 | 730 |
| 16914 | 103 | 100-110 | 27 | 230 | 100 |
| 16999 | 110 | 47-52 | 11 | 240 | 100 |
| 18814 | 10304 | 133-137 | 11 | 245 | 100 |
| 18610 | 20801 | 102-112 | 13 | 320 | 600 |
| 18612 | 20801 | 122-137 | 13 | 360 | 420 |
| 18611 | 20801 | 112-122 | 13 | 490 | 690 |

## COPPER

| S.N. | DH | AF | CDT | CU | ZN |
|---|---|---|---|---|---|
| 18753C | 20402 | 48-58.5 | 14 | 440 | 150 |
| 18849 | 11102 | 35-38 | 11 | 450 | -200 |
| 16835 | 212 | 90-95 | 11 | 450 | 130 |
| 18662 | 20904 | 100-125 | 39 | 450 | 220 |
| 18687 | 20103 | 216-223 | 39 | 460 | 300 |
| 18783 | 10401 | 167-177 | 11 | 462 | -200 |
| 18743C | 20804 | 74-92 | 13 | 470 | 140 |
| 16838 | 212 | 102-107 | 32 | 490 | 150 |
| 16919 | 206 | 32.5-37 | 21 | 500 | 180 |
| 18601 | 20804 | 64-74 | 13 | 510 | 160 |
| 18618 | 20906 | 25-29.5 | 13 | 520 | 130 |
| 18683 | 21005 | 50-76 | 39 | 520 | 220 |
| 18816 | 10603 | 95-100 | 11 | 534 | -200 |
| 18647 | 20402 | 58-58.5 | 34 | 540 | 120 |
| 18651 | 20401 | 109-112 | 13 | 540 | 120 |
| 18675 | 21002 | 96-106 | 13 | 550 | 190 |
| 18646 | 20402 | 48-58 | 14 | 560 | 130 |
| 18602 | 20804 | 74-84 | 13 | 560 | 140 |
| 18717 | 20201 | 59-66 | 13 | 590 | 130 |
| 18604 | 20804 | 89-92 | 13 | 630 | 140 |
| 18611 | 20801 | 112-122 | 13 | 660 | 170 |
| 18610 | 20801 | 102-112 | 13 | 660 | 440 |
| 18754C | 20401 | 99-112 | 13 | 690 | 130 |
| 16836 | 212 | 95-98 | 11 | 710 | 150 |
| 18720 | 20201 | 59-77 | 39 | 740 | 190 |
| 18677 | 21002 | 116-118 | 13 | 750 | 130 |
| 18676 | 21002 | 106-116 | 13 | 910 | 130 |
| 18812 | 10303 | 115-118 | 11 | 1039 | -200 |
| 18718 | 20201 | 66-73 | 10 | 1200 | 220 |
| 18681 | 21005 | 60-72.5 | 10 | 1700 | 150 |

## NICKEL

| S.N. | DH | AF | CDT | NI |
|---|---|---|---|---|
| 18683 | 21005 | 50-76 | 39 | 320 |
| 16882 | 209 | 70-78 | 13 | 330 |
| 16883 | 209 | 80-85 | 13 | 330 |
| 16871 | 211 | 36-40 | 11 | 340 |
| 16874 | 211 | 50-55 | 11 | 340 |
| 16961 | 106 | 98.5-102 | 11 | 340 |
| 16962 | 106 | 102-107 | 11 | 340 |
| 17019 | 210 | 45-48 | 13 | 340 |
| 18852 | 11006 | 44-46 | 11 | 340 |
| 16886 | 209 | 95-100 | 13 | 350 |
| 18675 | 21002 | 96-106 | 13 | 350 |
| 16873 | 211 | 45-50 | 11 | 360 |
| 18879 | 10105 | 172-177 | 13 | 360 |
| 17018 | 210 | 40-45 | 13 | 370 |
| 18720 | 20201 | 59-77 | 39 | 380 |
| 18620 | 20906 | 25-33 | 39 | 390 |
| 18685 | 20404 | 121-126 | 39 | 400 |
| 18681 | 21005 | 60-72.5 | 10 | 400 |
| 16872 | 211 | 40-45 | 11 | 410 |
| 18621 | 20804 | 64-92 | 39 | 410 |
| 18873 | 10102 | 133-137.5 | 13 | 420 |
| 18677 | 21002 | 116-118 | 13 | 450 |
| 18610 | 20801 | 102-112 | 13 | 470 |
| 18618 | 20906 | 25-29.5 | 13 | 480 |
| 18676 | 21002 | 106-116 | 13 | 480 |
| 18641 | 20901 | 48-65 | 39 | 500 |
| 18611 | 20801 | 112-122 | 13 | 550 |
| 18612 | 20801 | 122-137 | 13 | 570 |
| 18718 | 20201 | 66-73 | 10 | 640 |
| 18812 | 10303 | 115-118 | 11 | 650 |

## ZINC

| S.N. | DH | AF | CDT | ZN | CU |
|---|---|---|---|---|---|
| 18680 | 21005 | 50-60 | 10 | 240 | 350 |
| 16899 | 108 | 76-81 | 24 | 250 | 110 |
| 16941 | 101 | 97.5-102.5 | 21 | 270 | 78 |
| 16940 | 101 | 90-97.5 | 21 | 270 | 80 |
| 16933 | 101 | 55-65 | 21 | 270 | 84 |
| 17050 | 102 | 145-150 | 21 | 270 | 120 |
| 16944 | 101 | 107.5-117.5 | 27 | 270 | 150 |
| 16960 | 106 | 85-95 | 27 | 270 | 230 |
| 18854 | 10403 | 94-99 | 11 | 270 | 295 |
| 17068 | 104 | 60-69 | 21 | 280 | 110 |
| 17061 | 104 | 20-30 | 21 | 280 | 120 |
| 17562 | | 5-7 | 13 | 290 | 16 |
| 16942 | 101 | 102.5-107.5 | 21 | 290 | 96 |
| 16938 | 101 | 80-90 | 21 | 290 | 97 |
| 16900 | 108 | 84-89 | 21 | 300 | 130 |
| 18847 | 10902 | 56-57.5 | 11 | 300 | 155 |
| 16914 | 103 | 100-110 | 27 | 300 | 270 |
| 18687 | 20103 | 216-223 | 39 | 300 | 460 |
| 17066 | 104 | 50-60 | 21 | 310 | 94 |
| 17049 | 102 | 135-145 | 21 | 310 | 100 |
| 16968 | 109 | 35-40 | 21 | 340 | 110 |
| 17051 | 102 | 150-155 | 21 | 360 | 100 |
| 16954 | 106 | 55-65 | 21 | 360 | 130 |
| 16967 | 109 | 25-35 | 21 | 360 | 140 |
| 16923 | 206 | 75-82.5 | 21 | 360 | 170 |
| 17573 | 208 | 108-113 | 11 | 400 | 66 |
| 17069 | 104 | 69.5-73 | 21 | 400 | 150 |
| 18814 | 10304 | 133-137 | 11 | 400 | 204 |
| 18610 | 20801 | 102-112 | 13 | 440 | 660 |
| 16969 | 109 | 40-45 | 21 | 510 | 120 |

Appendix 9-7. List of all Magnetic Fraction of HMC assays by sample number.
Note: Arsenic was only assayed for 9 samples; the 0.00 should be "Not Determined."

| &RECNO | Sample Number | Drill Hole | Assay Footage | Composite Drift Type | CR | NI | CU | ZN | SE | MO | AG | PB | MGO | TIO2 | AS | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 16816 | 202 | 70-76 | 11 | 1200 | 120 | 23 | 450 | -1 | -1 | 1.0 | 30 | 1.000 | 5.30 | 0.00 | |
| 2 | 16818 | 202 | 76-86 | 11 | 910 | 130 | 81 | 410 | -1 | -1 | 0.5 | 22 | 0.930 | 5.20 | 0.00 | |
| 3 | 16820 | 202 | 86-94 | 11 | 1100 | 120 | 26 | 420 | -1 | -1 | 0.5 | 26 | 1.100 | 5.30 | 0.00 | |
| 4 | 16822 | 202 | 94-104 | 11 | 830 | 140 | 35 | 570 | -1 | 3 | -0.5 | 4 | 0.710 | 1.70 | 0.00 | |
| 5 | 16824 | 202 | 104-114 | 11 | 1600 | 160 | 32 | 430 | -1 | 13 | -0.5 | 6 | 0.780 | 1.70 | 0.00 | |
| 6 | 16825 | 202 | 114-117 | 11 | 1000 | 140 | 20 | 420 | -1 | 13 | -0.5 | 4 | 0.630 | 1.70 | 0.00 | |
| 7 | 16826 | 202 | 117-122 | 11 | 950 | 200 | 68 | 350 | -1 | 3 | -0.5 | -1 | 0.680 | 1.70 | 0.00 | |
| 8 | 16835 | 212 | 90-95 | 11 | 780 | 160 | 60 | 180 | -1 | 9 | -0.5 | -1 | 0.610 | 1.40 | 0.00 | |
| 9 | 16836 | 212 | 95-98 | 11 | 1200 | 130 | 110 | 260 | -1 | 38 | -0.5 | 2 | 0.610 | 1.40 | 0.00 | |
| 10 | 16837 | 212 | 98-102 | 32 | 1200 | 130 | 140 | 220 | -1 | 64 | -0.5 | -1 | 0.630 | 1.20 | 0.00 | |
| 11 | 16838 | 212 | 102-107 | 32 | 690 | 150 | 85 | 150 | -1 | 45 | -0.5 | -1 | 0.400 | 0.87 | 0.00 | |
| 12 | 16840 | 208 | 15-25 | 14 | 2100 | 140 | 31 | 310 | -1 | -1 | 0.5 | 24 | 1.400 | 3.30 | 0.00 | |
| 13 | 16842 | 208 | 25-35 | 15 | 1900 | 130 | 25 | 360 | -1 | -1 | 0.5 | 30 | 1.000 | 4.00 | 0.00 | SII(-63)=25-35 |
| 14 | 16852 | 208 | 85-95 | 15 | 2400 | 210 | 36 | 370 | -1 | -1 | -0.5 | -1 | 0.710 | 1.70 | 0.00 | SII(-63)=85-95 |
| 15 | 16853 | 208 | 98-103 | 11 | 1200 | 160 | 100 | 290 | 1 | -1 | -0.5 | -1 | 0.810 | 1.70 | 0.00 | |
| 16 | 16863 | 204 | 75-79 | 21 | 1300 | 130 | 21 | 250 | -1 | -1 | -0.5 | -1 | 0.630 | 1.70 | 0.00 | |
| 17 | 16864 | 204 | 80-85 | 11 | 1300 | 170 | 95 | 320 | -1 | 74 | -0.5 | -1 | 0.750 | 1.70 | 0.00 | |
| 18 | 16865 | 204 | 85-90 | 11 | 1000 | 140 | 29 | 360 | -1 | -1 | -0.5 | -1 | 0.660 | 1.70 | 0.00 | |
| 19 | 16866 | 204 | 90-94 | 11 | 1200 | 140 | 28 | 370 | -1 | 3 | -0.5 | -1 | 0.610 | 1.70 | 0.00 | |
| 20 | 16872 | 211 | 40-45 | 11 | 530 | 130 | 88 | 300 | -1 | 13 | -0.5 | 16 | 0.450 | 1.10 | 0.00 | |
| 21 | 16873 | 211 | 45-50 | 11 | 520 | 120 | 66 | 220 | -1 | 7 | -0.5 | 16 | 0.360 | 1.00 | 0.00 | |
| 22 | 16874 | 211 | 50-55 | 11 | 560 | 100 | 65 | 220 | -1 | 13 | -0.5 | 12 | 0.480 | 1.70 | 0.00 | |
| 23 | 16885 | 209 | 85-95 | 13 | 1600 | 150 | 41 | 320 | -1 | -1 | -0.5 | 8 | 0.580 | 1.70 | 0.00 | |
| 24 | 16886 | 209 | 95-100 | 13 | 1900 | 170 | 34 | 350 | -1 | -1 | -0.5 | 4 | 0.550 | 1.70 | 0.00 | |
| 25 | 16887 | 209 | 100-105 | 11 | 1300 | 160 | 44 | 300 | -1 | 2 | -0.5 | 10 | 0.650 | 1.70 | 0.00 | |
| 26 | 16900 | 108 | 84-89 | 21 | 1100 | 150 | 24 | 200 | -1 | 4 | -0.5 | -1 | 0.410 | 1.30 | 0.00 | |
| 27 | 16903 | 108 | 100.5-111 | 11 | 1800 | 230 | 45 | 260 | -1 | -1 | -0.5 | -1 | 1.300 | 1.70 | 0.00 | |
| 28 | 16905 | 108 | 111-121 | 11 | 1800 | 270 | 78 | 280 | -1 | 2 | -0.5 | -1 | 1.300 | 1.70 | 0.00 | |
| 29 | 16906 | 108 | 121-126 | 11 | 1700 | 260 | 37 | 310 | -1 | 1 | -0.5 | -1 | 1.600 | 1.70 | 0.00 | |
| 30 | 16907 | 108 | 126-131.5 | 13 | 1100 | 310 | 120 | 270 | -1 | 3 | -0.5 | -1 | 1.700 | 1.70 | 0.00 | |
| 31 | 16912 | 103 | 80-91 | 21 | 980 | 180 | 21 | 200 | -1 | -1 | -0.5 | -1 | 1.400 | 1.60 | 0.00 | |
| 32 | 16915 | 103 | 118-119.5 | 26 | 1000 | 150 | 51 | 190 | -1 | -1 | -0.5 | -1 | 1.700 | 1.70 | 0.00 | |
| 33 | 16916 | 103 | 119.5-122 | 11 | 1200 | 150 | 28 | 200 | -1 | 2 | -0.5 | -1 | 1.600 | 1.70 | 0.00 | |
| 34 | 16923 | 206 | 75-82.5 | 21 | 1100 | 170 | 37 | 290 | -1 | 2 | -0.5 | 4 | 1.700 | 1.70 | 0.00 | SII(-63)=75-82.5 |
| 35 | 16958 | 106 | 77-82 | 21 | 1200 | 120 | 24 | 200 | -1 | 8 | -0.5 | -1 | 1.200 | 1.30 | 0.00 | |
| 36 | 16961 | 106 | 98.5-102 | 11 | 1500 | 160 | 38 | 170 | -1 | 7 | -0.5 | -1 | 1.200 | 1.60 | 0.00 | |
| 37 | 16962 | 106 | 102-107 | 11 | 1500 | 140 | 26 | 130 | -1 | 3 | -0.5 | -1 | 1.500 | 1.60 | 0.00 | |
| 38 | 16982 | 107 | 95-105 | 14 | 1000 | 110 | 26 | 340 | -1 | -1 | 0.5 | 13 | 1.000 | 5.30 | 0.00 | |
| 39 | 16984 | 107 | 105-115 | 14 | 1300 | 130 | 30 | 380 | -1 | -1 | 0.5 | 18 | 0.880 | 5.80 | 0.00 | |
| 40 | 16986 | 107 | 115-125 | 14 | 1300 | 130 | 24 | 410 | -1 | -1 | 0.5 | 14 | 0.880 | 5.50 | 0.00 | |
| 41 | 16988 | 107 | 125-132 | 15 | 1500 | 130 | 21 | 460 | -1 | -1 | -0.5 | 16 | 1.100 | 6.00 | 0.00 | |
| 42 | 16989 | 107 | 132-137 | 14 | 1400 | 130 | 22 | 390 | -1 | -1 | 0.5 | 16 | 0.860 | 5.30 | 0.00 | |
| 43 | 16994 | 110 | 20-27.5 | 21 | 1300 | 160 | 90 | 230 | -1 | 68 | -0.5 | -1 | 1.300 | 1.60 | 0.00 | SII(-63)=20-27.5 |
| 44 | 16998 | 110 | 42-47 | 11 | 750 | 110 | 27 | 230 | -1 | 3 | -0.5 | -1 | 1.400 | 1.70 | 0.00 | |
| 45 | 16999 | 110 | 47-52 | 11 | 780 | 110 | 27 | 220 | -1 | 12 | -0.5 | -1 | 1.200 | 1.70 | 0.00 | |
| 46 | 17010 | 105 | 55 | 14 | 1100 | 140 | 30 | 410 | -1 | -1 | -0.5 | 14 | 1.600 | 6.50 | 0.00 | SLUFF MAT'L |
| 47 | 17017 | 210 | 30-40 | 13 | 1500 | 370 | 240 | 200 | -1 | -1 | -0.5 | 2 | 1.100 | 1.70 | 0.00 | |
| 48 | 17019 | 210 | 45-48 | 13 | 1600 | 450 | 300 | 190 | 1 | -1 | -0.5 | 2 | 1.500 | 1.70 | 0.00 | |
| 49 | 17030 | 207 | 93.5-97.5 | 15 | 1400 | 200 | 37 | 150 | -1 | -1 | -0.5 | 14 | 1.700 | 1.30 | 0.00 | |
| 50 | 17031 | 207 | 97.5-102 | 11 | 1700 | 220 | 39 | 120 | -1 | -1 | -0.5 | 10 | 1.700 | 1.10 | 0.00 | |
| 51 | 17032 | 207 | 102-107 | 11 | 1700 | 230 | 47 | 110 | -1 | -1 | -0.5 | 10 | 1.700 | 1.10 | 0.00 | |
| 52 | 17033 | 207 | 107-109 | 13 | 1500 | 230 | 83 | 110 | -1 | 2 | -0.5 | 6 | 1.700 | 0.92 | 0.00 | |
| 53 | 17037 | 102 | 40-50 | 21 | 1500 | 110 | 15 | 200 | -1 | -1 | -0.5 | 12 | 0.830 | 2.30 | 0.00 | SII(-63)=40-50 |
| 54 | 17043 | 102 | 105-115 | 21 | 1300 | 150 | 15 | 200 | -1 | -1 | -0.5 | 11 | 0.710 | 2.00 | 0.00 | SII(-63)=105-115 |
| 55 | 17050 | 102 | 145-150 | 21 | 1400 | 230 | 13 | 210 | -1 | -1 | 0.5 | 19 | 0.500 | 2.00 | 0.00 | |
| 56 | 17053 | 102 | 160-165 | 11 | 1000 | 160 | 24 | 330 | -1 | -1 | -0.5 | -1 | 1.700 | 1.70 | 0.00 | |
| 57 | 17054 | 102 | 165-170 | 14 | 1200 | 170 | 20 | 370 | -1 | -1 | -0.5 | -1 | 1.200 | 1.70 | 0.00 | |
| 58 | 17055 | 102 | 170-175 | 14 | 1100 | 170 | 19 | 380 | -1 | 1 | -0.5 | -1 | 1.300 | 1.70 | 0.00 | |
| 59 | 17068 | 104 | 60-69 | 21 | 1300 | 100 | 17 | 200 | -1 | -1 | -0.5 | 11 | 0.760 | 2.00 | 0.00 | |
| 60 | 17069 | 104 | 69.5-73 | 21 | 67 | 220 | 30 | 320 | -1 | -1 | -0.5 | -1 | 1.100 | 1.70 | 0.00 | |
| 61 | 17070 | 104 | 73-77.5 | 21 | 800 | 310 | 27 | 210 | -1 | -1 | -0.5 | -1 | 1.700 | 1.70 | 0.00 | |
| 62 | 17072 | 104 | 81-84 | 10 | 1100 | 170 | 31 | 300 | -1 | -1 | -0.5 | -1 | 1.700 | 1.70 | 0.00 | |
| 63 | 17073 | 104 | 84-89 | 15 | 1000 | 150 | 27 | 270 | -1 | -1 | -0.5 | -1 | 1.700 | 1.70 | 0.00 | |
| 64 | 17557 | | 0-1.5 | 11 | 1900 | 119 | 40 | 310 | -5 | 1 | -0.5 | 253 | 0.633 | 4.76 | 0.00 | SURF SAMP |
| 65 | 17558 | | 0-1.5 | 11 | 3200 | 201 | 38 | 783 | -5 | 1 | -0.5 | 250 | 1.060 | 9.43 | 0.00 | SURF SAMP |
| 66 | 18603 | 20804 | 84-89 | 13 | 1300 | 230 | 73 | 340 | -1 | 19 | 3.0 | 16 | 0.810 | 3.80 | 0.00 | |
| 67 | 18605 | 20801 | 52-62 | 13 | 2200 | 580 | 130 | 290 | 1 | 94 | 2.0 | 4 | 1.300 | 2.70 | 0.00 | |
| 68 | 18605R | 20801 | 52-62 | 13 | 2300 | 230 | 120 | 290 | 0 | 35 | -0.5 | 8 | 0.945 | 2.50 | 5.80 | |
| 69 | 18606 | 20801 | 62-72 | 13 | 2500 | 440 | 88 | 370 | -1 | 82 | 3.0 | 8 | 0.990 | 3.50 | 0.00 | |
| 70 | 18606R | 20801 | 62-72 | 13 | 3000 | 170 | 79 | 440 | 0 | 26 | -0.5 | 8 | 0.680 | 3.00 | 4.80 | |
| 71 | 18607 | 20801 | 72-82 | 13 | 1900 | 160 | 75 | 410 | 0 | 21 | -0.5 | 14 | 0.730 | 3.50 | 4.20 | |
| 72 | 18608 | 20801 | 82-92 | 13 | 1700 | 160 | 70 | 410 | 0 | 18 | -0.5 | 12 | 0.531 | 3.50 | 3.40 | |
| 73 | 18609 | 20801 | 92-102 | 13 | 2100 | 420 | 74 | 370 | 1 | 71 | 3.0 | 10 | 1.000 | 4.00 | 0.00 | |
| 74 | 18609R | 20801 | 92-102 | 13 | 2100 | 150 | 64 | 290 | 0 | 17 | -0.5 | 12 | 0.514 | 3.34 | 6.10 | |
| 75 | 18610 | 20801 | 102-112 | 13 | 2500 | 240 | 130 | 340 | 0 | 66 | -0.5 | 12 | 0.763 | 2.84 | 15.00 | |
| 76 | 18611 | 20801 | 112-122 | 13 | 1900 | 350 | 110 | 280 | -1 | 49 | -0.5 | 48 | 0.960 | 3.00 | 0.00 | |
| 77 | 18612 | 20801 | 122-137 | 13 | 2300 | 330 | 87 | 350 | 2 | 56 | 2.5 | 16 | 0.900 | 3.20 | 0.00 | |
| 78 | 18612R | 20801 | 122-137 | 13 | 2500 | 210 | 90 | 380 | 1 | 37 | -0.5 | 22 | 0.464 | 2.84 | 30.00 | |
| 79 | 18615 | 20902 | 15-20 | 13 | 2100 | 900 | 120 | 290 | -1 | 190 | 2.0 | 6 | 1.100 | 2.70 | 0.00 | |
| 80 | 18618 | 20906 | 25-29.5 | 13 | 1900 | 150 | 63 | 350 | 1 | -1 | 2.0 | 14 | 0.780 | 3.00 | 0.00 | |
| 81 | 18622 | 20704 | 84-94 | 13 | 1200 | 290 | 74 | 230 | -1 | 43 | 1.5 | 10 | 1.300 | 2.50 | 0.00 | |
| 82 | 18628 | 20702 | 112-122 | 14 | 1500 | 520 | 65 | 480 | -1 | 48 | 6.5 | 12 | 1.000 | 6.70 | 0.00 | |
| 83 | 18634 | 20803 | 106-116 | 10 | 2500 | 180 | 42 | 440 | -1 | 4 | 4.0 | 10 | 1.200 | 4.30 | 0.00 | |
| 84 | 18638 | 20901 | 48-58 | 14 | 2200 | 220 | 66 | 350 | 0 | 12 | -0.5 | 8 | 0.381 | 2.67 | 2.50 | |
| 85 | 18639 | 20901 | 58-61 | 14 | 1500 | 560 | 92 | 310 | -1 | 98 | 3.0 | 10 | 0.880 | 3.20 | 0.00 | |
| 86 | 18639R | 20901 | 58-61 | 14 | 1400 | 190 | 61 | 290 | 0 | 23 | -0.5 | 14 | 0.531 | 3.17 | 2.10 | |
| 87 | 18643 | 20603 | 176-186 | 13 | 1200 | 420 | 110 | 160 | -1 | 68 | -0.5 | 6 | 2.000 | 1.30 | 0.00 | |
| 88 | 18646 | 20402 | 48-58 | 14 | 1300 | 1700 | 200 | 270 | -1 | 179 | -0.5 | 28 | 1.300 | 4.30 | 0.00 | |
| 89 | 18651 | 20401 | 109-112 | 13 | 1300 | 760 | 350 | 320 | -1 | 119 | -0.5 | 34 | 1.200 | 4.80 | 0.00 | |
| 90 | 18656 | 20601 | 131-138 | 13 | 1100 | 180 | 76 | 230 | -1 | 13 | -0.5 | 63 | 0.900 | 3.80 | 0.00 | REDRILLED |
| 91 | 18660 | 20904 | 110-117.5 | 13 | 1100 | 220 | 160 | 170 | -1 | 73 | -0.5 | 49 | 1.100 | 2.30 | 0.00 | |
| 92 | 18663 | 20405 | 100-105.75 | 13 | 1000 | 200 | 51 | 360 | -1 | 34 | -0.5 | 19 | 1.400 | 6.20 | 0.00 | |
| 93 | 18672 | 20502 | 198-203 | 15 | 2900 | 460 | 240 | 180 | -1 | 730 | -0.5 | 19 | 1.100 | 3.20 | 0.00 | |
| 94 | 18676 | 21002 | 106-116 | 13 | 1400 | 330 | 91 | 190 | -1 | 52 | -0.5 | 34 | 0.910 | 2.20 | 0.00 | |
| 95 | 18680 | 21005 | 50-60 | 10 | 1300 | 570 | 140 | 200 | -1 | 83 | -0.5 | 30 | 0.830 | 2.50 | 0.00 | |
| 96 | 18688 | 20100 | 176-186 | 10 | 1100 | 190 | 47 | 270 | -1 | 16 | -0.5 | 39 | 1.100 | 4.70 | 0.00 | |
| 97 | 18692 | 20100 | 216-226 | 10 | 1200 | 840 | 79 | 320 | -1 | 84 | -0.5 | 24 | 1.100 | 5.80 | 0.00 | |
| 98 | 18693 | 20100 | 226-232 | 13 | 1200 | 630 | 79 | 340 | -1 | 105 | -0.5 | 18 | 0.930 | 6.00 | 0.00 | |
| 99 | 18696 | 20104 | 106-116 | 10 | 1100 | 120 | 35 | 220 | -1 | 5 | -0.5 | 29 | 1.100 | 4.20 | 0.00 | |
| 100 | 18698 | 20104 | 131-146 | 13 | 940 | 710 | 100 | 230 | -1 | 71 | -0.5 | 33 | 0.990 | 5.20 | 0.00 | |
| 101 | 18706 | 20101 | 147-167 | 10 | 1000 | 270 | 59 | 380 | -1 | 79 | -0.5 | 28 | 1.000 | 5.80 | 0.00 | |
| 102 | 18709 | 20303 | 51-55 | 16 | 2000 | 740 | 120 | 220 | -1 | 62 | -0.5 | 21 | 2.000 | 5.30 | 0.00 | |
| 103 | 18714 | 20204 | 167-172 | 13 | 800 | 150 | 77 | 290 | -1 | 18 | -0.5 | 22 | 1.200 | 5.00 | 0.00 | |
| 104 | 18717 | 20201 | 59-66 | 13 | 1500 | 250 | 86 | 300 | -1 | 34 | -0.5 | 32 | 1.200 | 4.20 | 0.00 | |
| 105 | 18723 | 20200 | 91-101 | 10 | 830 | 300 | 73 | 320 | -1 | 53 | -0.5 | 29 | 1.200 | 4.30 | 0.00 | |
| 106 | 18724 | 20200 | 101-109 | 10 | 620 | 2800 | 87 | 200 | -1 | 231 | -0.5 | 22 | 0.910 | 2.80 | 0.00 | |
| 107 | 18730 | 20705 | 99-109 | 13 | 1400 | 320 | 36 | 330 | -1 | 23 | -0.5 | 29 | 1.400 | 4.50 | 0.00 | |
| 108 | 18763 | 10501 | 62-71 | 13 | 2393 | 194 | 30 | 383 | 2 | 3 | -0.5 | 233 | 0.926 | 7.59 | 0.00 | REDRILLED |
| 109 | 18765 | 10501 | 71-81 | 11 | 2777 | 196 | 18 | 355 | 1 | 6 | -0.5 | 262 | 0.550 | 8.09 | 0.00 | |
| 110 | 18771 | 10704 | 102-106 | 15 | 3223 | 197 | 14 | 406 | 2 | 3 | -0.5 | 360 | 0.328 | 6.74 | 0.00 | |
| 111 | 18776 | 10401 | 146-157 | 15 | 3098 | 175 | 23 | 319 | -1 | 3 | -0.5 | 329 | 0.519 | 5.95 | 0.00 | |
| 112 | 18783 | 10401 | 167-177 | 11 | 2455 | 160 | 31 | 325 | -1 | 3 | -0.5 | 236 | 0.718 | 7.89 | 0.00 | |
| 113 | 18784 | 10401 | 177-181 | 11 | 0 | 244 | 134 | 171 | 0 | 22 | -0.5 | 362 | 0.445 | 0.00 | 0.00 | |
| 114 | 18797 | 10700 | 108-118 | 15 | 2785 | 150 | 12 | 361 | -1 | 2 | -0.5 | 340 | 0.466 | 8.99 | 0.00 | |
| 115 | 18799 | 10700 | 118-128 | 15 | 2948 | 162 | 11 | 385 | -1 | 3 | -0.5 | 324 | 0.481 | 8.11 | 0.00 | |
| 116 | 18808 | 10602 | 62-68 | 11 | 2790 | 252 | 49 | 382 | -1 | 3 | -0.5 | 289 | 0.653 | 7.72 | 0.00 | |
| 117 | 18812 | 10303 | 115-118 | 11 | 1530 | 1210 | 532 | 181 | 1 | 150 | 0.6 | 244 | 1.500 | 3.84 | 0.00 | |
| 118 | 18814 | 10304 | 133-137 | 11 | 2131 | 312 | 79 | 233 | -1 | 42 | -0.5 | 252 | 0.612 | 6.26 | 0.00 | |
| 119 | 18816 | 10603 | 95-100 | 11 | 1605 | 282 | 183 | 120 | -1 | 65 | -0.5 | 199 | 0.998 | 3.42 | 0.00 | |
| 120 | 18819 | 10601 | 35-45 | 11 | 2846 | 382 | 89 | 230 | -1 | 46 | -0.5 | 221 | 0.534 | 4.35 | 0.00 | |
| 121 | 18836 | 10503 | 60-70 | 12 | 2633 | 216 | 40 | 307 | 2 | 10 | -0.5 | 224 | 0.702 | 7.21 | 0.00 | |
| 122 | 18837 | 10503 | 70-72 | 12 | 2016 | 185 | 45 | 231 | -1 | 7 | -0.5 | 197 | 1.110 | 6.26 | 0.00 | |
| 123 | 18845 | 10901 | 133-135 | 13 | 1974 | 170 | 86 | 306 | -5 | 4 | -0.5 | 255 | 0.567 | 3.20 | 0.00 | |
| 124 | 18847 | 10902 | 56-57.5 | 11 | 677 | 56 | 32 | 243 | -5 | -1 | -0.5 | 260 | 0.326 | 2.93 | 0.00 | |
| 125 | 18849 | 11102 | 35-38 | 11 | 1032 | 114 | 100 | 238 | -5 | 2 | -0.5 | 264 | 0.286 | 1.91 | 0.00 | |
| 126 | 18852 | 11006 | 44-46 | 11 | 1755 | 218 | 98 | 370 | -5 | 3 | -0.5 | 244 | 0.601 | 5.54 | 0.00 | |
| 127 | 18854 | 10403 | 94-99 | 11 | 1852 | 540 | 428 | 306 | -5 | 18 | -0.5 | 247 | 1.350 | 3.85 | 0.00 | |
| 128 | 18863 | 10202 | 122-132 | 13 | 1791 | 145 | 28 | 418 | -5 | 3 | -0.5 | 233 | 0.599 | 5.93 | 0.00 | |
| 129 | 18869 | 10202 | 152-162 | 13 | 1656 | 142 | 26 | 430 | -5 | 2 | -0.5 | 227 | 0.712 | 6.66 | 0.00 | |
| 130 | 18873 | 10102 | 133-137.5 | 13 | 2721 | 194 | 54 | 369 | -5 | 16 | -0.5 | 266 | 0.383 | 4.10 | 0.00 | |
| 131 | 18879 | 10105 | 172-177 | 13 | 1748 | 183 | 90 | 270 | -5 | 18 | -0.5 | 240 | 0.906 | 4.68 | 0.00 | |
| 132 | 18881 | 10105 | 177-190 | 13 | 1668 | 129 | 40 | 296 | -5 | 4 | -0.5 | 228 | 0.721 | 4.75 | 0.00 | |
| 133 | 18882 | 10202 | 162-167 | 13 | 1008 | 157 | 120 | 298 | -5 | 7 | -0.5 | 253 | 0.429 | 4.65 | 0.00 | |

## APPENDIX 9-8A.

List of All -63 um Sample Assays by Drill Hole. S.N. = sample number; DH = drill hole; SI = sample interval (see Appendix 8-1 for detailed sample information).

| S.NL | DH | SI | DM | GL | DT | AU | V | CR | MN | FEX | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | MV4 | RM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16929 | 101 | 15-20 | S | L | 21 | -2 | 120 | 89 | 560 | 3.5 | 20 | 39 | 25 | 77 | 7 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | -1 | 20 | -1 | 3 | 36.5 | |
| 16931 | 101 | 40-45 | S | L | 21 | 1 | 120 | 83 | 580 | 3.2 | 19 | 34 | 22 | 86 | 9 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | -1 | 17 | -1 | 3 | 88.5 | |
| 16935 | 101 | 70-75 | S | L | 21 | 1 | 110 | 76 | 590 | 3.2 | 18 | 33 | 21 | 77 | 9 | 2 | 3 | -0.5 | -1 | 1 | -1 | -1 | -1 | 16 | -1 | 3 | 25.4 | SI[-63]=65-75 |
| 16940 | 101 | 95-97.5 | S | L | 21 | -1 | 130 | 82 | 650 | 3.4 | 20 | 37 | 24 | 87 | 9 | 1 | 4 | -0.5 | -1 | 1 | -1 | -1 | 1 | 17 | -1 | 4 | 42.6 | |
| 16941 | 101 | 97.5-102.5 | S | L | 21 | 1 | 130 | 80 | 660 | 3.5 | 20 | 37 | 24 | 88 | 9 | -1 | 4 | -0.5 | -1 | 1 | -1 | -1 | -1 | 16 | -1 | 3 | 31.4 | |
| 13830R | 101 | 97.5-102.5 | S | L | 21 | -1 | 130 | 79 | 550 | 3.0 | 17 | 33 | 22 | 79 | 9 | 2 | 3 | -0.5 | 1 | 8 | -1 | -1 | 1 | 13 | -1 | 3 | 39.9 | |
| 16942 | 101 | 102.5-107.5 | S | L | 21 | -1 | 130 | 83 | 650 | 3.5 | 21 | 35 | 23 | 88 | 9 | 2 | 4 | -0.5 | -1 | 1 | -1 | -1 | 1 | 19 | -1 | 3 | 38.7 | |
| 16944 | 101 | 112.5-117.5 | S | L | 27 | -1 | 120 | 120 | 590 | 3.6 | 23 | 42 | 25 | 79 | 5 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 19 | -1 | 2 | 24.2 | SI[-63]=107.5-117.5 |
| 16945 | 101 | 117.5-123 | S | L | 25 | -1 | 92 | 110 | 500 | 3.3 | 23 | 37 | 25 | 54 | 5 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | -1 | 15 | -1 | -1 | 26.5 | |
| 16946 | 101 | 123-126 | S | L | 21 | -1 | 120 | 150 | 640 | 4.4 | 28 | 57 | 38 | 83 | 4 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | 2 | 19 | -1 | 2 | 75.4 | AF OVERLAPS RAINY |
| 13850 | 101 | 125-126 | S | L | 11 | -1 | 150 | 170 | 560 | 4.3 | 25 | 58 | 38 | 91 | 5 | -1 | 2 | -0.5 | -1 | 5 | -1 | -1 | 2 | 13 | -1 | 2 | 72.6 | |
| 17035 | 102 | 25-30 | S | L | 21 | 0 | 0 | 51 | 0 | 0.0 | 0 | 0 | 0 | 69 | 6 | 1 | 2 | -0.5 | 1 | 1 | -1 | 0 | -1 | 0 | 0 | 0 | 14.9 | SI[-63]=20-30 |
| 17035R | 102 | 25-30 | S | L | 21 | -1 | 120 | 74 | 500 | 3.2 | 17 | 32 | 20 | 74 | 5 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | -1 | 13 | -1 | 2 | 0.0 | |
| 17037 | 102 | 45-50 | S | L | 21 | -1 | 120 | 81 | 560 | 3.3 | 19 | 35 | 21 | 83 | 7 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | -1 | 15 | -1 | 3 | 23.1 | SI[-63]=40-50 |
| 17041 | 102 | 85-90 | S | L | 21 | -1 | 120 | 79 | 590 | 3.3 | 19 | 35 | 22 | 82 | 7 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | -1 | 15 | -1 | 3 | 18.5 | SI[-63]=80-90 |
| 17043 | 102 | 110-115 | S | L | 21 | -1 | 120 | 82 | 560 | 3.1 | 18 | 33 | 20 | 79 | 6 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | -1 | 15 | -1 | 3 | 14.0 | SI[-63]=105-115 |
| 17048 | 102 | 135-140 | S | L | 21 | -1 | 130 | 87 | 630 | 3.5 | 20 | 37 | 23 | 79 | 7 | 1 | 3 | -0.5 | -1 | 2 | -1 | -1 | -1 | 19 | -1 | 3 | 40.9 | |
| 17049 | 102 | 140-145 | S | L | 21 | -1 | 140 | 84 | 640 | 3.7 | 20 | 38 | 24 | 87 | 8 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | -1 | 16 | -1 | 3 | 36.1 | |
| 17050 | 102 | 145-150 | S | L | 21 | 2 | 130 | 82 | 660 | 3.6 | 21 | 39 | 25 | 87 | 6 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | -1 | 19 | -1 | 3 | 64.0 | |
| 17051 | 102 | 150-155 | S | L | 21 | 1 | 140 | 89 | 660 | 3.7 | 21 | 40 | 25 | 92 | 6 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | -1 | 15 | -1 | 3 | 59.4 | |
| 13831R | 102 | 150-155 | S | L | 21 | -1 | 140 | 91 | 570 | 3.2 | 18 | 38 | 26 | 90 | 9 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | 1 | 14 | -1 | 3 | 41.8 | |
| 17052 | 102 | 155-157 | S | L | 21 | -1 | 140 | 90 | 640 | 3.7 | 21 | 41 | 26 | 89 | 6 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | 1 | 25 | -1 | 3 | 55.4 | |
| 17053 | 102 | 160-165 | S | L | 11 | 15 | 71 | 89 | 520 | 3.4 | 21 | 33 | 18 | 51 | 3 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | 8 | 15 | -1 | 1 | 44.9 | |
| 17054 | 102 | 165-170 | S | L | 14 | 12 | 65 | 69 | 440 | 2.6 | 16 | 23 | 9 | 34 | 2 | -1 | 1 | -0.5 | -1 | 1 | -1 | -1 | 2 | 14 | -1 | 1 | 33.8 | |
| 17055 | 102 | 170-175 | S | L | 14 | 6 | 65 | 67 | 390 | 2.4 | 15 | 22 | 12 | 30 | 2 | -1 | 1 | -0.5 | -1 | -1 | -1 | -1 | 2 | 11 | -1 | -1 | 51.6 | |
| 13832R | 102 | 170-175 | S | L | 14 | -1 | 71 | 77 | 410 | 2.5 | 15 | 24 | 17 | 37 | 7 | -1 | 1 | -0.5 | -1 | 2 | -1 | -1 | 2 | 7 | -1 | -1 | 23.4 | |
| 17056 | 102 | 175-178.5 | S | L | 10 | 6 | 67 | 61 | 400 | 2.6 | 16 | 25 | 11 | 33 | 2 | -1 | 1 | -0.5 | -1 | -1 | -1 | -1 | 2 | 12 | -1 | -1 | 58.3 | |
| 17057 | 102 | 178.5-183 | S | L | 14 | -1 | 72 | 79 | 410 | 2.7 | 17 | 25 | 12 | 38 | 2 | -1 | 1 | -0.5 | -1 | 1 | -1 | -1 | 2 | 11 | -1 | 1 | 53.8 | |
| 16910 | 103 | 75-80 | S | L | 21 | -1 | 130 | 91 | 610 | 3.7 | 21 | 39 | 24 | 80 | 25 | -1 | 3 | -0.5 | 16 | 1 | -1 | -1 | -1 | 18 | -1 | 3 | 45.3 | SI[-63]=70-80 |
| 16910R | 103 | 75-80 | S | L | 21 | 0 | 0 | 58 | 0 | 0.0 | 0 | 0 | 0 | 74 | 6 | -1 | 3 | -0.5 | 1 | 2 | 2 | 0 | -1 | 0 | 0 | 0 | 0.0 | |
| 16911 | 103 | 80-85 | S | L | 21 | -1 | 140 | 92 | 550 | 3.6 | 20 | 39 | 23 | 82 | 5 | -1 | 4 | -0.5 | 1 | 2 | 1 | -1 | 1 | 18 | -1 | 3 | 37.5 | |
| 13833R | 103 | 80-85 | S | L | 21 | 2 | 140 | 90 | 480 | 3.2 | 17 | 36 | 23 | 81 | 5 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | -1 | 12 | -1 | 3 | 74.3 | |
| 16912 | 103 | 85-91 | S | L | 21 | -1 | 150 | 94 | 570 | 3.8 | 21 | 41 | 26 | 90 | 11 | -1 | 4 | -0.5 | 1 | 2 | -1 | -1 | 1 | 19 | -1 | 4 | 44.4 | |
| 16913 | 103 | 100-105 | S | L | 27 | -1 | 190 | 120 | 640 | 1.6 | 26 | 52 | 33 | 120 | 12 | 1 | 4 | -0.5 | 1 | 2 | -1 | -1 | 1 | 22 | -1 | 4 | 60.2 | |
| 16914 | 103 | 105-110 | S | L | 27 | 1 | 160 | 120 | 700 | 4.5 | 26 | 52 | 33 | 110 | 8 | -1 | 3 | -0.5 | 1 | 2 | -1 | -1 | 1 | 22 | -1 | 4 | 52.1 | |
| 16915 | 103 | 118-119.5 | S | L | 26 | 1 | 77 | 120 | 530 | 3.3 | 21 | 38 | 22 | 56 | 5 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 15 | -1 | -1 | 91.2 | |
| 16916 | 103 | 119.5-122 | S | L | 11 | -1 | 74 | 100 | 530 | 3.3 | 23 | 34 | 20 | 49 | 5 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | 6 | 17 | -1 | 2 | 77.2 | |
| 17059 | 104 | 15-20 | S | L | 21 | 1 | 150 | 78 | 580 | 3.4 | 20 | 38 | 23 | 83 | 5 | -1 | 4 | -0.5 | -1 | 2 | 1 | -1 | 1 | 16 | -1 | 3 | 34.8 | |
| 17060 | 104 | 20-25 | S | L | 21 | 1 | 120 | 76 | 540 | 3.3 | 18 | 35 | 20 | 73 | 5 | -1 | 4 | -0.5 | -1 | 2 | 1 | -1 | 1 | 14 | -1 | 3 | 22.5 | |
| 17062 | 104 | 30.5-34 | S | L | 27 | 1 | 130 | 110 | 620 | 3.6 | 22 | 44 | 26 | 91 | 4 | -1 | 5 | -0.5 | 1 | 3 | 5 | -1 | 1 | 18 | -1 | 3 | 20.9 | SI[-63]=25.5-34 |
| 17062R | 104 | 30.5-34 | S | L | 27 | 0 | 0 | 83 | 0 | 0.0 | 0 | 0 | 0 | 85 | 5 | -1 | 2 | -0.5 | 1 | 1 | -1 | 0 | -1 | 0 | 0 | 0 | 0.0 | |
| 17064 | 104 | 45-50 | S | L | 21 | -1 | 160 | 90 | 650 | 3.8 | 21 | 42 | 27 | 90 | 7 | -1 | 5 | -0.5 | -1 | 3 | 1 | -1 | 1 | 19 | -1 | 4 | 23.7 | SI[-63]=40-50 |
| 17066 | 104 | 55-60 | S | L | 21 | -1 | 170 | 96 | 610 | 3.8 | 22 | 47 | 27 | 100 | 7 | -1 | 5 | -0.5 | -1 | 3 | 1 | -1 | 2 | 18 | -1 | 3 | 25.5 | |
| 17067 | 104 | 60-65 | S | L | 21 | 1 | 170 | 89 | 630 | 3.9 | 22 | 45 | 28 | 100 | 7 | 1 | 5 | -0.5 | 1 | 3 | -1 | -1 | -1 | 3 | -1 | -1 | 28.8 | |
| 13834R | 104 | 60-65 | S | L | 21 | -1 | 150 | 100 | 580 | 3.6 | 20 | 42 | 28 | 100 | 7 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | 1 | 16 | -1 | 3 | 21.8 | |
| 17068 | 104 | 65-69 | S | L | 21 | 2 | 150 | 88 | 660 | 4.0 | 23 | 45 | 28 | 98 | 7 | -1 | 5 | -0.5 | 1 | 3 | 2 | -1 | 1 | 19 | -1 | 3 | 32.4 | |
| 17069 | 104 | 69.5-73 | S | L | 21 | -1 | 140 | 69 | 640 | 3.8 | 21 | 43 | 27 | 95 | 5 | -1 | 6 | -0.5 | 1 | 3 | 2 | -1 | 1 | 17 | -1 | 3 | 50.3 | |
| 17069R | 104 | 69.5-73 | S | L | 21 | 0 | 0 | 73 | 0 | 0.0 | 0 | 0 | 0 | 92 | 7 | 1 | 3 | -0.5 | 1 | 1 | -1 | 0 | 1 | 0 | 0 | 0 | 0.0 | |
| 17070 | 104 | 73-77.5 | S | L | 21 | 2 | 140 | 88 | 630 | 3.8 | 21 | 44 | 27 | 110 | 6 | -1 | 6 | -0.5 | 1 | 3 | 3 | -1 | 2 | 16 | -1 | 3 | 35.4 | |
| 17071 | 104 | 77.5-81 | S | L | 27 | 1 | 120 | 100 | 590 | 3.7 | 21 | 46 | 26 | 88 | 4 | -1 | 6 | -0.5 | -1 | 3 | 1 | -1 | 1 | 18 | -1 | 3 | 53.9 | |
| 17072 | 104 | 81-84 | S | L | 10 | 1 | 98 | 92 | 530 | 3.4 | 20 | 39 | 21 | 69 | 3 | -1 | 5 | -0.5 | 1 | 2 | 1 | -1 | 2 | 17 | -1 | 3 | 69.8 | |
| 17073 | 104 | 84-89 | S | L | 15 | 2 | 87 | 97 | 470 | 3.2 | 20 | 36 | 20 | 60 | 3 | -1 | 5 | -0.5 | 1 | 2 | 1 | -1 | 5 | 18 | -1 | 3 | 27.4 | |
| 13835R | 104 | 84-89 | S | L | 15 | -1 | 99 | 110 | 530 | 3.4 | 22 | 41 | 28 | 65 | 3 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | 5 | 14 | -1 | 2 | 36.2 | |
| 17000 | 105 | 10.5-15 | S | L | 24 | 6 | 90 | 98 | 540 | 3.5 | 21 | 39 | 29 | 71 | 4 | -1 | 4 | -0.5 | -1 | 2 | 1 | -1 | 5 | 21 | -1 | 2 | 45.2 | |
| 17001 | 105 | 15-18 | S | L | 21 | -1 | 130 | 88 | 550 | 3.3 | 19 | 40 | 27 | 120 | 5 | -1 | 4 | -0.5 | 1 | 2 | 1 | -1 | 3 | 22 | -1 | 3 | 48.4 | |
| 17003 | 105 | 25-30 | S | L | 14 | -1 | 75 | 95 | 300 | 3.1 | 21 | 30 | 20 | 65 | 2 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | 2 | 18 | -1 | 1 | 24.0 | SI[-63]=20-30 |
| 17005 | 105 | 35-41 | S | L | 14 | -1 | 90 | 120 | 370 | 4.0 | 25 | 45 | 43 | 170 | 4 | -1 | 6 | -0.5 | 1 | 2 | 1 | -1 | 3 | 26 | -1 | 1 | 13.4 | SI[-63]=30-41 |
| 17006 | 105 | 41-46 | S | L | 14 | -1 | 100 | 130 | 520 | 4.8 | 37 | 65 | 76 | 550 | 5 | -1 | 9 | -0.5 | -1 | 2 | -1 | -1 | 3 | 26 | -1 | 2 | 31.5 | |
| 17006R | 105 | 41-46 | S | L | 14 | 0 | 0 | 120 | 0 | 0.0 | 0 | 0 | 0 | 560 | 7 | 2 | 9 | -0.5 | -1 | 1 | -1 | 0 | 2 | 0 | 0 | 0 | 0.0 | |
| 17007 | 105 | 46-51 | S | L | 14 | -1 | 63 | 81 | 440 | 2.4 | 17 | 27 | 15 | 31 | 2 | -1 | -1 | -0.5 | -1 | -1 | -1 | -1 | -1 | 11 | -1 | -1 | 51.6 | |
| 17008 | 105 | 51-56 | S | L | 14 | -1 | 64 | 84 | 450 | 2.5 | 17 | 27 | 15 | 32 | 2 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | 1 | 12 | -1 | -1 | 48.9 | |
| 17009 | 105 | 55 | S | L | 18 | -1 | 78 | 130 | 470 | 3.3 | 22 | 40 | 44 | 270 | 4 | -1 | 12 | -0.5 | 1 | 2 | -1 | -1 | 3 | 15 | -1 | -1 | 38.9 | SLUFF MAT'L |
| 17009R | 105 | 55 | S | L | 18 | 0 | 0 | 110 | 0 | 0.0 | 0 | 0 | 0 | 290 | 5 | 1 | 9 | -0.5 | 1 | 1 | -1 | 0 | 2 | 0 | 0 | 0 | 0.0 | |
| 17010 | 105 | 55 | S | L | 18 | -1 | 75 | 220 | 520 | 4.1 | 23 | 53 | 53 | 92 | 4 | 1 | 30 | -0.5 | -1 | 2 | -1 | -1 | 3 | 19 | -1 | -1 | 39.9 | SLUFF MAT'L |
| 17010R | 105 | 55 | S | L | 18 | 0 | 0 | 190 | 0 | 0.0 | 0 | 0 | 0 | 110 | 5 | -1 | 22 | -0.5 | 1 | 2 | -1 | 0 | 3 | 0 | 0 | 0 | 0.0 | |
| 16947 | 106 | 14.5-19.5 | S | L | 24 | -2 | 73 | 68 | 940 | 2.8 | 15 | 25 | 21 | 79 | 7 | -1 | 3 | -0.5 | -1 | -1 | -1 | -1 | 1 | 21 | -1 | 3 | 24.4 | |
| 16949 | 106 | 35-40 | S | L | 21 | 1 | 150 | 96 | 640 | 3.9 | 23 | 42 | 28 | 93 | 5 | -1 | 4 | -0.5 | -1 | 2 | -1 | -1 | 1 | 21 | -1 | 4 | 25.1 | SI[-63]=30-40 |
| 16952 | 106 | 50-55 | S | L | 21 | -1 | 160 | 97 | 610 | 3.9 | 23 | 44 | 28 | 94 | 10 | -1 | 5 | -0.5 | -1 | 2 | 1 | -1 | 1 | 21 | -1 | 4 | 29.6 | SI[-63]=45-55 |
| 16954 | 106 | 60-65 | S | L | 21 | -1 | 160 | 96 | 560 | 3.6 | 21 | 40 | 26 | 93 | 9 | -1 | 5 | -0.5 | -1 | 2 | -1 | -1 | 1 | 21 | -1 | 4 | 36.3 | SI[-63]=55-65 |
| 16955 | 106 | 65-70 | S | L | 21 | 1 | 170 | 93 | 580 | 3.6 | 22 | 43 | 27 | 88 | 7 | -1 | 4 | -0.5 | 1 | 2 | -1 | -1 | 1 | 21 | -1 | 4 | 88.1 | |
| 13836R | 106 | 70-75 | S | L | 21 | -1 | 180 | 98 | 580 | 3.8 | 21 | 44 | 28 | 99 | 9 | 1 | 4 | -0.5 | -1 | 2 | -1 | -1 | 1 | 14 | -1 | 3 | 37.1 | |
| 16957 | 106 | 75-77 | S | L | 21 | -1 | 160 | 91 | 530 | 3.5 | 21 | 40 | 25 | 92 | 9 | -1 | 4 | -0.5 | 1 | 2 | -1 | -1 | 1 | 22 | -1 | 4 | 55.1 | SI[-63]=70-77 |
| 16958 | 106 | 77-82 | S | L | 21 | 2 | 120 | 77 | 540 | 3.0 | 18 | 35 | 21 | 77 | 5 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | 1 | 19 | -1 | 4 | 26.2 | |
| 16960 | 106 | 90-95 | S | L | 27 | -1 | 150 | 120 | 590 | 4.3 | 26 | 53 | 34 | 110 | 7 | -1 | 3 | -0.5 | 1 | 2 | -1 | -1 | 1 | 22 | -1 | 3 | 22.0 | SI[-63]=85-95 |
| 16961 | 106 | 98.5-102 | S | L | 11 | 4 | 81 | 110 | 500 | 3.2 | 22 | 39 | 23 | 48 | 4 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | 1 | 12 | -1 | -1 | 24.4 | |
| 16962 | 106 | 102-107 | S | L | 11 | 1 | 80 | 120 | 410 | 2.9 | 21 | 37 | 21 | 44 | 3 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | 5 | 11 | -1 | -1 | 56.4 | |
| 13837R | 106 | 102-107 | S | L | 11 | -1 | 83 | 120 | 520 | 3.3 | 22 | 39 | 23 | 47 | 3 | -1 | 1 | -0.5 | -1 | 1 | -1 | -1 | 3 | 9 | -1 | -1 | 49.0 | |
| 16973 | 107 | 45-48.5 | S | L | 21 | -1 | 120 | 66 | 460 | 2.9 | 17 | 32 | 20 | 70 | 5 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | -1 | 14 | -1 | 2 | 34.3 | SI[-63]=40-48.5 |
| 16975 | 107 | 65-70 | S | L | 14 | 4 | 140 | 110 | 560 | 3.9 | 24 | 48 | 35 | 97 | 5 | -1 | 3 | -0.5 | 1 | 2 | -1 | -1 | 2 | 21 | -1 | 2 | 15.0 | |
| 16977 | 107 | 75-80 | S | L | 14 | 3 | 170 | 110 | 600 | 4.1 | 24 | 48 | 32 | 100 | 7 | -1 | 4 | -0.5 | 1 | 2 | 1 | -1 | 1 | 19 | -1 | 3 | 22.8 | SI[-63]=70-80 |
| 16979 | 107 | 84-89 | S | L | 14 | -3 | 120 | 120 | 570 | 3.8 | 22 | 47 | 47 | 280 | 9 | 1 | 8 | -0.5 | 1 | 2 | 1 | -1 | 2 | 23 | -1 | 3 | 10.0 | SI[-63]=80-89 |
| 16980 | 107 | 90-95 | S | L | 14 | -7 | 88 | 110 | 530 | 3.8 | 24 | 46 | 43 | 240 | 5 | -1 | 5 | -0.5 | 1 | 1 | -1 | -1 | 2 | 16 | -1 | -1 | 6.8 | |
| 16981 | 107 | 95-100 | S | L | 14 | 1100 | 100 | 140 | 590 | 4.5 | 30 | 56 | 41 | 95 | 4 | -1 | 4 | -0.5 | 1 | 2 | -1 | -1 | 3 | 18 | -1 | -1 | 25.4 | |
| 16983 | 107 | 105-110 | S | L | 14 | 8 | 100 | 140 | 670 | 4.5 | 29 | 53 | 39 | 110 | 4 | -1 | 5 | -0.5 | -1 | 1 | -1 | -1 | 2 | 22 | -1 | -1 | 3.8 | SI[-63]=100-110 |
| 16985 | 107 | 115-120 | S | L | 14 | -5 | 110 | 180 | 810 | 5.0 | 35 | 69 | 37 | 89 | 3 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | 1 | 18 | -1 | -1 | 4.7 | SI[-63]=110-120 |
| 16987 | 107 | 125-127 | S | L | 15 | 15 | 140 | 180 | 800 | 5.7 | 38 | 54 | 39 | 110 | 7 | -1 | 5 | -0.5 | -1 | 2 | -1 | -1 | 2 | 19 | -1 | 2 | 55.0 | SI[-63]=120-127 |
| 16988 | 107 | 127-132 | S | L | 15 | -10 | 120 | 150 | 690 | 4.7 | 32 | 45 | 31 | 120 | 4 | -1 | 4 | -0.5 | -1 | 2 | -1 | -1 | 2 | 16 | -1 | -1 | 32.2 | |
| 16989 | 107 | 132-137 | S | L | 14 | 150 | 100 | 120 | 650 | 4.4 | 29 | 41 | 32 | 96 | 4 | -1 | 4 | -0.5 | -1 | 2 | -1 | -1 | 2 | 16 | -1 | -1 | 64.0 | |
| 16990 | 107 | 137-142 | S | L | 15 | -2 | 100 | 120 | 690 | 4.3 | 29 | 45 | 28 | 66 | 3 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | 2 | 16 | -1 | -1 | 17.1 | |

# APPENDIX 9-8A.

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16989 | 107 | 132-137 | S | L | 14 | 150 | 100 | 120 | 650 | 4.4 | 29 | 41 | 32 | 96 | 4 | -1 | 4 | -0.5 | -1 | 2 | -1 | -1 | 2 | 16 | -1 | -1 | 64.0 | |
| 16990 | 107 | 137-142 | S | L | 15 | -2 | 100 | 120 | 690 | 4.3 | 29 | 45 | 28 | 66 | 3 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | 2 | 16 | -1 | -1 | 17.1 | |
| 16895 | 108 | 56-61 | S | L | 21 | -1 | 150 | 98 | 630 | 4.1 | 25 | 49 | 30 | 99 | 9 | -1 | 4 | -0.5 | 1 | 2 | -1 | -1 | 1 | 21 | -1 | 4 | 18.2 | SI[-63]=51-61 |
| 16897 | 108 | 66-71 | S | L | 21 | 1 | 160 | 98 | 640 | 0.0 | 23 | 44 | 28 | 92 | 9 | 1 | 4 | -0.5 | 16 | 2 | -1 | -1 | 1 | 16 | -1 | 3 | 14.2 | SI[-63]=61-71 |
| 16897R | 108 | 66-71 | S | L | 21 | 0 | 0 | 68 | 0 | 0.0 | 0 | 0 | 0 | 88 | 7 | 1 | 3 | -0.5 | 1 | 2 | -1 | 0 | 1 | 0 | 0 | 0 | 0.0 | |
| 16898 | 108 | 71-76 | S | L | 21 | -1 | 170 | 98 | 630 | 4.2 | 23 | 46 | 29 | 98 | 10 | 2 | 4 | -0.5 | 1 | 2 | -1 | -1 | 1 | 18 | -1 | 3 | 20.5 | |
| 16899 | 108 | 76-81 | S | L | 24 | 1 | 160 | 98 | 620 | 3.9 | 23 | 45 | 28 | 96 | 10 | 2 | 4 | -0.5 | 1 | 2 | -1 | -1 | 1 | 20 | -1 | 3 | 24.9 | |
| 16900 | 108 | 84-89 | S | L | 21 | -1 | 180 | 100 | 670 | 4.3 | 25 | 48 | 31 | 110 | 11 | 3 | 4 | -0.5 | 1 | 2 | -1 | -1 | 1 | 17 | -1 | 3 | 37.8 | |
| 13838R | 108 | 84-89 | S | L | 21 | -1 | 190 | 110 | 590 | 3.9 | 21 | 47 | 30 | 100 | 9 | 1 | 5 | -0.5 | -1 | 2 | -1 | -1 | 1 | 15 | -1 | 3 | 43.5 | |
| 16901 | 108 | 96-100.5 | S | L | 14 | -1 | 91 | 120 | 570 | 3.9 | 27 | 52 | 35 | 60 | 3 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | 1 | 11 | -1 | -1 | 32.1 | |
| 16902 | 108 | 100.5-106 | S | L | 11 | -1 | 86 | 120 | 620 | 3.7 | 25 | 47 | 28 | 55 | 2 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 17 | -1 | -1 | 27.4 | |
| 16903 | 108 | 106-111 | S | L | 11 | -1 | 92 | 120 | 610 | 3.8 | 25 | 48 | 31 | 54 | 2 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 13 | -1 | 1 | 34.5 | |
| 16904 | 108 | 111-116 | S | L | 11 | -1 | 83 | 120 | 620 | 3.6 | 25 | 45 | 29 | 47 | 2 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | 2 | 15 | -1 | 1 | 32.3 | |
| 16905 | 108 | 116-121 | S | L | 11 | -1 | 84 | 130 | 710 | 4.4 | 26 | 46 | 31 | 63 | 2 | -1 | 3 | -0.5 | 1 | -1 | -1 | -1 | 3 | 24 | -1 | 4 | 58.8 | |
| 16906 | 108 | 121-126 | S | L | 11 | -1 | 87 | 120 | 640 | 3.7 | 26 | 47 | 31 | 57 | 3 | -1 | 2 | -0.5 | 1 | -1 | -1 | -1 | 3 | 14 | -1 | -1 | 48.4 | |
| 16907 | 108 | 126-131.5 | S | L | 13 | -1 | 110 | 170 | 740 | 0.5 | 34 | 75 | 63 | 85 | 3 | -1 | 4 | -0.5 | 1 | 1 | -1 | -1 | 6 | 17 | -1 | 1 | 28.1 | |
| 16965 | 109 | 20-24 | S | L | 21 | -1 | 160 | 92 | 610 | 3.9 | 22 | 46 | 29 | 98 | 10 | -1 | 5 | -0.5 | 1 | 2 | 1 | -1 | 1 | 16 | -1 | 3 | 29.1 | |
| 16966 | 109 | 25-30 | S | L | 21 | -1 | 150 | 93 | 560 | 3.5 | 21 | 42 | 27 | 97 | 7 | -1 | 5 | -0.5 | 1 | 2 | 1 | -1 | 1 | 16 | -1 | 3 | 23.9 | |
| 16967 | 109 | 30-35 | S | L | 21 | -1 | 160 | 93 | 570 | 3.8 | 22 | 43 | 26 | 96 | 10 | -1 | 4 | -0.5 | 1 | 2 | 1 | -1 | 1 | 15 | -1 | 3 | 25.1 | |
| 16968 | 109 | 35-40 | S | L | 21 | -1 | 110 | 75 | 510 | 2.9 | 18 | 39 | 20 | 74 | 5 | 1 | 3 | -0.5 | -1 | 2 | -1 | -1 | -1 | 15 | -1 | 3 | 45.7 | |
| 16969 | 109 | 40-45 | S | L | 21 | -1 | 180 | 92 | 580 | 3.8 | 22 | 45 | 28 | 99 | 9 | 1 | 4 | -0.5 | 1 | 2 | 1 | -1 | 1 | 15 | -1 | 3 | 30.9 | |
| 16992 | 110 | 15-20 | S | L | 21 | -1 | 160 | 100 | 520 | 3.7 | 21 | 43 | 26 | 93 | 9 | 1 | 4 | -0.5 | 1 | 2 | 1 | -1 | 1 | 22 | -1 | 4 | 51.0 | |
| 16994 | 110 | 25-27.5 | S | L | 21 | -1 | 150 | 97 | 520 | 3.5 | 21 | 41 | 26 | 92 | 9 | -1 | 4 | -0.5 | 1 | 2 | 1 | -1 | 2 | 23 | -1 | 4 | 29.5 | SI[-63]=20-27.5 |
| 16995 | 110 | 27.5-32.5 | S | L | 21 | -1 | 140 | 86 | 640 | 4.1 | 24 | 45 | 28 | 93 | 9 | -1 | 4 | -0.5 | -1 | 2 | 1 | -1 | 1 | 21 | -1 | 4 | 21.1 | |
| 16996 | 110 | 32.5-37.5 | S | L | 27 | -1 | 100 | 82 | 590 | 3.5 | 21 | 39 | 24 | 80 | 5 | -1 | 4 | -0.5 | -1 | 2 | 1 | -1 | 1 | 20 | -1 | 4 | 25.3 | |
| 16997 | 110 | 37.5-42 | S | L | 17 | -1 | 110 | 110 | 550 | 4.1 | 25 | 50 | 36 | 87 | 4 | -1 | 3 | -0.5 | -1 | 2 | 1 | -1 | 1 | 24 | -1 | 3 | 36.5 | |
| 16998 | 110 | 42-47 | S | L | 11 | 4 | 95 | 80 | 480 | 3.5 | 22 | 37 | 27 | 75 | 4 | -1 | 3 | -0.5 | 1 | 2 | 1 | -1 | 2 | 22 | -1 | 2 | 70.4 | |
| 16999 | 110 | 47-52 | S | L | 11 | 7 | 110 | 110 | 600 | 4.3 | 26 | 47 | 47 | 140 | 3 | 2 | 4 | -0.5 | -1 | 2 | 1 | -1 | 3 | 22 | -1 | 4 | 52.0 | |
| 13839R | 110 | 47-52 | S | L | 11 | -1 | 120 | 130 | 280 | 4.3 | 23 | 47 | 52 | 170 | 5 | -1 | 7 | -0.5 | -1 | 2 | -1 | -1 | 2 | 14 | -1 | 3 | 39.7 | |
| 18871 | 10102 | 123-128 | A | L | 15 | 23 | 69 | 69 | 823 | 3.44 | 23 | 61 | 29 | 45 | -5 | -5 | 1 | 2.7 | -1 | -10 | 13 | -10 | -10 | 45 | 9 | -10 | 26.2 | |
| 18872 | 10102 | 128-133 | A | L | 13 | 2 | 75 | 63 | 694 | 3.10 | 25 | 67 | 43 | 41 | -5 | -5 | 1 | 2.7 | -1 | -10 | 9 | -10 | -10 | 43 | 5 | -10 | 16.2 | |
| 18873 | 10102 | 133-137.5 | A | L | 13 | 6 | 71 | 63 | 720 | 3.04 | 21 | 67 | 35 | 47 | -5 | -5 | 1 | 1.7 | -1 | -10 | 9 | -10 | -10 | 41 | -2 | -10 | 31.1 | |
| 18875 | 10105 | 145-155 | A | L | 15 | 1 | 44 | 49 | 616 | 2.84 | 15 | 55 | 29 | 57 | -5 | 14 | 3 | 0.9 | -1 | -10 | 11 | 13 | -10 | 47 | -2 | -10 | 18.9 | |
| 18876 | 10105 | 155-162 | A | L | 13 | 1 | 83 | 67 | 855 | 3.99 | 23 | 81 | 39 | 77 | -5 | -5 | 5 | 2.3 | -1 | -10 | 15 | -10 | -10 | 57 | 3 | -10 | 8.1 | |
| 18877 | 10105 | 162-167 | A | L | 13 | 40 | 55 | 55 | 748 | 3.08 | 19 | 61 | 35 | 57 | -5 | -5 | 5 | 1.7 | -1 | -10 | 7 | -10 | 21 | 47 | -2 | -10 | 19.6 | |
| 18878 | 10105 | 167-172 | A | L | 15 | 6 | 89 | 75 | 1002 | 3.92 | 29 | 75 | 39 | 51 | -5 | 5 | 3 | 3.7 | -1 | -10 | 7 | -10 | 13 | 49 | 7 | 19 | 20.5 | |
| 18879 | 10105 | 172-177 | A | L | 13 | 7 | 95 | 80 | 1000 | 4.00 | 27 | 80 | 41 | 55 | -5 | -5 | 2 | 1.0 | -1 | -10 | 5 | -10 | 10 | 45 | 5 | -10 | 6.9 | |
| 18881 | 10105 | 177-190 | A | L | 13 | 1 | 69 | 77 | 841 | 3.62 | 23 | 73 | 39 | 47 | -5 | -5 | 5 | 2.3 | -1 | -10 | 17 | -10 | 51 | 47 | 5 | -10 | 9.9 | |
| 18856 | 10202 | 102-107 | A | L | 13 | 3 | 82 | 33 | 549 | 2.24 | 11 | 53 | 21 | 71 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 35 | -2 | -10 | 20.9 | |
| 18857 | 10202 | 107-112 | A | L | 13 | 3 | 100 | 47 | 549 | 2.46 | 15 | 63 | 27 | 77 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 37 | -2 | -10 | 22.8 | |
| 18858 | 10202 | 112 | A | L | 18 | 28 | 58 | -1 | 569 | 2.62 | 13 | 57 | 21 | 51 | -5 | 45 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 105 | -2 | -10 | 17.1 | SLUFF MAT'L |
| 18859 | 10202 | 112-117 | A | L | 13 | 4 | 52 | 43 | 455 | 2.12 | 9 | 47 | 17 | 41 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 27 | -2 | -10 | 15.7 | |
| 18861 | 10202 | 117-122 | A | L | 10 | 8 | 62 | 43 | 539 | 2.56 | 13 | 63 | 27 | 61 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 37 | -2 | -10 | 30.5 | |
| 18862 | 10202 | 122-127 | A | L | 13 | 2 | 59 | 43 | 445 | 2.04 | 13 | 43 | 13 | 35 | -5 | 8 | 1 | 0.5 | -1 | -10 | -5 | -10 | -10 | 29 | -2 | -10 | 27.4 | |
| 18863 | 10202 | 127-132 | A | L | 13 | 6 | 66 | 49 | 483 | 2.28 | 13 | 45 | 15 | 41 | -5 | -5 | 1 | 0.5 | -1 | -10 | -5 | -10 | -10 | 29 | 5 | -10 | 29.5 | |
| 18864 | 10202 | 132-137 | A | L | 10 | 5 | 64 | 45 | 529 | 2.48 | 15 | 45 | 23 | 47 | -5 | -5 | 1 | 0.9 | -1 | -10 | 5 | -10 | -10 | 41 | -2 | -10 | 18.9 | |
| 18865 | 10202 | 137-142 | A | L | 15 | 2 | 63 | 61 | 539 | 2.58 | 15 | 47 | 21 | 47 | -5 | -5 | 1 | 0.9 | -1 | -10 | 15 | -10 | -10 | 49 | -2 | -10 | 27.5 | |
| 18866 | 10202 | 142-147 | A | L | 15 | 2 | 61 | 61 | 571 | 2.62 | 17 | 47 | 21 | 49 | -5 | -5 | 1 | 2.7 | -1 | -10 | 11 | -10 | -10 | 47 | -2 | -10 | 29.4 | |
| 18867 | 10202 | 147-152 | A | L | 14 | 3 | 59 | 49 | 471 | 2.16 | 15 | 39 | 17 | 39 | -5 | -5 | 1 | 1.5 | -1 | -10 | 7 | -10 | -10 | 41 | 5 | -10 | 32.6 | |
| 18868 | 10202 | 152-157 | A | L | 13 | 6 | 51 | 51 | 499 | 2.36 | 13 | 39 | 15 | 37 | -5 | -5 | 1 | 1.5 | -1 | -10 | 13 | -10 | -10 | 37 | -2 | -10 | 20.1 | |
| 18869 | 10202 | 157-162 | A | L | 11 | 2 | 61 | 59 | 612 | 3.00 | 17 | 55 | 33 | 57 | -5 | -5 | 1 | 1.5 | -1 | -10 | 9 | -10 | -10 | 43 | 7 | -10 | 12.0 | |
| 18882 | 10202 | 162-167 | A | L | 13 | 75 | 103 | 77 | 1496 | 9.09 | 23 | 87 | 51 | 59 | -5 | -5 | 9 | 1.7 | -1 | -10 | 19 | -10 | 352 | 53 | -2 | -10 | 5.2 | |
| 18812 | 10303 | 115-118 | A | L | 11 | 89 | 50 | 45 | 485 | 2.72 | 15 | 47 | 105 | 55 | 5 | -5 | 5 | 0.9 | -1 | -10 | -5 | -10 | 11 | 51 | 5 | -10 | 6.7 | |
| 18814 | 10304 | 133-137 | A | L | 11 | 154 | 76 | 57 | 642 | 3.02 | 17 | 35 | 31 | 59 | 7 | -5 | 3 | -0.5 | -1 | -10 | -5 | -10 | -10 | 27 | 9 | -10 | 3.5 | |
| 18773 | 10401 | 117-122 | A | L | 10 | 2 | 105 | 51 | 545 | 2.39 | 15 | 29 | 29 | 29 | 31 | -5 | 5 | -0.5 | -1 | 15 | 13 | -10 | -10 | 30 | 5 | -10 | 32.5 | |
| 18774 | 10401 | 122-146 | A | L | 14 | -1 | 88 | 59 | 633 | 3.11 | 15 | 31 | 29 | 35 | 21 | -5 | 7 | -0.5 | -1 | -10 | 11 | -10 | -10 | 43 | -2 | -10 | 40.1 | |
| 18775 | 10401 | 146-151 | A | L | 15 | -1 | 105 | 51 | 619 | 3.27 | 15 | 33 | 29 | 39 | 25 | -5 | 7 | -0.5 | -1 | -10 | 11 | -10 | -10 | 39 | 3 | -10 | 18.9 | |
| 18776 | 10401 | 151-157 | A | L | 15 | -1 | 95 | 53 | 511 | 2.39 | 13 | 25 | 15 | 25 | 13 | -5 | 5 | -0.5 | -1 | -10 | 7 | -10 | -10 | 30 | 5 | -10 | 56.3 | |
| 18777 | 10401 | 157-162 | A | L | 13 | -1 | 101 | 59 | 523 | 2.51 | 13 | 27 | 19 | 31 | 21 | -5 | 7 | -0.5 | -1 | -10 | 19 | -10 | -10 | 30 | 9 | -10 | 44.7 | |
| 18778 | 10401 | 162-167 | A | L | 13 | 1 | 99 | 55 | 523 | 2.49 | 13 | 27 | 21 | 31 | 29 | -5 | 7 | -0.5 | -1 | -10 | 11 | -10 | -10 | 72 | -2 | -10 | 40.2 | |
| 18779 | 10401 | 167-172 | A | L | 13 | 11 | 119 | 67 | 593 | 3.15 | 19 | 47 | 201 | 65 | 45 | -5 | 7 | -0.5 | -1 | -10 | 11 | 14 | -10 | 57 | 3 | -10 | 19.7 | |
| 18783 | 10401 | 172-177 | A | L | 11 | 2 | 192 | 75 | 861 | 3.79 | 25 | 73 | 457 | 63 | 43 | -5 | 9 | -0.5 | 9 | -10 | 15 | -10 | -10 | 72 | -2 | -10 | 15.7 | |
| 18784 | 10401 | 177-181 | A | L | 11 | 4 | 174 | 97 | 841 | 4.07 | 33 | 89 | 119 | 89 | 23 | -5 | 7 | -0.5 | 4 | -10 | 13 | -10 | -10 | 68 | 9 | -10 | 13.0 | |
| 18854 | 10403 | 94-99 | A | L | 11 | 3 | 69 | 45 | 632 | 2.76 | 17 | 53 | 31 | 53 | -5 | 14 | 3 | 0.5 | -1 | -10 | 5 | -10 | 63 | 39 | -2 | -10 | 41.7 | |
| 18762 | 10501 | 62-71 | A | L | 13 | 122 | 126 | 61 | 675 | 4.03 | 15 | 41 | 39 | 93 | -5 | -5 | 3 | -0.5 | -1 | 35 | -5 | -10 | -10 | 19 | -2 | -10 | 5.9 | |
| 18764 | 10501 | 71-76 | A | L | 11 | 15 | 104 | 63 | 643 | 3.47 | 19 | 43 | 43 | 53 | -5 | -5 | 5 | -0.5 | -1 | -10 | 7 | -10 | 91 | 26 | 3 | -10 | 14.5 | |
| 18765 | 10501 | 76-81 | A | L | 11 | 5 | 113 | 65 | 621 | 3.07 | 15 | 31 | 27 | 33 | 9 | -5 | 3 | -0.5 | -1 | -10 | -5 | -10 | 45 | 10 | -2 | -10 | 36.3 | |
| 18823 | 10503 | 0-5 | A | L | 14 | -1 | 76 | 59 | 598 | 3.28 | 17 | 45 | 29 | 57 | 13 | -5 | -1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 21 | 5 | -10 | 31.7 | |
| 18824 | 10503 | 5-10 | A | L | 14 | 4 | 61 | 63 | 606 | 3.36 | 17 | 43 | 37 | 65 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 25 | 9 | -10 | 27.4 | |
| 18825 | 10503 | 10-15 | A | L | 14 | -1 | 51 | 57 | 579 | 3.02 | 13 | 37 | 29 | 53 | -5 | -5 | 1 | -0.5 | 6 | -10 | -5 | -10 | -10 | 15 | 3 | -10 | 20.7 | |
| 18826 | 10503 | 15-20 | A | L | 15 | 17 | 51 | 57 | 531 | 2.80 | 15 | 39 | 37 | 59 | -5 | -5 | -1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 7 | -2 | -10 | 20.7 | |
| 18827 | 10503 | 20-25 | A | L | 15 | -1 | 54 | 63 | 598 | 3.04 | 15 | 35 | 31 | 59 | -5 | 5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 25 | 11 | -10 | 55.8 | |
| 18828 | 10503 | 25-30 | A | L | 12 | 20 | 56 | 59 | 597 | 2.90 | 13 | 35 | 59 | 61 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 11 | 3 | -10 | 19.2 | |
| 18829 | 10503 | 30-35 | A | L | 12 | 3 | 48 | 55 | 575 | 3.34 | 17 | 47 | 53 | 73 | -5 | -5 | 5 | -0.5 | -1 | -10 | -5 | -10 | 43 | 15 | 5 | -10 | 14.1 | |
| 18830 | 10503 | 35-40 | A | L | 12 | -1 | 52 | 57 | 600 | 3.36 | 17 | 51 | 57 | 63 | -5 | -5 | 1 | -0.5 | 6 | -10 | -5 | -10 | 23 | 13 | -2 | -10 | 17.9 | |
| 18831 | 10503 | 40-45 | A | L | 14 | -1 | 68 | 75 | 728 | 3.99 | 19 | 53 | 57 | -1 | -5 | -5 | -1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 7 | 11 | -10 | 17.0 | |
| 18832 | 10503 | 45-50 | A | L | 14 | -1 | 64 | 65 | 734 | 3.46 | 19 | 63 | 59 | 63 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 11 | -2 | -10 | 11.7 | |
| 18833 | 10503 | 50-55 | A | L | 12 | -1 | 70 | 73 | 1144 | 4.01 | 23 | 59 | 67 | 71 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 7 | 3 | -10 | 13.3 | |
| 18834 | 10503 | 55-60 | A | L | 12 | -1 | 61 | 63 | 762 | 3.48 | 17 | 45 | 53 | 55 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 17 | 3 | -10 | 8.0 | |
| 18835 | 10503 | 60-65 | A | L | 12 | -1 | 72 | 69 | 660 | 3.54 | 17 | 43 | 41 | 53 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 17 | 5 | -10 | 17.2 | |
| 18836 | 10503 | 65-70 | A | L | 12 | 3 | 78 | 47 | 447 | 2.36 | 13 | 45 | 35 | 15 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | -5 | 3 | -10 | 0.9 | |
| 18837 | 10503 | 70-72 | A | L | 12 | 26 | 67 | 83 | 587 | 3.76 | 23 | 61 | 77 | 71 | -5 | -5 | 3 | -0.5 | -1 | -10 | -5 | -10 | -10 | -5 | -2 | -10 | 10.0 | |
| 18818 | 10601 | 35-40 | A | L | 11 | 8 | 81 | 65 | 610 | 2.98 | 17 | 45 | 35 | 63 | -5 | -5 | 3 | -0.5 | -1 | -10 | -5 | -10 | -10 | 27 | -2 | -10 | 23.0 | |
| 18819 | 10601 | 40-45 | A | L | 11 | 3 | 74 | 65 | 668 | 3.22 | 19 | 47 | 45 | 73 | 11 | -5 | 1 | 0.7 | -1 | -10 | 5 | -10 | -10 | 33 | 11 | -10 | 27.9 | |
| 18806 | 10602 | 52-62 | A | L | 14 | 99 | 68 | 63 | 712 | 2.98 | 19 | 39 | 45 | 61 | -5 | -5 | 1 | 0.9 | -1 | -10 | -5 | -10 | -10 | 35 | 11 | -10 | 63.7 | |
| 18807 | 10602 | 62-67 | A | L | 11 | 41 | 71 | 69 | 662 | 3.14 | 17 | 37 | 37 | 59 | 7 | -5 | 1 | 1.1 | -1 | -10 | 5 | -10 | -10 | 33 | 11 | -10 | 22.4 | |
| 18808 | 10602 | 67-68 | A | L | 34 | 175 | 67 | 59 | 640 | 3.04 | 15 | 51 | 33 | 53 | -5 | -5 | 1 | 0.5 | 1 | -10 | -5 | -10 | 39 | 39 | 11 | -10 | 31.0 | |
| 18816 | 10603 | 95-100 | A | L | 11 | 82 | 71 | 63 | 565 | 3.14 | 17 | 49 | 57 | 61 | -5 | -5 | 3 | 0.5 | -1 | -10 | -5 | -10 | -10 | 27 | 9 | -10 | 8.7 | |

# APPENDIX 9-8A.

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18788 | 10700 | 62-67 | A | L | 14 | 2 | 142 | 65 | 785 | 4.37 | 19 | 47 | 63 | 69 | 29 | -5 | 7 | -0.5 | 3 | -10 | 9 | -10 | -10 | 61 | 9 | -10 | 1.1 |
| 18789 | 10700 | 67-72 | A | L | 14 | -10 | 118 | 63 | 973 | 6.29 | 17 | 45 | 65 | 99 | 25 | -5 | 13 | -0.5 | 16 | -10 | 7 | 10 | 41 | 59 | -2 | -10 | 1.2 |
| 18790 | 10700 | 72-77 | A | L | 14 | -10 | 92 | 55 | 853 | 5.13 | 17 | 41 | 61 | 73 | 19 | -5 | 9 | -0.5 | 7 | -10 | -5 | -10 | 97 | 41 | -2 | -10 | 1.0 |
| 18791 | 10700 | 77-87 | A | L | 14 | -1 | 101 | 69 | 1213 | 10.00 | 15 | 47 | 97 | 123 | 23 | 19 | 47 | -0.5 | 53 | -10 | 5 | -10 | -10 | 70 | -2 | -10 | 3.0 |
| 18792 | 10700 | 87-92 | A | L | 14 | -1 | 104 | 63 | 1077 | 7.83 | 17 | 51 | 81 | 93 | 19 | -5 | 23 | -0.5 | 39 | -10 | 7 | -10 | 23 | 59 | -2 | -10 | 10.3 |
| 18793 | 10700 | 92-97 | A | L | 14 | -1 | 106 | 65 | 853 | 5.37 | 17 | 47 | 51 | 75 | 15 | -5 | 11 | -0.5 | 17 | -10 | 5 | -10 | 53 | 32 | -2 | -10 | 3.5 |
| 18794 | 10700 | 97-103 | A | L | 14 | -1 | 124 | 61 | 761 | 4.33 | 17 | 41 | 37 | 53 | 13 | -5 | 9 | -0.5 | 83 | 29 | -5 | -10 | 27 | 24 | 3 | -10 | 4.8 |
| 18795 | 10700 | 103-108 | A | L | 14 | 2 | 154 | 63 | 761 | 4.27 | 15 | 43 | 45 | 61 | 11 | -5 | 9 | -0.5 | 13 | -10 | -5 | -10 | 33 | 21 | -2 | -10 | 4.4 |
| 18796 | 10700 | 108-113 | A | L | 15 | 39 | 138 | 59 | 655 | 3.39 | 13 | 35 | 27 | 47 | 5 | 15 | 5 | -0.5 | -1 | 31 | -5 | -10 | -10 | 15 | -2 | -10 | 11.9 |
| 18797 | 10700 | 113-118 | A | L | 15 | -1 | 178 | 89 | 875 | 4.57 | 21 | 45 | 41 | 69 | 13 | -5 | 5 | -0.5 | -1 | -10 | -5 | -10 | -10 | 24 | -2 | -10 | 5.8 |
| 18798 | 10700 | 118-123 | A | L | 15 | 7 | 184 | 75 | 755 | 4.03 | 19 | 35 | 29 | 47 | 21 | -5 | 5 | -0.5 | -1 | -10 | -5 | -10 | -10 | 30 | -2 | -10 | 18.7 |
| 18799 | 10700 | 123-128 | A | L | 15 | 105 | 193 | 91 | 905 | 4.99 | 23 | 43 | 37 | 53 | 25 | -5 | 7 | 0.5 | 3 | -10 | -5 | -10 | -10 | 26 | -2 | -10 | 7.3 |
| 18802 | 10700 | 128-133 | A | L | 10 | 42 | 169 | 73 | 747 | 3.67 | 17 | 37 | 35 | 49 | 19 | -5 | 3 | -0.5 | -1 | -10 | -5 | 12 | -10 | 21 | -2 | -10 | 12.4 |
| 18803 | 10700 | 133-138 | A | L | 10 | 26 | 146 | 67 | 731 | 3.67 | 17 | 33 | 37 | 51 | 23 | -5 | 5 | -0.5 | 2 | -10 | -5 | -10 | -10 | 32 | -2 | -10 | 8.8 |
| 18804 | 10700 | 138-143 | A | L | 13 | 23 | 72 | 59 | 509 | 2.98 | 15 | 53 | 53 | 49 | 15 | -5 | 5 | -0.5 | -1 | -10 | -5 | -10 | -10 | -5 | -2 | -10 | 42.4 |
| 18767 | 10704 | 92-97 | A | L | 15 | 7 | 87 | 39 | 423 | 1.91 | 9 | 17 | 19 | 29 | 9 | -5 | 3 | -0.5 | -1 | 199 | -5 | -10 | -10 | 15 | 3 | -10 | 183.0 |
| 18767R | 10704 | 92-97 | A | L | 15 | 6 | 70 | 34 | 464 | 1.92 | 14 | 32 | 20 | 40 | 10 | -5 | 2 | -0.5 | -1 | -10 | -5 | -10 | -10 | 18 | 3 | -10 | 0 |
| 18767R | 10704 | 92-97 | A | L | 15 | 2 | 74 | 34 | 458 | 1.87 | 12 | 26 | 18 | 44 | 14 | -5 | 2 | -0.5 | -1 | -10 | -5 | -10 | -10 | 14 | 3 | -10 | 0 |
| 18767R | 10704 | 92-97 | A | L | 15 | 2 | 70 | 32 | 452 | 1.86 | 12 | 26 | 18 | 40 | -5 | -5 | 2 | -0.5 | -1 | -10 | -5 | -10 | -10 | 20 | 3 | -10 | 0 |
| 18767R | 10704 | 92-97 | A | L | 15 | 2 | 68 | 38 | 454 | 2.16 | 12 | 40 | 18 | 38 | 12 | -5 | 4 | 0.6 | -1 | -10 | -5 | -10 | -10 | 18 | 3 | -10 | 0 |
| 18767R | 10704 | 92-97 | A | L | 15 | -1 | 70 | 38 | 454 | 1.87 | 12 | 26 | 18 | 42 | 22 | -5 | 2 | -0.5 | -1 | -10 | -5 | -10 | -10 | 18 | 5 | -10 | 0 |
| 18767R | 10704 | 92-97 | A | L | 15 | -1 | 70 | 34 | 456 | 1.87 | 12 | 24 | 18 | 38 | 20 | -5 | 2 | -0.5 | -1 | -10 | -5 | -10 | -10 | 12 | 5 | -10 | 0 |
| 18767R | 10704 | 92-97 | A | L | 15 | 2 | 74 | 38 | 454 | 1.92 | 12 | 26 | 18 | 40 | 20 | -5 | 2 | -0.5 | -1 | -10 | -5 | -10 | -10 | 10 | 3 | -10 | 0 |
| 18767R | 10704 | 92-97 | A | L | 15 | 1 | 70 | 34 | 450 | 1.87 | 12 | 30 | 18 | 36 | 14 | -5 | 2 | -0.5 | -1 | -10 | -5 | -10 | -10 | 8 | 5 | -10 | 0 |
| 18767R | 10704 | 92-97 | A | L | 15 | -1 | 74 | 34 | 454 | 1.87 | 12 | 26 | 18 | 40 | 14 | -5 | 2 | -0.5 | -1 | -10 | -5 | -10 | -10 | 10 | 3 | -10 | 0 |
| 18768 | 10704 | 97-102 | A | L | 13 | 1 | 95 | 37 | 477 | 2.07 | 9 | 17 | 17 | 25 | 13 | -5 | 3 | -0.5 | -1 | -10 | 5 | -10 | -10 | 17 | 5 | -10 | 133.7 |
| 18769 | 10704 | 102-105 | A | L | 15 | 4 | 98 | 41 | 545 | 2.37 | 11 | 23 | 21 | 31 | 11 | -5 | 3 | -0.5 | -1 | -10 | 5 | -10 | -10 | 17 | -2 | -10 | 21.1 |
| 18771 | 10704 | 105-106 | A | L | 11 | -1 | 125 | 51 | 629 | 3.03 | 17 | 31 | 33 | 39 | 13 | -5 | 3 | -0.5 | -1 | -10 | -5 | -10 | 47 | 17 | 5 | -10 | 37.1 |
| 18839 | 10901 | 113-118 | A | L | 15 | 3 | 56 | 55 | 600 | 2.72 | 13 | 33 | 45 | 47 | -5 | -5 | -1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 11 | 5 | -10 | 98.6 |
| 18842 | 10901 | 118-123 | A | L | 15 | 10 | 51 | 47 | 557 | 2.54 | 11 | 31 | 43 | 45 | -5 | -5 | -1 | -0.5 | -1 | -10 | -5 | -10 | -10 | -5 | 3 | -10 | 74.3 |
| 18843 | 10901 | 123-128 | A | L | 15 | 17 | 64 | 59 | 620 | 3.00 | 13 | 35 | 47 | 47 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 5 | -2 | -10 | 21.9 |
| 18844 | 10901 | 128-133 | A | L | 13 | 15 | 52 | 51 | 551 | 2.72 | 13 | 35 | 41 | 45 | -5 | -5 | -1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 5 | -2 | -10 | 27.7 |
| 18845 | 10901 | 133-135 | A | L | 13 | 9 | 71 | 57 | 606 | 3.06 | 15 | 37 | 47 | 55 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 11 | -2 | -10 | 23.1 |
| 18846 | 10901 | 135-140 | A | L | 34 | -1 | 54 | 51 | 447 | 2.96 | 33 | 69 | 103 | 63 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | 45 | 21 | 3 | -10 | 59.2 |
| 18851 | 11006 | 39-44 | A | L | 11 | 1 | 99 | 73 | 690 | 3.76 | 15 | 59 | 45 | 67 | -5 | 10 | 1 | -0.5 | -1 | -10 | -5 | -10 | 13 | 11 | 5 | -10 | 8.0 |
| 18852 | 11006 | 44-46 | A | L | 11 | -1 | 67 | 57 | 696 | 2.88 | 15 | 45 | 41 | 45 | -5 | -5 | -1 | -0.5 | -1 | -10 | -5 | -10 | -10 | -5 | -2 | -10 | 31.7 |
| 18853 | 11006 | 46-51 | A | L | 34 | -1 | 64 | 69 | 1257 | 3.78 | 31 | 111 | 123 | 63 | 5 | -5 | 3 | -0.5 | -1 | -10 | -5 | -10 | -10 | 15 | 3 | -10 | 42.7 |
| 18849 | 11102 | 35-38 | A | L | 11 | 7 | 40 | 31 | 384 | 1.97 | 7 | 19 | 31 | 31 | -5 | -5 | -1 | -0.5 | -1 | -10 | -5 | -10 | 15 | 7 | 5 | -10 | 17.8 |
| 16801 | 202 | 4-9 | S | O | 21 | -1 | 110 | 210 | 330 | 4.2 | 26 | 68 | 79 | 55 | 2 | -1 | 10 | -0.5 | 1 | 1 | -1 | -1 | 7 | 13 | -1 | -1 | 31.2 |
| 16802 | 202 | 9-14 | S | O | 21 | -1 | 160 | 87 | 560 | 3.3 | 17 | 37 | 24 | 92 | 11 | 2 | 2 | -0.5 | -1 | 4 | -1 | -1 | -1 | 24 | -1 | 3 | 30.1 |
| 16803 | 202 | 14-19 | S | O | 21 | -1 | 140 | 81 | 430 | 3.2 | 15 | 34 | 23 | 85 | 9 | 1 | 2 | -0.5 | -1 | 4 | -1 | -1 | 1 | 17 | -1 | 3 | 48.5 |
| 16804 | 202 | 19-23 | S | O | 21 | -1 | 140 | 87 | 490 | 3.1 | 16 | 36 | 24 | 88 | 9 | -1 | 2 | -0.5 | -1 | 3 | -1 | -1 | -1 | 16 | -1 | 3 | 63.8 |
| 16808 | 202 | 38-42.5 | S | O | 21 | -1 | 120 | 77 | 480 | 3.0 | 15 | 32 | 20 | 80 | 13 | -1 | 2 | -0.5 | 1 | 5 | -1 | -1 | -1 | 15 | -1 | 3 | 53.9 |
| 16809 | 202 | 42.5-47.5 | S | O | 21 | -1 | 91 | 64 | 450 | 2.7 | 13 | 25 | 15 | 58 | 5 | -1 | 1 | -0.5 | -1 | 3 | -1 | -1 | -1 | 13 | -1 | 2 | 42.5 |
| 16811 | 202 | 50.5-55.5 | S | O | 21 | 51 | 140 | 98 | 560 | 3.5 | 19 | 41 | 28 | 91 | 5 | -1 | 2 | -0.5 | -1 | 5 | -1 | -1 | 1 | 18 | -1 | 3 | 65.3 |
| 16813 | 202 | 60.5-66 | S | O | 21 | 1 | 88 | 86 | 500 | 3.3 | 17 | 36 | 24 | 72 | 5 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 15 | -1 | 2 | 35.9 |
| 13840R | 202 | 60.5-66 | S | O | 21 | 8 | 97 | 92 | 520 | 3.4 | 18 | 38 | 25 | 77 | 5 | -1 | 3 | -0.5 | -1 | 5 | -1 | -1 | -1 | 12 | -1 | 2 | 28.2 |
| 16814 | 202 | 66-70 | S | O | 21 | -1 | 80 | 84 | 460 | 2.9 | 16 | 32 | 21 | 59 | 5 | 1 | 1 | -0.5 | -1 | 2 | -1 | -1 | -1 | 15 | -1 | 2 | 39.2 |
| 16815 | 202 | 70-73 | S | O | 11 | 2 | 53 | 72 | 360 | 2.0 | 13 | 24 | 13 | 36 | 2 | -1 | -1 | -0.5 | -1 | 2 | -1 | -1 | 1 | 11 | -1 | -1 | 49.0 |
| 16816 | 202 | 73-76 | S | O | 11 | 2 | 64 | 98 | 360 | 2.0 | 13 | 24 | 13 | 36 | 3 | -1 | 5 | -0.5 | -1 | 2 | -1 | -1 | 3 | 17 | -1 | 2 | 38.0 |
| 16817 | 202 | 76-81 | S | O | 11 | -1 | 60 | 120 | 410 | 2.8 | 16 | 33 | 25 | 52 | 2 | -1 | 4 | -0.5 | -1 | 1 | -1 | -1 | 11 | 12 | -1 | -1 | 24.5 |
| 16817R | 202 | 76-81 | S | O | 11 | 0 | 0 | 98 | 0 | 0.0 | 0 | 0 | 0 | 52 | 2 | 1 | 5 | -0.5 | -1 | 1 | -1 | 0 | 10 | 0 | 0 | 0 | 0.0 |
| 16818 | 202 | 81-86 | S | O | 11 | -1 | 51 | 80 | 370 | 2.3 | 14 | 26 | 17 | 35 | 1 | -1 | 1 | -0.5 | -1 | 1 | -1 | -1 | 7 | 12 | -1 | -1 | 23.0 |
| 16819 | 202 | 86-91 | S | O | 11 | -1 | 52 | 73 | 350 | 2.2 | 13 | 24 | 16 | 37 | 1 | -1 | -1 | -0.5 | -1 | 1 | -1 | -1 | 5 | 10 | -1 | -1 | 21.8 |
| 16820 | 202 | 91-94 | S | O | 11 | 1 | 53 | 69 | 330 | 2.1 | 13 | 24 | 14 | 40 | 1 | -1 | 1 | -0.5 | -1 | 1 | -1 | -1 | 2 | 14 | -1 | -1 | 47.3 |
| 16821 | 202 | 94-99 | S | O | 11 | -1 | 43 | 62 | 290 | 1.8 | 12 | 19 | 11 | 33 | 1 | 2 | -1 | -0.5 | -1 | 1 | -1 | -1 | 5 | 16 | -1 | -1 | 21.8 |
| 16822 | 202 | 99-104 | S | O | 11 | 28 | 46 | 58 | 300 | 1.8 | 11 | 19 | 10 | 30 | 1 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | 3 | 18 | -1 | -1 | 52.3 |
| 16822R | 202 | 99-104 | S | O | 11 | 0 | 0 | 48 | 0 | 0.0 | 0 | 0 | 0 | 31 | 1 | 1 | 2 | -0.5 | -1 | -1 | -1 | 0 | 3 | 0 | 0 | 0 | 0.0 |
| 16823 | 202 | 104-109 | S | O | 11 | -1 | 54 | 62 | 400 | 2.2 | 13 | 20 | 12 | 33 | 1 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | 3 | 14 | -1 | -1 | 22.8 |
| 16824 | 202 | 109-114 | S | O | 11 | 1 | 49 | 58 | 320 | 1.8 | 11 | 19 | 12 | 33 | 1 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | 3 | 13 | -1 | -1 | 73.8 |
| 13841R | 202 | 109-114 | S | O | 11 | -1 | 52 | 63 | 340 | 2.0 | 13 | 21 | 13 | 37 | 2 | -1 | 1 | -0.5 | -1 | 9 | -1 | -1 | 3 | 9 | -1 | -1 | 22.9 |
| 16825 | 202 | 114-117 | S | O | 11 | 1 | 52 | 63 | 370 | 2.2 | 13 | 19 | 12 | 35 | 1 | -1 | 2 | -0.5 | 1 | -1 | -1 | -1 | 2 | 15 | -1 | -1 | 66.9 |
| 16826 | 202 | 117-122 | S | O | 11 | 1 | 64 | 150 | 410 | 2.7 | 17 | 43 | 19 | 42 | 1 | -1 | 3 | -0.5 | -1 | -1 | -1 | -1 | 2 | 12 | -1 | -1 | 26.5 |
| 16855 | 204 | 18-23 | S | O | 21 | 1 | 120 | 92 | 590 | 3.4 | 18 | 36 | 26 | 84 | 9 | 1 | 4 | -0.5 | -1 | 1 | -1 | -1 | -1 | 15 | -1 | 3 | 39.5 | SI[-63]=13-( |
| 16856 | 204 | 23-27.5 | S | O | 21 | -1 | 97 | 71 | 480 | 2.3 | 14 | 27 | 17 | 58 | 5 | -1 | 3 | -0.5 | -1 | -1 | -1 | -1 | 1 | 12 | -1 | 2 | 23.9 | |
| 16858 | 204 | 38-43 | S | O | 27 | -1 | 140 | 110 | 660 | 4.0 | 23 | 46 | 32 | 96 | 7 | -1 | 4 | -0.5 | -1 | 1 | -1 | -1 | -1 | 14 | -1 | 3 | 18.8 | SI[-63]=33-( |
| 16860 | 204 | 58-63 | S | O | 27 | 1 | 89 | 97 | 590 | 3.5 | 20 | 39 | 24 | 68 | 3 | 2 | 3 | -0.5 | -1 | -1 | -1 | -1 | -1 | 14 | -1 | 2 | 19.6 | SI[-63]=53-( |
| 16862 | 204 | 70-75 | S | O | 21 | -1 | 81 | 100 | 560 | 3.5 | 20 | 36 | 24 | 65 | 3 | -1 | 3 | -0.5 | -1 | -1 | -1 | -1 | -1 | 14 | -1 | 2 | 18.6 | SI[-63]=65-( |
| 16863 | 204 | 75-79 | S | O | 21 | 2 | 73 | 100 | 580 | 3.7 | 21 | 38 | 25 | 68 | 3 | 1 | 3 | -0.5 | -1 | -1 | -1 | -1 | -1 | 15 | -1 | 2 | 54.7 | |
| 16864 | 204 | 80-85 | S | O | 11 | -1 | 56 | 140 | 560 | 3.7 | 25 | 52 | 36 | 38 | 2 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | -1 | 14 | -1 | -1 | 59.0 | |
| 16865 | 204 | 85-90 | S | O | 11 | 2 | 62 | 170 | 600 | 3.7 | 24 | 57 | 33 | 62 | 2 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | -1 | 14 | -1 | 1 | 61.2 | |
| 13842R | 204 | 85-90 | S | O | 11 | -1 | 92 | 180 | 530 | 3.3 | 23 | 58 | 32 | 62 | 2 | -1 | 1 | -0.5 | -1 | 11 | -1 | -1 | 1 | 9 | -1 | -1 | 56.5 | |
| 16866 | 204 | 90-94 | S | O | 11 | 1 | 96 | 190 | 530 | 3.4 | 25 | 58 | 32 | 65 | 12 | 2 | 3 | -0.5 | -1 | 2 | -1 | -1 | 3 | 12 | -1 | -1 | 59.1 | |
| 16918 | 206 | 25-30 | S | O | 26 | -1 | 99 | 110 | 650 | 3.9 | 25 | 46 | 28 | 77 | 5 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | 4 | 21 | -1 | 2 | 22.9 | |
| 16919 | 206 | 32.5-37 | S | O | 21 | -1 | 97 | 100 | 600 | 3.7 | 22 | 42 | 27 | 74 | 5 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | -1 | 18 | -1 | 2 | 27.7 | |
| 16921 | 206 | 60-65 | S | O | 27 | -1 | 98 | 110 | 580 | 3.7 | 22 | 42 | 25 | 71 | 5 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 18 | -1 | 2 | 49.0 | |
| 13843R | 206 | 75-80 | S | O | 21 | 1 | 100 | 110 | 470 | 3.2 | 19 | 41 | 25 | 76 | 4 | -1 | 2 | -0.5 | -1 | 11 | -1 | -1 | -1 | 13 | -1 | 2 | 35.9 | |
| 16923 | 206 | 80-82.5 | S | O | 21 | 2 | 95 | 110 | 570 | 3.6 | 22 | 46 | 28 | 72 | 3 | -1 | 2 | -0.5 | 1 | -1 | -1 | -1 | -1 | 21 | -1 | 2 | 27.0 | SI[-63]=75-( |
| 16924 | 206 | 85-90 | S | O | 27 | 2 | 150 | 130 | 660 | 4.2 | 25 | 52 | 33 | 100 | 9 | -1 | 2 | -0.5 | 1 | 1 | -1 | -1 | -1 | 22 | -1 | 3 | 23.1 | |
| 16925 | 206 | 90-95 | S | O | 27 | 1 | 150 | 140 | 600 | 4.0 | 24 | 49 | 33 | 89 | 9 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 21 | -1 | 2 | 31.7 | |
| 16927 | 206 | 101.5-107.5 | S | O | 15 | -1 | 58 | 95 | 290 | 2.2 | 17 | 31 | 26 | 33 | 5 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | -1 | 10 | -1 | -1 | 53.5 | |

# APPENDIX 9-8A.

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 308 | 16924 | 206 | 85-90 | S | 0 | 27 | 2 | 150 | 130 | 660 | 4.2 | 25 | 52 | 33 | 100 | 9 | -1 | 2 | -0.5 | 1 | 1 | -1 | -1 | -1 | 22 | -1 | 3 | 23.1 | |
| 309 | 16925 | 206 | 90-95 | S | 0 | 27 | 1 | 150 | 140 | 600 | 4.0 | 24 | 49 | 33 | 89 | 9 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 21 | -1 | 2 | 31.7 | |
| 310 | 16927 | 206 | 101.5-107.5 | S | 0 | 15 | -1 | 58 | 95 | 290 | 2.2 | 17 | 31 | 26 | 33 | 5 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | -1 | 10 | -1 | -1 | 53.5 | |
| 311 | 17021 | 207 | 14-19 | S | 0 | 27 | 3 | 170 | 130 | 620 | 4.2 | 26 | 53 | 33 | 100 | 7 | -1 | 2 | -0.5 | -1 | 2 | -1 | -1 | 1 | 24 | -1 | 3 | 51.6 | |
| 312 | 17023 | 207 | 35-40 | S | 0 | 27 | 1 | 190 | 140 | 730 | 4.6 | 30 | 59 | 38 | 110 | 5 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 21 | -1 | 3 | 42.5 | |
| 313 | 17025 | 207 | 55-60 | S | 0 | 27 | -1 | 180 | 130 | 590 | 4.2 | 24 | 50 | 33 | 100 | 5 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | 1 | 19 | -1 | 3 | 38.4 | |
| 318 | 17026 | 207 | 75-81.5 | S | 0 | 17 | -1 | 100 | 130 | 400 | 3.1 | 20 | 43 | 35 | 64 | 2 | -1 | 1 | -0.5 | 1 | 1 | -1 | -1 | -1 | 16 | -1 | 1 | 39.8 | |
| 319 | 17028 | 207 | 86.5-91.5 | S | 0 | 10 | -1 | 97 | 110 | 460 | 3.1 | 21 | 40 | 34 | 61 | 2 | -1 | 1 | -0.5 | -1 | 1 | -1 | -1 | -1 | 15 | -1 | 1 | 27.7 | |
| 320 | 17029 | 207 | 91.5-93.5 | S | 0 | 11 | -1 | 110 | 110 | 600 | 4.1 | 27 | 51 | 45 | 76 | 3 | -1 | 1 | -0.5 | -1 | 2 | -1 | -1 | -1 | 16 | -1 | 1 | 86.3 | |
| 321 | 17030 | 207 | 93.5-97.5 | S | 0 | 10 | 1 | 120 | 130 | 690 | 4.5 | 30 | 49 | 56 | 82 | 1 | -1 | 2 | -0.5 | -1 | 2 | -1 | -1 | 1 | 17 | -1 | 1 | 42.0 | |
| 322 | 17031 | 207 | 97.5-102 | S | 0 | 11 | 1 | 150 | 120 | 760 | 5.4 | 36 | 64 | 54 | 130 | 1 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | 6 | 18 | -1 | 2 | 69.4 | |
| 323 | 13844R | 207 | 97.5-102 | S | 0 | 11 | 1 | 130 | 180 | 790 | 5.6 | 37 | 70 | 63 | 160 | 2 | -1 | 4 | -0.5 | 1 | 12 | -1 | -1 | 5 | 18 | -1 | 1 | 59.6 | |
| 324 | 17032 | 207 | 102-107 | S | 0 | 11 | 1 | 170 | 140 | 890 | 6.6 | 43 | 75 | 79 | 150 | 1 | -1 | 4 | -0.5 | 1 | 2 | -1 | -1 | 2 | 20 | 1 | 2 | 47.1 | |
| 325 | 17033 | 207 | 107-108 | S | 0 | 13 | -1 | 160 | 180 | 1000 | 7.0 | 47 | 86 | 90 | 160 | 1 | 3 | 6 | -0.5 | 1 | 2 | -1 | -1 | 2 | 21 | -1 | 2 | 94.8 | |
| 326 | 16840 | 208 | 20-25 | S | 0 | 14 | 15 | 110 | 170 | 650 | 4.6 | 35 | 78 | 90 | 70 | 11 | -1 | 6 | -0.5 | -1 | 1 | -1 | -1 | 2 | 14 | -1 | -1 | 80.0 | |
| 327 | 16840R | 208 | 20-25 | S | 0 | 14 | 0 | 0 | 160 | 0 | 0.0 | 0 | 0 | 0 | 80 | 8 | -1 | 5 | -0.5 | 1 | 1 | -1 | 0 | 2 | 0 | 0 | 0 | 0.0 | |
| 328 | 16842 | 208 | 30-35 | S | 0 | 15 | -1 | 110 | 140 | 520 | 5.1 | 35 | 66 | 80 | 61 | 25 | -1 | 4 | -0.5 | -1 | 1 | -1 | -1 | 1 | 21 | -1 | 1 | 20.6 | SI(-63)=25-35 |
| 333 | 16842R | 208 | 30-35 | S | 0 | 15 | 0 | 0 | 130 | 0 | 0.0 | 0 | 0 | 0 | 67 | 14 | 1 | 3 | -0.5 | -1 | 1 | -1 | 0 | 1 | 0 | 0 | 0 | 0.0 | |
| 334 | 16844 | 208 | 45-50 | S | 0 | 15 | 13 | 82 | 130 | 540 | 3.6 | 24 | 46 | 33 | 46 | 5 | -1 | 2 | -0.5 | 1 | -1 | -1 | -1 | -1 | 12 | -1 | -1 | 18.1 | SI(-63)=40-50 |
| 335 | 16846 | 208 | 55-60 | S | 0 | 15 | 8 | 89 | 140 | 630 | 4.1 | 28 | 51 | 37 | 53 | 5 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | -1 | 14 | -1 | 1 | 16.4 | SI(-63)=50-60 |
| 336 | 16848 | 208 | 70-75 | S | 0 | 15 | -1 | 63 | 91 | 450 | 2.7 | 18 | 34 | 23 | 36 | 9 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | -1 | 9 | -1 | -1 | 42.5 | SI(-63)=65-75 |
| 337 | 16850 | 208 | 80-85 | S | 0 | 10 | 1 | 60 | 90 | 400 | 2.5 | 17 | 31 | 21 | 37 | 3 | -1 | 2 | -0.5 | 1 | -1 | -1 | -1 | -1 | 11 | -1 | -1 | 47.0 | SI(-63)=75-85 |
| 338 | 16852 | 208 | 90-95 | S | 0 | 15 | -1 | 73 | 100 | 440 | 3.0 | 20 | 41 | 28 | 42 | 3 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | -1 | 10 | -1 | -1 | 48.6 | SI(-63)=85-95 |
| 339 | 16853 | 208 | 98-103 | S | 0 | 11 | 1 | 76 | 120 | 450 | 3.1 | 19 | 36 | 29 | 51 | 3 | -1 | 6 | -0.5 | -1 | 1 | -1 | -1 | 2 | 12 | -1 | -1 | 67.6 | |
| 340 | 13845R | 208 | 98-103 | S | 0 | 11 | -1 | 92 | 130 | 400 | 3.1 | 18 | 38 | 31 | 55 | 2 | -1 | 6 | -0.5 | -1 | 9 | -1 | -1 | 4 | 12 | -1 | -1 | 73.8 | |
| 341 | 13851 | 208 | 108-113 | S | 0 | 32 | -1 | 170 | 87 | 400 | 3.2 | 15 | 32 | 23 | 84 | 12 | -1 | 3 | -0.5 | -1 | 6 | -1 | -1 | -1 | 15 | -1 | 2 | 75.1 | |
| 342 | 16875 | 209 | 30-35 | S | 0 | 27 | -1 | 99 | 100 | 540 | 3.2 | 20 | 38 | 24 | 70 | 3 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | -1 | 17 | -1 | 2 | 65.7 | |
| 343 | 16876 | 209 | 35-39.5 | S | 0 | 27 | 3 | 120 | 120 | 580 | 3.9 | 24 | 50 | 32 | 96 | 4 | 1 | 4 | -0.5 | 1 | 1 | -1 | -1 | -1 | 22 | -1 | 2 | 29.8 | |
| 344 | 16877 | 209 | 45-50 | S | 0 | 15 | -1 | 58 | 97 | 360 | 2.3 | 17 | 31 | 21 | 45 | 2 | 1 | 2 | -0.5 | 1 | -1 | -1 | -1 | -1 | 20 | -1 | 1 | 114.6 | |
| 345 | 16879 | 209 | 55-60 | S | 0 | 15 | -1 | 61 | 110 | 390 | 2.7 | 19 | 39 | 28 | 50 | 2 | -1 | 1 | -0.5 | 1 | 1 | -1 | -1 | -1 | 15 | -1 | 1 | 54.9 | |
| 346 | 16880 | 209 | 60-65 | S | 0 | 13 | 1 | 67 | 110 | 400 | 2.8 | 19 | 38 | 29 | 52 | 2 | -1 | 1 | -0.5 | 1 | 1 | -1 | -1 | -1 | 19 | -1 | 1 | 41.0 | |
| 347 | 16881 | 209 | 70-75 | S | 0 | 13 | -1 | 59 | 110 | 420 | 2.7 | 19 | 39 | 26 | 48 | 2 | -1 | 1 | -0.5 | 1 | 1 | -1 | -1 | -1 | 20 | -1 | 2 | 37.2 | |
| 348 | 16883 | 209 | 80-85 | S | 0 | 13 | 1 | 71 | 120 | 420 | 3.0 | 23 | 43 | 30 | 55 | -1 | -1 | 1 | -0.5 | 1 | -1 | -1 | -1 | 1 | 18 | -1 | -1 | 53.6 | |
| 353 | 16884 | 209 | 85-90 | S | 0 | 13 | -1 | 71 | 120 | 510 | 3.0 | 21 | 39 | 26 | 46 | 1 | -1 | -1 | -0.5 | -1 | 1 | -1 | -1 | -1 | 18 | -1 | 1 | 131.6 | |
| 354 | 13846R | 209 | 85-90 | S | 0 | 13 | -1 | 77 | 110 | 430 | 2.7 | 17 | 36 | 29 | 43 | 1 | -1 | 1 | -0.5 | -1 | 9 | -1 | -1 | -1 | 14 | -1 | -1 | 68.0 | |
| 355 | 16885 | 209 | 90-95 | S | 0 | 13 | -1 | 67 | 120 | 480 | 2.9 | 22 | 39 | 25 | 48 | 1 | -1 | 1 | -0.5 | -1 | 1 | -1 | -1 | -1 | 16 | -1 | -1 | 157.3 | |
| 356 | 16886 | 209 | 95-100 | S | 0 | 13 | -1 | 74 | 120 | 530 | 3.1 | 24 | 39 | 26 | 44 | 1 | -1 | 2 | -0.5 | 1 | 1 | -1 | -1 | 3 | 18 | -1 | 1 | 104.0 | |
| 357 | 16887 | 209 | 100-105 | S | 0 | 11 | -1 | 82 | 130 | 550 | 3.5 | 26 | 46 | 37 | 62 | 1 | -1 | 1 | -0.5 | 1 | -1 | -1 | -1 | 9 | 20 | -1 | 1 | 86.5 | |
| 358 | 16887R | 209 | 100-105 | S | 0 | 11 | 0 | 0 | 100 | 0 | 0.0 | 0 | 0 | 0 | 60 | 2 | -1 | 2 | -0.5 | -1 | 1 | -1 | 0 | 9 | 0 | 0 | 0 | 0.0 | |
| 359 | 17013 | 210 | 18-23 | S | 0 | 25 | 1 | 73 | 87 | 550 | 2.8 | 18 | 31 | 19 | 50 | 2 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | -1 | 17 | -1 | 2 | 69.5 | |
| 360 | 17014 | 210 | 23-25 | S | 0 | 17 | -1 | 72 | 98 | 410 | 2.7 | 18 | 35 | 22 | 54 | 3 | -1 | 2 | -0.5 | -1 | 2 | -1 | -1 | -1 | 21 | -1 | 2 | 69.5 | |
| 361 | 17015 | 210 | 25-30 | S | 0 | 10 | -1 | 58 | 110 | 390 | 2.4 | 18 | 40 | 27 | 42 | 2 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 18 | -1 | -1 | 25.9 | |
| 362 | 17016 | 210 | 30-35 | S | 0 | 13 | -1 | 52 | 120 | 400 | 2.3 | 20 | 43 | 28 | 42 | 3 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 20 | -1 | -1 | 67.2 | |
| 363 | 13847R | 210 | 30-35 | S | 0 | 13 | -1 | 62 | 110 | 320 | 2.1 | 16 | 38 | 24 | 39 | 2 | -1 | 2 | -0.5 | 1 | -1 | -1 | -1 | 1 | 13 | -1 | -1 | 41.8 | |
| 364 | 17017 | 210 | 35-40 | S | 0 | 15 | -1 | 44 | 110 | 430 | 2.4 | 22 | 42 | 29 | 43 | 2 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | 1 | 17 | -1 | -1 | 45.0 | |
| 365 | 17018 | 210 | 40-45 | S | 0 | 13 | -1 | 45 | 110 | 400 | 2.2 | 20 | 40 | 27 | 38 | 1 | -1 | 1 | -0.5 | -1 | -1 | -1 | -1 | -1 | 23 | -1 | 1 | 55.6 | |
| 366 | 17019 | 210 | 45-48 | S | 0 | 13 | -1 | 56 | 120 | 400 | 2.3 | 21 | 44 | 29 | 32 | 1 | -1 | 1 | -0.5 | -1 | -1 | -1 | -1 | -1 | 16 | -1 | -1 | 84.0 | |
| 369 | 16868 | 211 | 20-25 | S | 0 | 26 | -1 | 66 | 93 | 350 | 2.3 | 15 | 30 | 19 | 48 | 2 | 2 | 3 | -0.5 | -1 | 1 | -1 | -1 | -1 | 15 | -1 | -1 | 70.6 | |
| 370 | 16869 | 211 | 25-30 | S | 0 | 15 | 1 | 67 | 100 | 380 | 2.5 | 16 | 32 | 21 | 46 | 1 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 14 | -1 | -1 | 156.0 | |
| 371 | 16871 | 211 | 36-40 | S | 0 | 11 | 2 | 76 | 98 | 410 | 2.7 | 20 | 36 | 25 | 69 | -1 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | 1 | 18 | -1 | -1 | 82.9 | |
| 372 | 16872 | 211 | 40-45 | S | 0 | 11 | 1 | 68 | 99 | 430 | 2.9 | 21 | 38 | 32 | 100 | 1 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | 3 | 20 | -1 | 1 | 58.4 | |
| 373 | 16873 | 211 | 45-50 | S | 0 | 11 | -2 | 92 | 150 | 490 | 3.8 | 28 | 61 | 79 | 580 | 4 | -1 | 10 | -0.5 | -1 | 2 | -1 | -1 | 8 | 21 | -1 | 1 | 26.4 | |
| 374 | 16873R | 211 | 45-50 | S | 0 | 11 | 0 | 0 | 120 | 0 | 0.0 | 0 | 0 | 0 | 540 | 4 | -1 | 9 | -0.5 | -1 | 2 | -1 | 0 | 8 | 0 | 0 | 0 | 0.0 | |
| 375 | 16874 | 211 | 50-55 | S | 0 | 11 | 1 | 110 | 190 | 500 | 4.1 | 28 | 67 | 64 | 320 | 4 | 1 | 12 | -0.5 | 1 | 2 | -1 | -1 | 7 | 14 | -1 | -1 | 26.7 | |
| 376 | 13848R | 211 | 50-55 | S | 0 | 11 | -1 | 120 | 210 | 530 | 4.4 | 29 | 74 | 80 | 400 | 5 | -1 | 14 | -0.5 | 1 | 2 | -1 | -1 | 5 | 10 | -1 | -1 | 31.0 | |
| 377 | 16874R | 211 | 50-55 | S | 0 | 11 | 0 | 0 | 150 | 0 | 0.0 | 0 | 0 | 0 | 320 | 4 | 1 | 10 | -0.5 | -1 | 2 | -1 | 0 | 5 | 0 | 0 | 0 | 0.0 | |
| 378 | 16827 | 212 | 25-30 | S | 0 | 27 | -1 | 140 | 110 | 610 | 4.0 | 22 | 46 | 30 | 87 | 5 | 1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 19 | -1 | 2 | 32.0 | |
| 379 | 16829 | 212 | 55-60 | S | 0 | 27 | -1 | 160 | 120 | 610 | 4.3 | 24 | 50 | 34 | 110 | 7 | 2 | 3 | -0.5 | 1 | 1 | -1 | -1 | -1 | 17 | -1 | 2 | 40.6 | |
| 380 | 16832 | 212 | 75-80 | S | 0 | 17 | 12 | 100 | 150 | 500 | 3.9 | 25 | 53 | 44 | 85 | 3 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 15 | -1 | 1 | 49.2 | |
| 381 | 16833 | 212 | 80-85 | S | 0 | 11 | -1 | 110 | 150 | 770 | 5.1 | 34 | 59 | 53 | 120 | 2 | -1 | 2 | -0.5 | 1 | 1 | -1 | -1 | 1 | 13 | -1 | 1 | 29.7 | |
| 382 | 16834 | 212 | 85-90 | S | 0 | 11 | 7 | 160 | 190 | 840 | 6.9 | 47 | 78 | 73 | 250 | 4 | -1 | 5 | -0.5 | 1 | 3 | -1 | -1 | 2 | 17 | -1 | 4 | 91.5 | |
| 383 | 16835 | 212 | 90-95 | S | 0 | 11 | -1 | 150 | 200 | 700 | 5.5 | 36 | 69 | 75 | 200 | 2 | -1 | 5 | -0.5 | 1 | 2 | -1 | -1 | 2 | 15 | -1 | 2 | 92.4 | |
| 384 | 13849R | 212 | 90-95 | S | 0 | 11 | -1 | 180 | 210 | 770 | 6.2 | 41 | 82 | 91 | 240 | 3 | -1 | 4 | -0.5 | 1 | 2 | -1 | -1 | 2 | 11 | -1 | 2 | 87.5 | |
| 385 | 16836 | 212 | 95-98 | S | 0 | 11 | 31 | 150 | 230 | 920 | 6.0 | 35 | 57 | 85 | 250 | 4 | 1 | 8 | -0.5 | -1 | 2 | -1 | -1 | 1 | 12 | -1 | 1 | 109.6 | |
| 388 | 16837 | 212 | 98-102 | S | 0 | 32 | 1 | 76 | 85 | 620 | 5.6 | 34 | 65 | 98 | 340 | 4 | -1 | 13 | -0.5 | 1 | 2 | -1 | -1 | 2 | 8 | -1 | -1 | 41.3 | |
| 389 | 16838 | 212 | 102-107 | S | 0 | 32 | 2 | 39 | 43 | 130 | 2.9 | 14 | 18 | 26 | 69 | 1 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | 1 | 4 | -1 | -1 | 33.9 | |

## APPENDIX 9-8B. List of All -63 um Sample Assays by Sample Number.

| S.N. | DH | SI | DM | GL | DT | AU | V | CR | MN | FE% | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U | NV4 | RM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13830R | 101 | 97.5-102.5 | S | L | 21 | -1 | 130 | 79 | 550 | 3.0 | 17 | 33 | 22 | 79 | 9 | 2 | 3 | -0.5 | 1 | 8 | -1 | -1 | 1 | 13 | -1 | 3 | 39.9 | |
| 13831R | 102 | 150-155 | S | L | 21 | -1 | 140 | 91 | 570 | 3.2 | 18 | 38 | 26 | 90 | 9 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | 1 | 14 | -1 | 3 | 41.8 | |
| 13832R | 102 | 170-175 | S | L | 14 | -1 | 71 | 77 | 410 | 2.5 | 15 | 24 | 17 | 37 | 7 | -1 | 1 | -0.5 | -1 | 2 | -1 | -1 | 2 | 7 | -1 | -1 | 23.4 | |
| 13833R | 103 | 80-85 | S | L | 21 | 2 | 140 | 90 | 480 | 3.2 | 17 | 36 | 23 | 81 | 5 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | -1 | 12 | -1 | 3 | 74.3 | |
| 13834R | 104 | 60-65 | S | L | 21 | -1 | 150 | 100 | 580 | 3.6 | 20 | 42 | 28 | 100 | 7 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | 1 | 16 | -1 | 3 | 21.8 | |
| 13835R | 104 | 84-89 | S | L | 15 | -1 | 99 | 110 | 530 | 3.4 | 22 | 41 | 28 | 65 | 3 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | 5 | 14 | -1 | 2 | 36.2 | |
| 13836R | 106 | 70-75 | S | L | 21 | -1 | 180 | 98 | 580 | 3.8 | 21 | 44 | 28 | 99 | 9 | 1 | 4 | -0.5 | -1 | 2 | -1 | -1 | 1 | 14 | -1 | 3 | 37.1 | |
| 13837R | 106 | 102-107 | S | L | 11 | -1 | 83 | 120 | 520 | 3.3 | 22 | 39 | 23 | 47 | 3 | -1 | 1 | -0.5 | -1 | 1 | -1 | -1 | 3 | 9 | -1 | -1 | 49.0 | |
| 13838R | 108 | 84-89 | S | L | 21 | -1 | 190 | 110 | 590 | 3.9 | 21 | 47 | 30 | 100 | 9 | 1 | 5 | -0.5 | -1 | 2 | -1 | -1 | 1 | 15 | -1 | 3 | 43.5 | |
| 13839R | 110 | 47-52 | S | L | 11 | -1 | 120 | 130 | 280 | 4.3 | 23 | 47 | 52 | 170 | 5 | -1 | 7 | -0.5 | -1 | 2 | -1 | -1 | 2 | 14 | -1 | 3 | 39.7 | |
| 13840R | 202 | 60.5-66 | S | O | 21 | 8 | 97 | 92 | 520 | 3.4 | 18 | 38 | 25 | 77 | 5 | -1 | 3 | -0.5 | -1 | 5 | -1 | -1 | -1 | 12 | -1 | 2 | 28.2 | |
| 13841R | 202 | 109-114 | S | O | 11 | -1 | 52 | 63 | 340 | 2.0 | 13 | 21 | 13 | 37 | 2 | -1 | 1 | -0.5 | -1 | 9 | -1 | -1 | 3 | 9 | -1 | -1 | 22.9 | |
| 13842R | 204 | 85-90 | S | O | 11 | -1 | 92 | 180 | 530 | 3.3 | 23 | 58 | 32 | 62 | 2 | -1 | 1 | -0.5 | -1 | 11 | -1 | -1 | 1 | 9 | -1 | -1 | 56.5 | |
| 13843R | 206 | 75-80 | S | O | 21 | 1 | 100 | 110 | 470 | 3.2 | 19 | 41 | 25 | 76 | 4 | -1 | 2 | -0.5 | -1 | 11 | -1 | -1 | -1 | 13 | -1 | 2 | 35.9 | |
| 13844R | 207 | 97.5-102 | S | O | 11 | 1 | 130 | 180 | 790 | 5.6 | 37 | 70 | 63 | 160 | 2 | -1 | 4 | -0.5 | 1 | 12 | -1 | -1 | 5 | 18 | -1 | 1 | 59.6 | |
| 13845R | 208 | 98-103 | S | O | 11 | -1 | 92 | 130 | 400 | 3.1 | 18 | 38 | 31 | 55 | 2 | -1 | 6 | -0.5 | -1 | 9 | -1 | -1 | 4 | 12 | -1 | -1 | 73.8 | |
| 13846R | 209 | 85-90 | S | O | 13 | -1 | 77 | 110 | 430 | 2.7 | 17 | 36 | 29 | 43 | 1 | -1 | 1 | -0.5 | -1 | 9 | -1 | -1 | -1 | 14 | -1 | -1 | 68.0 | |
| 13847R | 210 | 30-35 | S | O | 13 | -1 | 62 | 110 | 320 | 2.1 | 16 | 38 | 24 | 39 | 2 | -1 | 2 | -0.5 | 1 | -1 | -1 | -1 | 1 | 13 | -1 | -1 | 41.8 | |
| 13848R | 211 | 50-55 | S | O | 11 | -1 | 120 | 210 | 530 | 4.4 | 29 | 74 | 80 | 400 | 5 | -1 | 14 | -0.5 | 1 | 2 | -1 | -1 | 5 | 10 | -1 | -1 | 31.0 | |
| 13849R | 212 | 90-95 | S | O | 11 | -1 | 180 | 210 | 770 | 6.2 | 41 | 82 | 91 | 240 | 3 | -1 | 4 | -0.5 | 1 | 2 | -1 | -1 | 2 | 11 | -1 | 2 | 87.5 | |
| 13850 | 101 | 125-126 | S | L | 11 | -1 | 150 | 170 | 560 | 4.3 | 25 | 58 | 38 | 91 | 5 | -1 | 2 | -0.5 | -1 | 5 | -1 | -1 | 2 | 13 | -1 | 2 | 72.6 | |
| 13851 | 208 | 108-113 | S | O | 32 | -1 | 170 | 87 | 400 | 3.2 | 15 | 32 | 23 | 84 | 12 | -1 | 3 | -0.5 | -1 | 6 | -1 | -1 | -1 | 15 | -1 | 2 | 75.1 | |
| 16801 | 202 | 4-9 | S | O | 21 | -1 | 110 | 210 | 330 | 4.2 | 26 | 68 | 79 | 55 | 2 | -1 | 10 | -0.5 | 1 | 1 | -1 | -1 | 7 | 13 | -1 | -1 | 31.2 | |
| 16802 | 202 | 9-14 | S | O | 21 | -1 | 160 | 87 | 560 | 3.3 | 17 | 37 | 24 | 92 | 11 | 2 | 2 | -0.5 | -1 | 4 | -1 | -1 | -1 | 24 | -1 | 3 | 30.1 | |
| 16803 | 202 | 14-19 | S | O | 21 | -1 | 140 | 81 | 430 | 3.2 | 15 | 34 | 23 | 85 | 9 | 1 | 2 | -0.5 | -1 | 4 | -1 | -1 | 1 | 17 | -1 | 3 | 48.5 | |
| 16804 | 202 | 19-23 | S | O | 21 | -1 | 140 | 87 | 490 | 3.1 | 16 | 36 | 24 | 88 | 9 | -1 | 2 | -0.5 | -1 | 3 | -1 | -1 | -1 | 16 | -1 | 3 | 63.8 | |
| 16808 | 202 | 38-42.5 | S | O | 21 | -1 | 120 | 77 | 480 | 3.0 | 15 | 32 | 20 | 80 | 13 | -1 | 2 | -0.5 | 1 | 5 | -1 | -1 | -1 | 15 | -1 | 3 | 53.9 | |
| 16809 | 202 | 42.5-47.5 | S | O | 21 | -1 | 91 | 64 | 450 | 2.7 | 13 | 25 | 15 | 58 | 5 | -1 | 1 | -0.5 | -1 | 3 | -1 | -1 | -1 | 13 | -1 | 2 | 42.5 | |
| 16811 | 202 | 50.5-55.5 | S | O | 21 | 51 | 140 | 98 | 560 | 3.5 | 19 | 41 | 28 | 91 | 5 | -1 | 2 | -0.5 | -1 | 5 | -1 | -1 | 1 | 18 | -1 | 3 | 65.3 | |
| 16813 | 202 | 60.5-66 | S | O | 21 | 1 | 88 | 86 | 500 | 3.3 | 17 | 36 | 24 | 72 | 5 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 15 | -1 | 2 | 35.9 | |
| 16814 | 202 | 66-70 | S | O | 21 | -1 | 80 | 84 | 460 | 2.9 | 16 | 32 | 21 | 59 | 5 | 1 | 1 | -0.5 | -1 | 2 | -1 | -1 | -1 | 15 | -1 | 2 | 39.2 | |
| 16815 | 202 | 70-73 | S | O | 11 | 2 | 53 | 72 | 360 | 2.0 | 13 | 24 | 13 | 36 | 2 | -1 | -1 | -0.5 | -1 | 2 | -1 | -1 | 1 | 11 | -1 | -1 | 49.0 | |
| 16816 | 202 | 73-76 | S | O | 11 | 2 | 64 | 98 | 360 | 2.0 | 13 | 24 | 13 | 36 | 3 | -1 | 5 | -0.5 | -1 | 2 | -1 | -1 | 3 | 17 | -1 | 2 | 38.0 | |
| 16817 | 202 | 76-81 | S | O | 11 | -1 | 60 | 120 | 410 | 2.8 | 16 | 33 | 25 | 52 | 2 | -1 | 4 | -0.5 | -1 | 1 | -1 | -1 | 11 | 12 | -1 | -1 | 24.5 | |
| 16817R | 202 | 76-81 | S | O | 11 | 0 | 0 | 98 | 0 | 0.0 | 0 | 0 | 0 | 52 | 2 | 1 | 5 | -0.5 | -1 | 1 | -1 | 0 | 10 | 0 | 0 | 0 | 0.0 | |
| 16818 | 202 | 81-86 | S | O | 11 | -1 | 51 | 80 | 370 | 2.3 | 14 | 26 | 17 | 35 | 1 | -1 | 1 | -0.5 | -1 | 1 | -1 | -1 | 7 | 12 | -1 | -1 | 23.0 | |
| 16819 | 202 | 86-91 | S | O | 11 | -1 | 52 | 73 | 350 | 2.2 | 13 | 24 | 16 | 37 | 1 | -1 | -1 | -0.5 | -1 | 1 | -1 | -1 | 5 | 10 | -1 | -1 | 21.8 | |
| 16820 | 202 | 91-94 | S | O | 11 | 1 | 53 | 69 | 330 | 2.1 | 13 | 24 | 14 | 40 | 1 | -1 | 1 | -0.5 | -1 | 1 | -1 | -1 | 2 | 14 | -1 | -1 | 47.3 | |
| 16821 | 202 | 94-99 | S | O | 11 | -1 | 43 | 62 | 290 | 1.8 | 12 | 19 | 11 | 33 | 1 | 2 | -1 | -0.5 | -1 | 1 | -1 | -1 | 5 | 16 | -1 | -1 | 21.8 | |
| 16822 | 202 | 99-104 | S | O | 11 | 28 | 46 | 58 | 300 | 1.8 | 11 | 19 | 10 | 30 | 1 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | 3 | 18 | -1 | -1 | 52.3 | |
| 16822R | 202 | 99-104 | S | O | 11 | 0 | 0 | 48 | 0 | 0.0 | 0 | 0 | 0 | 31 | 1 | 1 | 2 | -0.5 | -1 | -1 | -1 | 0 | 3 | 0 | 0 | 0 | 0.0 | |
| 16823 | 202 | 104-109 | S | O | 11 | -1 | 54 | 62 | 400 | 2.2 | 13 | 20 | 12 | 33 | 1 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | 3 | 14 | -1 | -1 | 22.8 | |
| 16824 | 202 | 109-114 | S | O | 11 | 1 | 49 | 58 | 320 | 1.8 | 11 | 19 | 12 | 33 | 1 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | 3 | 13 | -1 | -1 | 73.8 | |
| 16825 | 202 | 114-117 | S | O | 11 | 1 | 52 | 63 | 370 | 2.2 | 13 | 19 | 12 | 35 | 1 | -1 | 2 | -0.5 | 1 | -1 | -1 | -1 | 2 | 15 | -1 | -1 | 66.9 | |
| 16826 | 202 | 117-122 | S | O | 11 | 1 | 64 | 150 | 410 | 2.7 | 17 | 43 | 19 | 42 | 1 | -1 | 3 | -0.5 | -1 | -1 | -1 | -1 | 2 | 12 | -1 | -1 | 26.5 | |
| 16827 | 212 | 25-30 | S | O | 27 | -1 | 140 | 110 | 610 | 4.0 | 22 | 46 | 30 | 87 | 5 | 1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 19 | -1 | 2 | 32.0 | |
| 16829 | 212 | 55-60 | S | O | 27 | -1 | 160 | 120 | 610 | 4.3 | 24 | 50 | 34 | 110 | 7 | 2 | 3 | -0.5 | 1 | 1 | -1 | -1 | -1 | 17 | -1 | 2 | 40.6 | |
| 16832 | 212 | 75-80 | S | O | 17 | 12 | 100 | 150 | 500 | 3.9 | 25 | 53 | 44 | 85 | 3 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 15 | -1 | 1 | 49.2 | |
| 16833 | 212 | 80-85 | S | O | 11 | -1 | 110 | 150 | 770 | 5.1 | 34 | 59 | 53 | 120 | 2 | -1 | 2 | -0.5 | 1 | 1 | -1 | -1 | 1 | 13 | -1 | 1 | 29.7 | |
| 16834 | 212 | 85-90 | S | O | 11 | 7 | 160 | 190 | 840 | 6.9 | 47 | 78 | 73 | 250 | 4 | -1 | 5 | -0.5 | 1 | 3 | -1 | -1 | 2 | 17 | -1 | 4 | 91.5 | |
| 16835 | 212 | 90-95 | S | O | 11 | -1 | 150 | 200 | 700 | 5.5 | 36 | 69 | 75 | 200 | 2 | -1 | 5 | -0.5 | 1 | 2 | -1 | -1 | 2 | 15 | -1 | 2 | 92.4 | |
| 16836 | 212 | 95-98 | S | O | 11 | 31 | 150 | 230 | 920 | 6.0 | 35 | 57 | 85 | 250 | 4 | 1 | 8 | -0.5 | -1 | 2 | -1 | -1 | 1 | 12 | -1 | 1 | 109.6 | |
| 16837 | 212 | 98-102 | S | O | 32 | 1 | 76 | 85 | 620 | 5.6 | 34 | 65 | 98 | 340 | 4 | -1 | 13 | -0.5 | 1 | 2 | -1 | -1 | 2 | 8 | -1 | -1 | 41.3 | |
| 16838 | 212 | 102-107 | S | O | 32 | 2 | 39 | 43 | 130 | 2.9 | 14 | 18 | 26 | 69 | 1 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | 1 | 4 | -1 | -1 | 33.9 | |
| 16840 | 208 | 20-25 | S | O | 14 | 15 | 110 | 170 | 650 | 4.6 | 35 | 78 | 90 | 70 | 11 | -1 | 6 | -0.5 | -1 | 1 | -1 | -1 | 2 | 14 | -1 | -1 | 80.0 | |
| 16840R | 208 | 20-25 | S | O | 14 | 0 | 0 | 160 | 0 | 0.0 | 0 | 0 | 0 | 80 | 8 | -1 | 5 | -0.5 | 1 | 1 | -1 | 0 | 2 | 0 | 0 | 0 | 0.0 | |
| 16842 | 208 | 30-35 | S | O | 15 | -1 | 110 | 140 | 520 | 5.1 | 35 | 66 | 80 | 61 | 25 | -1 | 4 | -0.5 | -1 | 1 | -1 | -1 | 1 | 21 | -1 | 1 | 20.6 | SI[-63]=25-35 |
| 16842R | 208 | 30-35 | S | O | 15 | 0 | 0 | 130 | 0 | 0.0 | 0 | 0 | 0 | 67 | 14 | 1 | 3 | -0.5 | -1 | 1 | -1 | 0 | 1 | 0 | 0 | 0 | 0.0 | |
| 16844 | 208 | 45-50 | S | O | 15 | 13 | 82 | 130 | 540 | 3.6 | 24 | 46 | 33 | 46 | 5 | -1 | 2 | -0.5 | 1 | -1 | -1 | -1 | -1 | 12 | -1 | -1 | 18.1 | SI[-63]=40-50 |
| 16846 | 208 | 55-60 | S | O | 15 | 8 | 89 | 140 | 630 | 4.1 | 28 | 51 | 37 | 53 | 5 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | -1 | 14 | -1 | 1 | 16.4 | SI[-63]=50-60 |
| 16848 | 208 | 70-75 | S | O | 15 | -1 | 63 | 91 | 450 | 2.7 | 18 | 34 | 23 | 36 | 9 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | -1 | 9 | -1 | -1 | 42.5 | SI[-63]=65-75 |
| 16850 | 208 | 80-85 | S | O | 10 | 1 | 60 | 90 | 400 | 2.5 | 17 | 31 | 21 | 37 | 3 | -1 | 2 | -0.5 | 1 | -1 | -1 | -1 | -1 | 11 | -1 | -1 | 47.0 | SI[-63]=75-85 |
| 16852 | 208 | 90-95 | S | O | 15 | -1 | 73 | 100 | 440 | 3.0 | 20 | 41 | 28 | 42 | 3 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | -1 | 10 | -1 | -1 | 48.6 | SI[-63]=85-95 |
| 16853 | 208 | 98-103 | S | O | 11 | 1 | 76 | 120 | 450 | 3.1 | 19 | 36 | 29 | 51 | 3 | -1 | 6 | -0.5 | -1 | 1 | -1 | -1 | 2 | 12 | -1 | -1 | 67.6 | |
| 16855 | 204 | 18-23 | S | O | 21 | 1 | 120 | 92 | 590 | 3.4 | 18 | 36 | 26 | 84 | 9 | 1 | 4 | -0.5 | -1 | 1 | -1 | -1 | -1 | 15 | -1 | 3 | 39.5 | SI[-63]=13-23 |
| 16856 | 204 | 23-27.5 | S | O | 21 | -1 | 97 | 71 | 480 | 2.3 | 14 | 27 | 17 | 58 | 5 | -1 | 3 | -0.5 | -1 | -1 | -1 | -1 | 1 | 12 | -1 | 2 | 23.9 | |
| 16858 | 204 | 38-43 | S | O | 27 | -1 | 140 | 110 | 660 | 4.0 | 23 | 46 | 32 | 96 | 7 | -1 | 4 | -0.5 | -1 | 1 | -1 | -1 | -1 | 14 | -1 | 3 | 18.8 | SI[-63]=33-43 |
| 16860 | 204 | 58-63 | S | O | 27 | 1 | 89 | 97 | 590 | 3.5 | 20 | 39 | 24 | 68 | 3 | 2 | 3 | -0.5 | -1 | -1 | -1 | -1 | -1 | 14 | -1 | 2 | 19.6 | SI[-63]=53-63 |
| 16862 | 204 | 70-75 | S | O | 21 | -1 | 81 | 100 | 560 | 3.5 | 20 | 36 | 24 | 65 | 3 | -1 | 3 | -0.5 | -1 | -1 | -1 | -1 | -1 | 14 | -1 | 2 | 18.6 | SI[-63]=65-75 |
| 16863 | 204 | 75-79 | S | O | 21 | 2 | 73 | 100 | 580 | 3.7 | 21 | 38 | 25 | 68 | 3 | 1 | 3 | -0.5 | -1 | -1 | -1 | -1 | -1 | 15 | -1 | 2 | 54.7 | |
| 16864 | 204 | 80-85 | S | O | 11 | -1 | 56 | 140 | 560 | 3.7 | 25 | 52 | 36 | 38 | 2 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | -1 | 14 | -1 | -1 | 59.0 | |
| 16865 | 204 | 85-90 | S | O | 11 | 2 | 62 | 170 | 600 | 3.7 | 24 | 57 | 33 | 62 | 2 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | -1 | 14 | -1 | 1 | 61.2 | |
| 16866 | 204 | 90-94 | S | O | 11 | 1 | 96 | 190 | 530 | 3.4 | 25 | 58 | 32 | 65 | 12 | 2 | 3 | -0.5 | -1 | 2 | -1 | -1 | 3 | 12 | -1 | -1 | 59.1 | |
| 16868 | 211 | 20-25 | S | O | 26 | -1 | 66 | 93 | 350 | 2.3 | 15 | 30 | 19 | 48 | 2 | 2 | 3 | -0.5 | -1 | 1 | -1 | -1 | -1 | 15 | -1 | -1 | 70.6 | |
| 16869 | 211 | 25-30 | S | O | 15 | 1 | 67 | 100 | 380 | 2.5 | 16 | 32 | 21 | 46 | 1 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 14 | -1 | -1 | 156.0 | |
| 16871 | 211 | 36-40 | S | O | 11 | 2 | 76 | 98 | 410 | 2.7 | 20 | 36 | 25 | 69 | -1 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | 1 | 18 | -1 | -1 | 82.9 | |
| 16872 | 211 | 40-45 | S | O | 11 | 1 | 68 | 99 | 430 | 2.9 | 21 | 38 | 32 | 100 | 1 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | 3 | 20 | -1 | 1 | 58.4 | |
| 16873 | 211 | 45-50 | S | O | 11 | -2 | 92 | 150 | 490 | 3.8 | 28 | 61 | 79 | 580 | 4 | -1 | 10 | -0.5 | -1 | 2 | -1 | -1 | 8 | 21 | -1 | 1 | 26.4 | |
| 16873R | 211 | 45-50 | S | O | 11 | 0 | 0 | 120 | 0 | 0.0 | 0 | 0 | 0 | 540 | 4 | -1 | 9 | -0.5 | -1 | 2 | -1 | 0 | 8 | 0 | 0 | 0 | 0.0 | |
| 16874 | 211 | 50-55 | S | O | 11 | 1 | 110 | 190 | 500 | 4.1 | 28 | 67 | 64 | 320 | 4 | 1 | 12 | -0.5 | 1 | 2 | -1 | -1 | 7 | 14 | -1 | -1 | 26.7 | |
| 16874R | 211 | 50-55 | S | O | 11 | 0 | 0 | 150 | 0 | 0.0 | 0 | 0 | 0 | 320 | 4 | 1 | 10 | -0.5 | -1 | 2 | -1 | 0 | 5 | 0 | 0 | 0 | 0.0 | |
| 16875 | 209 | 30-35 | S | O | 27 | -1 | 99 | 100 | 540 | 3.2 | 20 | 38 | 24 | 70 | 3 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | -1 | 17 | -1 | 2 | 65.7 | |
| 16876 | 209 | 35-39.5 | S | O | 27 | 3 | 120 | 120 | 580 | 3.9 | 24 | 50 | 32 | 96 | 4 | 1 | 4 | -0.5 | 1 | 1 | -1 | -1 | -1 | 22 | -1 | 2 | 29.8 | |
| 16877 | 209 | 45-50 | S | O | 15 | -1 | 58 | 97 | 360 | 2.3 | 17 | 31 | 21 | 45 | 2 | 1 | 2 | -0.5 | 1 | -1 | -1 | -1 | -1 | 20 | -1 | 1 | 114.6 | |
| 16879 | 209 | 55-60 | S | O | 15 | -1 | 61 | 110 | 390 | 2.7 | 19 | 39 | 28 | 50 | 2 | -1 | 1 | -0.5 | 1 | 1 | -1 | -1 | -1 | 15 | -1 | 1 | 54.9 | |
| 16880 | 209 | 60-65 | S | O | 13 | 1 | 67 | 110 | 400 | 2.8 | 19 | 38 | 29 | 52 | 2 | -1 | 1 | -0.5 | 1 | 1 | -1 | -1 | -1 | 19 | -1 | 1 | 41.0 | |
| 16881 | 209 | 70-75 | S | O | 13 | -1 | 59 | 110 | 420 | 2.7 | 19 | 39 | 26 | 48 | 2 | -1 | 1 | -0.5 | 1 | 1 | -1 | -1 | -1 | 20 | -1 | 2 | 37.2 | |
| 16883 | 209 | 80-85 | S | O | 13 | 1 | 71 | 120 | 420 | 3.0 | 23 | 43 | 30 | 55 | -1 | -1 | 1 | -0.5 | 1 | -1 | -1 | -1 | 1 | 18 | -1 | -1 | 53.6 | |
| 16884 | 209 | 85-90 | S | O | 13 | -1 | 71 | 120 | 510 | 3.0 | 21 | 39 | 26 | 46 | 1 | -1 | -1 | -0.5 | -1 | 1 | -1 | -1 | -1 | 18 | -1 | 1 | 131.6 | |
| 16885 | 209 | 90-95 | S | O | 13 | -1 | 67 | 120 | 480 | 2.9 | 22 | 39 | 25 | 48 | 1 | -1 | 1 | -0.5 | -1 | 1 | -1 | -1 | -1 | 16 | -1 | -1 | 157.3 | |
| 16886 | 209 | 95-100 | S | O | 13 | -1 | 74 | 120 | 530 | 3.1 | 24 | 39 | 26 | 44 | 1 | -1 | 2 | -0.5 | 1 | 1 | -1 | -1 | 3 | 18 | -1 | 1 | 104.0 | |

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16887 | 209 | 100-105 | S | O | 11 | -1 | 82 | 130 | 550 | 3.5 | 26 | 46 | 37 | 62 | 1 | -1 | 1 | -0.5 | 1 | -1 | -1 | -1 | 9 | 20 | -1 | 1 | 86.5 | |
| 16887R | 209 | 100-105 | S | O | 11 | 0 | 0 | 100 | 0 | 0.0 | 0 | 0 | 0 | 60 | 2 | -1 | 2 | -0.5 | -1 | 1 | -1 | 0 | 9 | 0 | 0 | 0 | 0.0 | |
| 16895 | 108 | 56-61 | S | L | 21 | -1 | 150 | 98 | 630 | 4.1 | 25 | 49 | 30 | 99 | 9 | -1 | 4 | -0.5 | 1 | 2 | -1 | -1 | 1 | 21 | -1 | 4 | 18.2 | SI[-63]=51-61 |
| 16897 | 108 | 66-71 | S | L | 21 | 1 | 160 | 98 | 640 | 0.0 | 23 | 44 | 28 | 92 | 9 | 1 | 4 | -0.5 | 16 | 2 | -1 | -1 | 1 | 16 | -1 | 3 | 14.2 | SI[-63]=61-71 |
| 16897R | 108 | 66-71 | S | L | 21 | 0 | 0 | 68 | 0 | 0.0 | 0 | 0 | 0 | 88 | 7 | 1 | 3 | -0.5 | 1 | 2 | -1 | 0 | 1 | 0 | 0 | 0 | 0.0 | |
| 16898 | 108 | 71-76 | S | L | 21 | -1 | 170 | 98 | 630 | 4.2 | 23 | 46 | 29 | 98 | 10 | 2 | 4 | -0.5 | 1 | 2 | -1 | -1 | 1 | 18 | -1 | 3 | 20.5 | |
| 16899 | 108 | 76-81 | S | L | 24 | 1 | 160 | 98 | 620 | 3.9 | 23 | 45 | 28 | 96 | 10 | 2 | 4 | -0.5 | 1 | 2 | -1 | -1 | 1 | 20 | -1 | 3 | 24.9 | |
| 16900 | 108 | 84-89 | S | L | 21 | -1 | 180 | 100 | 670 | 4.3 | 25 | 48 | 31 | 110 | 11 | 3 | 4 | -0.5 | 1 | 2 | -1 | -1 | 1 | 17 | -1 | 3 | 37.8 | |
| 16901 | 108 | 96-100.5 | S | L | 14 | -1 | 91 | 120 | 570 | 3.9 | 27 | 52 | 35 | 60 | 3 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | 1 | 11 | -1 | -1 | 32.1 | |
| 16902 | 108 | 100.5-106 | S | L | 11 | -1 | 86 | 120 | 620 | 3.7 | 25 | 47 | 28 | 55 | 2 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 17 | -1 | -1 | 27.4 | |
| 16903 | 108 | 106-111 | S | L | 11 | -1 | 92 | 120 | 610 | 3.8 | 25 | 48 | 31 | 54 | 2 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 13 | -1 | 1 | 34.5 | |
| 16904 | 108 | 111-116 | S | L | 11 | -1 | 83 | 120 | 620 | 3.6 | 25 | 45 | 29 | 47 | 2 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | 2 | 15 | -1 | 1 | 32.3 | |
| 16905 | 108 | 116-121 | S | L | 11 | -1 | 84 | 130 | 710 | 4.4 | 26 | 46 | 31 | 63 | 2 | -1 | 3 | -0.5 | 1 | -1 | -1 | -1 | 3 | 24 | -1 | 4 | 58.8 | |
| 16906 | 108 | 121-126 | S | L | 11 | -1 | 87 | 120 | 640 | 3.7 | 26 | 47 | 31 | 57 | 3 | -1 | 2 | -0.5 | 1 | -1 | -1 | -1 | 3 | 14 | -1 | -1 | 48.4 | |
| 16907 | 108 | 126-131.5 | S | L | 13 | -1 | 110 | 170 | 740 | 0.5 | 34 | 75 | 63 | 85 | 3 | -1 | 4 | -0.5 | 1 | 1 | -1 | -1 | 6 | 17 | -1 | 1 | 28.1 | |
| 16910 | 103 | 75-80 | S | L | 21 | -1 | 130 | 91 | 610 | 3.7 | 21 | 39 | 24 | 80 | 25 | -1 | 3 | -0.5 | 16 | 1 | -1 | -1 | -1 | 18 | -1 | 3 | 45.3 | SI[-63]=70-80 |
| 16910R | 103 | 75-80 | S | L | 21 | 0 | 0 | 58 | 0 | 0.0 | 0 | 0 | 0 | 74 | 6 | -1 | 3 | -0.5 | 1 | 2 | 2 | 0 | -1 | 0 | 0 | 0 | 0.0 | |
| 16911 | 103 | 80-85 | S | L | 21 | -1 | 140 | 92 | 550 | 3.6 | 20 | 39 | 23 | 82 | 5 | -1 | 4 | -0.5 | 1 | 2 | 1 | -1 | 1 | 18 | -1 | 3 | 37.5 | |
| 16912 | 103 | 85-91 | S | L | 21 | -1 | 150 | 94 | 570 | 3.8 | 21 | 41 | 26 | 90 | 11 | -1 | 4 | -0.5 | 1 | 2 | -1 | -1 | 1 | 19 | -1 | 4 | 44.4 | |
| 16913 | 103 | 100-105 | S | L | 27 | -1 | 190 | 120 | 640 | 1.6 | 26 | 52 | 33 | 120 | 12 | 1 | 4 | -0.5 | 1 | 2 | -1 | -1 | 1 | 22 | -1 | 4 | 60.2 | |
| 16914 | 103 | 105-110 | S | L | 27 | 1 | 160 | 120 | 700 | 4.5 | 26 | 52 | 33 | 110 | 8 | -1 | 3 | -0.5 | 1 | 2 | -1 | -1 | 1 | 22 | -1 | 4 | 52.1 | |
| 16915 | 103 | 118-119.5 | S | L | 26 | 1 | 77 | 120 | 530 | 3.3 | 21 | 38 | 22 | 56 | 5 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 15 | -1 | -1 | 91.2 | |
| 16916 | 103 | 119.5-122 | S | L | 11 | -1 | 74 | 100 | 530 | 3.3 | 23 | 34 | 20 | 49 | 5 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | 6 | 17 | -1 | 2 | 77.2 | |
| 16918 | 206 | 25-30 | S | O | 26 | -1 | 99 | 110 | 650 | 3.9 | 25 | 46 | 28 | 77 | 5 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | 4 | 21 | -1 | 2 | 22.9 | |
| 16919 | 206 | 32.5-37 | S | O | 21 | -1 | 97 | 100 | 600 | 3.7 | 22 | 42 | 27 | 74 | 5 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | -1 | 18 | -1 | 2 | 27.7 | |
| 16921 | 206 | 60-65 | S | O | 27 | -1 | 98 | 110 | 580 | 3.7 | 22 | 42 | 25 | 71 | 5 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 18 | -1 | 2 | 49.0 | |
| 16923 | 206 | 80-82.5 | S | O | 21 | 2 | 95 | 110 | 570 | 3.6 | 22 | 46 | 28 | 72 | 3 | -1 | 2 | -0.5 | 1 | -1 | -1 | -1 | -1 | 21 | -1 | 2 | 27.0 | SI[-63]=75-82.5 |
| 16924 | 206 | 85-90 | S | O | 27 | 2 | 150 | 130 | 660 | 4.2 | 25 | 52 | 33 | 100 | 9 | -1 | 2 | -0.5 | 1 | 1 | -1 | -1 | -1 | 22 | -1 | 3 | 23.1 | |
| 16925 | 206 | 90-95 | S | O | 27 | 1 | 150 | 140 | 600 | 4.0 | 24 | 49 | 33 | 89 | 9 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 21 | -1 | 2 | 31.7 | |
| 16927 | 206 | 101.5-107.5 | S | O | 15 | -1 | 58 | 95 | 290 | 2.2 | 17 | 31 | 26 | 33 | 5 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | -1 | 10 | -1 | -1 | 53.5 | |
| 16929 | 101 | 15-20 | S | L | 21 | -2 | 120 | 89 | 560 | 3.5 | 20 | 39 | 25 | 77 | 7 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | -1 | 20 | -1 | 3 | 36.5 | |
| 16931 | 101 | 40-45 | S | L | 21 | 1 | 120 | 83 | 580 | 3.2 | 19 | 34 | 22 | 86 | 9 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | -1 | 17 | -1 | 3 | 88.5 | |
| 16935 | 101 | 70-75 | S | L | 21 | 1 | 110 | 76 | 590 | 3.2 | 18 | 33 | 21 | 77 | 9 | 2 | 3 | -0.5 | -1 | 1 | -1 | -1 | -1 | 16 | -1 | 3 | 25.4 | SI[-63]=65-75 |
| 16940 | 101 | 95-97.5 | S | L | 21 | -1 | 130 | 82 | 650 | 3.4 | 20 | 37 | 24 | 87 | 9 | 1 | 4 | -0.5 | -1 | 1 | -1 | -1 | 1 | 17 | -1 | 4 | 42.6 | |
| 16941 | 101 | 97.5-102.5 | S | L | 21 | 1 | 130 | 80 | 660 | 3.5 | 20 | 37 | 24 | 88 | 9 | -1 | 4 | -0.5 | -1 | 1 | -1 | -1 | -1 | 16 | -1 | 3 | 31.4 | |
| 16942 | 101 | 102.5-107.5 | S | L | 21 | -1 | 130 | 83 | 650 | 3.5 | 21 | 35 | 23 | 88 | 9 | 2 | 4 | -0.5 | -1 | 1 | -1 | -1 | 1 | 19 | -1 | 3 | 38.7 | |
| 16944 | 101 | 112.5-117.5 | S | L | 27 | -1 | 120 | 120 | 590 | 3.6 | 23 | 42 | 25 | 79 | 5 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 19 | -1 | 2 | 24.2 | SI[-63]=107.5-117.5 |
| 16945 | 101 | 117.5-123 | S | L | 25 | -1 | 92 | 110 | 500 | 3.3 | 23 | 37 | 25 | 54 | 5 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | -1 | 15 | -1 | -1 | 26.5 | |
| 16946 | 101 | 123-126 | S | L | 21 | -1 | 120 | 150 | 640 | 4.4 | 28 | 57 | 38 | 83 | 4 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | 2 | 19 | -1 | 2 | 75.4 | AF OVERLAPS RAINY |
| 16947 | 106 | 14.5-19.5 | S | L | 24 | -2 | 73 | 68 | 940 | 2.8 | 15 | 25 | 21 | 79 | 7 | -1 | 3 | -0.5 | -1 | -1 | -1 | -1 | 1 | 21 | -1 | 3 | 24.4 | |
| 16949 | 106 | 35-40 | S | L | 21 | 1 | 150 | 96 | 640 | 3.9 | 23 | 42 | 28 | 93 | 5 | -1 | 4 | -0.5 | -1 | 2 | -1 | -1 | 1 | 21 | -1 | 4 | 25.1 | SI[-63]=30-40 |
| 16952 | 106 | 50-55 | S | L | 21 | -1 | 160 | 97 | 610 | 3.9 | 23 | 44 | 28 | 94 | 10 | -1 | 5 | -0.5 | -1 | 2 | 1 | -1 | 1 | 21 | -1 | 4 | 29.6 | SI[-63]=45-55 |
| 16954 | 106 | 60-65 | S | L | 21 | -1 | 160 | 96 | 560 | 3.6 | 21 | 40 | 26 | 93 | 9 | -1 | 5 | -0.5 | -1 | 2 | -1 | -1 | 1 | 21 | -1 | 4 | 36.3 | SI[-63]=55-65 |
| 16955 | 106 | 65-70 | S | L | 21 | 1 | 170 | 93 | 580 | 3.6 | 22 | 43 | 27 | 88 | 7 | -1 | 4 | -0.5 | 1 | 2 | -1 | -1 | 1 | 21 | -1 | 4 | 88.1 | |
| 16957 | 106 | 75-77 | S | L | 21 | -1 | 160 | 91 | 530 | 3.5 | 21 | 40 | 25 | 92 | 9 | -1 | 4 | -0.5 | 1 | 2 | -1 | -1 | 1 | 22 | -1 | 4 | 55.1 | SI[-63]=70-77 |
| 16958 | 106 | 77-82 | S | L | 21 | 2 | 120 | 77 | 540 | 3.0 | 18 | 35 | 21 | 77 | 5 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | 1 | 19 | -1 | 4 | 26.2 | |
| 16960 | 106 | 90-95 | S | L | 27 | -1 | 150 | 120 | 590 | 4.3 | 26 | 53 | 34 | 110 | 7 | -1 | 3 | -0.5 | 1 | 2 | -1 | -1 | 1 | 22 | -1 | 3 | 22.0 | SI[-63]=85-95 |
| 16961 | 106 | 98.5-102 | S | L | 11 | 4 | 81 | 110 | 500 | 3.2 | 22 | 39 | 23 | 48 | 4 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | 1 | 12 | -1 | -1 | 24.4 | |
| 16962 | 106 | 102-107 | S | L | 11 | 1 | 80 | 120 | 410 | 2.9 | 21 | 37 | 21 | 44 | 3 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | 5 | 11 | -1 | -1 | 56.4 | |
| 16965 | 109 | 20-24 | S | L | 21 | -1 | 160 | 92 | 610 | 3.9 | 22 | 46 | 29 | 98 | 10 | -1 | 5 | -0.5 | 1 | 2 | 1 | -1 | 1 | 16 | -1 | 3 | 29.1 | |
| 16966 | 109 | 25-30 | S | L | 21 | -1 | 150 | 93 | 560 | 3.5 | 21 | 42 | 27 | 97 | 7 | -1 | 5 | -0.5 | 1 | 2 | 1 | -1 | 1 | 16 | -1 | 3 | 23.9 | |
| 16967 | 109 | 30-35 | S | L | 21 | -1 | 160 | 93 | 570 | 3.8 | 22 | 43 | 26 | 96 | 10 | -1 | 4 | -0.5 | 1 | 2 | 1 | -1 | 1 | 15 | -1 | 3 | 25.1 | |
| 16968 | 109 | 35-40 | S | L | 21 | -1 | 110 | 75 | 510 | 2.9 | 18 | 39 | 20 | 74 | 5 | 1 | 3 | -0.5 | -1 | 2 | -1 | -1 | -1 | 15 | -1 | 3 | 45.7 | |
| 16969 | 109 | 40-45 | S | L | 21 | -1 | 180 | 92 | 580 | 3.8 | 22 | 45 | 28 | 99 | 9 | 1 | 4 | -0.5 | 1 | 2 | 1 | -1 | 1 | 15 | -1 | 3 | 30.9 | |
| 16973 | 107 | 45-48.5 | S | L | 21 | -1 | 120 | 66 | 460 | 2.9 | 17 | 32 | 20 | 70 | 5 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | -1 | 14 | -1 | 2 | 34.3 | SI[-63]=40-48.5 |
| 16975 | 107 | 65-70 | S | L | 14 | 4 | 140 | 110 | 560 | 3.9 | 24 | 48 | 35 | 97 | 5 | -1 | 3 | -0.5 | 1 | 2 | -1 | -1 | 2 | 21 | -1 | 2 | 15.0 | |
| 16977 | 107 | 75-80 | S | L | 14 | 3 | 170 | 110 | 600 | 4.1 | 24 | 48 | 32 | 100 | 7 | -1 | 4 | -0.5 | 1 | 2 | 1 | -1 | 1 | 19 | -1 | 3 | 22.8 | SI[-63]=70-80 |
| 16979 | 107 | 84-89 | S | L | 14 | -3 | 120 | 120 | 570 | 3.8 | 22 | 47 | 47 | 280 | 9 | 1 | 8 | -0.5 | 1 | 2 | 1 | -1 | 2 | 23 | -1 | 3 | 10.0 | SI[-63]=80-89 |
| 16980 | 107 | 90-95 | S | L | 14 | -7 | 88 | 110 | 530 | 3.8 | 24 | 46 | 43 | 240 | 5 | -1 | 5 | -0.5 | 1 | 1 | -1 | -1 | 2 | 16 | -1 | -1 | 6.8 | |
| 16981 | 107 | 95-100 | S | L | 14 | 1100 | 100 | 140 | 590 | 4.5 | 30 | 56 | 41 | 95 | 4 | -1 | 4 | -0.5 | 1 | 2 | -1 | -1 | 3 | 18 | -1 | -1 | 25.4 | |
| 16983 | 107 | 105-110 | S | L | 14 | 8 | 100 | 140 | 670 | 4.5 | 29 | 53 | 39 | 110 | 4 | -1 | 5 | -0.5 | -1 | 1 | -1 | -1 | 2 | 22 | -1 | -1 | 3.8 | SI[-63]=100-110 |
| 16985 | 107 | 115-120 | S | L | 14 | -5 | 110 | 180 | 810 | 5.0 | 35 | 69 | 37 | 89 | 3 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | 1 | 18 | -1 | -1 | 4.7 | SI[-63]=110-120 |
| 16987 | 107 | 125-127 | S | L | 15 | 15 | 140 | 180 | 800 | 5.7 | 38 | 54 | 39 | 110 | 7 | -1 | 5 | -0.5 | -1 | 2 | -1 | -1 | 2 | 19 | -1 | 2 | 55.0 | SI[-63]=120-127 |
| 16988 | 107 | 127-132 | S | L | 15 | -10 | 120 | 150 | 690 | 4.7 | 32 | 45 | 31 | 120 | 4 | -1 | 4 | -0.5 | -1 | 2 | -1 | -1 | 2 | 16 | -1 | -1 | 32.2 | |
| 16989 | 107 | 132-137 | S | L | 14 | 150 | 100 | 120 | 650 | 4.4 | 29 | 41 | 32 | 96 | 4 | -1 | 4 | -0.5 | -1 | 2 | -1 | -1 | 2 | 16 | -1 | -1 | 64.0 | |
| 16990 | 107 | 137-142 | S | L | 15 | -2 | 100 | 120 | 690 | 4.3 | 29 | 45 | 28 | 66 | 3 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | 2 | 16 | -1 | -1 | 17.1 | |
| 16992 | 110 | 15-20 | S | L | 21 | -1 | 160 | 100 | 520 | 3.7 | 21 | 43 | 26 | 93 | 9 | 1 | 4 | -0.5 | 1 | 2 | 1 | -1 | 1 | 22 | -1 | 4 | 51.0 | |
| 16994 | 110 | 25-27.5 | S | L | 21 | -1 | 150 | 97 | 520 | 3.5 | 21 | 41 | 26 | 92 | 9 | -1 | 4 | -0.5 | 1 | 2 | 1 | -1 | 2 | 23 | -1 | 4 | 29.5 | SI[-63]=20-27.5 |
| 16995 | 110 | 27.5-32.5 | S | L | 21 | -1 | 140 | 86 | 640 | 4.1 | 24 | 45 | 28 | 93 | 9 | -1 | 4 | -0.5 | -1 | 2 | 1 | -1 | 1 | 21 | -1 | 4 | 21.1 | |
| 16996 | 110 | 32.5-37.5 | S | L | 27 | -1 | 100 | 82 | 590 | 3.5 | 21 | 39 | 24 | 80 | 5 | -1 | 4 | -0.5 | -1 | 2 | 1 | -1 | 1 | 20 | -1 | 4 | 25.3 | |
| 16997 | 110 | 37.5-42 | S | L | 17 | -1 | 110 | 110 | 550 | 4.1 | 25 | 50 | 36 | 87 | 4 | -1 | 3 | -0.5 | -1 | 2 | 1 | -1 | 1 | 24 | -1 | 3 | 36.5 | |
| 16998 | 110 | 42-47 | S | L | 11 | 4 | 95 | 80 | 480 | 3.5 | 22 | 37 | 27 | 75 | 4 | -1 | 3 | -0.5 | 1 | 2 | 1 | -1 | 2 | 22 | -1 | 2 | 70.4 | |
| 16998 | 110 | 42-47 | S | L | 11 | 4 | 95 | 80 | 480 | 3.5 | 22 | 37 | 27 | 75 | 4 | -1 | 3 | -0.5 | 1 | 2 | 1 | -1 | 2 | 22 | -1 | 2 | 70.4 | |
| 16999 | 110 | 47-52 | S | L | 11 | 7 | 110 | 110 | 600 | 4.3 | 26 | 47 | 47 | 140 | 3 | 2 | 4 | -0.5 | -1 | 2 | 1 | -1 | 3 | 22 | -1 | 4 | 52.0 | |
| 17000 | 105 | 10.5-15 | S | L | 24 | 6 | 90 | 98 | 540 | 3.5 | 21 | 39 | 29 | 71 | 4 | -1 | 4 | -0.5 | -1 | 2 | 1 | -1 | 5 | 21 | -1 | 2 | 45.2 | |
| 17001 | 105 | 15-18 | S | L | 21 | -1 | 130 | 88 | 550 | 3.3 | 19 | 40 | 27 | 120 | 5 | -1 | 4 | -0.5 | 1 | 2 | 1 | -1 | 3 | 22 | -1 | 3 | 48.4 | |
| 17003 | 105 | 25-30 | S | L | 14 | -1 | 75 | 95 | 300 | 3.1 | 21 | 30 | 20 | 65 | 2 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | 2 | 18 | -1 | 1 | 24.0 | SI[-63]=20-30 |
| 17005 | 105 | 35-41 | S | L | 14 | -1 | 90 | 120 | 370 | 4.0 | 25 | 45 | 43 | 170 | 4 | -1 | 6 | -0.5 | 1 | 2 | 1 | -1 | 3 | 26 | -1 | 1 | 13.4 | SI[-63]=30-41 |
| 17006 | 105 | 41-46 | S | L | 14 | -1 | 100 | 130 | 520 | 4.8 | 37 | 65 | 76 | 550 | 5 | -1 | 9 | -0.5 | -1 | 2 | -1 | -1 | 3 | 26 | -1 | 2 | 31.5 | |
| 17006R | 105 | 41-46 | S | L | 14 | 0 | 0 | 120 | 0 | 0.0 | 0 | 0 | 0 | 560 | 7 | 2 | 9 | -0.5 | -1 | 1 | -1 | 0 | 2 | 0 | 0 | 0 | 0.0 | |
| 17007 | 105 | 46-51 | S | L | 14 | -1 | 63 | 81 | 440 | 2.4 | 17 | 27 | 15 | 31 | 2 | -1 | -1 | -0.5 | -1 | -1 | -1 | -1 | -1 | 11 | -1 | -1 | 51.6 | |
| 17008 | 105 | 51-56 | S | L | 14 | -1 | 64 | 84 | 450 | 2.5 | 17 | 27 | 15 | 32 | 2 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | 1 | 12 | -1 | -1 | 48.9 | |
| 17009 | 105 | 55 | S | L | 18 | -1 | 78 | 130 | 470 | 3.3 | 22 | 40 | 44 | 270 | 4 | -1 | 12 | -0.5 | 1 | 2 | -1 | -1 | 3 | 15 | -1 | -1 | 38.9 | SLUFF MAT'L |
| 17009R | 105 | 55 | S | L | 18 | 0 | 0 | 110 | 0 | 0.0 | 0 | 0 | 0 | 290 | 5 | 1 | 9 | -0.5 | 1 | 1 | -1 | 0 | 2 | 0 | 0 | 0 | 0.0 | |
| 17010 | 105 | 55 | S | L | 18 | -1 | 75 | 220 | 520 | 4.1 | 23 | 53 | 53 | 92 | 4 | 1 | 30 | -0.5 | -1 | 2 | -1 | -1 | 3 | 19 | -1 | -1 | 39.9 | SLUFF MAT'L |
| 17010R | 105 | 55 | S | L | 18 | 0 | 0 | 190 | 0 | 0.0 | 0 | 0 | 0 | 110 | 5 | -1 | 22 | -0.5 | 1 | 2 | -1 | 0 | 3 | 0 | 0 | 0 | 0.0 | |
| 17013 | 210 | 18-23 | S | O | 25 | 1 | 73 | 87 | 550 | 2.8 | 18 | 31 | 19 | 50 | 2 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | -1 | 17 | -1 | 2 | 69.5 | |
| 17014 | 210 | 23-25 | S | O | 17 | -1 | 72 | 98 | 410 | 2.7 | 18 | 35 | 22 | 54 | 3 | -1 | 2 | -0.5 | -1 | 2 | -1 | -1 | -1 | 21 | -1 | 2 | 69.5 | |
| 17015 | 210 | 25-30 | S | O | 10 | -1 | 58 | 110 | 390 | 2.4 | 18 | 40 | 27 | 42 | 2 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 18 | -1 | -1 | 25.9 | |
| 17016 | 210 | 30-35 | S | O | 13 | -1 | 52 | 120 | 400 | 2.3 | 20 | 43 | 28 | 42 | 3 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 20 | -1 | -1 | 67.2 | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17017 | 210 | 35-40 | S | O | 15 | -1 | 44 | 110 | 430 | 2.4 | 22 | 42 | 29 | 43 | 2 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | 1 | 17 | -1 | -1 | 45.0 | |
| 17018 | 210 | 40-45 | S | O | 13 | -1 | 45 | 110 | 400 | 2.2 | 20 | 40 | 27 | 38 | 1 | -1 | 1 | -0.5 | -1 | -1 | -1 | -1 | -1 | 23 | -1 | 1 | 55.6 | |
| 17019 | 210 | 45-48 | S | O | 13 | -1 | 56 | 120 | 400 | 2.3 | 21 | 44 | 29 | 32 | 1 | -1 | 1 | -0.5 | -1 | -1 | -1 | -1 | -1 | 16 | -1 | -1 | 84.0 | |
| 17021 | 207 | 14-19 | S | O | 27 | 3 | 170 | 130 | 620 | 4.2 | 26 | 53 | 33 | 100 | 7 | -1 | 2 | -0.5 | -1 | 2 | -1 | -1 | 1 | 24 | -1 | 3 | 51.6 | |
| 17023 | 207 | 35-40 | S | O | 27 | 1 | 190 | 140 | 730 | 4.6 | 30 | 59 | 38 | 110 | 5 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 21 | -1 | 3 | 42.5 | |
| 17025 | 207 | 55-60 | S | O | 27 | -1 | 180 | 130 | 590 | 4.2 | 24 | 50 | 33 | 100 | 5 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | 1 | 19 | -1 | 3 | 38.4 | |
| 17026 | 207 | 75-81.5 | S | O | 17 | -1 | 100 | 130 | 400 | 3.1 | 20 | 43 | 35 | 64 | 2 | -1 | 1 | -0.5 | 1 | 1 | -1 | -1 | -1 | 16 | -1 | 1 | 39.8 | |
| 17028 | 207 | 86.5-91.5 | S | O | 10 | -1 | 97 | 110 | 460 | 3.1 | 21 | 40 | 34 | 61 | 2 | -1 | 1 | -0.5 | -1 | 1 | -1 | -1 | -1 | 15 | -1 | 1 | 27.7 | |
| 17029 | 207 | 91.5-93.5 | S | O | 11 | -1 | 110 | 110 | 600 | 4.1 | 27 | 51 | 45 | 76 | 3 | -1 | 1 | -0.5 | -1 | 2 | -1 | -1 | -1 | 16 | -1 | 1 | 86.3 | |
| 17030 | 207 | 93.5-97.5 | S | O | 10 | 1 | 120 | 130 | 690 | 4.5 | 30 | 49 | 56 | 82 | 1 | -1 | 2 | -0.5 | -1 | 2 | -1 | -1 | 1 | 17 | -1 | 1 | 42.0 | |
| 17031 | 207 | 97.5-102 | S | O | 11 | 1 | 150 | 120 | 760 | 5.4 | 36 | 64 | 54 | 130 | 1 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | 6 | 18 | -1 | 2 | 69.4 | |
| 17032 | 207 | 102-107 | S | O | 11 | 1 | 170 | 140 | 890 | 6.6 | 43 | 75 | 79 | 150 | 1 | -1 | 4 | -0.5 | 1 | 2 | -1 | -1 | 2 | 20 | 1 | 2 | 47.1 | |
| 17033 | 207 | 107-108 | S | O | 13 | -1 | 160 | 180 | 1000 | 7.0 | 47 | 86 | 90 | 160 | 1 | 3 | 6 | -0.5 | 1 | 2 | -1 | -1 | 2 | 21 | -1 | 2 | 94.8 | |
| 17035 | 102 | 25-30 | S | L | 21 | 0 | 0 | 51 | 0 | 0.0 | 0 | 0 | 0 | 69 | 6 | 1 | 2 | -0.5 | 1 | 1 | -1 | 0 | -1 | 0 | 0 | 0 | 14.9 | SI[-63]=20-30 |
| 17035R | 102 | 25-30 | S | L | 21 | -1 | 120 | 74 | 500 | 3.2 | 17 | 32 | 20 | 74 | 5 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | -1 | 13 | -1 | 2 | 0.0 | |
| 17037 | 102 | 45-50 | S | L | 21 | -1 | 120 | 81 | 560 | 3.3 | 19 | 35 | 21 | 83 | 7 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | -1 | 15 | -1 | 3 | 23.1 | SI[-63]=40-50 |
| 17041 | 102 | 85-90 | S | L | 21 | -1 | 120 | 79 | 590 | 3.3 | 19 | 35 | 22 | 82 | 7 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | -1 | 15 | -1 | 3 | 18.5 | SI[-63]=80-90 |
| 17043 | 102 | 110-115 | S | L | 21 | -1 | 120 | 82 | 560 | 3.1 | 18 | 33 | 20 | 79 | 6 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | -1 | 15 | -1 | 3 | 14.0 | SI[-63]=105-115 |
| 17048 | 102 | 135-140 | S | L | 21 | -1 | 130 | 87 | 630 | 3.5 | 20 | 37 | 23 | 79 | 7 | 1 | 3 | -0.5 | -1 | 2 | -1 | -1 | -1 | 19 | -1 | 3 | 40.9 | |
| 17049 | 102 | 140-145 | S | L | 21 | -1 | 140 | 84 | 640 | 3.7 | 20 | 38 | 24 | 87 | 8 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | -1 | 16 | -1 | 3 | 36.1 | |
| 17050 | 102 | 145-150 | S | L | 21 | 2 | 130 | 82 | 660 | 3.6 | 21 | 39 | 25 | 87 | 6 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | -1 | 19 | -1 | 3 | 64.0 | |
| 17051 | 102 | 150-155 | S | L | 21 | 1 | 140 | 89 | 660 | 3.7 | 21 | 40 | 25 | 92 | 6 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | -1 | 15 | -1 | 3 | 59.4 | |
| 17052 | 102 | 155-157 | S | L | 21 | -1 | 140 | 90 | 640 | 3.7 | 21 | 41 | 26 | 89 | 6 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | 1 | 25 | -1 | 3 | 55.4 | |
| 17053 | 102 | 160-165 | S | L | 11 | 15 | 71 | 89 | 520 | 3.4 | 21 | 33 | 18 | 51 | 3 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | 8 | 15 | -1 | 1 | 44.9 | |
| 17054 | 102 | 165-170 | S | L | 14 | 12 | 65 | 69 | 440 | 2.6 | 16 | 23 | 9 | 34 | 2 | -1 | 1 | -0.5 | -1 | 1 | -1 | -1 | 2 | 14 | -1 | 1 | 33.8 | |
| 17055 | 102 | 170-175 | S | L | 14 | 6 | 65 | 67 | 390 | 2.4 | 15 | 22 | 12 | 30 | 2 | -1 | 1 | -0.5 | -1 | -1 | -1 | -1 | 2 | 11 | -1 | -1 | 51.6 | |
| 17056 | 102 | 175-178.5 | S | L | 10 | 6 | 67 | 61 | 400 | 2.6 | 16 | 25 | 11 | 33 | 2 | -1 | 1 | -0.5 | -1 | -1 | -1 | -1 | 2 | 12 | -1 | -1 | 58.3 | |
| 17057 | 102 | 178.5-183 | S | L | 14 | -1 | 72 | 79 | 410 | 2.7 | 17 | 25 | 12 | 38 | 2 | -1 | 1 | -0.5 | -1 | 1 | -1 | -1 | 2 | 11 | -1 | 1 | 53.8 | |
| 17059 | 104 | 15-20 | S | L | 21 | 1 | 150 | 78 | 580 | 3.4 | 20 | 38 | 23 | 83 | 5 | -1 | 4 | -0.5 | -1 | 2 | 1 | -1 | 1 | 16 | -1 | 3 | 34.8 | |
| 17060 | 104 | 20-25 | S | L | 21 | 1 | 120 | 76 | 540 | 3.3 | 18 | 35 | 20 | 73 | 5 | -1 | 4 | -0.5 | -1 | 2 | 1 | -1 | 1 | 14 | -1 | 3 | 22.5 | |
| 17062 | 104 | 30.5-34 | S | L | 27 | 1 | 130 | 110 | 620 | 3.6 | 22 | 44 | 26 | 91 | 4 | -1 | 5 | -0.5 | 1 | 3 | 5 | -1 | 1 | 18 | -1 | 3 | 20.9 | SI[-63]=25.5-34 |
| 17062R | 104 | 30.5-34 | S | L | 27 | 0 | 0 | 83 | 0 | 0.0 | 0 | 0 | 0 | 85 | 5 | -1 | 2 | -0.5 | 1 | 1 | -1 | 0 | -1 | 0 | 0 | 0 | 0.0 | |
| 17064 | 104 | 45-50 | S | L | 21 | -1 | 160 | 90 | 650 | 3.8 | 21 | 42 | 27 | 90 | 7 | -1 | 5 | -0.5 | -1 | 3 | 1 | -1 | 1 | 19 | -1 | 4 | 23.7 | SI[-63]=40-50 |
| 17066 | 104 | 55-60 | S | L | 21 | -1 | 170 | 96 | 610 | 3.8 | 22 | 47 | 27 | 100 | 7 | -1 | 5 | -0.5 | -1 | 3 | 1 | -1 | 2 | 18 | -1 | 3 | 25.5 | |
| 17067 | 104 | 60-65 | S | L | 21 | 1 | 170 | 89 | 630 | 3.9 | 22 | 45 | 28 | 100 | 7 | 1 | 5 | -0.5 | 1 | 3 | -1 | -1 | -1 | 3 | -1 | -1 | 28.8 | |
| 17068 | 104 | 65-69 | S | L | 21 | 2 | 150 | 88 | 660 | 4.0 | 23 | 45 | 28 | 98 | 7 | -1 | 5 | -0.5 | 1 | 3 | 2 | -1 | 1 | 19 | -1 | 3 | 32.4 | |
| 17069 | 104 | 69.5-73 | S | L | 21 | -1 | 140 | 69 | 640 | 3.8 | 21 | 43 | 27 | 95 | 5 | -1 | 6 | -0.5 | 1 | 3 | 2 | -1 | 1 | 17 | -1 | 3 | 50.3 | |
| 17069R | 104 | 69.5-73 | S | L | 21 | 0 | 0 | 73 | 0 | 0.0 | 0 | 0 | 0 | 92 | 7 | 1 | 3 | -0.5 | 1 | 1 | -1 | 0 | 1 | 0 | 0 | 0 | 0.0 | |
| 17070 | 104 | 73-77.5 | S | L | 21 | 2 | 140 | 88 | 630 | 3.8 | 21 | 44 | 27 | 110 | 6 | -1 | 6 | -0.5 | 1 | 3 | 3 | -1 | 2 | 16 | -1 | 3 | 35.4 | |
| 17071 | 104 | 77.5-81 | S | L | 27 | 1 | 120 | 100 | 590 | 3.7 | 21 | 46 | 26 | 88 | 4 | -1 | 6 | -0.5 | -1 | 3 | 1 | -1 | 1 | 18 | -1 | 3 | 53.9 | |
| 17072 | 104 | 81-84 | S | L | 10 | 1 | 98 | 92 | 530 | 3.4 | 20 | 39 | 21 | 69 | 3 | -1 | 5 | -0.5 | 1 | 2 | 1 | -1 | 2 | 17 | -1 | 3 | 69.8 | |
| 17073 | 104 | 84-89 | S | L | 15 | 2 | 87 | 97 | 470 | 3.2 | 20 | 36 | 20 | 60 | 3 | -1 | 5 | -0.5 | 1 | 2 | 1 | -1 | 5 | 18 | -1 | 3 | 27.4 | |
| 18762 | 10501 | 62-71 | A | L | 13 | 122 | 126 | 61 | 675 | 4.03 | 15 | 41 | 39 | 93 | -5 | -5 | 3 | -0.5 | -1 | 35 | -5 | -10 | -10 | 19 | -2 | -10 | 5.9 | |
| 18764 | 10501 | 71-76 | A | L | 11 | 15 | 104 | 63 | 643 | 3.47 | 19 | 43 | 43 | 53 | -5 | -5 | 5 | -0.5 | -1 | -10 | 7 | -10 | 91 | 26 | 3 | -10 | 14.5 | |
| 18765 | 10501 | 76-81 | A | L | 11 | 5 | 113 | 65 | 621 | 3.07 | 15 | 31 | 27 | 33 | 9 | -5 | 3 | -0.5 | -1 | -10 | -5 | -10 | 45 | 10 | -2 | -10 | 36.3 | |
| 18767 | 10704 | 92-97 | A | L | 15 | 7 | 87 | 39 | 423 | 1.91 | 9 | 17 | 19 | 29 | 9 | -5 | 3 | -0.5 | -1 | 199 | -5 | -10 | -10 | 15 | 3 | -10 | 183.0 | |
| 18767R | 10704 | 92-97 | A | L | 15 | 6 | 70 | 34 | 464 | 1.92 | 14 | 32 | 20 | 40 | 10 | -5 | 2 | -0.5 | -1 | -10 | -5 | -10 | -10 | 18 | 3 | -10 | 0 | |
| 18767R | 10704 | 92-97 | A | L | 15 | 2 | 74 | 34 | 458 | 1.87 | 12 | 26 | 18 | 44 | 14 | -5 | 2 | -0.5 | -1 | -10 | -5 | -10 | -10 | 14 | 3 | -10 | 0 | |
| 18767R | 10704 | 92-97 | A | L | 15 | 2 | 70 | 32 | 452 | 1.86 | 12 | 26 | 18 | 40 | -5 | -5 | 2 | -0.5 | -1 | -10 | -5 | -10 | -10 | 20 | 3 | -10 | 0 | |
| 18767R | 10704 | 92-97 | A | L | 15 | 2 | 68 | 38 | 454 | 2.16 | 12 | 40 | 18 | 38 | 12 | -5 | 4 | 0.6 | -1 | -10 | -5 | -10 | -10 | 18 | 3 | -10 | 0 | |
| 18767R | 10704 | 92-97 | A | L | 15 | -1 | 70 | 38 | 454 | 1.87 | 12 | 26 | 18 | 42 | 22 | -5 | 2 | -0.5 | -1 | -10 | -5 | -10 | -10 | 18 | 5 | -10 | 0 | |
| 18767R | 10704 | 92-97 | A | L | 15 | -1 | 70 | 34 | 456 | 1.87 | 12 | 24 | 18 | 38 | 20 | -5 | 2 | -0.5 | -1 | -10 | -5 | -10 | -10 | 12 | 5 | -10 | 0 | |
| 18767R | 10704 | 92-97 | A | L | 15 | 2 | 74 | 38 | 454 | 1.92 | 12 | 26 | 18 | 40 | 20 | -5 | 2 | -0.5 | -1 | -10 | -5 | -10 | -10 | 10 | 3 | -10 | 0 | |
| 18767R | 10704 | 92-97 | A | L | 15 | 1 | 70 | 34 | 450 | 1.87 | 12 | 30 | 18 | 36 | 14 | -5 | 2 | -0.5 | -1 | -10 | -5 | -10 | -10 | 8 | 5 | -10 | 0 | |
| 18767R | 10704 | 92-97 | A | L | 15 | -1 | 74 | 34 | 454 | 1.87 | 12 | 26 | 18 | 40 | 14 | -5 | 2 | -0.5 | -1 | -10 | -5 | -10 | -10 | 10 | 3 | -10 | 0 | |
| 18768 | 10704 | 97-102 | A | L | 13 | 1 | 95 | 37 | 477 | 2.07 | 9 | 17 | 17 | 25 | 13 | -5 | 3 | -0.5 | -1 | -10 | 5 | -10 | -10 | 17 | 5 | -10 | 133.7 | |
| 18769 | 10704 | 102-105 | A | L | 15 | 4 | 98 | 41 | 545 | 2.37 | 11 | 23 | 21 | 31 | 11 | -5 | 3 | -0.5 | -1 | -10 | 5 | -10 | -10 | 17 | -2 | -10 | 21.1 | |
| 18771 | 10704 | 105-106 | A | L | 11 | -1 | 125 | 51 | 629 | 3.03 | 17 | 31 | 33 | 39 | 13 | -5 | 3 | -0.5 | -1 | -10 | -5 | -10 | 47 | 17 | 5 | -10 | 37.1 | |
| 18773 | 10401 | 117-122 | A | L | 10 | 2 | 105 | 51 | 545 | 2.39 | 15 | 29 | 29 | 29 | 31 | -5 | 5 | -0.5 | -1 | 15 | 13 | -10 | -10 | 30 | 5 | -10 | 32.5 | |
| 18774 | 10401 | 122-146 | A | L | 14 | -1 | 88 | 59 | 633 | 3.11 | 15 | 31 | 29 | 35 | 21 | -5 | 7 | -0.5 | -1 | -10 | 11 | -10 | -10 | 43 | -2 | -10 | 40.1 | |
| 18775 | 10401 | 146-151 | A | L | 15 | -1 | 105 | 51 | 619 | 3.27 | 15 | 33 | 29 | 39 | 25 | -5 | 7 | -0.5 | -1 | -10 | 11 | -10 | -10 | 39 | 3 | -10 | 18.9 | |
| 18776 | 10401 | 151-157 | A | L | 15 | -1 | 95 | 53 | 511 | 2.39 | 13 | 25 | 15 | 25 | 13 | -5 | 5 | -0.5 | -1 | -10 | 7 | -10 | -10 | 30 | 5 | -10 | 56.3 | |
| 18777 | 10401 | 157-162 | A | L | 13 | -1 | 101 | 59 | 523 | 2.51 | 13 | 27 | 19 | 31 | 21 | -5 | 7 | -0.5 | -1 | -10 | 19 | -10 | -10 | 30 | 9 | -10 | 44.7 | |
| 18778 | 10401 | 162-167 | A | L | 13 | 1 | 99 | 55 | 523 | 2.49 | 13 | 27 | 21 | 31 | 29 | -5 | 7 | -0.5 | -1 | -10 | 11 | -10 | -10 | 72 | -2 | -10 | 40.2 | |
| 18779 | 10401 | 167-172 | A | L | 13 | 11 | 119 | 67 | 593 | 3.15 | 19 | 47 | 201 | 65 | 45 | -5 | 7 | -0.5 | -1 | -10 | 11 | 14 | -10 | 57 | 3 | -10 | 19.7 | |
| 18783 | 10401 | 172-177 | A | L | 11 | 2 | 192 | 75 | 861 | 3.79 | 25 | 73 | 457 | 63 | 43 | -5 | 9 | -0.5 | 9 | -10 | 15 | -10 | -10 | 72 | -2 | -10 | 15.7 | |
| 18784 | 10401 | 177-181 | A | L | 11 | 4 | 174 | 97 | 841 | 4.07 | 33 | 89 | 119 | 89 | 23 | -5 | 7 | -0.5 | 4 | -10 | 13 | -10 | -10 | 68 | 9 | -10 | 13.0 | |
| 18788 | 10700 | 62-67 | A | L | 14 | 2 | 142 | 65 | 785 | 4.37 | 19 | 47 | 63 | 69 | 29 | -5 | 7 | -0.5 | 3 | -10 | 9 | -10 | -10 | 61 | 9 | -10 | 1.1 | |
| 18789 | 10700 | 67-72 | A | L | 14 | -10 | 118 | 63 | 973 | 6.29 | 17 | 45 | 65 | 99 | 25 | -5 | 13 | -0.5 | 16 | -10 | 7 | 10 | 41 | 59 | -2 | -10 | 1.2 | |
| 18790 | 10700 | 72-77 | A | L | 14 | -10 | 92 | 55 | 853 | 5.13 | 17 | 41 | 61 | 73 | 19 | -5 | 9 | -0.5 | 7 | -10 | -5 | -10 | 97 | 41 | -2 | -10 | 1.0 | |
| 18791 | 10700 | 77-87 | A | L | 14 | -1 | 101 | 69 | 1213 | 10.00 | 15 | 47 | 97 | 123 | 23 | 19 | 47 | -0.5 | 53 | -10 | 5 | -10 | -10 | 70 | -2 | -10 | 3.0 | |
| 18792 | 10700 | 87-92 | A | L | 14 | -1 | 104 | 63 | 1077 | 7.83 | 17 | 51 | 81 | 93 | 19 | -5 | 23 | -0.5 | 39 | -10 | 7 | -10 | 23 | 59 | -2 | -10 | 10.3 | |
| 18793 | 10700 | 92-97 | A | L | 14 | -1 | 106 | 65 | 853 | 5.37 | 17 | 47 | 51 | 75 | 15 | -5 | 11 | -0.5 | 17 | -10 | 5 | -10 | 53 | 32 | -2 | -10 | 3.5 | |
| 18795 | 10700 | 103-108 | A | L | 14 | 2 | 154 | 63 | 761 | 4.27 | 15 | 43 | 45 | 61 | 11 | -5 | 9 | -0.5 | 13 | -10 | -5 | -10 | 33 | 21 | -2 | -10 | 4.4 | |
| 18796 | 10700 | 108-113 | A | L | 15 | 39 | 138 | 59 | 655 | 3.39 | 13 | 35 | 27 | 47 | 5 | 15 | 5 | -0.5 | -1 | 31 | -5 | -10 | -10 | 15 | -2 | -10 | 11.9 | |
| 18797 | 10700 | 113-118 | A | L | 15 | -1 | 178 | 89 | 875 | 4.57 | 21 | 45 | 41 | 69 | 13 | -5 | 5 | -0.5 | -1 | -10 | -5 | -10 | -10 | 24 | -2 | -10 | 5.8 | |
| 18798 | 10700 | 118-123 | A | L | 15 | 7 | 184 | 75 | 755 | 4.03 | 19 | 35 | 29 | 47 | 21 | -5 | 5 | -0.5 | -1 | -10 | -5 | -10 | -10 | 30 | -2 | -10 | 18.7 | |
| 18799 | 10700 | 123-128 | A | L | 15 | 105 | 193 | 91 | 905 | 4.99 | 23 | 43 | 37 | 53 | 25 | -5 | 7 | 0.5 | 3 | -10 | -5 | -10 | -10 | 26 | -2 | -10 | 7.3 | |
| 18802 | 10700 | 128-133 | A | L | 10 | 42 | 169 | 73 | 747 | 3.67 | 17 | 37 | 35 | 49 | 19 | -5 | 3 | -0.5 | -1 | -10 | -5 | 12 | -10 | 21 | -2 | -10 | 12.4 | |
| 18803 | 10700 | 133-138 | A | L | 10 | 26 | 146 | 67 | 731 | 3.67 | 17 | 33 | 37 | 51 | 23 | -5 | 5 | -0.5 | 2 | -10 | -5 | -10 | -10 | 32 | -2 | -10 | 8.8 | |
| 18804 | 10700 | 138-143 | A | L | 13 | 23 | 72 | 59 | 509 | 2.98 | 15 | 53 | 53 | 49 | 15 | -5 | 5 | -0.5 | -1 | -10 | -5 | -10 | -10 | -5 | -2 | -10 | 42.4 | |
| 18806 | 10602 | 52-62 | A | L | 14 | 99 | 68 | 63 | 712 | 2.98 | 19 | 39 | 45 | 61 | -5 | -5 | 1 | 0.9 | -1 | -10 | -5 | -10 | -10 | 35 | 11 | -10 | 63.7 | |
| 18807 | 10602 | 62-67 | A | L | 11 | 41 | 71 | 69 | 662 | 3.14 | 17 | 37 | 37 | 59 | 7 | -5 | 1 | 1.1 | -1 | -10 | 5 | -10 | -10 | 33 | 11 | -10 | 22.4 | |
| 18808 | 10602 | 67-68 | A | L | 34 | 175 | 67 | 59 | 640 | 3.04 | 15 | 51 | 33 | 53 | -5 | -5 | 1 | 0.5 | 1 | -10 | -5 | -10 | 39 | 39 | 11 | -10 | 31.0 | |
| 18812 | 10303 | 115-118 | A | L | 11 | 89 | 50 | 45 | 485 | 2.72 | 15 | 47 | 105 | 55 | 5 | -5 | 5 | 0.9 | -1 | -10 | -5 | -10 | 11 | 51 | 5 | -10 | 6.7 | |
| 18814 | 10304 | 133-137 | A | L | 11 | 154 | 76 | 57 | 642 | 3.02 | 17 | 35 | 31 | 59 | 7 | -5 | 3 | -0.5 | -1 | -10 | -5 | -10 | -10 | 27 | 9 | -10 | 3.5 | |
| 18816 | 10603 | 95-100 | A | L | 11 | 82 | 71 | 63 | 565 | 3.14 | 17 | 49 | 57 | 61 | -5 | -5 | 3 | 0.5 | -1 | -10 | -5 | -10 | -10 | 27 | 9 | -10 | 8.7 | |
| 18818 | 10601 | 35-40 | A | L | 11 | 8 | 81 | 65 | 610 | 2.98 | 17 | 45 | 35 | 63 | -5 | -5 | 3 | -0.5 | -1 | -10 | -5 | -10 | -10 | 27 | -2 | -10 | 23.0 | |
| 18819 | 10601 | 40-45 | A | L | 11 | 3 | 74 | 65 | 668 | 3.22 | 19 | 47 | 45 | 73 | 11 | -5 | 1 | 0.7 | -1 | -10 | 5 | -10 | -10 | 33 | 11 | -10 | 27.9 | |
| 18823 | 10503 | 0-5 | A | L | 14 | -1 | 76 | 59 | 598 | 3.28 | 17 | 45 | 29 | 57 | 13 | -5 | -1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 21 | 5 | -10 | 31.7 | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18824 | 10503 | 5-10 | A | L | 14 | 4 | 61 | 63 | 606 | 3.36 | 17 | 43 | 37 | 65 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 25 | 9 | -10 | 27.4 | |
| 18825 | 10503 | 10-15 | A | L | 14 | -1 | 51 | 57 | 579 | 3.02 | 13 | 37 | 29 | 53 | -5 | -5 | 1 | -0.5 | 6 | -10 | -5 | -10 | -10 | 15 | 3 | -10 | 20.7 | |
| 18826 | 10503 | 15-20 | A | L | 15 | 17 | 51 | 57 | 531 | 2.80 | 15 | 39 | 37 | 59 | -5 | -5 | -1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 7 | -2 | -10 | 20.7 | |
| 18827 | 10503 | 20-25 | A | L | 15 | -1 | 54 | 63 | 598 | 3.04 | 15 | 35 | 31 | 59 | -5 | 5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 25 | 11 | -10 | 55.8 | |
| 18828 | 10503 | 25-30 | A | L | 12 | 20 | 56 | 59 | 597 | 2.90 | 13 | 35 | 59 | 61 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 11 | 3 | -10 | 19.2 | |
| 18829 | 10503 | 30-35 | A | L | 12 | 3 | 48 | 55 | 575 | 3.34 | 17 | 47 | 53 | 73 | -5 | -5 | 5 | -0.5 | -1 | -10 | -5 | -10 | 43 | 15 | 5 | -10 | 14.1 | |
| 18830 | 10503 | 35-40 | A | L | 12 | -1 | 52 | 57 | 600 | 3.36 | 17 | 51 | 57 | 63 | -5 | -5 | 1 | -0.5 | 6 | -10 | -5 | -10 | 23 | 13 | -2 | -10 | 17.9 | |
| 18831 | 10503 | 40-45 | A | L | 14 | -1 | 68 | 75 | 728 | 3.99 | 19 | 53 | 57 | -1 | -5 | -5 | -1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 7 | 11 | -10 | 17.0 | |
| 18832 | 10503 | 45-50 | A | L | 14 | -1 | 64 | 65 | 734 | 3.46 | 19 | 63 | 59 | 63 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 11 | -2 | -10 | 11.7 | |
| 18833 | 10503 | 50-55 | A | L | 12 | -1 | 70 | 73 | 1144 | 4.01 | 23 | 59 | 67 | 71 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 7 | 3 | -10 | 13.3 | |
| 18834 | 10503 | 55-60 | A | L | 12 | -1 | 61 | 63 | 762 | 3.48 | 17 | 45 | 53 | 55 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 17 | 3 | -10 | 8.0 | |
| 18835 | 10503 | 60-65 | A | L | 12 | -1 | 72 | 69 | 660 | 3.54 | 17 | 43 | 41 | 53 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 17 | 5 | -10 | 17.2 | |
| 18836 | 10503 | 65-70 | A | L | 12 | 3 | 78 | 47 | 447 | 2.36 | 13 | 45 | 35 | 15 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | -5 | 3 | -10 | 0.9 | |
| 18837 | 10503 | 70-72 | A | L | 12 | 26 | 67 | 83 | 587 | 3.76 | 23 | 61 | 77 | 71 | -5 | -5 | 3 | -0.5 | -1 | -10 | -5 | -10 | -10 | -5 | -2 | -10 | 10.0 | |
| 18839 | 10901 | 113-118 | A | L | 15 | 3 | 56 | 55 | 600 | 2.72 | 13 | 33 | 45 | 47 | -5 | -5 | -1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 11 | 5 | -10 | 98.6 | |
| 18842 | 10901 | 118-123 | A | L | 15 | 10 | 51 | 47 | 557 | 2.54 | 11 | 31 | 43 | 45 | -5 | -5 | -1 | -0.5 | -1 | -10 | -5 | -10 | -10 | -5 | 3 | -10 | 74.3 | |
| 18843 | 10901 | 123-128 | A | L | 15 | 17 | 64 | 59 | 620 | 3.00 | 13 | 35 | 47 | 47 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 5 | -2 | -10 | 21.9 | |
| 18844 | 10901 | 128-133 | A | L | 13 | 15 | 52 | 51 | 551 | 2.72 | 13 | 35 | 41 | 45 | -5 | -5 | -1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 5 | -2 | -10 | 27.7 | |
| 18845 | 10901 | 133-135 | A | L | 13 | 9 | 71 | 57 | 606 | 3.06 | 15 | 37 | 47 | 55 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 11 | -2 | -10 | 23.1 | |
| 18846 | 10901 | 135-140 | A | L | 34 | -1 | 54 | 51 | 447 | 2.96 | 33 | 69 | 103 | 63 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | 45 | 21 | 3 | -10 | 59.2 | |
| 18849 | 11102 | 35-38 | A | L | 11 | 7 | 40 | 31 | 384 | 1.97 | 7 | 19 | 31 | 31 | -5 | -5 | -1 | -0.5 | -1 | -10 | -5 | -10 | 15 | 7 | 5 | -10 | 17.8 | |
| 18851 | 11006 | 39-44 | A | L | 11 | 1 | 99 | 73 | 690 | 3.76 | 15 | 59 | 45 | 67 | -5 | 10 | 1 | -0.5 | -1 | -10 | -5 | -10 | 13 | 11 | 5 | -10 | 8.0 | |
| 18852 | 11006 | 44-46 | A | L | 11 | -1 | 67 | 57 | 696 | 2.88 | 15 | 45 | 41 | 45 | -5 | -5 | -1 | -0.5 | -1 | -10 | -5 | -10 | -10 | -5 | -2 | -10 | 31.7 | |
| 18853 | 11006 | 46-51 | A | L | 34 | -1 | 64 | 69 | 1257 | 3.78 | 31 | 111 | 123 | 63 | 5 | -5 | 3 | -0.5 | -1 | -10 | -5 | -10 | -10 | 15 | 3 | -10 | 42.7 | |
| 18854 | 10403 | 94-99 | A | L | 11 | 3 | 69 | 45 | 632 | 2.76 | 17 | 53 | 31 | 53 | -5 | 14 | 3 | 0.5 | -1 | -10 | 5 | -10 | 63 | 39 | -2 | -10 | 41.7 | |
| 18856 | 10202 | 102-107 | A | L | 13 | 3 | 82 | 33 | 549 | 2.24 | 11 | 53 | 21 | 71 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 35 | -2 | -10 | 20.9 | |
| 18857 | 10202 | 107-112 | A | L | 13 | 3 | 100 | 47 | 549 | 2.46 | 15 | 63 | 27 | 77 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 37 | -2 | -10 | 22.8 | |
| 18858 | 10202 | 112 | A | L | 18 | 28 | 58 | -1 | 569 | 2.62 | 13 | 57 | 21 | 51 | -5 | 45 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 105 | -2 | -10 | 17.1 | SLUFF MAT'L |
| 18859 | 10202 | 112-117 | A | L | 13 | 4 | 52 | 43 | 455 | 2.12 | 9 | 47 | 17 | 41 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 27 | -2 | -10 | 15.7 | |
| 18861 | 10202 | 117-122 | A | L | 10 | 8 | 62 | 43 | 539 | 2.56 | 13 | 63 | 27 | 61 | -5 | -5 | 1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 37 | -2 | -10 | 30.5 | |
| 18862 | 10202 | 122-127 | A | L | 13 | 2 | 59 | 43 | 445 | 2.04 | 13 | 43 | 13 | 35 | -5 | 8 | 1 | 0.5 | -1 | -10 | -5 | -10 | -10 | 29 | -2 | -10 | 27.4 | |
| 18863 | 10202 | 127-132 | A | L | 13 | 6 | 66 | 49 | 483 | 2.28 | 13 | 45 | 15 | 41 | -5 | -5 | 1 | 0.5 | -1 | -10 | -5 | -10 | -10 | 29 | 5 | -10 | 29.5 | |
| 18864 | 10202 | 132-137 | A | L | 10 | 5 | 64 | 45 | 529 | 2.48 | 15 | 45 | 23 | 47 | -5 | -5 | 1 | 0.9 | -1 | -10 | 5 | -10 | -10 | 41 | -2 | -10 | 18.9 | |
| 18865 | 10202 | 137-142 | A | L | 15 | 2 | 63 | 61 | 539 | 2.58 | 15 | 47 | 21 | 47 | -5 | -5 | 1 | 0.9 | -1 | -10 | 15 | -10 | -10 | 49 | -2 | -10 | 27.5 | |
| 18866 | 10202 | 142-147 | A | L | 15 | 2 | 61 | 61 | 571 | 2.62 | 17 | 47 | 21 | 49 | -5 | -5 | 1 | 2.7 | -1 | -10 | 11 | -10 | -10 | 47 | -2 | -10 | 29.4 | |
| 18867 | 10202 | 147-152 | A | L | 14 | 3 | 59 | 49 | 471 | 2.16 | 15 | 39 | 17 | 39 | -5 | -5 | 1 | 1.5 | -1 | -10 | 7 | -10 | -10 | 41 | 5 | -10 | 32.6 | |
| 18868 | 10202 | 152-157 | A | L | 13 | 6 | 51 | 51 | 499 | 2.36 | 13 | 39 | 15 | 37 | -5 | -5 | 1 | 1.5 | -1 | -10 | 13 | -10 | -10 | 37 | -2 | -10 | 20.1 | |
| 18869 | 10202 | 157-162 | A | L | 11 | 2 | 61 | 59 | 612 | 3.00 | 17 | 55 | 33 | 57 | -5 | -5 | 1 | 1.5 | -1 | -10 | 9 | -10 | -10 | 43 | 7 | -10 | 12.0 | |
| 18871 | 10102 | 123-128 | A | L | 15 | 23 | 69 | 69 | 823 | 3.44 | 23 | 61 | 29 | 45 | -5 | -5 | 1 | 2.7 | -1 | -10 | 13 | -10 | -10 | 45 | 9 | -10 | 26.2 | |
| 18872 | 10102 | 128-133 | A | L | 13 | 2 | 75 | 63 | 694 | 3.10 | 25 | 67 | 43 | 41 | -5 | -5 | 1 | 2.7 | -1 | -10 | 9 | -10 | -10 | 43 | 5 | -10 | 16.2 | |
| 18873 | 10102 | 133-137.5 | A | L | 13 | 6 | 71 | 63 | 720 | 3.04 | 21 | 67 | 35 | 47 | -5 | -5 | 1 | 1.7 | -1 | -10 | 9 | -10 | -10 | 41 | -2 | -10 | 31.1 | |
| 18875 | 10105 | 145-155 | A | L | 15 | 1 | 44 | 49 | 616 | 2.84 | 15 | 55 | 29 | 57 | -5 | 14 | 3 | 0.9 | -1 | -10 | 11 | 13 | -10 | 47 | -2 | -10 | 18.9 | |
| 18876 | 10105 | 155-162 | A | L | 13 | 1 | 83 | 67 | 855 | 3.99 | 23 | 81 | 39 | 77 | -5 | -5 | 5 | 2.3 | -1 | -10 | 15 | -10 | -10 | 57 | 3 | -10 | 8.1 | |
| 18877 | 10105 | 162-167 | A | L | 13 | 40 | 55 | 55 | 748 | 3.08 | 19 | 61 | 35 | 57 | -5 | -5 | 5 | 1.7 | -1 | -10 | 7 | -10 | 21 | 47 | -2 | -10 | 19.6 | |
| 18878 | 10105 | 167-172 | A | L | 15 | 6 | 89 | 75 | 1002 | 3.92 | 29 | 75 | 39 | 51 | -5 | 5 | 3 | 3.7 | -1 | -10 | 7 | -10 | 13 | 49 | 7 | 19 | 20.5 | |
| 18879 | 10105 | 172-177 | A | L | 13 | 7 | 95 | 80 | 1000 | 4.00 | 27 | 80 | 41 | 55 | -5 | -5 | 2 | 1.0 | -1 | -10 | 5 | -10 | 10 | 45 | 5 | -10 | 6.9 | |
| 18881 | 10105 | 177-190 | A | L | 13 | 1 | 69 | 77 | 841 | 3.62 | 23 | 73 | 39 | 47 | -5 | -5 | 5 | 2.3 | -1 | -10 | 17 | -10 | 51 | 47 | 5 | -10 | 9.9 | |
| 18882 | 10202 | 162-167 | A | L | 13 | 75 | 103 | 77 | 1496 | 9.09 | 23 | 87 | 51 | 59 | -5 | -5 | 9 | 1.7 | -1 | -10 | 19 | -10 | 352 | 53 | -2 | -10 | 5.2 | |

## Appendix 9-9A. List of all nonmag HMC sample assays, by drill hole.

| S.N. | DH | DM | DT | AU | MA | SC | CE | CR | MN | FE | CO | NI | CU | ZN | AS | SE | BR | RB | ZR | MO | AG | CD | SN | SB | TE | CS | BA | LA | SM | EU | TB | YB | LU | IR | HF | TA | W | PB | BI | TH | U | WT | ZN2 | AG2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16933 | 101 | S | 21 | 10 | .14 | 0 | 477 | 610 | 6700 | 24.1 | 55 | 110 | 84 | 270 | 92 | -10 | 0 | 0 | 0 | 19 | .5 | 0 | -10 | 3.9 | 0 | 0 | 3700 | 273 | 0 | 0 | 0 | 0 | 0 | -100 | 140 | 8 | -10 | 21 | -2 | 100 | 16.4 | 7.23 | 0 | 0 |
| 16938 | 101 | S | 21 | 91 | .14 | 0 | 520 | 660 | 6900 | 23.2 | 54 | 130 | 97 | 290 | 88 | -10 | 0 | 0 | 0 | 17 | .5 | 0 | -10 | 3.7 | 0 | 0 | 4000 | 331 | 0 | 0 | 0 | 0 | 0 | -100 | 160 | 8 | -10 | 11 | -2 | 120 | 21.4 | 12 | 0 | 0 |
| 16940 | 101 | S | 21 | 26 | .11 | 0 | 457 | 630 | 6900 | 23 | 53 | 120 | 80 | 270 | 88 | -12 | 0 | 0 | 0 | 18 | 2 | 0 | -10 | 3.4 | 0 | 0 | 4100 | 293 | 0 | 0 | 0 | 0 | 0 | -100 | 160 | 6 | -10 | 8 | -2 | 100 | 20.6 | 9.14 | 0 | 0 |
| 16941 | 101 | S | 21 | 140 | .11 | 0 | 522 | 760 | 7200 | 22.9 | 51 | 95 | 78 | 270 | 94 | 23 | 0 | 0 | 0 | 16 | .5 | 0 | -10 | 3.7 | 0 | 0 | 4500 | 317 | 0 | 0 | 0 | 0 | 0 | -100 | 160 | 8 | -10 | 33 | -2 | 110 | 22 | 8.41 | 0 | 0 |
| 16942 | 101 | S | 21 | -22 | .1 | 0 | 512 | 660 | 6500 | 23.3 | 55 | 130 | 96 | 290 | 83 | 10 | 0 | 0 | 0 | 15 | .5 | 0 | -10 | 3.6 | 0 | 0 | 5600 | 310 | 0 | 0 | 0 | 0 | 0 | -100 | 160 | 8 | -10 | 5 | -2 | 110 | 21.6 | 8.07 | 0 | 0 |
| 16944 | 101 | S | 27 | 230 | .09 | 0 | 727 | 640 | 7400 | 26.4 | 83 | 160 | 150 | 270 | 92 | -10 | 0 | 0 | 0 | 15 | 1 | 0 | -10 | 3.5 | 0 | 0 | 4600 | 406 | 0 | 0 | 0 | 0 | 0 | -100 | 140 | -4 | -10 | 14 | -2 | 140 | 21.8 | 2.57 | 0 | 0 |
| 16945 | 101 | S | 25 | -5 | .28 | 0 | 1410 | 390 | 10000 | 26.4 | 160 | 230 | 160 | 170 | 100 | -10 | 0 | 0 | 0 | 10 | .5 | 0 | -10 | 1.8 | 0 | 0 | 700 | 851 | 0 | 0 | 0 | 0 | 0 | -100 | 120 | 9 | -10 | 43 | -2 | 200 | 51.3 | 19.3 | 0 | 0 |
| 16946 | 101 | S | 21 | -23 | .12 | 0 | 540 | 180 | 15000 | 22.9 | 110 | 270 | 140 | 120 | 62 | -10 | 0 | 0 | 0 | 8 | .5 | 0 | -10 | -.5 | 0 | 0 | -300 | 348 | 0 | 0 | 0 | 0 | 0 | -100 | 39 | -2 | -10 | 16 | -2 | 92 | 20.4 | 11.7 | 0 | 0 |
| 17037 | 102 | S | 21 | 64 | .12 | 0 | 647 | 870 | 7200 | 26.1 | 87 | 100 | 90 | 240 | 89 | -16 | 0 | 0 | 0 | 13 | .5 | 0 | -10 | 3.1 | 0 | 0 | 4700 | 271 | 0 | 0 | 0 | 0 | 0 | -100 | 200 | 7 | -10 | 30 | -2 | 150 | 20.9 | 13.9 | 0 | 0 |
| 17043 | 102 | S | 21 | 160 | .13 | 0 | 554 | 680 | 7800 | 27 | 94 | 120 | 94 | 240 | 95 | -14 | 0 | 0 | 0 | 13 | .5 | 0 | -10 | 3.3 | 0 | 0 | 3400 | 237 | 0 | 0 | 0 | 0 | 0 | -100 | 160 | 8 | -10 | 17 | -2 | 130 | 16.3 | 18 | 0 | 0 |
| 17049 | 102 | S | 21 | 34 | .14 | 0 | 560 | 760 | 7300 | 26.4 | 86 | 110 | 100 | 310 | 92 | -10 | 0 | 0 | 0 | 11 | .5 | 0 | -10 | 3.7 | 0 | 0 | 6500 | 246 | 0 | 0 | 0 | 0 | 0 | -100 | 150 | 11 | -10 | 19 | -2 | 120 | 21.1 | 9.44 | 0 | 0 |
| 17050 | 102 | S | 21 | 22 | .14 | 0 | 548 | 800 | 8900 | 29.5 | 90 | 130 | 120 | 270 | 110 | -11 | 0 | 0 | 0 | 16 | .5 | 0 | -10 | 4 | 0 | 0 | 8400 | 225 | 0 | 0 | 0 | 0 | 0 | -100 | 140 | 6 | -10 | 17 | -2 | 120 | 17.7 | 4.25 | 0 | 0 |
| 17051 | 102 | S | 21 | 37 | .12 | 0 | 557 | 810 | 7100 | 31.5 | 91 | 130 | 100 | 360 | 100 | -15 | 0 | 0 | 0 | 15 | .5 | 0 | -10 | 4.9 | 0 | 0 | 5300 | 236 | 0 | 0 | 0 | 0 | 0 | -100 | 150 | 5 | -10 | 30 | -2 | 120 | 18.9 | 4.38 | 0 | 0 |
| 17053 | 102 | S | 11 | 67 | .3 | 0 | 546 | 420 | 8800 | 23.5 | 100 | 160 | 63 | 120 | 40 | -10 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | -.5 | 0 | 0 | -300 | 358 | 0 | 0 | 0 | 0 | 0 | -100 | 69 | 6 | 210 | 30 | -2 | 110 | 11.2 | 38.5 | 0 | 0 |
| 17054 | 102 | S | 14 | -23 | .29 | 0 | 341 | 530 | 9600 | 23.3 | 72 | 110 | 36 | 130 | 16 | -10 | 0 | 0 | 0 | 3 | -.5 | 0 | -10 | -.5 | 0 | 0 | -200 | 200 | 0 | 0 | 0 | 0 | 0 | -100 | 85 | 8 | -10 | 23 | -2 | 60 | 13.7 | 35.9 | 0 | 0 |
| 17055 | 102 | S | 14 | 190 | .24 | 0 | 307 | 470 | 9000 | 21.4 | 64 | 110 | 32 | 140 | 13 | -10 | 0 | 0 | 0 | 3 | -.5 | 0 | -10 | -.5 | 0 | 0 | -200 | 178 | 0 | 0 | 0 | 0 | 0 | -100 | 74 | 7 | -10 | 21 | -2 | 52 | 13.2 | 39.8 | 0 | 0 |
| 17056 | 102 | S | 10 | -24 | .42 | 0 | 352 | 480 | 9500 | 21.5 | 63 | 100 | 37 | 140 | 11 | -10 | 0 | 0 | 0 | 3 | -.5 | 0 | -10 | -.5 | 0 | 0 | -200 | 197 | 0 | 0 | 0 | 0 | 0 | -100 | 87 | 7 | -10 | 21 | -2 | 58 | 12.6 | 30.1 | 0 | 0 |
| 17057 | 102 | S | 14 | 46 | .3 | 0 | 434 | 510 | 8300 | 21.3 | 67 | 110 | 42 | 140 | 17 | -14 | 0 | 0 | 0 | 3 | -.5 | 0 | -10 | -.2 | 0 | 0 | -100 | 256 | 0 | 0 | 0 | 0 | 0 | -100 | 95 | 8 | -10 | 26 | -2 | 76 | 14.1 | 35.7 | 0 | 0 |
| 16912 | 103 | S | 21 | 110 | .15 | 0 | 852 | 640 | 6300 | 25.4 | 62 | 100 | 110 | 230 | 77 | -10 | 0 | 0 | 0 | 13 | .5 | 0 | -10 | 1.9 | 0 | 0 | 1600 | 464 | 0 | 0 | 0 | 0 | 0 | -100 | 290 | 10 | 10 | 36 | -2 | 190 | 35.1 | 5.06 | 0 | 0 |
| 16914 | 103 | S | 27 | 100 | .18 | 0 | 1140 | 870 | 6800 | 38.2 | 140 | 150 | 270 | 300 | 230 | -34 | 0 | 0 | 0 | 11 | .5 | 0 | 200 | 10 | 0 | 0 | 17000 | 614 | 0 | 0 | 0 | 0 | 0 | -100 | 210 | -9 | -10 | 570 | -2 | 160 | 43 | .21 | 0 | 0 |
| 16915 | 103 | S | 26 | 79 | .21 | 0 | 310 | 280 | 11000 | 20.4 | 140 | 220 | 160 | 120 | 180 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | -.4 | 0 | 0 | -300 | 140 | 0 | 0 | 0 | 0 | 0 | -100 | 60 | 4 | -10 | 16 | -2 | 32 | 11.1 | 7.28 | 0 | 0 |
| 16916 | 103 | S | 11 | 730 | .24 | 0 | 554 | 300 | 11000 | 21.4 | 140 | 230 | 180 | 160 | 210 | 11 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | -.4 | 0 | 0 | 500 | 309 | 0 | 0 | 0 | 0 | 0 | -100 | 74 | 3 | -10 | 33 | -2 | 65 | 16.6 | 8.16 | 0 | 0 |
| 17061 | 104 | S | 21 | -25 | .13 | 0 | 859 | 720 | 7200 | 29 | 80 | 130 | 120 | 280 | 97 | -19 | 0 | 0 | 0 | 9 | .5 | 0 | -10 | 2.1 | 0 | 0 | 2400 | 463 | 0 | 0 | 0 | 0 | 0 | -100 | 210 | 11 | 30 | 60 | -2 | 200 | 28.7 | 2.83 | 0 | 0 |
| 17066 | 104 | S | 21 | 45 | .1 | 0 | 583 | 880 | 7300 | 27.8 | 99 | 120 | 94 | 310 | 97 | -10 | 0 | 0 | 0 | 9 | .5 | 0 | -10 | 2.9 | 0 | 0 | 4500 | 264 | 0 | 0 | 0 | 0 | 0 | -100 | 110 | 6 | -10 | 31 | -2 | 130 | 16.6 | 11.6 | 0 | 0 |
| 17068 | 104 | S | 21 | 60 | .03 | 0 | 498 | 650 | 6600 | 28.2 | 99 | 110 | 110 | 280 | 100 | -18 | 0 | 0 | 0 | 12 | .5 | 0 | -10 | 3.2 | 0 | 0 | 12000 | 225 | 0 | 0 | 0 | 0 | 0 | -100 | 120 | 4 | -10 | 22 | -2 | 110 | 15.6 | 8.49 | 0 | 0 |
| 17069 | 104 | S | 21 | 3400 | .12 | 0 | 490 | 520 | 6500 | 27.4 | 80 | 120 | 150 | 400 | 3 | -10 | 0 | 0 | 0 | 10 | -.5 | 0 | -10 | 4.3 | 0 | 0 | 4600 | 266 | 0 | 0 | 0 | 0 | 0 | -100 | 130 | 15 | -10 | 55 | -2 | 96 | 16.5 | 2.71 | 0 | 0 |
| 17070 | 104 | S | 21 | -16 | .08 | 0 | 290 | 310 | 5700 | 34.2 | 88 | 150 | 140 | 220 | 140 | -10 | 0 | 0 | 0 | 11 | 2 | 0 | -10 | 4.5 | 0 | 0 | 5600 | 163 | 0 | 0 | 0 | 0 | 0 | -100 | 44 | 2 | -10 | 50 | -2 | 85 | 9.4 | 7.73 | 0 | 0 |
| 17071 | 104 | S | 27 | -24 | .16 | 0 | 528 | 360 | 10000 | 25 | 130 | 200 | 110 | 140 | 55 | 18 | 0 | 0 | 0 | 6 | .5 | 0 | -10 | .7 | 0 | 0 | 1000 | 275 | 0 | 0 | 0 | 0 | 0 | -100 | 56 | -3 | -10 | 17 | -2 | 94 | 14.3 | 5.58 | 0 | 0 |
| 17072 | 104 | S | 10 | 1100 | .2 | 0 | 558 | 290 | 11000 | 22.9 | 140 | 220 | 100 | 120 | 40 | -10 | 0 | 0 | 0 | 4 | .5 | 0 | -10 | .8 | 0 | 0 | 600 | 310 | 0 | 0 | 0 | 0 | 0 | -100 | 56 | -3 | -10 | 21 | -2 | 97 | 15.2 | 15.1 | 0 | 0 |
| 17073 | 104 | S | 15 | 180 | .23 | 0 | 617 | 310 | 12000 | 26.1 | 170 | 230 | 97 | 110 | 84 | -10 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | .6 | 0 | 0 | 500 | 343 | 0 | 0 | 0 | 0 | 0 | -100 | 68 | 7 | -10 | 40 | -2 | 110 | 22.7 | 10.8 | 0 | 0 |
| 17003 | 105 | S | 14 | 44 | .18 | 0 | 255 | 390 | 9300 | 18.3 | 41 | 93 | 24 | 130 | -2 | -10 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | -.3 | 0 | 0 | 400 | 148 | 0 | 0 | 0 | 0 | 0 | -100 | 60 | 6 | -10 | 14 | -2 | 38 | 7.1 | 74.5 | 0 | 0 |
| 17005 | 105 | S | 14 | 26 | .18 | 0 | 163 | 320 | 9500 | 17.1 | 43 | 96 | 25 | 130 | -2 | -10 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | -.3 | 0 | 0 | -300 | 91 | 0 | 0 | 0 | 0 | 0 | -100 | 28 | 6 | -10 | 15 | -2 | 23 | 3.8 | 95.6 | 0 | 0 |
| 17007 | 105 | S | 14 | 72 | .19 | 0 | 188 | 370 | 8900 | 20.1 | 68 | 120 | 42 | 120 | -4 | -10 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | -.4 | 0 | 0 | 400 | 109 | 0 | 0 | 0 | 0 | 0 | -100 | 34 | 6 | -10 | 15 | -2 | 28 | 6.1 | 102 | 0 | 0 |
| 17008 | 105 | S | 14 | -18 | .22 | 0 | 200 | 340 | 8300 | 19.5 | 90 | 150 | 63 | 130 | 9 | -10 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | -.4 | 0 | 0 | -200 | 115 | 0 | 0 | 0 | 0 | 0 | -100 | 40 | 5 | -10 | 16 | -2 | 29 | 9 | 83.3 | 0 | 0 |
| 17010 | 105 | S | 14 | 18 | .25 | 0 | 142 | 300 | 8700 | 17.6 | 74 | 140 | 58 | 130 | -4 | -10 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | .5 | 0 | 0 | -100 | 75 | 0 | 0 | 0 | 0 | 0 | -100 | 21 | 4 | -10 | 17 | -2 | 16 | 3.3 | 105 | 0 | 0 |
| 16954 | 106 | S | 21 | -33 | .16 | 0 | 1070 | 800 | 5700 | 31.7 | 88 | 100 | 130 | 360 | 96 | -27 | 0 | 0 | 0 | 21 | .5 | 0 | -10 | 3.3 | 0 | 0 | 3300 | 640 | 0 | 0 | 0 | 0 | 0 | -100 | 300 | 6 | 40 | 17 | -2 | 200 | 29.2 | 1.53 | 0 | 0 |
| 16957 | 106 | S | 21 | 73 | .12 | 0 | 1010 | 740 | 6200 | 30.7 | 89 | 110 | 170 | 240 | 130 | -27 | 0 | 0 | 0 | 15 | .5 | 0 | -10 | 3.8 | 0 | 0 | 4200 | 616 | 0 | 0 | 0 | 0 | 0 | -100 | 320 | 15 | -10 | 21 | -2 | 180 | 38 | 1.01 | 0 | 0 |
| 16958 | 106 | S | 21 | 30 | .08 | 0 | 997 | 800 | 5900 | 29.4 | 94 | 100 | 120 | 200 | 180 | -20 | 0 | 0 | 0 | 13 | .5 | 0 | -10 | 3.8 | 0 | 0 | 1100 | 538 | 0 | 0 | 0 | 0 | 0 | -100 | 280 | 11 | -10 | 37 | -2 | 160 | 32.2 | 1.94 | 0 | 0 |
| 16960 | 106 | S | 27 | 23 | .29 | 0 | 972 | 750 | 7400 | 27.8 | 110 | 140 | 230 | 270 | 92 | -20 | 0 | 0 | 0 | 11 | -.5 | 0 | -10 | 1.9 | 0 | 0 | 4800 | 473 | 0 | 0 | 0 | 0 | 0 | -100 | 180 | 7 | -10 | 47 | -2 | 210 | 32.5 | .11 | 0 | 0 |
| 16961 | 106 | S | 11 | -28 | .27 | 0 | 1250 | 290 | 9700 | 24.7 | 310 | 340 | 250 | 140 | 64 | -10 | 0 | 0 | 0 | 8 | .5 | 0 | -10 | -.6 | 0 | 0 | -100 | 735 | 0 | 0 | 0 | 0 | 0 | -100 | 110 | 6 | 10 | 28 | -2 | 150 | 42.3 | 19 | 0 | 0 |
| 16962 | 106 | S | 11 | 17 | .26 | 0 | 1080 | 230 | 10000 | 21.7 | 280 | 340 | 240 | 120 | 74 | -24 | 0 | 0 | 0 | 7 | .5 | 0 | -10 | -.6 | 0 | 0 | -300 | 657 | 0 | 0 | 0 | 0 | 0 | -100 | 100 | 5 | 170 | 15 | -2 | 140 | 34.4 | 22 | 0 | 0 |
| 16973 | 107 | S | 21 | 10 | .14 | 0 | 798 | 660 | 6500 | 24.6 | 65 | 110 | 100 | 210 | 72 | -22 | 0 | 0 | 0 | 15 | .5 | 0 | -10 | 1.9 | 0 | 0 | 2500 | 437 | 0 | 0 | 0 | 0 | 0 | -100 | 260 | 7 | 80 | 15 | -2 | 170 | 27.7 | 3.63 | 0 | 0 |
| 16982 | 107 | S | 14 | 110 | .26 | 0 | 202 | 360 | 9900 | 24.6 | 100 | 140 | 65 | 120 | 30 | -11 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | -.4 | 0 | 0 | -300 | 120 | 0 | 0 | 0 | 0 | 0 | -100 | 49 | 6 | -10 | 12 | -2 | 33 | 12.4 | 146 | 0 | 0 |
| 16984 | 107 | S | 14 | 60 | .28 | 0 | 214 | 320 | 9600 | 21 | 86 | 130 | 61 | 130 | 15 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | -.4 | 0 | 0 | 100 | 116 | 0 | 0 | 0 | 0 | 0 | -100 | 50 | 4 | -10 | 12 | -2 | 29 | 9.6 | 158 | 0 | 0 |
| 16986 | 107 | S | 14 | 84 | .26 | 0 | 161 | 330 | 8800 | 19.1 | 72 | 130 | 60 | 140 | 11 | -10 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | .7 | 0 | 0 | -300 | 94 | 0 | 0 | 0 | 0 | 0 | -100 | 40 | 4 | -10 | 15 | -2 | 25 | 6.1 | 106 | 0 | 0 |
| 16988 | 107 | S | 15 | 48 | .34 | 0 | 183 | 300 | 8400 | 17.1 | 63 | 130 | 56 | 140 | 11 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | -.3 | 0 | 0 | -200 | 107 | 0 | 0 | 0 | 0 | 0 | -100 | 48 | 6 | -10 | 16 | -2 | 27 | 5.7 | 110 | 0 | 0 |
| 16989 | 107 | S | 14 | 60 | .24 | 0 | 255 | 320 | 9700 | 18.3 | 71 | 140 | 70 | 150 | 16 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | .4 | 0 | 0 | 100 | 135 | 0 | 0 | 0 | 0 | 0 | -100 | 65 | 5 | -10 | 19 | -2 | 35 | 6.2 | 130 | 0 | 0 |
| 16990 | 107 | S | 15 | 39 | .21 | 0 | 270 | 340 | 10000 | 18.9 | 79 | 130 | 65 | 130 | 13 | -10 | 0 | 0 | 0 | 7 | -.5 | 0 | -10 | -.3 | 0 | 0 | -200 | 153 | 0 | 0 | 0 | 0 | 0 | -100 | 71 | 6 | -10 | 11 | -2 | 39 | 8.7 | 87 | 0 | 0 |
| 16898 | 108 | S | 21 | -32 | -.05 | 0 | 780 | 540 | 7000 | 30.2 | 83 | 220 | 150 | 210 | 110 | -19 | 0 | 0 | 0 | 21 | -.5 | 0 | -10 | 1.7 | 0 | 0 | 3300 | 35 | 0 | 0 | 0 | 0 | 0 | -100 | 200 | -1 | -10 | 27 | -2 | 170 | 19.5 | 3.16 | 0 | 0 |
| 16899 | 108 | S | 24 | 120 | -.05 | 0 | 704 | 650 | 6700 | 32.5 | 130 | 120 | 110 | 250 | 96 | -11 | 0 | 0 | 0 | 20 | -.5 | 0 | -10 | 1.7 | 0 | 0 | 2200 | 331 | 0 | 0 | 0 | 0 | 0 | -100 | 140 | 8 | -10 | 37 | -2 | 180 | 17.7 | 7.42 | 0 | 0 |
| 16900 | 108 | S | 21 | -38 | .1 | 0 | 864 | 680 | 6400 | 29.4 | 81 | 120 | 130 | 300 | 110 | -20 | 0 | 0 | 0 | 27 | -.5 | 0 | -10 | 2.2 | 0 | 0 | 2200 | 434 | 0 | 0 | 0 | 0 | 0 | -100 | 210 | 10 | -10 | 39 | -2 | 200 | 23.3 | 2.52 | 0 | 0 |
| 16901 | 108 | S | 14 | 33 | .18 | 0 | 301 | 290 | 7700 | 19.6 | 130 | 200 | 120 | 120 | 11 | 13 | 0 | 0 | 0 | 7 | -.5 | 0 | -10 | 2 | 0 | 0 | 500 | 149 | 0 | 0 | 0 | 0 | 0 | -100 | 33 | 4 | -10 | 23 | -2 | 30 | 7 | 30.8 | 0 | 0 |
| 16903 | 108 | S | 11 | 140 | .18 | 0 | 333 | 210 | 8500 | 21.5 | 190 | 280 | 200 | 120 | 37 | -14 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | .5 | 0 | 0 | 300 | 192 | 0 | 0 | 0 | 0 | 0 | -100 | 48 | 5 | 10 | 21 | -2 | 41 | 11.4 | 51.5 | 0 | 0 |
| 16905 | 108 | S | 11 | -19 | .21 | 0 | 297 | 220 | 9000 | 20.2 | 190 | 310 | 220 | 120 | 28 | -10 | 0 | 0 | 0 | 7 | -.5 | 0 | -10 | -.4 | 0 | 0 | 200 | 180 | 0 | 0 | 0 | 0 | 0 | -100 | 42 | 4 | -10 | 18 | -2 | 40 | 9 | 51.8 | 0 | 0 |
| 16906 | 108 | S | 11 | 54 | .32 | 0 | 489 | 320 | 8900 | 27.9 | 250 | 290 | 180 | 130 | 34 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | .4 | 0 | 0 | 100 | 278 | 0 | 0 | 0 | 0 | 0 | -100 | 62 | 5 | -10 | 22 | -2 | 61 | 14.6 | 26.9 | 0 | 0 |
| 16907 | 108 | S | 13 | -16 | .24 | 0 | 187 | 200 | 9800 | 19.6 | 170 | 280 | 210 | 100 | 37 | -10 | 0 | 0 | 0 | 7 | .5 | 0 | -10 | -.4 | 0 | 0 | -300 | 107 | 0 | 0 | 0 | 0 | 0 | -100 | 21 | 6 | -10 | 13 | -2 | 22 | 6.1 | 14.5 | 0 | 0 |
| 16965 | 109 | S | 21 | -27 | .14 | 0 | 1150 | 880 | 7400 | 23.3 | 45 | 74 | 73 | 220 | 41 | -29 | 0 | 0 | 0 | 11 | -.5 | 0 | -10 | 2 | 0 | 0 | 2700 | 631 | 0 | 0 | 0 | 0 | 0 | -100 | 310 | 14 | 10 | 13 | -2 | 250 | 31.1 | 2.68 | 0 | 0 |
| 16967 | 109 | S | 21 | 14 | .09 | 0 | 816 | 690 | 6900 | 24.8 | 64 | 100 | 140 | 360 | 86 | -10 | 0 | 0 | 0 | 13 | .5 | 0 | -10 | 1.9 | 0 | 0 | 2000 | 448 | 0 | 0 | 0 | 0 | 0 | -100 | 250 | 10 | 10 | 39 | -2 | 180 | 23 | 2.33 | 0 | 0 |
| 16968 | 109 | S | 21 | 21 | .12 | 0 | 782 | 700 | 6700 | 30 | 83 | 110 | 110 | 340 | 120 | -15 | 0 | 0 | 0 | 13 | .5 | 0 | -10 | 3 | 0 | 0 | 2500 | 448 | 0 | 0 | 0 | 0 | 0 | -100 | 270 | 10 | 10 | 37 | -2 | 230 | 27.9 | 5.21 | 0 | 0 |
| 16969 | 109 | S | 21 | 29 | .1 | 0 | 779 | 840 | 6100 | 28.9 | 85 | 160 | 120 | 510 | 110 | -14 | 0 | 0 | 0 | 21 | .5 | 0 | -10 | 4.4 | 0 | 0 | 1600 | 557 | 0 | 0 | 0 | 0 | 0 | -100 | 310 | 10 | -10 | 31 | -2 | 170 | 29.2 | 1.59 | 0 | 0 |
| 16994 | 110 | S | 21 | 70 | .16 | 0 | 672 | 540 | 8700 | 24.7 | 88 | 120 | 150 | 210 | 58 | -10 | 0 | 0 | 0 | 13 | .5 | 0 | -10 | 1.2 | 0 | 0 | 1500 | 382 | 0 | 0 | 0 | 0 | 0 | -100 | 190 | 10 | 40 | 18 | 15 | 140 | 24.6 | 3.99 | 0 | 0 |
| 16996 | 110 | S | 21 | -29 | .11 | 0 | 851 | 660 | 7600 | 25.3 | 150 | 140 | 180 | 200 | 110 | -10 | 0 | 0 | 0 | 13 | .5 | 0 | -10 | 1.5 | 0 | 0 | 2200 | 340 | 0 | 0 | 0 | 0 | 0 | -100 | 190 | 7 | 80 | 18 | -2 | 180 | 24.4 | 4.74 | 0 | 0 |
| 16998 | 110 | S | 11 | 140 | .15 | 0 | 663 | 330 | 12000 | 19.9 | 240 | 210 | 190 | 120 | 41 | -16 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | .6 | 0 | 0 | 200 | 280 | 0 | 0 | 0 | 0 | 0 | -100 | 88 | 10 | -10 | 18 | -2 | 120 | 16.5 | 13.3 | 0 | 0 |
| 16999 | 110 | S | 11 | 100 | .08 | 0 | 542 | 280 | 12000 | 22.7 | 230 | 270 | 240 | 130 | 240 | -18 | 0 | 0 | 0 | 8 | .5 | 0 | -10 | -.7 | 0 | 0 | -800 | 258 | 0 | 0 | 0 | 0 | 0 | -100 | 83 | 7 | 40 | 29 | -2 | 110 | 17.1 | 19.1 | 0 | 0 |
| 18872 | 10102 | A | 15 | -17 | -.5 | 102 | 1010 | 410 | 1120 | 24 | 160 | 170 | 88 | -200 | 41 | -10 | -5 | 25 | 5900 | -7 | .6 | -28 | -200 | 1.4 | -53 | -1 | -100 | 590 | 90.7 | 6 | 12 | 28 | -5 | -100 | 120 | 9 | -24 | 22 | 0 | 147 | 35 | 68.19 | 56 | -5 |
| 18873 | 10102 | A | 13 | 79 | -.54 | 107 | 1190 | 310 | 1910 | 30 | 280 | 420 | 154 | -200 | 72 | -10 | 5 | -27 | 5600 | -2 | .4 | -31 | -200 | .4 | -59 | -1 | -100 | 692 | 95 | 5 | 14 | 33 | -5.7 | -100 | 96 | 7 | -26 | 35 | 0 | 198 | 37 | 76.02 | 52 | -1 |
| 18875 | 10105 | A | 15 | 220 | -.6 | 112 | 1090 | 330 | 1856 | 25 | 170 | 280 | 108 | -200 | 27 | -10 | -5 | -31 | 4900 | -7 | .2 | -35 | 390 | -.2 | -65 | -2 | -200 | 565 | 83.2 | 12 | 12 | 30 | -4.8 | -100 | 86 | 5 | -30 | 30 | 0 | 166 | 34 | 11.95 | 65 | 0 |
| 18876 | 10105 | A | 13 | 28 | -.59 | 127 | 1180 | 350 | 1396 | 26 | 220 | 270 | 116 | -200 | 30 | -21 | -5 | -27 | 5800 | -8 | -.2 | -32 | 730 | 1.9 | -60 | -1 | -100 | 736 | 103 | 6 | 14 | 34 | -5.6 | -100 | 99 | 7 | -28 | 26 | 0 | 183 | 41 | 67.61 | 42 | -1 |
| 18877 | 10105 | A | 13 | -17 | .85 | 116 | 1100 | 300 | 1272 | 25 | 210 | 230 | 106 | -200 | 28 | -10 | -5 | -24 | 5300 | -8 | .4 | -29 | -200 | -.2 | -56 | -1 | -100 | 640 | 97.1 | 5 | 13 | 30 | -5.3 | -100 | 87 | 6 | -26 | 58 | 0 | 165 | 37 | 79.71 | 56 | -5 |
| 18878 | 10105 | A | 15 | -18 | -.49 | 90.6 | 960 | 190 | 1968 | 21 | 190 | 300 | 152 | -200 | 24 | -10 | 6 | -23 | 5500 | -7 | .4 | -27 | 300 | -.2 | -52 | -1 | -100 | 557 | 92.2 | 6 | 12 | 23 | -4.2 | -100 | 86 | 6 | -24 | 30 | 0 | 163 | 34 | 70.2 | 106 | -5 |
| 18879 | 10105 | A | 13 | 49 | -.37 | 101 | 560 | 270 | 1862 | 25 | 240 | 360 | 186 | 200 | 51 | -10 | -5 | -22 | 2400 | -7 | .2 | -27 | -200 | -.2 | -50 | -1 | -100 | 320 | 54.5 | 4 | 9 | 24 | 4.4 | -100 | 56 | 6 | 25 | 24 | 0 | 105 | 19 | 66.06 | 134 | -5 |
| 18881 | 10105 | A | 13 | 68 | .43 | 98.2 | 530 | 340 | 2210 | 25 | 190 | 260 | 109 | -200 | 47 | -10 | -5 | -20 | 2500 | -6 | .2 | -25 | -200 | .5 | -46 | -1 | -100 | 260 | 48 | 5 | 7 | 21 | 3.9 | -100 | 60 | 7 | -22 | 19 | 0 | 85.5 | 16 | 61.74 | 117 | -5 |
| 18857 | 10202 | A | 13 | 72 | -.65 | 71.3 | 950 | 1000 | 2124 | 30 | 190 | 180 | 183 | -200 | 111 | -25 | -5 | -41 | 17000 | 7 | .9 | -44 | -520 | 4.1 | -90 | -9 | 5200 | 530 | 57.1 | -5 | 9 | 26 | -4.9 | -100 | 334 | 14 | 69 | 47 | 0 | 286 | 41 | 7.21 | 83 | -15 |
| 18861 | 10202 | A | 13 | 772 | -1.2 | 92.2 | 2470 | 790 | 2538 | 36 | 260 | 290 | 136 | -200 | 181 | -37 | -11 | -62 | 16000 | -14 | 1 | -65 | -720 | 1.5 | -130 | -4 | -330 | 1530 | 147 | -9 | 18 | 41 | 5.7 | -220 | 261 | 22 | -49 | 51 | 0 | 761 | 47 | 6.7 | | |
| 18863 | 10202 | A | 13 | 28 | -.45 | 82.8 | 780 | 530 | 870 | 22 | 120 | 120 | 48 | -200 | 41 | -10 | -5 | -28 | 7200 | -6 | -.2 | -30 | -200 | .6 | -56 | -1 | 270 | 410 | 58.5 | 5 | 9 | 23 | 3.4 | -100 | 130 | 12 | -24 | 22 | 0 | 183 | 20 | 16.92 | 26 | -11 |
| 18865 | 10202 | A | 15 | 34 | .4 | 84.5 | 360 | 460 | 740 | 20 | 90 | 93 | 26 | -200 | 17 | -10 | -5 | 28 | 5100 | -2 | -.2 | -10 | -200 | .5 | -20 | -1 | -100 | 190 | 34 | 4 | 5 | 18 | 3.1 | -100 | 99 | 9 | -16 | 8 | 0 | 70.6 | 12 | 39.84 | 20 | -5 |
| 18867 | 10202 | A | 15 | -13 | .31 | 84.8 | 400 | 480 | 462 | 20 | 84 | 87 | 38 | -200 | 16 | -10 | -5 | -10 | 5500 | -4 | -.2 | -10 | -200 | .3 | -20 | 2 | -100 | 210 | 35 | 4 | 6 | 21 | 3.2 | -100 | 110 | 10 | -16 | 8 | 0 | 75.2 | 10 | 46.88 | 14 | -5 |
| 18869 | 10202 | A | 13 | 55 | .6 | 82.3 | 840 | 470 | 1098 | 22 | 110 | 160 | 38 | -200 | 23 | -10 | -5 | -22 | 3900 | -6 | -.2 | -26 | -200 | .5 | -47 | -1 | -100 | 490 | 62 | 6 | 9 | 19 | 3.5 | -100 | 91 | 12 | -20 | 26 | 0 | 193 | 15 | 41.75 | 24 | -5 |
| 18882 | 10202 | A | 13 | 52 | -.55 | 83.4 | 1070 | 460 | 2484 | 25 | 120 | 170 | 88 | -200 | 38 | -10 | 7 | -25 | 3900 | -7 | -.2 | -29 | -200 | .6 | -53 | -1 | -100 | 654 | 80.2 | 6 | 9 | 20 | 3.3 | -100 | 65 | 9 | 42 | 22 | 0 | 285 | 15 | 46.62 | 34 | -5 |

## Appendix 9-9A. continued

| S.N. | OH | OM | DT | AU | NA | SC | CE | CR | MN | FE | CO | NI | CU | ZN | AS | SE | BA | RB | ZR | MO | AG | CD | SN | SB | TE | CS | BA | LA | SM | EU | TB | YB | LU | IR | HF | TA | W | PB | BI | TH | U | WT | ZN2 | AG2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17013 | 210 | S | 20 | 23 | .32 | 0 | 1290 | 370 | 9100 | 16.3 | 38 | 79 | 50 | 190 | 11 | 80 | 0 | 0 | 0 | 9 | -.5 | 0 | -10 | 2.4 | 0 | 0 | 700 | 777 | 0 | 0 | 0 | 0 | 0 | -100 | 200 | 11 | 20 | 440 | -2 | 230 | 33.7 | 3.38 | 0 | 0 |
| 17017 | 210 | S | 13 | -33 | .29 | 0 | 431 | 270 | 15000 | 27.5 | 260 | 320 | 260 | 110 | -8 | -10 | 0 | 0 | 0 | 5 | 1 | 0 | -10 | -.7 | 0 | 0 | 400 | 285 | 0 | 0 | 0 | 0 | 0 | -100 | 29 | 4 | -10 | 35 | -2 | 100 | 15.4 | 60.8 | 0 | 0 |
| 17018 | 210 | S | 13 | 51 | .2 | 0 | 582 | 290 | 14000 | 31.5 | 330 | 370 | 260 | 130 | 17 | 14 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | -.7 | 0 | 0 | -300 | 359 | 0 | 0 | 0 | 0 | 0 | -100 | 39 | 6 | -10 | 26 | -2 | 140 | 15.7 | 29.1 | 0 | 0 |
| 17019 | 210 | S | 13 | -21 | .11 | 0 | 420 | 240 | 17000 | 24.6 | 240 | 340 | 260 | 150 | 19 | -10 | 0 | 0 | 0 | 4 | .5 | 0 | -10 | -.5 | 0 | 0 | 500 | 252 | 0 | 0 | 0 | 0 | 0 | -100 | 31 | 3 | -10 | 33 | -2 | 99 | 12.1 | 20.4 | 0 | 0 |
| 16868 | 211 | S | 26 | -11 | .07 | 0 | 602 | 120 | 0 | 7.3 | 81 | 0 | 0 | 0 | 12 | -10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -.3 | 0 | 0 | 400 | 372 | 0 | 0 | 0 | 0 | 0 | -100 | 41 | -3 | 0 | 0 | 0 | 120 | 14.3 | .17 | 0 | 0 |
| 16871 | 211 | S | 11 | -40 | .15 | 0 | 1130 | 280 | 6600 | 30.3 | 530 | 340 | 320 | 130 | 15 | -19 | 0 | 0 | 0 | 14 | -.5 | 0 | -10 | -.8 | 0 | 0 | 1700 | 420 | 0 | 0 | 0 | 0 | 0 | -100 | 80 | 10 | -10 | 56 | 6 | 130 | 21.5 | 9.22 | 0 | 0 |
| 16872 | 211 | S | 11 | 400 | .12 | 0 | 1260 | 230 | 8900 | 25.7 | 620 | 410 | 400 | 140 | 23 | -11 | 0 | 0 | 0 | 25 | -.5 | 0 | -10 | .9 | 0 | 0 | 3400 | 542 | 0 | 0 | 0 | 0 | 0 | -100 | 89 | 12 | 160 | 48 | 6 | 190 | 28.1 | 10.5 | 0 | 0 |
| 16873 | 211 | S | 11 | 10 | .16 | 0 | 1070 | 200 | 8600 | 29.6 | 600 | 360 | 360 | 140 | 29 | -18 | 0 | 0 | 0 | 12 | -.5 | 0 | -10 | .9 | 0 | 0 | 5200 | 461 | 0 | 0 | 0 | 0 | 0 | -100 | 69 | 8 | 280 | 86 | 6 | 180 | 21.1 | 11.3 | 0 | 0 |
| 16874 | 211 | S | 11 | 18 | .12 | 0 | 1010 | 240 | 7700 | 27.1 | 610 | 340 | 380 | 130 | 25 | -15 | 0 | 0 | 0 | 29 | -.5 | 0 | -10 | .8 | 0 | 0 | 2000 | 440 | 0 | 0 | 0 | 0 | 0 | -100 | 68 | 8 | 240 | 49 | 4 | 140 | 17.2 | 11.8 | 0 | 0 |
| 16833 | 212 | S | 11 | -32 | .48 | 0 | 1470 | 270 | 5700 | 26.4 | 110 | 140 | 380 | 180 | 11 | -24 | 0 | 0 | 0 | 9 | -.5 | 0 | 10 | -.6 | 0 | 0 | 900 | 886 | 0 | 0 | 0 | 0 | 0 | -100 | 180 | 10 | -10 | 31 | -2 | 140 | 39.1 | 24.6 | 0 | 0 |
| 16834 | 212 | S | 11 | -40 | .51 | 0 | 2030 | 230 | 4300 | 23.2 | 57 | 79 | 200 | 140 | 8 | -26 | 0 | 0 | 0 | 6 | -.5 | 0 | 10 | 1.4 | 0 | 0 | 1800 | 1110 | 0 | 0 | 0 | 0 | 0 | -100 | 170 | 10 | -10 | 22 | -2 | 95 | 25.1 | 17.3 | 0 | 0 |
| 16835 | 212 | S | 11 | -40 | .28 | 0 | 1420 | 250 | 4900 | 19.7 | 110 | 100 | 450 | 130 | 14 | 49 | 0 | 0 | 0 | 7 | -.5 | 0 | 10 | 1 | 0 | 0 | 1600 | 575 | 0 | 0 | 0 | 0 | 0 | -100 | 100 | 10 | -10 | 20 | -2 | 79 | 13.6 | 12.2 | 0 | 0 |
| 16836 | 212 | S | 11 | -32 | .45 | 0 | 1400 | 360 | 5400 | 31.5 | 150 | 130 | 710 | 150 | 16 | -14 | 0 | 0 | 0 | 8 | -.5 | 0 | 10 | 1.1 | 0 | 0 | 1400 | 791 | 0 | 0 | 0 | 0 | 0 | -100 | 130 | 9 | -10 | 20 | -2 | 99 | 19 | 19.6 | 0 | 0 |
| 16837 | 212 | S | 32 | -35 | .52 | 0 | 1740 | 260 | 5200 | 28.6 | 89 | 110 | 310 | 160 | 17 | -24 | 0 | 0 | 0 | 10 | -.5 | 0 | 10 | 1 | 0 | 0 | 1200 | 988 | 0 | 0 | 0 | 0 | 0 | -100 | 140 | -5 | -10 | 22 | -2 | 110 | 23.9 | 17.7 | 0 | 0 |
| 16838 | 212 | S | 32 | -33 | .27 | 0 | 1550 | 260 | 4700 | 27.5 | 110 | 120 | 490 | 150 | 12 | -12 | 0 | 0 | 0 | 8 | -.5 | 0 | 10 | -.7 | 0 | 0 | 1200 | 549 | 0 | 0 | 0 | 0 | 0 | -100 | 95 | 9 | 20 | 31 | -2 | 67 | 12.3 | 6.21 | 0 | 0 |
| 18688 | 20100 | M | 10 | 27 | -.05 | 0 | 0 | 50 | 9500 | 4.3 | 10 | 120 | 110 | 150 | 4 | -10 | 0 | 0 | 0 | 3 | 1.5 | 0 | -10 | -.2 | 0 | -2 | 100 | 72 | 0 | 0 | 0 | 0 | 0 | -100 | 18 | 1 | 2 | 147 | -2 | 19 | 1.5 | 2.27 | 0 | 0 |
| 18689 | 20100 | M | 10 | 25 | .15 | 0 | 0 | 330 | 11000 | 32.7 | 70 | 130 | 120 | 110 | 24 | -10 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | .8 | 0 | -4 | 800 | 368 | 0 | 0 | 0 | 0 | 0 | -100 | 91 | 8 | -7 | 94 | -2 | 120 | 13.4 | 12 | 0 | 0 |
| 18690 | 20100 | M | 10 | 20 | .13 | 0 | 0 | 1900 | 7800 | 31.5 | 80 | 150 | 190 | 110 | 28 | -10 | 0 | 0 | 0 | 12 | -.5 | 0 | -10 | 1.1 | 0 | -3 | 700 | 419 | 0 | 0 | 0 | 0 | 0 | -100 | 94 | -3 | 14 | 88 | -2 | 140 | 12.8 | 17.2 | 0 | 0 |
| 18691 | 20100 | M | 10 | -18 | .12 | 0 | 0 | 610 | 12000 | 26.4 | 80 | 160 | 110 | 110 | 23 | -20 | 0 | 0 | 0 | 8 | .5 | 0 | -10 | .7 | 0 | -2 | 600 | 499 | 0 | 0 | 0 | 0 | 0 | -100 | 75 | 10 | 9 | 63 | -2 | 180 | 14.1 | 20 | 0 | 0 |
| 18692 | 20100 | M | 10 | 1800 | .11 | 0 | 0 | 490 | 9200 | 23.4 | 70 | 140 | 81 | 140 | 35 | -20 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | -.4 | 0 | -1 | 400 | 381 | 0 | 0 | 0 | 0 | 0 | -100 | 73 | 10 | 10 | 75 | -2 | 160 | 14.6 | 10 | 0 | 0 |
| 18693 | 20100 | M | 13 | 43 | .12 | 0 | 0 | 460 | 10000 | 25 | 70 | 130 | 74 | 100 | 29 | -10 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | -.3 | 0 | -2 | -200 | 425 | 0 | 0 | 0 | 0 | 0 | -100 | 91 | 11 | 17 | 59 | -2 | 160 | 12.5 | 21.6 | 0 | 0 |
| 18695 | 20100 | M | 39 | -24 | .2 | 0 | 764 | 1000 | 8100 | 25.6 | 80 | 200 | 140 | 150 | 23 | -170 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | .6 | 0 | 0 | -400 | 503 | 0 | 0 | 0 | 0 | 0 | -100 | 120 | 15 | 160 | 77 | -2 | 170 | 20.1 | 14.8 | 0 | 0 |
| 18705 | 20101 | M | 10 | 22 | .12 | 0 | 0 | 460 | 14000 | 22.3 | 60 | 130 | 62 | 140 | 19 | -10 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | .5 | 0 | -2 | -900 | 337 | 0 | 0 | 0 | 0 | 0 | -100 | 45 | 9 | 13 | 59 | -2 | 150 | 16.5 | 11.3 | 0 | 0 |
| 18706 | 20101 | M | 10 | -5 | -.05 | 0 | 0 | 70 | 13000 | 5.3 | 10 | 140 | 94 | 150 | 6 | -10 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | -.2 | 0 | -2 | -100 | 83 | 0 | 0 | 0 | 0 | 0 | -100 | 12 | 1 | 3 | 66 | -2 | 30 | 1.9 | 2.54 | 0 | 0 |
| 18708 | 20101 | M | 39 | 86 | .13 | 0 | 618 | 420 | 10000 | 21.4 | 60 | 110 | 64 | 130 | 16 | -10 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | 1.1 | 0 | 0 | -300 | 406 | 0 | 0 | 0 | 0 | 0 | -100 | 55 | 9 | 23 | 34 | -2 | 160 | 12.2 | 32.9 | 0 | 0 |
| 18687 | 20103 | M | 39 | -14 | .07 | 0 | 350 | 360 | 7700 | 14.8 | 50 | 190 | 460 | 300 | 26 | -10 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | .8 | 0 | 0 | 200 | 213 | 0 | 0 | 0 | 0 | 0 | -100 | 73 | 5 | 84 | 91 | -2 | 76 | 7.9 | 21.1 | 0 | 0 |
| 18696 | 20104 | M | 10 | -20 | .12 | 0 | 0 | 620 | 11000 | 24.4 | 90 | 150 | 110 | 200 | 79 | -20 | 0 | 0 | 0 | 9 | .5 | 0 | -10 | 1.4 | 0 | -1 | 800 | 473 | 0 | 0 | 0 | 0 | 0 | -100 | 160 | 12 | 12 | 67 | -2 | 200 | 24.7 | 10.9 | 0 | 0 |
| 18697 | 20104 | M | 10 | 61 | .27 | 0 | 0 | 320 | 11000 | 19.3 | 90 | 230 | 300 | 160 | 51 | 10 | 0 | 0 | 0 | 7 | -.5 | 0 | -10 | 1.1 | 0 | -2 | 700 | 589 | 0 | 0 | 0 | 0 | 0 | -100 | 150 | 9 | 25 | 105 | -2 | 200 | 25.8 | 10.2 | 0 | 0 |
| 18698 | 20104 | M | 13 | 22 | -.05 | 0 | 0 | 50 | 13000 | 5.1 | 10 | 160 | 160 | 130 | 15 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | .2 | 0 | -2 | 100 | 96 | 0 | 0 | 0 | 0 | 0 | -100 | 15 | 1 | 11 | 78 | -2 | 33 | 3.4 | 2.42 | 0 | 0 |
| 18699 | 20104 | M | 39 | 660 | .27 | 0 | 901 | 670 | 8400 | 26.6 | 90 | 190 | 170 | 160 | 53 | -10 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | 1.4 | 0 | 0 | 800 | 567 | 0 | 0 | 0 | 0 | 0 | -100 | 150 | 11 | 110 | 83 | -2 | 200 | 22.8 | 19.5 | 0 | 0 |
| 18721 | 20200 | M | 10 | 150 | .29 | 0 | 0 | 440 | 12000 | 31.1 | 100 | 180 | 130 | 120 | 39 | -20 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | -.8 | 0 | -5 | 1200 | 537 | 0 | 0 | 0 | 0 | 0 | -100 | 120 | 13 | -11 | 63 | -2 | 210 | 20.5 | 9.07 | 0 | 0 |
| 18722 | 20200 | M | 13 | 300 | .23 | 0 | 0 | 410 | 12000 | 22.5 | 80 | 160 | 96 | 120 | 20 | -20 | 0 | 0 | 0 | 16 | -.5 | 0 | -10 | -.5 | 0 | -2 | 900 | 539 | 0 | 0 | 0 | 0 | 0 | -100 | 76 | 10 | 14 | 62 | -2 | 220 | 18 | 17.2 | 0 | 0 |
| 18723 | 20200 | M | 10 | 27 | .27 | 0 | 0 | 370 | 13000 | 30.3 | 90 | 160 | 100 | 110 | 30 | -10 | 0 | 0 | 0 | 13 | -.5 | 0 | -10 | -.7 | 0 | -5 | 800 | 552 | 0 | 0 | 0 | 0 | 0 | -100 | 79 | 10 | 12 | 63 | -2 | 210 | 18.9 | 13.2 | 0 | 0 |
| 18724 | 20200 | M | 10 | 300 | .2 | 0 | 1600 | 9000 | 34.9 | 470 | 200 | 410 | 98 | 19 | -10 | 0 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | .7 | 0 | 5 | -500 | 379 | 0 | 0 | 0 | 0 | 0 | -100 | 80 | 6 | 13 | 51 | -2 | 140 | 15.4 | 12.4 | 0 | 0 |
| 18726 | 20200 | M | 39 | 350 | .24 | 0 | 790 | 1500 | 12000 | 23.4 | 240 | 170 | 170 | 210 | 24 | -20 | 0 | 0 | 0 | 9 | -.5 | 0 | -10 | -.6 | 0 | 0 | 900 | 491 | 0 | 0 | 0 | 0 | 0 | -100 | 71 | 12 | 38 | 56 | -2 | 200 | 23 | 16 | 0 | 0 |
| 18727A | 20200 | M | 40 | 51 | .16 | 0 | 0 | 2100 | 11000 | 21.8 | 230 | 170 | 200 | 200 | 23 | 30 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | .8 | 0 | -2 | 900 | 436 | 0 | 0 | 0 | 0 | 0 | -100 | 94 | 7 | 11 | 34 | -2 | 200 | 22.2 | 12 | 0 | 0 |
| 18727B | 20200 | M | 40 | 36 | .18 | 0 | 0 | 2100 | 11000 | 21.6 | 230 | 180 | 200 | 200 | 24 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | -.4 | 0 | -2 | 700 | 461 | 0 | 0 | 0 | 0 | 0 | -100 | 92 | 11 | 15 | 46 | -2 | 200 | 22.1 | 11.6 | 0 | 0 |
| 18717 | 20201 | M | 13 | -5 | .21 | 0 | 0 | 2600 | 11000 | 34.1 | 180 | 290 | 590 | 130 | 39 | 20 | 0 | 0 | 0 | 7 | -.5 | 0 | -10 | 1.2 | 0 | -4 | 900 | 386 | 0 | 0 | 0 | 0 | 0 | -100 | 110 | 7 | 19 | 72 | -2 | 130 | 17 | 16.9 | 0 | 0 |
| 18718 | 20201 | M | 10 | -29 | .24 | 0 | 0 | 23000 | 6800 | 36.7 | 330 | 640 | 1200 | 220 | 64 | 50 | 0 | 0 | 0 | 9 | 2.5 | 0 | -10 | 3 | 0 | -6 | -800 | 550 | 0 | 0 | 0 | 0 | 0 | -100 | 110 | 12 | 28 | 109 | -2 | 110 | 16.5 | 7.34 | 0 | 0 |
| 18720 | 20201 | M | 39 | -33 | .32 | 0 | 855 | 5600 | 10000 | 33 | 220 | 380 | 740 | 190 | 28 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | 1.4 | 0 | 0 | -600 | 470 | 0 | 0 | 0 | 0 | 0 | -100 | 120 | 9 | 94 | 59 | -2 | 170 | 19.9 | 3.71 | 0 | 0 |
| 18712 | 20204 | M | 17 | 65 | .16 | 0 | 0 | 400 | 11000 | 27.9 | 70 | 140 | 220 | 160 | 56 | -10 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | -.6 | 0 | -4 | 900 | 415 | 0 | 0 | 0 | 0 | 0 | -100 | 140 | 11 | 11 | 79 | -2 | 150 | 17.4 | 13.2 | 0 | 0 |
| 18713 | 20204 | M | 13 | 47 | .25 | 0 | 0 | 450 | 12000 | 25.2 | 110 | 160 | 150 | 110 | 30 | -30 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | -.2 | 0 | -3 | 600 | 445 | 0 | 0 | 0 | 0 | 0 | -100 | 65 | 13 | -10 | 57 | -2 | 160 | 12.3 | 22.8 | 0 | 0 |
| 18714 | 20204 | M | 13 | -23 | .24 | 0 | 0 | 490 | 11000 | 24.4 | 100 | 140 | 170 | 130 | 24 | -20 | 0 | 0 | 0 | 7 | -.5 | 0 | -10 | -.5 | 0 | -3 | -500 | 403 | 0 | 0 | 0 | 0 | 0 | -100 | 54 | 9 | -8 | 44 | -2 | 140 | 13.7 | 30.7 | 0 | 0 |
| 18716 | 20204 | M | 39 | 130 | .22 | 0 | 603 | 430 | 12000 | 21.1 | 70 | 130 | 140 | 150 | 18 | -10 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | -.5 | 0 | 0 | -700 | 353 | 0 | 0 | 0 | 0 | 0 | -100 | 50 | 5 | -14 | 33 | -2 | 130 | 11.3 | 23.9 | 0 | 0 |
| 18709 | 20303 | M | 16 | 44 | .24 | 0 | 0 | 240 | 10000 | 22.7 | 100 | 140 | 140 | 110 | 14 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | .5 | 0 | -2 | 200 | 134 | 0 | 0 | 0 | 0 | 0 | -100 | 33 | 2 | 16 | 50 | -2 | 44 | 5.6 | 32.6 | 0 | 0 |
| 18711 | 20303 | M | 39 | 63 | .21 | 0 | 39 | 60 | 10000 | 21.7 | 80 | 140 | 180 | 150 | -2 | -10 | 0 | 0 | 0 | 2 | -.5 | 0 | -10 | .2 | 0 | 0 | -100 | 20 | 0 | 0 | 0 | 0 | 0 | -100 | 4 | 1 | 16 | 19 | -2 | 5.2 | -1.1 | 67.7 | 0 | 0 |
| 18650 | 20401 | M | 13 | -5 | .14 | 0 | 0 | 240 | 12000 | 26.2 | 100 | 170 | 420 | 140 | 11 | -20 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | -.9 | 0 | -5 | -700 | 225 | 0 | 0 | 0 | 0 | 0 | -100 | 26 | 11 | 800 | 111 | -2 | 83 | 12.5 | 9.92 | 0 | 0 |
| 18651 | 20401 | M | 13 | -35 | .13 | 0 | 0 | 250 | 9700 | 23.9 | 100 | 200 | 540 | 120 | 19 | -10 | 0 | 0 | 0 | 10 | -.5 | 0 | 27 | -.8 | 0 | 8 | -700 | 205 | 0 | 0 | 0 | 0 | 0 | -100 | 47 | 4 | 4500 | 86 | -2 | 73 | 9.7 | 17.4 | 0 | 0 |
| 18754C | 20401 | M | 13 | 24 | -.05 | 0 | 369 | 240 | 10000 | 24.2 | 120 | 140 | 690 | 130 | 14 | -10 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | .7 | 0 | 0 | -300 | 249 | 0 | 0 | 0 | 0 | 0 | -100 | 41 | -1 | 1900 | 48 | -2 | 31 | 6.2 | 6.55 | 0 | 0 |
| 18654 | 20401 | M | 39 | 410 | .16 | 0 | 505 | 400 | 11000 | 26.2 | 190 | 170 | 310 | 160 | 32 | -10 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | -1.3 | 0 | -1 | -1600 | 362 | 0 | 0 | 0 | 0 | 0 | -100 | 70 | 12 | 4200 | 111 | -2 | 130 | 10.7 | 6.91 | 0 | 0 |
| 18646 | 20402 | M | 14 | 96 | .2 | 0 | 0 | 420 | 12000 | 23.7 | 140 | 160 | 560 | 130 | 23 | -10 | 0 | 0 | 0 | 5 | 2 | 0 | -10 | .7 | 0 | -2 | 400 | 355 | 0 | 0 | 0 | 0 | 0 | -100 | 66 | 12 | 19 | 55 | -2 | 130 | 13.3 | 21.7 | 0 | 0 |
| 18647 | 20402 | M | 34 | 70 | .21 | 0 | 0 | 360 | 12000 | 27.5 | 130 | 160 | 540 | 120 | 23 | -10 | 0 | 0 | 0 | 5 | .5 | 0 | -10 | .5 | 0 | -2 | -300 | 233 | 0 | 0 | 0 | 0 | 0 | -100 | 50 | 7 | 51 | 45 | -2 | 81 | 10.6 | 17.5 | 0 | 0 |
| 18753C | 20402 | M | 14 | 56 | .22 | 0 | 449 | 350 | 13000 | 21.7 | 140 | 130 | 440 | 150 | 20 | -20 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | 1 | 0 | 0 | 1000 | 307 | 0 | 0 | 0 | 0 | 0 | -100 | 82 | 8 | 38 | 57 | -2 | 110 | 12.5 | 8.72 | 0 | 0 |
| 18649 | 20402 | M | 39 | 120 | .27 | 0 | 686 | 580 | 12000 | 25.2 | 170 | 230 | 290 | 170 | 26 | 50 | 0 | 0 | 0 | 10 | -.5 | 0 | -10 | -.8 | 0 | -1 | -1400 | 496 | 0 | 0 | 0 | 0 | 0 | -100 | 120 | 11 | 2800 | 196 | -2 | 180 | 19.3 | 10.7 | 0 | 0 |
| 18685 | 20404 | M | 39 | 85 | .28 | 0 | 546 | 310 | 12000 | 31.3 | 220 | 400 | 300 | 130 | 21 | -20 | 0 | 0 | 0 | 9 | .5 | 0 | -10 | -.7 | 0 | 0 | 1000 | 293 | 0 | 0 | 0 | 0 | 0 | -100 | 52 | 7 | 31 | 35 | 2 | 96 | 15.8 | 4.07 | 0 | 0 |
| 18663 | 20405 | M | 13 | -14 | .16 | 0 | 0 | 440 | 13000 | 27.6 | 110 | 200 | 140 | 120 | 24 | -10 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | .9 | 0 | -2 | -300 | 194 | 0 | 0 | 0 | 0 | 0 | -100 | 30 | 4 | 28 | 50 | -2 | 71 | 6.8 | 20.5 | 0 | 0 |
| 18665 | 20405 | M | 39 | 80 | .17 | 0 | 515 | 710 | 13000 | 30.9 | 130 | 180 | 150 | 170 | 23 | -10 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | .8 | 0 | -1 | -600 | 292 | 0 | 0 | 0 | 0 | 0 | -100 | 56 | 7 | 110 | 55 | -2 | 120 | 14.2 | 11.3 | 0 | 0 |
| 18666 | 20502 | M | 13 | -5 | -.05 | 0 | 0 | 50 | 14000 | 5.6 | 30 | 230 | 290 | 190 | 15 | -10 | 0 | 0 | 0 | 4 | .5 | 0 | -10 | .3 | 0 | -2 | -100 | 99 | 0 | 0 | 0 | 0 | 0 | -100 | 12 | 3 | 5 | 72 | -2 | 38 | 3.1 | 2.49 | 0 | 0 |
| 18667 | 20502 | M | 35 | -19 | .24 | 0 | 0 | 280 | 11000 | 30.3 | 110 | 170 | 230 | 190 | 93 | 40 | 0 | 0 | 0 | 7 | -.5 | 0 | -10 | 1.2 | 0 | -4 | -1200 | 337 | 0 | 0 | 0 | 0 | 0 | -100 | 48 | 17 | 64 | 77 | -2 | 120 | 23.2 | 9.78 | 0 | 0 |
| 18668A | 20502 | M | 13 | -5 | .05 | 0 | 0 | -50 | 13000 | 4.8 | 20 | 190 | 340 | 180 | 18 | -10 | 0 | 0 | 0 | 2 | 1 | 0 | -10 | .2 | 0 | -2 | -100 | 85 | 0 | 0 | 0 | 0 | 0 | -100 | 11 | 1 | 21 | 96 | -2 | 30 | 3.1 | 2.4 | 0 | 0 |
| 18668B | 20502 | M | 13 | 830 | .05 | 0 | 0 | -50 | 13000 | 4.7 | 30 | 190 | 300 | 170 | 12 | -10 | 0 | 0 | 0 | 10 | .5 | 0 | -10 | -.2 | 0 | -2 | -100 | 97 | 0 | 0 | 0 | 0 | 0 | -100 | 12 | 2 | 23 | 133 | -2 | 37 | 3.7 | 2.64 | 0 | 0 |
| 18669 | 20502 | M | 13 | 55 | -.05 | 0 | 0 | -50 | 13000 | 4.7 | 20 | 200 | 200 | 170 | 13 | -10 | 0 | 0 | 0 | 15 | -.5 | 0 | -10 | .2 | 0 | -2 | -100 | 73 | 0 | 0 | 0 | 0 | 0 | -100 | 11 | 1 | 10 | 56 | -2 | 25 | 2.6 | 2.19 | 0 | 0 |
| 18670 | 20502 | M | 15 | 790 | .2 | 0 | 0 | 370 | 11000 | 26.7 | 90 | 160 | 150 | 120 | 29 | -20 | 0 | 0 | 0 | 14 | -.5 | 0 | -10 | 1.7 | 0 | -5 | 1000 | 546 | 0 | 0 | 0 | 0 | 0 | -100 | 110 | 9 | 43 | 68 | -2 | 180 | 22.2 | 8.03 | 0 | 0 |
| 18671 | 20502 | M | 15 | -5 | .06 | 0 | 0 | 60 | 12000 | 4.6 | 10 | 140 | 150 | 150 | 4 | 20 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | .3 | 0 | -2 | 200 | 110 | 0 | 0 | 0 | 0 | 0 | -100 | 17 | 2 | 6 | 67 | -2 | 41 | 2.8 | 1.99 | 0 | 0 |
| 18672 | 20502 | M | 15 | -16 | .34 | 0 | 0 | 270 | 8200 | 27.1 | 150 | 180 | 280 | 110 | 20 | -10 | 0 | 0 | 0 | 39 | -.5 | 0 | -10 | 1.2 | 0 | -4 | -400 | 306 | 0 | 0 | 0 | 0 | 0 | -100 | 54 | 8 | 14 | 53 | -2 | 120 | 16.1 | 13.6 | 0 | 0 |
| 18674 | 20502 | M | 39 | 350 | .25 | 0 | 1060 | 460 | 11000 | 26.7 | 180 | 230 | 240 | 170 | 50 | -20 | 0 | 0 | 0 | 11 | -.5 | 0 | -10 | -.6 | 0 | -1 | 500 | 656 | 0 | 0 | 0 | 0 | 0 | -100 | 98 | 13 | 86 | 67 | -2 | 270 | 24.4 | 19.5 | 0 | 0 |
| 18655 | 20601 | M | 13 | 160 | .1 | 0 | 0 | 210 | 11000 | 23.9 | 210 | 220 | 170 | 120 | 23 | -10 | 0 | 0 | 0 | 7 | 1 | 0 | -10 | .4 | 0 | -2 | 700 | 278 | 0 | 0 | 0 | 0 | 0 | -100 | 36 | 8 | 20 | 47 | 3 | 110 | 12.4 | 12.5 | 0 | 0 |
| 18656 | 20601 | M | 13 | -5 | -.05 | 0 | 0 | -50 | 11000 | 5.5 | 50 | 300 | 260 | 160 | 5 | -10 | 0 | 0 | 0 | 7 | 1 | 0 | -10 | .2 | 0 | -2 | 200 | 81 | 0 | 0 | 0 | 0 | 0 | -100 | 12 | -1 | 5 | 75 | 3 | 25 | 2.6 | 2.79 | 0 | 0 |
| 18756C | 20601 | M | 13 | 58 | .13 | 0 | 266 | 190 | 9300 | 25.1 | 160 | 160 | 140 | 120 | 24 | -10 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | -.6 | 0 | 0 | 800 | 178 | 0 | 0 | 0 | 0 | 0 | -100 | 21 | -1 | 30 | 42 | -2 | 58 | 9.1 | 15.5 | 0 | 0 |
| 18658 | 20601 | M | 39 | 78 | .21 | 0 | 476 | 310 | 11000 | 27.8 | 250 | 250 | 190 | 150 | 19 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | .6 | 0 | -1 | 400 | 373 | 0 | 0 | 0 | 0 | 0 | -100 | 61 | 6 | 190 | 69 | 3 | 120 | 13.3 | 18.7 | 0 | 0 |
| 18642 | 20603 | M | 13 | -12 | .65 | 0 | 384 | 160 | 3000 | 8.2 | 50 | 110 | 120 | 150 | 3 | -10 | 0 | 0 | 0 | 1 | -.5 | 0 | -10 | -.2 | 0 | 0 | 400 | 193 | 0 | 0 | 0 | 0 | 0 | -100 | 21 | 3 | 5 | 20 | -2 | 17 | 4.2 | 112 | 0 | 0 |
| 18643 | 20603 | M | 13 | -14 | .63 | 0 | 432 | 130 | 4100 | 9.7 | 60 | 110 | 110 | 150 | 3 | -10 | 0 | 0 | 0 | 2 | -.5 | 0 | -10 | -.2 | 0 | -2 | 300 | 222 | 0 | 0 | 0 | 0 | 0 | -100 | 21 | 2 | 7 | 23 | -2 | 18 | 4.4 | 121 | 0 | 0 |
| 18752C | 20603 | M | 13 | -20 | .7 | 0 | 504 | 180 | 4400 | 11.6 | 60 | 110 | 130 | 180 | 4 | -10 | 0 | 0 | 0 | 2 | -.5 | 0 | -10 | -.5 | 0 | 0 | 200 | 254 | 0 | 0 | 0 | 0 | 0 | -100 | 28 | 4 | -14 | 18 | -2 | 18 | -2.9 | 117 | 0 | 0 |
| 18644 | 20603 | M | 13 | -16 | .6 | 0 | 0 | 170 | 3500 | 10.5 | 70 | 110 | 93 | 170 | 4 | -10 | 0 | 0 | 0 | 1 | -.5 | 0 | -10 | -.3 | 0 | -1 | 1100 | 276 | 0 | 0 | 0 | 0 | 0 | -100 | 24 | 4 | 8 | 20 | -2 | 27 | 4.3 | 13.2 | 0 | 0 |
| 18755C | 20603 | M | 13 | 47 | .78 | 0 | 523 | 180 | 3400 | 12.7 | 60 | 94 | 72 | 160 | 7 | -10 | 0 | 0 | 0 | 2 | -.5 | 0 | -10 | .8 | 0 | 0 | 600 | 268 | 0 | 0 | 0 | 0 | 0 | -100 | 30 | 2 | -10 | 17 | -2 | 21 | 4.5 | 150 | 0 | 0 |
| 18645 | 20603 | M | 39 | -33 | .78 | 0 | 873 | 270 | 3500 | 14.2 | 90 | 150 | 150 | 140 | 10 | -20 | 0 | 0 | 0 | 7 | -.5 | 0 | -10 | .7 | 0 | -1 | 500 | 430 | 0 | 0 | 0 | 0 | 0 | -100 | 51 | -3 | 55 | 25 | -2 | 43 | 10.6 | 75.5 | 0 | 0 |

## Appendix 9-9A. continued.

| S.N. | DH | DM | DT | AU | NA | SC | CE | CR | MN | FE | CO | NI | CU | ZN | AS | SE | BR | RB | ZR | MO | AG | CD | SN | SB | TE | CS | BA | LA | SM | EU | TB | YB | LU | IR | HF | TA | W | PB | BI | TH | U | WT | ZN2 | AG2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18812 | 10303 | A | 11 | -20 | -1 | 112 | 3620 | 300 | 859 | 30 | 580 | 650 | 1039 | -200 | 91 | -24 | -5 | -37 | 7600 | 50 | 3 | -40 | -740 | .6 | -140 | -2 | 580 | 2150 | 306 | 13 | 41 | 53 | -11 | -100 | 99 | 4 | 120 | 89 | 0 | 903 | 186 | 12.76 | | |
| 18814 | 10304 | A | 11 | 100 | .53 | 76.3 | 340 | 290 | 1318 | 24 | 180 | 170 | 204 | 400 | 245 | -10 | -5 | -10 | 3700 | 6 | 1.2 | -10 | -300 | .8 | -20 | -1 | 160 | 150 | 31 | 6 | 6 | 25 | -4.3 | -100 | 72 | 6 | 29 | 22 | 0 | 34 | 11 | 16.58 | 80 | -5 |
| 18774 | 10401 | A | 10 | -12 | -.39 | 100 | 1420 | 420 | 599 | 24 | 190 | 140 | 109 | -200 | 50 | -10 | -5 | -10 | 7500 | -5 | 1.5 | -20 | -370 | .4 | -20 | -1 | -100 | 767 | 104 | 10 | 14 | 34 | -6.1 | -100 | 150 | 8 | -17 | 15 | 0 | 201 | 44 | 15.66 | 20 | |
| 18776 | 10401 | A | 15 | 10 | .72 | 77.6 | 580 | 360 | 329 | 19 | 120 | 130 | 65 | -200 | 24 | -10 | -5 | -10 | 7000 | 2 | 1.3 | -10 | -200 | .5 | -33 | -1 | -100 | 270 | 52.1 | 8 | 7 | 20 | -3.9 | -100 | 120 | 8 | -10 | 8 | 0 | 68.9 | 19 | 35.88 | 18 | -5 |
| 18778 | 10401 | A | 13 | -12 | .65 | 94.1 | 740 | 500 | 464 | 25 | 210 | 190 | 99 | 210 | 46 | -10 | -5 | -10 | 8800 | 3 | 1.4 | -21 | -270 | .5 | -40 | -1 | -100 | 370 | 57.3 | 6 | 9 | 29 | -5.1 | -100 | 170 | 10 | -18 | 17 | 0 | 119 | 23 | 10.22 | 30 | -5 |
| 18783 | 10401 | A | 11 | -5 | .38 | 120 | 1090 | 370 | 631 | 25 | 150 | 130 | 462 | -200 | 23 | -10 | -5 | -10 | 5000 | -4 | .9 | -10 | -280 | .4 | -45 | -1 | -100 | 604 | 85.7 | 5 | 12 | 33 | -6.3 | -100 | 75 | 6 | -14 | 27 | 0 | 180 | 47 | 30.81 | 25 | -5 |
| 18784 | 10401 | A | 11 | 350 | -.44 | 189 | 1560 | 270 | 1175 | 31 | 78 | 120 | 288 | -200 | 22 | -10 | -5 | -20 | 3100 | -5 | 1.2 | 49 | -400 | -.2 | -54 | -1 | -100 | 878 | 113 | 5 | 16 | 57 | -10 | -100 | 48 | 1 | -22 | 27 | 0 | 257 | 72.2 | 14.28 | 18 | 0 |
| 18854 | 10403 | A | 11 | 1260 | .66 | 103 | 740 | 390 | 1542 | 26 | 310 | 310 | 295 | 270 | 58 | -10 | -5 | -28 | 4500 | 6 | .6 | -33 | 410 | .4 | -62 | 2 | 1600 | 400 | 51.6 | 6 | 9 | 26 | -4.6 | -100 | 92 | 6 | 120 | 21 | 0 | 102 | 31 | 24.86 | 43 | -12 |
| 18763 | 10501 | A | 13 | 30 | .34 | 83.9 | 200 | 370 | 1270 | 26 | 230 | 170 | 91 | -200 | 82 | -10 | -5 | -10 | 1700 | 8 | 2 | -10 | -200 | .7 | -20 | -1 | 370 | 100 | 21 | 2 | 4 | 19 | -3.4 | -100 | 33 | 8 | 22 | 27 | 0 | 35 | 6.7 | 31.57 | 44 | -5 |
| 18765 | 10501 | A | 11 | 71 | .28 | 91.8 | 380 | 460 | 360 | 26 | 210 | 140 | 73 | -200 | 64 | -10 | -5 | 21 | 5200 | 3 | 1.9 | -10 | 230 | .6 | -20 | -1 | -100 | 180 | 35 | 5 | 6 | 25 | -4.1 | -100 | 92 | 11 | 466 | 17 | 0 | 57.1 | 12 | 27.29 | 54 | -5 |
| 18824 | 10503 | A | 14 | -5 | .3 | 87.4 | 330 | 440 | 298 | 21 | 75 | 79 | 22 | -200 | 4 | -10 | -5 | 17 | 3200 | -2 | .4 | -10 | -200 | .4 | -20 | -1 | -100 | 170 | 30 | 4 | 4 | 16 | -3.1 | -100 | 63 | 7 | -11 | 6 | 0 | 51.9 | 10 | 35.34 | 16 | -5 |
| 18826 | 10503 | A | 15 | -5 | .41 | 88 | 420 | 440 | 228 | 21 | 70 | 97 | 11 | -200 | 5 | -10 | -5 | 10 | 3400 | -2 | .3 | -10 | -200 | .4 | -20 | -1 | -100 | 220 | 36 | 3 | 5 | 19 | -3.5 | -100 | 66 | 7 | -10 | 5 | 0 | 64.7 | 12 | 48.41 | 10 | -5 |
| 18828 | 10503 | A | 13 | 62 | .52 | 85.7 | 710 | 490 | 345 | 21 | 62 | -50 | 13 | -200 | 5 | -10 | -5 | -10 | 6500 | -2 | .5 | -10 | -200 | .4 | -31 | -1 | -100 | 390 | 56.9 | 6 | 8 | 21 | -4.1 | -100 | 120 | 8 | -13 | 8 | 0 | 113 | 23 | 31.14 | 11 | -5 |
| 18830 | 10503 | A | 12 | -12 | -.35 | 103 | 590 | 440 | 284 | 25 | 130 | 66 | 81 | -200 | 8 | -10 | -5 | -10 | 3600 | 7 | .7 | -10 | -200 | .4 | -20 | -1 | 140 | 300 | 47 | 7 | 8 | 26 | -4.5 | -100 | 67 | 8 | 54 | 11 | 0 | 94.6 | 16 | 10.9 | 23 | -5 |
| 18832 | 10503 | A | 14 | -11 | .28 | 102 | 530 | 430 | 301 | 23 | 100 | 77 | 40 | -200 | 6 | -10 | -5 | -10 | 3900 | 4 | .4 | -10 | -200 | .4 | -20 | -1 | -100 | 270 | 45 | 5 | 7 | 24 | -4.4 | -100 | 66 | 11 | -17 | 7 | 0 | 90.8 | 16 | 15.03 | 10 | -5 |
| 18834 | 10503 | A | 12 | 31 | -.33 | 89.6 | 600 | 400 | 210 | 21 | 100 | 130 | 32 | -200 | 6 | -10 | -5 | -10 | 4700 | -2 | .7 | -10 | -200 | .4 | -20 | -1 | -100 | 310 | 52.2 | 5 | 8 | 21 | -3.8 | -100 | 79 | 11 | 23 | 4 | 0 | 111 | 20 | 12.72 | 14 | -5 |
| 18836 | 10503 | A | 12 | 47 | -.23 | 79.9 | 370 | 380 | 374 | 21 | 150 | 160 | 68 | -200 | 38 | -10 | -5 | -10 | 3900 | 2 | .6 | -10 | -200 | .6 | -20 | -1 | -100 | 200 | 38 | 4 | 6 | 19 | -3.3 | -100 | 71 | 9 | -14 | 10 | 0 | 66.9 | 14 | 28.16 | 127 | -5 |
| 18837 | 10503 | A | 12 | 1360 | -.31 | 76.9 | 710 | 320 | 478 | 22 | 240 | 270 | 258 | -200 | 33 | -10 | -5 | -10 | 4100 | 5 | 1.7 | -10 | -200 | .5 | -20 | -1 | -100 | 380 | 51.2 | 3 | 6 | 21 | -3.3 | -100 | 76 | 6 | -15 | 20 | 0 | 132 | 18 | 25.05 | 43 | -5 |
| 18819 | 10601 | A | 11 | 23 | .43 | 71.3 | 410 | 300 | 419 | 22 | 220 | 210 | 161 | 210 | 177 | -10 | -5 | -10 | 5300 | 12 | .8 | -10 | -200 | .7 | -20 | -1 | -100 | 190 | 36 | 5 | 5 | 24 | -4.4 | -100 | 100 | 9 | 53 | 23 | 0 | 45 | 13 | 22.79 | 77 | -5 |
| 18806 | 10602 | A | 14 | 25 | .46 | 89.6 | 470 | 270 | 616 | 22 | 200 | 190 | 179 | -200 | 23 | -10 | -5 | 12 | 4300 | 4 | 1.1 | -10 | -200 | .4 | -20 | -1 | -100 | 240 | 44 | 7 | 7 | 20 | -3.8 | -100 | 74 | 7 | -11 | 15 | 0 | 50.9 | 15 | 37.07 | 38 | -5 |
| 18808 | 10602 | A | 11 | 2840 | .23 | 81.2 | 340 | 410 | 365 | 23 | 210 | 180 | 99 | 220 | 27 | -10 | -5 | 12 | 4600 | 6 | .6 | -10 | -200 | .5 | -20 | -1 | -100 | 170 | 30 | 5 | 5 | 19 | -3.5 | -100 | 77 | 8 | 110 | 15 | 0 | 46 | 15 | 25.66 | 18 | -5 |
| 18816 | 10603 | A | 11 | 27 | .71 | 87.3 | 2600 | 260 | 745 | 24 | 380 | 310 | 534 | -200 | 120 | -10 | -5 | -24 | 5700 | -7 | 1.7 | -26 | -500 | -.2 | -120 | -1 | -100 | 1440 | 206 | 11 | 30 | 68 | -13 | -100 | 98 | 5 | 51 | 30 | 0 | 346 | 103 | 17.66 | 45 | |
| 18789 | 10700 | A | 14 | -5 | .29 | 85.9 | 180 | 310 | 490 | 22 | 130 | 120 | 54 | -200 | 24 | -10 | -5 | -10 | 2100 | 4 | 1.2 | -10 | -200 | .4 | -20 | -1 | -100 | 83 | 19 | 3 | 4 | 18 | -3.4 | -100 | 41 | 6 | -11 | 10 | 0 | 29 | 6.3 | 25.62 | 19 | -5 |
| 18791 | 10700 | A | 14 | -5 | .21 | 89.1 | 160 | 340 | 468 | 22 | 120 | 140 | 43 | -200 | 27 | -10 | -5 | 20 | 1900 | 6 | .9 | 15 | 210 | .5 | -20 | -1 | -100 | 70 | 18 | 3 | 4 | 19 | -3 | -100 | 26 | 5 | -14 | 6 | 0 | 24 | 5.2 | 17.82 | 27 | -5 |
| 18793 | 10700 | A | 14 | 29 | .24 | 100 | 200 | 330 | 405 | 23 | 120 | 120 | 43 | -200 | 22 | -10 | -5 | 12 | 2100 | 6 | 1.1 | -10 | -200 | .4 | -20 | -1 | -100 | 92 | 21 | 3 | 4 | 20 | -3.8 | -100 | 34 | 7 | -11 | 8 | 0 | 25 | 6.6 | 42.65 | 28 | -5 |
| 18795 | 10700 | A | 14 | 27 | .28 | 92.5 | 190 | 320 | 438 | 21 | 120 | 110 | 116 | -200 | 21 | -10 | -5 | -10 | 1900 | 2 | .6 | 21 | -200 | .4 | -20 | -1 | -100 | 87 | 20 | 4 | 4 | 19 | -3.6 | -100 | 33 | 6 | -9 | 8 | 0 | 24 | 6.1 | 52.43 | 28 | -5 |
| 18797 | 10700 | A | 15 | 11 | .34 | 91.3 | 310 | 360 | 340 | 22 | 120 | 85 | 52 | -200 | 25 | -10 | -5 | -10 | 3900 | 2 | .4 | -10 | -200 | .5 | -20 | -1 | -100 | 140 | 32 | 5 | 5 | 22 | -4.2 | -100 | 77 | 9 | -9 | 6 | 0 | 39 | 12 | 63.16 | 17 | -5 |
| 18799 | 10700 | A | 15 | 73 | .4 | 93 | 380 | 420 | 372 | 24 | 120 | 120 | 52 | -200 | 21 | -10 | -5 | -10 | 6100 | 3 | .2 | -10 | -200 | .6 | -26 | -1 | -100 | 190 | 35 | 6 | 6 | 22 | -4.4 | -100 | 110 | 10 | -11 | 8 | 0 | 57 | 14 | 34.34 | 20 | -5 |
| 18803 | 10700 | A | 10 | -5 | .41 | 91.4 | 340 | 390 | 364 | 22 | 110 | 100 | 38 | -200 | 17 | -10 | -5 | -10 | 4600 | 3 | .8 | 14 | -200 | .4 | -20 | -1 | -100 | 170 | 35 | 6 | 6 | 20 | -4 | -100 | 87 | 8 | -10 | 7 | 0 | 44 | 12 | 45.39 | 24 | -5 |
| 18804 | 10700 | A | 13 | 56 | -.34 | 84.5 | 1260 | 390 | 408 | 23 | 220 | 210 | 156 | -200 | 21 | -10 | -5 | -10 | 6300 | -4 | .8 | -10 | -200 | .5 | -51 | -1 | 130 | 723 | 85.6 | 6 | 10 | 24 | -4.5 | -100 | 120 | 9 | 21 | 16 | 0 | 245 | 25 | 31.83 | 25 | -5 |
| 18768 | 10704 | A | 13 | 15 | .35 | 82.2 | 730 | 340 | 395 | 20 | 120 | 130 | 94 | 210 | 27 | -10 | -5 | 15 | 7600 | -2 | 1 | -10 | 210 | .5 | -44 | -1 | -100 | 390 | 58.1 | 7 | 8 | 24 | -4.7 | -100 | 140 | 8 | 24 | 11 | 0 | 94.5 | 23 | 20.16 | 28 | -5 |
| 18771 | 10704 | A | 15 | 32 | .26 | 93.3 | 740 | 370 | 408 | 23 | 160 | 140 | 102 | 230 | 31 | -10 | -5 | -10 | 7600 | -2 | 1.4 | -10 | 210 | .5 | -20 | -1 | -100 | 390 | 59.8 | 6 | 8 | 28 | -5.2 | -100 | 140 | 9 | 85 | 11 | 0 | 105 | 22 | 19.37 | 30 | -5 |
| 18842 | 10901 | A | 15 | 48 | -.59 | 93.7 | 900 | 360 | 874 | 26 | 280 | 260 | 315 | -200 | 82 | -22 | -5 | -39 | 9700 | -9 | .5 | -41 | -470 | .9 | -82 | -3 | -230 | 512 | 84.5 | 10 | 15 | 35 | -5.7 | -100 | 190 | 13 | -31 | 35 | 0 | 166 | 40 | 17.9 | 80 | -15 |
| 18844 | 10901 | A | 15 | 84 | -.29 | 103 | 390 | 220 | 1156 | 24 | 220 | 200 | 203 | -200 | 61 | -10 | -5 | -23 | 3900 | 3 | .6 | -28 | -200 | 1.2 | -51 | -1 | -100 | 180 | 41 | 3 | 8 | 28 | 4.4 | -100 | 86 | 10 | -24 | 20 | 0 | 56.3 | 18 | 47.6 | 71 | -5 |
| 18845 | 10901 | A | 13 | 1800 | -.27 | 116 | 320 | 250 | 1634 | 26 | 240 | 220 | 233 | -200 | 68 | -10 | -5 | -21 | 2500 | -6 | .5 | -26 | -200 | .7 | -47 | -1 | -100 | 150 | 34 | 5 | 7 | 27 | 5.1 | -100 | 66 | 10 | -23 | 22 | 0 | 44 | 15 | 61.22 | 65 | -5 |
| 18847 | 10902 | A | 11 | 120 | -.57 | 92.2 | 1080 | 330 | 818 | 27 | 170 | 98 | 155 | 300 | 79 | -10 | -5 | -34 | 8300 | -7 | .2 | -36 | -410 | -.2 | -70 | -2 | -210 | 591 | 74 | 8 | 10 | 41 | -5.7 | -100 | 170 | 16 | 110 | 25 | 0 | 230 | 36 | 13.16 | 84 | -14 |
| 18851 | 11006 | A | 11 | 99 | -.34 | 88 | 410 | 440 | 1044 | 25 | 230 | 130 | 166 | -200 | 105 | -10 | -5 | -27 | 4700 | -6 | -.2 | -29 | -200 | .9 | -55 | -1 | 340 | 210 | 31 | -2 | 6 | 24 | 4 | -100 | 84 | 9 | 140 | 18 | 0 | 92.8 | 13 | 11.18 | 22 | -11 |
| 18852 | 11006 | A | 11 | 120 | -.35 | 128 | 620 | 330 | 1134 | 26 | 260 | 340 | 134 | -200 | 30 | -10 | -5 | 32 | 3600 | -5 | .2 | -27 | -200 | .5 | -52 | -1 | -100 | 330 | 50 | 5 | 8 | 26 | 4 | -100 | 79 | 9 | 57 | 20 | 0 | 92.8 | 19 | 28.28 | 49 | -11 |
| 18849 | 11102 | A | 11 | 72 | -.92 | 73 | 2110 | 530 | 1050 | 24 | 260 | -83 | 450 | -200 | 44 | -31 | -5 | -49 | 12000 | -11 | .6 | -48 | -550 | 1 | -100 | -3 | -290 | 1200 | 118 | 11 | 14 | 38 | -4.9 | -100 | 229 | 12 | 544 | 50 | 0 | 520 | 37 | 7.66 | 50 | |
| 16801 | 202 | S | 21 | 640 | .06 | 0 | 993 | 1000 | 7600 | 25.1 | 31 | 63 | 24 | 160 | 10 | -26 | 0 | 0 | 0 | 12 | -.5 | 0 | 40 | 1.5 | 0 | 0 | 2600 | 608 | 0 | 0 | 0 | 0 | 0 | -100 | 350 | 9 | 10 | 88 | -2 | 260 | 27.8 | 2.58 | 0 | 0 |
| 16804 | 202 | S | 21 | 40 | .06 | 0 | 884 | 990 | 7400 | 27.2 | 28 | 52 | 22 | 160 | -6 | -10 | 0 | 0 | 0 | 10 | -.5 | 0 | 10 | 1.7 | 0 | 0 | 4600 | 526 | 0 | 0 | 0 | 0 | 0 | -100 | 300 | 9 | -10 | 49 | -2 | 240 | 24.7 | 3.07 | 0 | 0 |
| 16816 | 202 | S | 11 | 120 | .22 | 0 | 1070 | 670 | 12000 | 29.8 | 92 | 130 | 56 | 150 | 26 | -24 | 0 | 0 | 0 | 9 | -.5 | 0 | -10 | -.6 | 0 | 0 | 600 | 829 | 0 | 0 | 0 | 0 | 0 | -100 | 120 | 19 | 30 | 25 | -2 | 260 | 28.6 | 19.9 | 0 | 0 |
| 16818 | 202 | S | 11 | 700 | .18 | 0 | 1030 | 370 | 16000 | 25 | 170 | 170 | 110 | 120 | 24 | -50 | 0 | 0 | 0 | 9 | -.5 | 0 | -10 | 1.8 | 0 | 0 | -1000 | 497 | 0 | 0 | 0 | 0 | 0 | -100 | 51 | 11 | 30 | 88 | -2 | 300 | 17 | 8.61 | 0 | 0 |
| 16820 | 202 | S | 11 | -25 | .21 | 0 | 985 | 510 | 14000 | 26.1 | 95 | 150 | 75 | 150 | 27 | -12 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | -.6 | 0 | 0 | -500 | 608 | 0 | 0 | 0 | 0 | 0 | -100 | 83 | 17 | 20 | 51 | -2 | 250 | 22.7 | 26.4 | 0 | 0 |
| 16822 | 202 | S | 11 | 410 | .2 | 0 | 1160 | 710 | 13000 | 29.7 | 99 | 140 | 64 | 150 | 26 | -10 | 0 | 0 | 0 | 7 | -.5 | 0 | -10 | 1.2 | 0 | 0 | 500 | 760 | 0 | 0 | 0 | 0 | 0 | -100 | 93 | 15 | -10 | 37 | -2 | 320 | 26.7 | 30.3 | 0 | 0 |
| 16824 | 202 | S | 11 | 78 | .14 | 0 | 1000 | 590 | 13000 | 27.5 | 88 | 130 | 49 | 140 | 35 | -24 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | 1.5 | 0 | 0 | 900 | 684 | 0 | 0 | 0 | 0 | 0 | -100 | 90 | 16 | 20 | 37 | -2 | 290 | 27.6 | 39.6 | 0 | 0 |
| 16825 | 202 | S | 11 | -30 | .16 | 0 | 675 | 440 | 12000 | 17.4 | 100 | 130 | 63 | 150 | 21 | -19 | 0 | 0 | 0 | 7 | -.5 | 0 | -10 | 1 | 0 | 0 | 600 | 325 | 0 | 0 | 0 | 0 | 0 | -100 | 59 | 8 | 10 | 62 | -2 | 180 | 16.5 | 15.4 | 0 | 0 |
| 16826 | 202 | S | 11 | 250 | .21 | 0 | 717 | 4400 | 12000 | 19 | 150 | 190 | 130 | 180 | 35 | -10 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | .9 | 0 | 0 | -100 | 266 | 0 | 0 | 0 | 0 | 0 | -100 | 68 | 10 | -10 | 40 | -2 | 150 | 11.3 | 17.3 | 0 | 0 |
| 16856 | 204 | S | 21 | -40 | .09 | 0 | 794 | 800 | 6100 | 28.6 | 75 | 100 | 100 | 200 | 61 | -12 | 0 | 0 | 0 | 16 | -.5 | 0 | 10 | 1.8 | 0 | 0 | 1500 | 491 | 0 | 0 | 0 | 0 | 0 | -100 | 290 | 8 | 30 | 29 | -2 | 250 | 23.8 | 2.77 | 0 | 0 |
| 16862 | 204 | S | 21 | -28 | .22 | 0 | 917 | 720 | 8400 | 28.7 | 96 | 120 | 92 | 150 | 42 | -10 | 0 | 0 | 0 | 13 | -.5 | 0 | -10 | 1.1 | 0 | 0 | 900 | 484 | 0 | 0 | 0 | 0 | 0 | -100 | 230 | 9 | 20 | 55 | -2 | 230 | 25.6 | 7.91 | 0 | 0 |
| 16863 | 204 | S | 21 | -35 | .12 | 0 | 865 | 530 | 8600 | 25 | 98 | 140 | 97 | 150 | 35 | -19 | 0 | 0 | 0 | 12 | -.5 | 0 | -10 | 1.6 | 0 | 0 | 500 | 454 | 0 | 0 | 0 | 0 | 0 | -100 | 160 | 12 | -10 | 48 | -2 | 190 | 35.1 | 4.7 | 0 | 0 |
| 16864 | 204 | S | 11 | 300 | .31 | 0 | 580 | 880 | 15000 | 29.1 | 150 | 180 | 210 | 150 | 49 | -10 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | -.7 | 0 | 0 | 100 | 306 | 0 | 0 | 0 | 0 | 0 | -100 | 58 | 5 | 20 | 27 | -2 | 130 | 12.9 | 4.68 | 0 | 0 |
| 16865 | 204 | S | 11 | 190 | .22 | 0 | 709 | 1000 | 15000 | 28.3 | 150 | 180 | 130 | 150 | 41 | -10 | 0 | 0 | 0 | 10 | -.5 | 0 | -10 | -.7 | 0 | 0 | -100 | 329 | 0 | 0 | 0 | 0 | 0 | -100 | 71 | 11 | -10 | 27 | -2 | 160 | 16.8 | 13.1 | 0 | 0 |
| 16866 | 204 | S | 11 | -30 | .12 | 0 | 594 | 930 | 14000 | 20.5 | 190 | 250 | 150 | 150 | 21 | -16 | 0 | 0 | 0 | 10 | -.5 | 0 | -10 | -.7 | 0 | 0 | 1100 | 268 | 0 | 0 | 0 | 0 | 0 | -100 | 63 | 7 | 30 | 27 | -2 | 110 | 17.3 | 13.7 | 0 | 0 |
| 16919 | 206 | S | 21 | 1400 | .19 | 0 | 776 | 530 | 9200 | 25.9 | 73 | 120 | 500 | 180 | 60 | -10 | 0 | 0 | 0 | 10 | .5 | 0 | -10 | 1.9 | 0 | 0 | 5000 | 433 | 0 | 0 | 0 | 0 | 0 | -100 | 180 | 10 | -10 | 16 | -2 | 220 | 28.7 | 4.59 | 0 | 0 |
| 16923 | 206 | S | 21 | 47 | .14 | 0 | 525 | 350 | 12000 | 20.9 | 76 | 150 | 170 | 360 | 27 | -10 | 0 | 0 | 0 | 10 | -.5 | 0 | -10 | 1.2 | 0 | 0 | 1600 | 327 | 0 | 0 | 0 | 0 | 0 | -100 | 76 | 8 | 20 | 24 | -2 | 120 | 11.8 | 13.1 | 0 | 0 |
| 16926 | 206 | S | 17 | -30 | .34 | 0 | 653 | 420 | 8900 | 27.6 | 240 | 130 | 260 | 180 | 91 | -29 | 0 | 0 | 0 | 22 | .5 | 0 | 20 | 2 | 0 | 0 | 88000 | 412 | 0 | 0 | 0 | 0 | 0 | -100 | 71 | 8 | 1700 | -5 | -2 | 120 | 13.7 | .7 | 0 | 0 |
| 16928 | 206 | S | 15 | 33 | .18 | 0 | 608 | 250 | 11000 | 19.9 | 170 | 270 | 220 | 160 | 16 | -10 | 0 | 0 | 0 | 10 | 1 | 0 | -10 | -.4 | 0 | 0 | 600 | 419 | 0 | 0 | 0 | 0 | 0 | -100 | 61 | 6 | 20 | 20 | 2 | 150 | 16.6 | 18.3 | 0 | 0 |
| 17028 | 207 | S | 16 | 150 | .68 | 0 | 647 | 180 | 3800 | 9.8 | 51 | 110 | 74 | 170 | 9 | -10 | 0 | 0 | 0 | 2 | -.5 | 0 | -10 | .5 | 0 | 0 | 500 | 329 | 0 | 0 | 0 | 0 | 0 | -100 | 28 | 4 | -10 | 23 | -2 | 36 | 6.1 | 41.8 | 0 | 0 |
| 17029 | 207 | S | 11 | -18 | .77 | 0 | 674 | 170 | 4000 | 10.5 | 46 | 100 | 50 | 170 | -4 | -10 | 0 | 0 | 0 | 2 | -.5 | 0 | -10 | .5 | 0 | 0 | 600 | 320 | 0 | 0 | 0 | 0 | 0 | -100 | 25 | 5 | -10 | 18 | -2 | 30 | 2.9 | 33.8 | 0 | 0 |
| 17030 | 207 | S | 15 | -20 | .72 | 0 | 756 | 190 | 3800 | 11.4 | 57 | 100 | 57 | 150 | -4 | -10 | 0 | 0 | 0 | 2 | -.5 | 0 | -10 | .6 | 0 | 0 | 400 | 395 | 0 | 0 | 0 | 0 | 0 | -100 | 30 | 5 | -10 | 19 | -2 | 43 | 5.9 | 105 | 0 | 0 |
| 17031 | 207 | S | 11 | -31 | .82 | 0 | 1000 | 280 | 3000 | 11.9 | 61 | 100 | 67 | 150 | -7 | -14 | 0 | 0 | 0 | 2 | -.5 | 0 | -10 | 1 | 0 | 0 | 600 | 522 | 0 | 0 | 0 | 0 | 0 | -100 | 31 | 4 | -10 | 15 | -2 | 33 | 5 | 121 | 0 | 0 |
| 17032 | 207 | S | 11 | -39 | .8 | 0 | 1510 | 250 | 2500 | 12.3 | 63 | 110 | 63 | 160 | -8 | 36 | 0 | 0 | 0 | 2 | -.5 | 0 | -10 | 1.4 | 0 | 0 | 1400 | 729 | 0 | 0 | 0 | 0 | 0 | -100 | 37 | 4 | -10 | 15 | -2 | 30 | -4 | 82.8 | 0 | 0 |
| 17033 | 207 | S | 13 | -30 | .86 | 0 | 881 | 220 | 2700 | 10.4 | 46 | 96 | 51 | 170 | -6 | -10 | 0 | 0 | 0 | 2 | -.5 | 0 | -10 | -.6 | 0 | 0 | 500 | 449 | 0 | 0 | 0 | 0 | 0 | -100 | 18 | 4 | -10 | 10 | -2 | 19 | .9 | 60.8 | 0 | 0 |
| 16840 | 208 | S | 14 | 19 | .32 | 0 | 594 | 570 | 10000 | 19.1 | 98 | 97 | 63 | 130 | 23 | -11 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | 1.5 | 0 | 0 | 900 | 253 | 0 | 0 | 0 | 0 | 0 | -100 | 39 | 6 | -10 | 41 | -2 | 120 | 6.7 | 16.7 | 0 | 0 |
| 16842 | 208 | S | 15 | 200 | .3 | 0 | 1450 | 860 | 12000 | 29.5 | 79 | 100 | 64 | 140 | 32 | -38 | 0 | 0 | 0 | 11 | -.5 | 0 | -10 | 1.4 | 0 | 0 | -300 | 922 | 0 | 0 | 0 | 0 | 0 | -100 | 140 | 22 | -10 | 61 | -2 | 330 | 24.2 | 30.5 | 0 | 0 |
| 16844 | 208 | S | 15 | 120 | .22 | 0 | 991 | 500 | 11000 | 23.8 | 210 | 270 | 170 | 160 | 78 | -10 | 0 | 0 | 0 | 10 | -.5 | 0 | -10 | 1.4 | 0 | 0 | 500 | 646 | 0 | 0 | 0 | 0 | 0 | -100 | 110 | 13 | -10 | 40 | -2 | 240 | 20.9 | 59.6 | 0 | 0 |
| 16846 | 208 | S | 15 | 69 | .78 | 0 | 1020 | 480 | 8600 | 24 | 210 | 220 | 140 | 150 | 87 | -14 | 0 | 0 | 0 | 11 | -.5 | 0 | -10 | .5 | 0 | 0 | 500 | 663 | 0 | 0 | 0 | 0 | 0 | -100 | 100 | 13 | -10 | 27 | -2 | 250 | 23.7 | 50.6 | 0 | 0 |
| 16848 | 208 | S | 15 | 37 | .4 | 0 | 1000 | 490 | 8700 | 23.1 | 220 | 220 | 170 | 160 | 110 | -19 | 0 | 0 | 0 | 11 | -.5 | 0 | -10 | .8 | 0 | 0 | 900 | 607 | 0 | 0 | 0 | 0 | 0 | -100 | 130 | 9 | -10 | 32 | -2 | 270 | 20.9 | 17.2 | 0 | 0 |
| 16850 | 208 | S | 10 | -5 | .29 | 0 | 1030 | 750 | 9000 | 27 | 220 | 230 | 170 | 160 | 76 | 22 | 0 | 0 | 0 | 10 | -.5 | 0 | -10 | 1 | 0 | 0 | 700 | 556 | 0 | 0 | 0 | 0 | 0 | -100 | 110 | 9 | 10 | 30 | -2 | 250 | 21.4 | 12 | 0 | 0 |
| 16852 | 208 | S | 15 | 52 | .23 | 0 | 1000 | 1100 | 8200 | 26 | 240 | 260 | 280 | 160 | 190 | 20 | 0 | 0 | 0 | 10 | -.5 | 0 | -10 | 2.9 | 0 | 0 | 1000 | 610 | 0 | 0 | 0 | 0 | 0 | -100 | 140 | -5 | -10 | 44 | 2 | 270 | 17.8 | 12.4 | 0 | 0 |
| 16853 | 208 | S | 11 | 40 | .38 | 0 | 660 | 440 | 8500 | 23.5 | 190 | 180 | 120 | 150 | 61 | -14 | 0 | 0 | 0 | 10 | -.5 | 0 | -10 | 1.3 | 0 | 0 | 700 | 327 | 0 | 0 | 0 | 0 | 0 | -100 | 50 | 10 | -10 | 25 | -2 | 160 | 14.4 | 5.18 | 0 | 0 |
| 17573 | 208 | S | 11 | -5 | .48 | 27 | 300 | 350 | 289 | 13 | 100 | 120 | 66 | 400 | 8 | -10 | -5 | -10 | 1000 | -2 | -.1 | -10 | -200 | .4 | -20 | -1 | -100 | 140 | 25 | 4 | 3 | 8 | 1.2 | -100 | 18 | 4 | -12 | 7 | 0 | 55 | 6.2 | 32.21 | 15 | -5 |
| 16878 | 209 | S | 15 | 57 | .14 | 0 | 1310 | 400 | 10000 | 23.2 | 310 | 290 | 250 | 160 | 20 | 26 | 0 | 0 | 0 | 13 | -.5 | 0 | -10 | -.8 | 0 | 0 | 3600 | 623 | 0 | 0 | 0 | 0 | 0 | -100 | 110 | 11 | -10 | 65 | 2 | 300 | 27 | 13.5 | 0 | 0 |
| 16880 | 209 | S | 14 | -40 | .13 | 0 | 1030 | 340 | 11000 | 22.5 | 320 | 290 | 260 | 160 | 15 | -15 | 0 | 0 | 0 | 13 | -.5 | 0 | -10 | -.9 | 0 | 0 | 2500 | 433 | 0 | 0 | 0 | 0 | 0 | -100 | 68 | 6 | -10 | 52 | -2 | 210 | 21.1 | 9.61 | 0 | 0 |
| 16882 | 209 | S | 13 | 200 | .09 | 0 | 907 | 380 | 10000 | 23.7 | 420 | 330 | 280 | 150 | 15 | -14 | 0 | 0 | 0 | 11 | -.5 | 0 | -10 | -.7 | 0 | 0 | 1400 | 406 | 0 | 0 | 0 | 0 | 0 | -100 | 64 | 8 | 10 | 75 | 2 | 220 | 18 | 14.2 | 0 | 0 |
| 16883 | 209 | S | 13 | 170 | .13 | 0 | 816 | 330 | 10000 | 26.4 | 460 | 330 | 300 | 130 | 27 | -10 | 0 | 0 | 0 | 10 | -.5 | 0 | -10 | -.6 | 0 | 0 | 900 | 340 | 0 | 0 | 0 | 0 | 0 | -100 | 48 | 9 | 60 | 73 | 2 | 190 | 18.8 | 7.56 | 0 | 0 |
| 16885 | 209 | S | 13 | 420 | .11 | 0 | 767 | 330 | 9700 | 25.8 | 500 | 320 | 290 | 140 | 16 | -14 | 0 | 0 | 0 | 12 | -.5 | 0 | -10 | .7 | 0 | 0 | 100 | 347 | 0 | 0 | 0 | 0 | 0 | -100 | 60 | 9 | 10 | 74 | 2 | 190 | 15 | 13.4 | 0 | 0 |
| 16886 | 209 | S | 13 | 69 | .15 | 0 | 796 | 330 | 11000 | 23.5 | 490 | 350 | 300 | 150 | 22 | 39 | 0 | 0 | 0 | 9 | -.5 | 0 | -10 | -.6 | 0 | 0 | 600 | 364 | 0 | 0 | 0 | 0 | 0 | -100 | 68 | 8 | 30 | 76 | 2 | 180 | 15.4 | 18.2 | 0 | 0 |
| 16887 | 209 | S | 11 | 120000 | .13 | 0 | 1050 | 360 | 9700 | 24.2 | 460 | 300 | 260 | 130 | 44 | -11 | 0 | 0 | 0 | 11 | -.5 | 0 | -10 | -.9 | 0 | 0 | -1400 | 490 | 0 | 0 | 0 | 0 | 0 | -100 | 57 | 12 | 10 | 73 | 2 | 210 | 28.6 | 8.19 | 0 | 0 |

## Appendix 9-9A. continued.

| S.N. | DH | DM | DT | AU | NA | SC | CE | CR | MN | FE | CO | NI | CU | ZN | AS | SE | BR | RB | ZR | MO | AG | CD | SN | SB | TE | CS | BA | LA | SR | EU | TB | YB | LU | IR | HF | TA | W | PB | BI | TH | U | WT | ZN2 | AG2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18626 | 20702 | M | 10 | 66 | .32 | 0 | 221 | 120 | 8400 | 8.8 | 30 | 120 | 97 | 150 | 9 | -10 | 0 | 0 | 0 | 2 | 3.5 | 0 | -10 | .2 | 0 | 0 | 200 | 111 | 0 | 0 | 0 | 0 | 0 | -100 | 11 | -1 | 44 | 42 | -2 | 22 | 2.1 | 20 | 0 | 0 |
| 18626R | 20702 | M | 10 | -16 | .74 | 0 | 360 | 250 | 7800 | 16 | 60 | 110 | 130 | 160 | 22 | 10 | 0 | 0 | 0 | 2 | -.5 | 0 | -10 | 1 | 0 | 0 | 500 | 194 | 0 | 0 | 0 | 0 | 0 | -100 | 21 | 3 | 37 | 73 | -2 | 35 | 6.3 | 6.94 | 0 | 0 |
| 18627 | 20702 | M | 10 | -18 | .42 | 0 | 564 | 430 | 8700 | 19.6 | 60 | 120 | 96 | 130 | 22 | -10 | 0 | 0 | 0 | 3 | .5 | 0 | -10 | .8 | 0 | 0 | -400 | 335 | 0 | 0 | 0 | 0 | 0 | -100 | 43 | 10 | 28 | 46 | -2 | 90 | 10.4 | 39.2 | 0 | 0 |
| 18628 | 20702 | M | 14 | 160 | .31 | 0 | 629 | 570 | 9800 | 22 | 60 | 120 | 80 | 120 | 28 | 30 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | 1 | 0 | 0 | -400 | 388 | 0 | 0 | 0 | 0 | 0 | -100 | 49 | 14 | 25 | 54 | -2 | 130 | 10.1 | 38.8 | 0 | 0 |
| 18629 | 20702 | M | 14 | -19 | .38 | 0 | 614 | 490 | 8700 | 21 | 100 | 170 | 150 | 130 | 23 | -10 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | .9 | 0 | 0 | 1000 | 337 | 0 | 0 | 0 | 0 | 0 | -100 | 50 | 7 | 23 | 51 | -2 | 99 | 10.3 | 33.9 | 0 | 0 |
| 18748C | 20702 | M | 14 | -19 | .38 | 0 | 563 | 530 | 8100 | 23.4 | 70 | 110 | 70 | 140 | 17 | -10 | 0 | 0 | 0 | 3 | -.5 | 0 | -10 | .8 | 0 | 0 | 400 | 337 | 0 | 0 | 0 | 0 | 0 | -100 | 44 | 7 | 20 | 54 | -2 | 110 | 6.3 | 81.2 | 0 | 0 |
| 18631 | 20702 | M | 39 | 90 | .36 | 0 | 874 | 780 | 7000 | 23 | 80 | 140 | 110 | 180 | 19 | -10 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | .8 | 0 | 0 | 600 | 514 | 0 | 0 | 0 | 0 | 0 | -100 | 79 | 13 | 120 | 66 | -2 | 160 | 12.6 | 19.5 | 0 | 0 |
| 18622 | 20704 | M | 13 | 21 | .58 | 0 | 555 | 180 | 4700 | 10.9 | 40 | 120 | 66 | 170 | 5 | -10 | 0 | 0 | 0 | 7 | -.5 | 0 | -10 | -.3 | 0 | 0 | 500 | 262 | 0 | 0 | 0 | 0 | 0 | -100 | 25 | 6 | 110 | 26 | -2 | 33 | 4.5 | 72.2 | 0 | 0 |
| 18747C | 20704 | M | 13 | -15 | .6 | 0 | 486 | 230 | 4300 | 14.8 | 70 | 160 | 57 | 190 | 13 | -10 | 0 | 0 | 0 | 3 | -.5 | 0 | -10 | .8 | 0 | 0 | 400 | 225 | 0 | 0 | 0 | 0 | 0 | -100 | 27 | 5 | 180 | 22 | -2 | 27 | 3.3 | 43.3 | 0 | 0 |
| 18623 | 20704 | M | 13 | 49 | .52 | 0 | 421 | 270 | 4100 | 14.6 | 70 | 210 | 67 | 150 | 15 | -10 | 0 | 0 | 0 | 3 | -.5 | 0 | -10 | .7 | 0 | 0 | -300 | 210 | 0 | 0 | 0 | 0 | 0 | -100 | 23 | 5 | 240 | 25 | -2 | 29 | 4.3 | 50.3 | 0 | 0 |
| 18625 | 20704 | M | 39 | -26 | .55 | 0 | 756 | 310 | 4000 | 15.7 | 80 | 180 | 77 | 170 | 13 | -90 | 0 | 0 | 0 | 7 | -.5 | 0 | -10 | -.5 | 0 | 0 | -400 | 409 | 0 | 0 | 0 | 0 | 0 | -100 | 48 | 6 | 630 | 26 | -2 | 48 | 4 | 48.7 | 0 | 0 |
| 18728 | 20705 | M | 13 | 180 | .39 | 0 | 0 | 380 | 7400 | 17 | 70 | 130 | 130 | 170 | 20 | 50 | 0 | 0 | 0 | 3 | -.5 | 0 | -10 | .8 | 0 | -2 | 600 | 398 | 0 | 0 | 0 | 0 | 0 | -100 | 45 | 7 | 8 | 28 | -2 | 110 | 9.1 | 11.4 | 0 | 0 |
| 18729 | 20705 | M | 10 | 68 | .27 | 0 | 0 | 490 | 11000 | 20.8 | 60 | 120 | 56 | 160 | 12 | 30 | 0 | 0 | 0 | 3 | -.5 | 0 | -10 | .7 | 0 | -2 | -1000 | 409 | 0 | 0 | 0 | 0 | 0 | -100 | 54 | 12 | 9 | 38 | -2 | 150 | 16 | 10.8 | 0 | 0 |
| 18730 | 20705 | M | 13 | 1300 | .4 | 0 | 0 | 360 | 8600 | 17.8 | 60 | 120 | 54 | 160 | 13 | -10 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | .4 | 0 | -2 | 300 | 289 | 0 | 0 | 0 | 0 | 0 | -100 | 38 | 6 | -5 | 20 | -2 | 84 | 7.8 | 10.9 | 0 | 0 |
| 18731 | 20705 | M | 10 | -18 | .51 | 0 | 0 | 260 | 6800 | 14.5 | 50 | 110 | 60 | 160 | 10 | -10 | 0 | 0 | 0 | 3 | -.5 | 0 | -10 | .5 | 0 | -2 | 300 | 264 | 0 | 0 | 0 | 0 | 0 | -100 | 37 | 5 | 6 | 21 | -2 | 58 | 6.1 | 11.7 | 0 | 0 |
| 18732 | 20705 | M | 13 | -18 | .47 | 0 | 0 | 300 | 6700 | 16.7 | 60 | 110 | 66 | 170 | 15 | -20 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | .4 | 0 | -2 | 500 | 330 | 0 | 0 | 0 | 0 | 0 | -100 | 45 | 8 | 8 | 29 | -2 | 86 | 45 | 11.8 | 0 | 0 |
| 18733 | 20705 | M | 13 | -18 | .27 | 0 | 0 | 320 | 10000 | 22.3 | 70 | 130 | 71 | 160 | 29 | 20 | 0 | 0 | 0 | 12 | -.5 | 0 | -10 | .4 | 0 | -2 | -400 | 302 | 0 | 0 | 0 | 0 | 0 | -100 | 34 | 8 | 6 | 28 | -2 | 96 | 11.5 | 9.76 | 0 | 0 |
| 18734 | 20705 | M | 13 | 49 | .15 | 0 | 0 | 190 | 12000 | 20.4 | 50 | 110 | 89 | 140 | 33 | -10 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | .5 | 0 | -2 | 300 | 191 | 0 | 0 | 0 | 0 | 0 | -100 | 21 | 2 | 5 | 34 | -2 | 46 | 4.3 | 12.4 | 0 | 0 |
| 18735 | 20705 | M | 12 | -14 | .14 | 0 | 0 | 180 | 12000 | 20.4 | 50 | 110 | 76 | 140 | 17 | -10 | 0 | 0 | 0 | 3 | -.5 | 0 | -10 | .3 | 0 | -2 | 400 | 180 | 0 | 0 | 0 | 0 | 0 | -100 | 19 | 4 | 4 | 50 | -2 | 50 | 4.9 | 11.9 | 0 | 0 |
| 18736 | 20705 | M | 13 | 170 | .12 | 0 | 0 | 180 | 12000 | 23.3 | 60 | 110 | 120 | 140 | 26 | -10 | 0 | 0 | 0 | 3 | -.5 | 0 | -10 | .7 | 0 | -2 | 600 | 182 | 0 | 0 | 0 | 0 | 0 | -100 | 25 | 3 | -4 | 48 | -2 | 53 | 4.9 | 11.6 | 0 | 0 |
| 18737 | 20705 | M | 39 | 42 | .41 | 0 | 737 | 330 | 7500 | 16.8 | 60 | 130 | 82 | 170 | 17 | -10 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | -.4 | 0 | 0 | -300 | 395 | 0 | 0 | 0 | 0 | 0 | -100 | 55 | 12 | 21 | 27 | -2 | 100 | 8.9 | 33.6 | 0 | 0 |
| 18605 | 20801 | M | 13 | 25 | .08 | 0 | 211 | 350 | 7500 | 13.3 | 160 | 270 | 410 | 110 | 41 | -10 | 0 | 0 | 0 | 7 | 1 | 0 | -10 | 1.1 | 0 | 0 | 300 | 124 | 0 | 0 | 0 | 0 | 0 | -100 | -2 | 3 | 550 | 66 | 4 | 49 | 5.4 | 15.4 | 0 | 0 |
| 18606 | 20801 | M | 13 | 910 | .17 | 0 | 647 | 890 | 9300 | 30.3 | 310 | 260 | 320 | 110 | 90 | -20 | 0 | 0 | 0 | 6 | 1 | 0 | -10 | 1.9 | 0 | 0 | -600 | 396 | 0 | 0 | 0 | 0 | 0 | -100 | 48 | 12 | 690 | 69 | 3 | 160 | 14.1 | 26 | 0 | 0 |
| 18607 | 20801 | M | 13 | 58 | .16 | 0 | 577 | 630 | 9400 | 26.5 | 220 | 210 | 210 | 120 | 67 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | 2.4 | 0 | 0 | -600 | 373 | 0 | 0 | 0 | 0 | 0 | -100 | 51 | 10 | 610 | 75 | 2 | 140 | 15.6 | 25.5 | 0 | 0 |
| 18608 | 20801 | M | 13 | 67 | .17 | 0 | 878 | 640 | 11000 | 25.4 | 190 | 190 | 160 | 110 | 98 | -30 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | .9 | 0 | 0 | 400 | 564 | 0 | 0 | 0 | 0 | 0 | -100 | 78 | 8 | 400 | 81 | -2 | 230 | 23.9 | 27.6 | 0 | 0 |
| 18609 | 20801 | M | 13 | 160 | .21 | 0 | 824 | 1700 | 9400 | 27.9 | 250 | 260 | 240 | 140 | 100 | 40 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | 2.4 | 0 | 0 | -600 | 529 | 0 | 0 | 0 | 0 | 0 | -100 | 74 | 10 | 610 | 70 | 3 | 220 | 19.1 | 29.3 | 0 | 0 |
| 18610 | 20801 | M | 13 | 600 | .15 | 0 | 339 | 1500 | 3500 | 39.2 | 730 | 470 | 660 | 440 | 320 | -20 | 0 | 0 | 0 | 5 | 1 | 0 | -10 | 6.3 | 0 | 0 | -600 | 181 | 0 | 0 | 0 | 0 | 0 | -100 | 60 | -4 | 230 | 93 | 7 | 71 | 12 | 22.2 | 0 | 0 |
| 18611 | 20801 | M | 13 | 690 | .07 | 0 | 0 | 490 | 2400 | 34.5 | 560 | 550 | 660 | 170 | 490 | 30 | 0 | 0 | 0 | 4 | 2 | 0 | 35 | 4.8 | 0 | 0 | 400 | 143 | 0 | 0 | 0 | 0 | 0 | -100 | 39 | 5 | 210 | 187 | 7 | 60 | 6 | 12.9 | 0 | 0 |
| 18612 | 20801 | M | 13 | 420 | .17 | 0 | 192 | 400 | 1800 | 34.8 | 690 | 570 | 330 | 140 | 360 | -10 | 0 | 0 | 0 | 6 | 1.5 | 0 | -10 | 10 | 0 | 0 | 600 | 124 | 0 | 0 | 0 | 0 | 0 | -100 | 92 | -3 | 91 | 151 | 10 | 47 | 9.5 | 34.4 | 0 | 0 |
| 18744C | 20801 | M | 13 | 190 | .19 | 0 | 456 | 880 | 7400 | 35.5 | 410 | 280 | 350 | 150 | 160 | -20 | 0 | 0 | 0 | 7 | -.5 | 0 | 71 | 4.5 | 0 | 0 | -600 | 293 | 0 | 0 | 0 | 0 | 0 | -100 | 35 | 9 | 1100 | 192 | 4 | 100 | 7.7 | 28.3 | 0 | 0 |
| 18632 | 20803 | M | 10 | 200 | .25 | 0 | 822 | 820 | 9700 | 27.1 | 240 | 250 | 290 | 140 | 75 | -10 | 0 | 0 | 0 | 4 | .5 | 0 | -10 | 2.3 | 0 | 0 | 700 | 514 | 0 | 0 | 0 | 0 | 0 | -100 | 91 | 6 | 26 | 69 | 2 | 200 | 19.3 | 21.4 | 0 | 0 |
| 18633 | 20803 | M | 10 | 88 | .17 | 0 | 568 | 750 | 10000 | 23.8 | 200 | 240 | 250 | 130 | 63 | -20 | 0 | 0 | 0 | 6 | .5 | 0 | -10 | 1.4 | 0 | 0 | 400 | 359 | 0 | 0 | 0 | 0 | 0 | -100 | 53 | 9 | 8 | 123 | 3 | 140 | 14.2 | 41.7 | 0 | 0 |
| 18634 | 20803 | M | 10 | 86 | .15 | 0 | 635 | 960 | 10000 | 25.6 | 210 | 240 | 290 | 120 | 63 | -10 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | 1.9 | 0 | 0 | 600 | 409 | 0 | 0 | 0 | 0 | 0 | -100 | 57 | 11 | 12 | 46 | 2 | 160 | 15 | 39.1 | 0 | 0 |
| 18750C | 20803 | M | 10 | 100 | .16 | 0 | 656 | 1100 | 9800 | 29.8 | 240 | 210 | 250 | 150 | 99 | -10 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | 1.6 | 0 | 0 | -600 | 465 | 0 | 0 | 0 | 0 | 0 | -100 | 72 | 12 | 20 | 66 | 3 | 170 | 14.8 | 43 | 0 | 0 |
| 18635 | 20803 | M | 10 | 220 | .18 | 0 | 542 | 970 | 10000 | 25.6 | 200 | 220 | 200 | 120 | 55 | 70 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | 1.1 | 0 | 0 | -500 | 331 | 0 | 0 | 0 | 0 | 0 | -100 | 42 | 10 | -6 | 40 | 2 | 130 | 11.4 | 26.4 | 0 | 0 |
| 18749C | 20803 | M | 10 | 35 | .19 | 0 | 283 | 600 | 9300 | 23.6 | 180 | 180 | 190 | 120 | 82 | -10 | 0 | 0 | 0 | 3 | -.5 | 0 | -10 | 2.8 | 0 | 0 | 600 | 183 | 0 | 0 | 0 | 0 | 0 | -100 | 18 | 4 | -12 | 91 | 2 | 66 | 7.3 | 14.7 | 0 | 0 |
| 18637 | 20803 | M | 39 | 76 | .19 | 0 | 835 | 930 | 8200 | 22.6 | 210 | 320 | 220 | 160 | 33 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | -.6 | 0 | 0 | -500 | 461 | 0 | 0 | 0 | 0 | 0 | -100 | 140 | 6 | 60 | 69 | -2 | 180 | 15.9 | 18.2 | 0 | 0 |
| 18601 | 20804 | M | 13 | 120 | .46 | 0 | 493 | 690 | 4300 | 30.3 | 280 | 260 | 510 | 160 | 61 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | 1.1 | 0 | 0 | 2000 | 281 | 0 | 0 | 0 | 0 | 0 | -100 | 42 | -3 | 21 | 52 | 4 | 85 | 12.5 | 34.5 | 0 | 0 |
| 18602 | 20804 | M | 13 | 22 | .35 | 0 | 330 | 470 | 4900 | 24.1 | 220 | 240 | 560 | 140 | 53 | 20 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | 1.3 | 0 | 0 | 1600 | 192 | 0 | 0 | 0 | 0 | 0 | -100 | 26 | -2 | 41 | 58 | 4 | 64 | 6.9 | 68.7 | 0 | 0 |
| 18743C | 20804 | M | 13 | 150 | .38 | 0 | 511 | 630 | 6500 | 30.4 | 250 | 230 | 470 | 140 | 52 | -10 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | 1 | 0 | 0 | 1600 | 340 | 0 | 0 | 0 | 0 | 0 | -100 | 48 | 4 | 64 | 46 | 3 | 120 | 14.4 | 73.7 | 0 | 0 |
| 18603 | 20804 | M | 13 | -22 | .24 | 0 | 647 | 460 | 7700 | 24.2 | 170 | 190 | 270 | 120 | 36 | -60 | 0 | 0 | 0 | 4 | 1 | 0 | -10 | .9 | 0 | 0 | 800 | 393 | 0 | 0 | 0 | 0 | 0 | -100 | 55 | 8 | 67 | 60 | 2 | 150 | 14.9 | 29.3 | 0 | 0 |
| 18604 | 20804 | M | 13 | -9 | .13 | 0 | 295 | 180 | 6600 | 10.1 | 70 | 210 | 630 | 140 | 11 | -10 | 0 | 0 | 0 | 6 | .5 | 0 | -10 | .4 | 0 | 0 | 400 | 174 | 0 | 0 | 0 | 0 | 0 | -100 | 29 | 6 | 75 | 39 | 2 | 65 | 7.8 | 10.6 | 0 | 0 |
| 18604R | 20804 | M | 13 | 32 | .24 | 0 | 490 | 470 | 9100 | 21.1 | 170 | 220 | 280 | 150 | 42 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | 1.8 | 0 | 0 | 600 | 341 | 0 | 0 | 0 | 0 | 0 | -100 | 59 | 7 | 320 | 86 | 2 | 120 | 10.3 | 18.7 | 0 | 0 |
| 18621 | 20804 | M | 39 | 62 | .53 | 0 | 755 | 910 | 6300 | 27.8 | 220 | 410 | 390 | 150 | 39 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | 1.7 | 0 | 0 | 1500 | 561 | 0 | 0 | 0 | 0 | 0 | -100 | 120 | 10 | 120 | 101 | 3 | 190 | 19.2 | 16.9 | 0 | 0 |
| 18638 | 20901 | M | 14 | 54 | .19 | 0 | 817 | 320 | 8600 | 30.4 | 280 | 280 | 430 | 180 | 23 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | .8 | 0 | 0 | 2000 | 545 | 0 | 0 | 0 | 0 | 0 | -100 | 76 | 9 | 38 | 52 | 3 | 190 | 21.9 | 22.1 | 0 | 0 |
| 18639 | 20901 | M | 14 | 69 | .1 | 0 | 396 | 180 | 9700 | 13.8 | 110 | 280 | 220 | 110 | 22 | -10 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | .5 | 0 | 0 | 400 | 255 | 0 | 0 | 0 | 0 | 0 | -100 | 43 | 8 | 31 | 61 | 2 | 87 | 10.4 | 16.8 | 0 | 0 |
| 18639R | 20901 | M | 14 | -23 | .3 | 0 | 493 | 270 | 8700 | 22.2 | 200 | 230 | 180 | 110 | 13 | -10 | 0 | 0 | 0 | 5 | -.5 | 0 | 23 | .7 | 0 | 0 | 700 | 360 | 0 | 0 | 0 | 0 | 0 | -100 | 64 | 7 | 65 | 99 | 4 | 120 | 12.7 | 13.6 | 0 | 0 |
| 18751C | 20901 | M | 14 | 17 | .22 | 0 | 268 | 290 | 11000 | 29 | 190 | 190 | 180 | 130 | 24 | -10 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | 1.6 | 0 | 0 | 700 | 193 | 0 | 0 | 0 | 0 | 0 | -100 | 28 | 6 | 71 | 72 | 3 | 71 | 8.7 | .85 | 0 | 0 |
| 18641 | 20901 | M | 39 | -31 | .36 | 0 | 943 | 370 | 8200 | 28.7 | 350 | 500 | 380 | 140 | 28 | -30 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | -.8 | 0 | 0 | 800 | 714 | 0 | 0 | 0 | 0 | 0 | -100 | 140 | 10 | 100 | 109 | 3 | 240 | 30.6 | 11.3 | 0 | 0 |
| 18614 | 20902 | M | 13 | 240 | .12 | 0 | 204 | 170 | 11000 | 9.4 | 40 | 130 | 110 | 98 | 12 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | .7 | 0 | -2 | 400 | 112 | 0 | 0 | 0 | 0 | 0 | -100 | 19 | 4 | 550 | 56 | -2 | 44 | 4.7 | 7.95 | 0 | 0 |
| 18614R | 20902 | M | 13 | 66 | .31 | 0 | 518 | 370 | 10000 | 21.2 | 110 | 130 | 92 | 110 | 24 | -30 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | 1.4 | 0 | 0 | -700 | 310 | 0 | 0 | 0 | 0 | 0 | -100 | 68 | -1 | 1400 | 56 | -2 | 110 | 12.4 | 3.63 | 0 | 0 |
| 18745C | 20902 | M | 13 | -38 | .19 | 0 | 296 | 290 | 24000 | 25.1 | 300 | 230 | 260 | 140 | 44 | -20 | 0 | 0 | 0 | 7 | -.5 | 0 | -10 | 1.1 | 0 | 0 | -600 | 181 | 0 | 0 | 0 | 0 | 0 | -100 | 36 | 6 | 750 | 51 | 3 | 71 | 12 | 4.46 | 0 | 0 |
| 18615 | 20902 | M | 13 | -15 | .09 | 0 | -5 | 190 | 21000 | 13.7 | 120 | 250 | 270 | 97 | 16 | 30 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | .8 | 0 | 0 | -300 | 143 | 0 | 0 | 0 | 0 | 0 | -100 | -2 | 4 | 1000 | 48 | 2 | 53 | 5.4 | 17.2 | 0 | 0 |
| 18617 | 20902 | M | 39 | 80 | .24 | 0 | 461 | 390 | 13000 | 26.4 | 280 | 290 | 320 | 120 | 29 | -20 | 0 | 0 | 0 | 18 | -.5 | 0 | -10 | 1.3 | 0 | 0 | -1200 | 334 | 0 | 0 | 0 | 0 | 0 | -100 | 80 | 6 | 5400 | 56 | 2 | 120 | 15.8 | 12.9 | 0 | 0 |
| 18659 | 20904 | M | 13 | 21 | .17 | 0 | 0 | 170 | 11000 | 28 | 100 | 140 | 210 | 120 | 11 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | .6 | 0 | -3 | 400 | 148 | 0 | 0 | 0 | 0 | 0 | -100 | 15 | -2 | 270 | 55 | -2 | 45 | 7.7 | 14.4 | 0 | 0 |
| 18660 | 20904 | M | 13 | -19 | .21 | 0 | 0 | 130 | 12000 | 28.8 | 160 | 190 | 340 | 110 | 10 | 20 | 0 | 0 | 0 | 11 | -.5 | 0 | 83 | .8 | 0 | -4 | 1100 | 314 | 0 | 0 | 0 | 0 | 0 | -100 | 27 | 7 | 130 | 129 | -2 | 66 | 10.5 | 12.6 | 0 | 0 |
| 18661 | 20904 | M | 13 | -5 | -.05 | 0 | 0 | -50 | 7900 | 4.7 | 50 | 300 | 410 | 230 | 6 | 10 | 0 | 0 | 0 | 11 | 1.5 | 0 | -10 | -.2 | 0 | -2 | 200 | 77 | 0 | 0 | 0 | 0 | 0 | -100 | 9 | -1 | 11 | 65 | 4 | 16 | 3 | 2.37 | 0 | 0 |
| 18757C | 20904 | M | 13 | 97 | .25 | 0 | 459 | 260 | 9100 | 31.1 | 190 | 130 | 190 | 110 | 21 | -30 | 0 | 0 | 0 | 9 | -.5 | 0 | -10 | -1 | 0 | 0 | 900 | 266 | 0 | 0 | 0 | 0 | 0 | -100 | 21 | -4 | -30 | 48 | 2 | 65 | 6.4 | 22 | 0 | 0 |
| 18662 | 20904 | M | 39 | -38 | .28 | 0 | 1210 | 380 | 9400 | 37.4 | 370 | 320 | 450 | 220 | 22 | -30 | 0 | 0 | 0 | 18 | 1 | 0 | -10 | -.2 | 0 | -1 | 1100 | 716 | 0 | 0 | 0 | 0 | 0 | -100 | 82 | -4 | 190 | 66 | 2 | 190 | 33.5 | 3.91 | 0 | 0 |
| 18618 | 20906 | M | 13 | 110 | .11 | 0 | 530 | 390 | 8300 | 26.1 | 400 | 480 | 520 | 130 | 59 | -20 | 0 | 0 | 0 | 6 | .5 | 0 | -10 | 1.2 | 0 | 0 | 500 | 363 | 0 | 0 | 0 | 0 | 0 | -100 | 64 | 9 | 110 | 138 | 7 | 140 | 14.8 | 51.9 | 0 | 0 |
| 18746C | 20906 | M | 13 | 36 | .12 | 0 | 759 | 730 | 0 | 40.6 | 350 | 0 | 0 | 0 | 82 | -20 | 0 | 0 | 0 | 0 | 2.3 | 0 | 0 | 2.3 | 0 | 0 | -600 | 355 | 0 | 0 | 0 | 0 | 0 | -100 | 79 | 8 | 870 | 0 | 0 | 160 | 14.8 | .08 | 0 | 0 |
| 18620 | 20906 | M | 39 | 120 | .26 | 0 | 580 | 450 | 7600 | 28.7 | 400 | 390 | 410 | 160 | 63 | -20 | 0 | 0 | 0 | 0 | 3.5 | 0 | 0 | 1.4 | 0 | 0 | 800 | 435 | 0 | 0 | 0 | 0 | 0 | -100 | 110 | 7 | 210 | 0 | 0 | 160 | 16.9 | 16.6 | 0 | 0 |
| 18675 | 21002 | M | 13 | 39 | .18 | 0 | 0 | 530 | 13000 | 34.1 | 260 | 350 | 550 | 190 | 25 | 20 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | .8 | 0 | 6 | -600 | 359 | 0 | 0 | 0 | 0 | 0 | -100 | 52 | 6 | 21 | 66 | 2 | 120 | 17.5 | 8.81 | 0 | 0 |
| 18676 | 21002 | M | 13 | -5 | -.05 | 0 | 0 | -50 | 10000 | 6.5 | 70 | 480 | 910 | 130 | 11 | -10 | 0 | 0 | 0 | 5 | .5 | 0 | -10 | -.2 | 0 | -2 | -100 | 77 | 0 | 0 | 0 | 0 | 0 | -100 | 10 | 1 | 8 | 141 | 4 | 27 | 2.6 | 2.8 | 0 | 0 |
| 18677 | 21002 | M | 13 | -20 | .16 | 0 | 0 | 370 | 9500 | 37.6 | 380 | 450 | 750 | 130 | 35 | 20 | 0 | 0 | 0 | 7 | -.5 | 0 | -10 | -.2 | 0 | -4 | 1100 | 472 | 0 | 0 | 0 | 0 | 0 | -100 | 80 | 7 | 24 | 123 | 3 | 180 | 24.5 | 12.9 | 0 | 0 |
| 18680 | 21005 | M | 10 | -23 | .22 | 0 | 0 | 330 | 12000 | 34.1 | 180 | 270 | 350 | 240 | 38 | -10 | 0 | 0 | 0 | 7 | -.5 | 0 | -10 | 1.9 | 0 | -5 | 1000 | 512 | 0 | 0 | 0 | 0 | 0 | -100 | 97 | 12 | 24 | 123 | 2 | 180 | 22.4 | 8.85 | 0 | 0 |
| 18681 | 21005 | M | 10 | -16 | .3 | 0 | 0 | 240 | 9000 | 34.5 | 270 | 400 | 1700 | 150 | 140 | 40 | 0 | 0 | 0 | 9 | 1 | 0 | -10 | 12 | 0 | 5 | -400 | 558 | 0 | 0 | 0 | 0 | 0 | -100 | 85 | -4 | 18 | 226 | 5 | 160 | 21.6 | 2.27 | 0 | 0 |
| 18683 | 21005 | M | 39 | -32 | .27 | 0 | 1380 | 510 | 10000 | 39.3 | 300 | 320 | 520 | 220 | 75 | -30 | 0 | 0 | 0 | 7 | -.5 | 0 | -10 | 3 | 0 | 0 | 800 | 814 | 0 | 0 | 0 | 0 | 0 | -100 | 150 | 10 | 53 | 119 | 3 | 310 | 39.9 | 4.36 | 0 | 0 |
| 17557 | | | 11 | 568 | -1.2 | 110 | 3280 | 560 | 702 | 27 | 88 | 130 | 30 | -200 | -14 | -36 | -5 | -56 | 8300 | -12 | .4 | -56 | -690 | 22.9 | -120 | -3 | -340 | 2520 | 199 | 9 | 21 | 45 | -5.1 | -100 | 140 | 12 | -39 | 26 | 0 | 934 | 44 | 17.93 | 16 | -19 |
| 17558 | | | 11 | 390 | -1.7 | 141 | 4640 | 650 | 590 | 33 | 35 | -120 | 26 | -430 | -20 | -44 | -13 | -79 | 8900 | -18 | .1 | -79 | -970 | 1.2 | -170 | -4 | -470 | 3720 | 284 | -14 | 28 | 65 | -6.3 | -280 | 160 | 9 | -56 | 23 | 0 | 0 | 46 | 13.76 | 52 | -26 |
| 17559 | | | 11 | 32 | -.34 | 84.4 | 490 | 270 | 768 | 28 | 280 | 200 | 130 | -200 | 28 | -10 | -5 | -26 | 4300 | -6 | 2.4 | -27 | -200 | -.2 | -53 | -1 | -100 | 260 | 38 | 5 | 5 | 19 | 2.8 | -100 | 80 | 8 | -21 | 12 | 0 | 85.7 | 13 | 34.68 | 36 | -11 |
| 17560 | | | 14 | 63 | .29 | 105 | 270 | 500 | 644 | 24 | 69 | 77 | 16 | -200 | 9 | -10 | -5 | -10 | 3600 | -4 | .2 | -23 | -200 | .6 | -43 | -1 | -100 | 130 | 29 | 3 | 5 | 23 | 3.8 | -100 | 62 | 9 | -19 | 8 | 0 | 45 | 9.1 | 39.9 | 22 | -5 |
| 17561 | | | 13 | -21 | -.38 | 121 | 460 | 440 | 702 | 23 | 67 | 89 | 14 | 210 | -9 | -10 | -5 | -31 | 2100 | -6 | -.1 | -33 | -200 | .7 | -61 | -2 | -100 | 190 | 41 | 7 | 7 | 28 | 4.4 | -100 | 60 | 9 | -28 | 5 | 0 | 57 | 11 | 12.56 | 18 | -14 |
| 17562 | | | 13 | 220 | -.42 | 104 | 450 | 500 | 570 | 24 | 71 | -65 | 16 | 290 | -9 | -10 | -5 | -31 | 2900 | -6 | -.2 | -34 | -200 | -.2 | -62 | -2 | -100 | 240 | 36 | 4 | 5 | 25 | 3.8 | -100 | 60 | 8 | -23 | 8 | 0 | 102 | 14 | 10.61 | 14 | -14 |
| 17563 | | | 13 | -23 | -.5 | 98.3 | 620 | 390 | 552 | 21 | 65 | -68 | 33 | -200 | -10 | -10 | -5 | -35 | 3300 | -7 | -.1 | -37 | -200 | -.2 | -67 | -2 | -220 | 310 | 44 | -4 | 6 | 22 | 3.4 | -100 | 38 | 6 | -30 | 10 | 0 | 132 | 14 | 8.21 | 41 | -15 |
| 17564 | | | 14 | 180 | -.41 | 120 | 620 | 470 | 552 | 24 | 79 | 92 | 22 | -200 | -8 | -10 | -5 | -26 | 3300 | -5 | -.2 | -30 | -200 | .4 | -56 | -1 | -100 | 320 | 47 | 4 | 8 | 26 | 4.1 | -100 | 59 | 7 | -25 | 6 | 0 | 120 | 16 | 22.26 | 14 | -12 |

## Appendix 9-9B. List of all nonmag HMC sample assays, sorted by sample number.

| S.N. | DH | DH DT | AU | NA | SC | CE | CR | MN | FE | CO | NI | CU | ZN | AS | SE | BR | RB | ZR | MO | AG | CD | SN | SB | TE | CS | BA | LA | SM | EU | TB | YB | LU | IR | HF | TA | W | PB | BI | TH | U | WT | ZN2 | AG2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16801 | 202 | S 21 | 640 | .06 | 0 | 993 | 1000 | 7600 | 25.1 | 31 | 63 | 24 | 160 | 10 | -26 | 0 | 0 | 0 | 12 | -.5 | 0 | 40 | 1.5 | 0 | 0 | 2600 | 608 | 0 | 0 | 0 | 0 | 0 | -100 | 350 | 9 | 10 | 88 | -2 | 260 | 27.8 | 2.58 | 0 | 0 |
| 16804 | 202 | S 21 | 40 | .06 | 0 | 884 | 990 | 7400 | 27.2 | 28 | 52 | 22 | 160 | -6 | -10 | 0 | 0 | 0 | 10 | -.5 | 0 | 10 | 1.7 | 0 | 0 | 4600 | 526 | 0 | 0 | 0 | 0 | 0 | -100 | 300 | 9 | -10 | 43 | -2 | 240 | 24.7 | 3.07 | 0 | 0 |
| 16816 | 202 | S 11 | 120 | .22 | 0 | 1070 | 670 | 12000 | 29.8 | 92 | 130 | 56 | 150 | 26 | -24 | 0 | 0 | 0 | 9 | -.5 | 0 | -10 | -.6 | 0 | 0 | 600 | 629 | 0 | 0 | 0 | 0 | 0 | -100 | 120 | 19 | 30 | 25 | -2 | 260 | 28.6 | 19.9 | 0 | 0 |
| 16818 | 202 | S 11 | 700 | .18 | 0 | 1030 | 370 | 16000 | 25 | 170 | 170 | 110 | 120 | 24 | -50 | 0 | 0 | 0 | 9 | -.5 | 0 | -10 | 1.8 | 0 | 0 | -1000 | 497 | 0 | 0 | 0 | 0 | 0 | -100 | 51 | 11 | 30 | 88 | -2 | 300 | 17 | 8.61 | 0 | 0 |
| 16820 | 202 | S 11 | -25 | .21 | 0 | 985 | 510 | 14000 | 26.1 | 95 | 150 | 75 | 150 | 27 | -12 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | -.6 | 0 | 0 | -500 | 608 | 0 | 0 | 0 | 0 | 0 | -100 | 83 | 17 | 20 | 51 | -2 | 250 | 22.7 | 26.4 | 0 | 0 |
| 16822 | 202 | S 11 | 410 | .2 | 0 | 1160 | 710 | 13000 | 29.7 | 99 | 140 | 64 | 150 | 26 | -10 | 0 | 0 | 0 | 7 | -.5 | 0 | -10 | 1.2 | 0 | 0 | 500 | 760 | 0 | 0 | 0 | 0 | 0 | -100 | 93 | 15 | -10 | 37 | -2 | 320 | 26.7 | 30.3 | 0 | 0 |
| 16824 | 202 | S 11 | 78 | .14 | 0 | 1000 | 590 | 13000 | 27.5 | 88 | 130 | 49 | 140 | 35 | -24 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | 1.5 | 0 | 0 | 900 | 684 | 0 | 0 | 0 | 0 | 0 | -100 | 90 | 16 | 20 | 37 | -2 | 290 | 27.6 | 39.6 | 0 | 0 |
| 16825 | 202 | S 11 | -30 | .16 | 0 | 675 | 440 | 12000 | 17.4 | 100 | 130 | 63 | 150 | 21 | -19 | 0 | 0 | 0 | 7 | -.5 | 0 | -10 | 1 | 0 | 0 | 600 | 325 | 0 | 0 | 0 | 0 | 0 | -100 | 59 | 8 | 10 | 62 | -2 | 180 | 16.5 | 15.4 | 0 | 0 |
| 16826 | 202 | S 11 | 250 | .21 | 0 | 717 | 4400 | 12000 | 19 | 150 | 190 | 130 | 180 | 35 | -10 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | .9 | 0 | 0 | -100 | 266 | 0 | 0 | 0 | 0 | 0 | -100 | 68 | 10 | -10 | 40 | -2 | 150 | 11.9 | 17.3 | 0 | 0 |
| 16833 | 212 | S 11 | -32 | .48 | 0 | 1470 | 270 | 5700 | 26.4 | 110 | 140 | 380 | 180 | 11 | -24 | 0 | 0 | 0 | 9 | -.5 | 0 | 10 | -.6 | 0 | 0 | 900 | 886 | 0 | 0 | 0 | 0 | 0 | -100 | 180 | 10 | -10 | 31 | -2 | 140 | 39.1 | 24.6 | 0 | 0 |
| 16834 | 212 | S 11 | -40 | .51 | 0 | 2030 | 230 | 4300 | 23.2 | 57 | 79 | 200 | 140 | 8 | -26 | 0 | 0 | 0 | 6 | -.5 | 0 | 10 | 1.4 | 0 | 0 | 1800 | 1110 | 0 | 0 | 0 | 0 | 0 | -100 | 170 | 10 | -10 | 22 | -2 | 95 | 25.1 | 17.3 | 0 | 0 |
| 16835 | 212 | S 11 | -40 | .28 | 0 | 1420 | 250 | 4900 | 19.7 | 110 | 100 | 450 | 130 | 14 | 49 | 0 | 0 | 0 | 7 | -.5 | 0 | 10 | 1 | 0 | 0 | 1600 | 575 | 0 | 0 | 0 | 0 | 0 | -100 | 100 | 10 | -10 | 20 | -2 | 79 | 13.6 | 12.2 | 0 | 0 |
| 16836 | 212 | S 11 | -32 | .45 | 0 | 1400 | 360 | 5400 | 31.5 | 150 | 130 | 710 | 150 | 16 | -14 | 0 | 0 | 0 | 8 | -.5 | 0 | 10 | 1.1 | 0 | 0 | 1400 | 791 | 0 | 0 | 0 | 0 | 0 | -100 | 130 | 9 | -10 | 20 | -2 | 99 | 19 | 19.6 | 0 | 0 |
| 16837 | 212 | S 32 | -35 | .52 | 0 | 1740 | 260 | 5200 | 28.6 | 89 | 110 | 310 | 160 | 17 | -24 | 0 | 0 | 0 | 10 | -.5 | 0 | 10 | 1 | 0 | 0 | 1200 | 988 | 0 | 0 | 0 | 0 | 0 | -100 | 140 | -5 | -10 | 22 | -2 | 110 | 23.9 | 17.7 | 0 | 0 |
| 16838 | 212 | S 32 | -33 | .27 | 0 | 1550 | 260 | 4700 | 27.5 | 110 | 120 | 490 | 150 | 12 | -12 | 0 | 0 | 0 | 8 | -.5 | 0 | 10 | -.7 | 0 | 0 | 1200 | 549 | 0 | 0 | 0 | 0 | 0 | -100 | 95 | 9 | 20 | 31 | -2 | 67 | 12.3 | 6.21 | 0 | 0 |
| 16840 | 208 | S 14 | 19 | .32 | 0 | 594 | 570 | 10000 | 19.1 | 98 | 97 | 63 | 130 | 23 | -11 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | 1.5 | 0 | 0 | 900 | 253 | 0 | 0 | 0 | 0 | 0 | -100 | 39 | 6 | -10 | 41 | -2 | 120 | 6.7 | 16.7 | 0 | 0 |
| 16842 | 208 | S 15 | 200 | .3 | 0 | 1450 | 860 | 12000 | 29.5 | 79 | 100 | 64 | 140 | 32 | -38 | 0 | 0 | 0 | 11 | -.5 | 0 | -10 | 1.4 | 0 | 0 | -300 | 922 | 0 | 0 | 0 | 0 | 0 | -100 | 140 | 22 | -10 | 61 | -2 | 330 | 24.2 | 30.5 | 0 | 0 |
| 16844 | 208 | S 15 | 120 | .22 | 0 | 991 | 500 | 11000 | 23.8 | 210 | 270 | 170 | 160 | 78 | -10 | 0 | 0 | 0 | 10 | -.5 | 0 | -10 | 1.4 | 0 | 0 | 500 | 646 | 0 | 0 | 0 | 0 | 0 | -100 | 110 | 13 | -10 | 40 | -2 | 240 | 20.9 | 59.6 | 0 | 0 |
| 16846 | 208 | S 15 | 69 | .78 | 0 | 1020 | 480 | 8600 | 24 | 210 | 220 | 140 | 150 | 87 | -14 | 0 | 0 | 0 | 11 | -.5 | 0 | -10 | .5 | 0 | 0 | 500 | 663 | 0 | 0 | 0 | 0 | 0 | -100 | 100 | 13 | -10 | 27 | -2 | 250 | 23.7 | 50.6 | 0 | 0 |
| 16848 | 208 | S 15 | 37 | .4 | 0 | 1000 | 490 | 8700 | 23.1 | 220 | 220 | 170 | 160 | 110 | -19 | 0 | 0 | 0 | 11 | -.5 | 0 | -10 | .8 | 0 | 0 | 900 | 607 | 0 | 0 | 0 | 0 | 0 | -100 | 130 | 9 | -10 | 32 | -2 | 270 | 20.9 | 17.2 | 0 | 0 |
| 16850 | 208 | S 10 | -5 | .29 | 0 | 1030 | 750 | 9000 | 27 | 220 | 230 | 170 | 160 | 76 | 22 | 0 | 0 | 0 | 10 | -.5 | 0 | -10 | 1 | 0 | 0 | 700 | 556 | 0 | 0 | 0 | 0 | 0 | -100 | 110 | 9 | 10 | 30 | -2 | 250 | 21.4 | 12 | 0 | 0 |
| 16852 | 208 | S 15 | 52 | .23 | 0 | 1000 | 1100 | 8200 | 26 | 240 | 260 | 280 | 160 | 190 | 20 | 0 | 0 | 0 | 10 | -.5 | 0 | -10 | 2.9 | 0 | 0 | 1000 | 610 | 0 | 0 | 0 | 0 | 0 | -100 | 140 | -5 | -10 | 44 | 2 | 270 | 17.8 | 12.4 | 0 | 0 |
| 16853 | 208 | S 11 | 40 | .38 | 0 | 660 | 440 | 8500 | 23.5 | 190 | 180 | 120 | 150 | 61 | -14 | 0 | 0 | 0 | 10 | -.5 | 0 | -10 | 1.3 | 0 | 0 | 700 | 327 | 0 | 0 | 0 | 0 | 0 | -100 | 50 | 10 | -10 | 25 | -2 | 160 | 14.4 | 5.18 | 0 | 0 |
| 16856 | 204 | S 21 | -40 | .09 | 0 | 794 | 800 | 6100 | 28.6 | 75 | 100 | 100 | 200 | 61 | -12 | 0 | 0 | 0 | 16 | -.5 | 0 | 10 | 1.8 | 0 | 0 | 1500 | 491 | 0 | 0 | 0 | 0 | 0 | -100 | 290 | 8 | 30 | 29 | -2 | 250 | 23.8 | 2.77 | 0 | 0 |
| 16862 | 204 | S 21 | -28 | .22 | 0 | 917 | 720 | 8400 | 28.7 | 96 | 120 | 92 | 150 | 42 | -10 | 0 | 0 | 0 | 13 | -.5 | 0 | -10 | 1.1 | 0 | 0 | 900 | 484 | 0 | 0 | 0 | 0 | 0 | -100 | 230 | 9 | 20 | 55 | -2 | 230 | 25.6 | 7.91 | 0 | 0 |
| 16863 | 204 | S 21 | -35 | .12 | 0 | 865 | 530 | 8600 | 25 | 98 | 140 | 97 | 150 | 35 | -19 | 0 | 0 | 0 | 12 | -.5 | 0 | -10 | 1.6 | 0 | 0 | 500 | 454 | 0 | 0 | 0 | 0 | 0 | -100 | 160 | 12 | -10 | 48 | -2 | 190 | 35.1 | 4.7 | 0 | 0 |
| 16864 | 204 | S 11 | 300 | .31 | 0 | 580 | 880 | 15000 | 29.1 | 150 | 180 | 210 | 150 | 49 | -10 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | -.7 | 0 | 0 | 100 | 306 | 0 | 0 | 0 | 0 | 0 | -100 | 58 | 5 | 20 | 27 | -2 | 130 | 12.9 | 4.68 | 0 | 0 |
| 16865 | 204 | S 11 | 190 | .22 | 0 | 709 | 1000 | 15000 | 23.3 | 150 | 180 | 130 | 150 | 41 | -10 | 0 | 0 | 0 | 10 | -.5 | 0 | -10 | -.7 | 0 | 0 | -100 | 329 | 0 | 0 | 0 | 0 | 0 | -100 | 71 | 11 | -10 | 27 | -2 | 160 | 16.8 | 13.1 | 0 | 0 |
| 16866 | 204 | S 11 | -30 | .12 | 0 | 594 | 930 | 14000 | 20.5 | 190 | 250 | 150 | 150 | 21 | -16 | 0 | 0 | 0 | 10 | -.5 | 0 | -10 | -.7 | 0 | 0 | 1100 | 268 | 0 | 0 | 0 | 0 | 0 | -100 | 63 | 7 | 30 | 27 | -2 | 110 | 17.3 | 13.7 | 0 | 0 |
| 16868 | 211 | S 26 | -11 | .07 | 0 | 602 | 120 | 0 | 7.3 | 81 | 0 | 0 | 0 | 12 | -10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -.3 | 0 | 0 | 400 | 372 | 0 | 0 | 0 | 0 | 0 | -100 | 41 | -3 | 0 | 0 | 0 | 120 | 14.3 | .17 | 0 | 0 |
| 16871 | 211 | S 11 | -40 | .15 | 0 | 1130 | 280 | 6600 | 30.3 | 530 | 340 | 320 | 130 | 15 | -19 | 0 | 0 | 0 | 14 | -.5 | 0 | -10 | -.8 | 0 | 0 | 1700 | 420 | 0 | 0 | 0 | 0 | 0 | -100 | 80 | 10 | -10 | 56 | 6 | 130 | 21.5 | 9.22 | 0 | 0 |
| 16872 | 211 | S 11 | 400 | .12 | 0 | 1260 | 230 | 8900 | 25.7 | 620 | 410 | 400 | 140 | 23 | -11 | 0 | 0 | 0 | 25 | -.5 | 0 | -10 | .9 | 0 | 0 | 3400 | 542 | 0 | 0 | 0 | 0 | 0 | -100 | 89 | 12 | 160 | 48 | 6 | 190 | 28.1 | 10.5 | 0 | 0 |
| 16873 | 211 | S 11 | 10 | .16 | 0 | 1070 | 200 | 8600 | 29.6 | 600 | 360 | 360 | 140 | 29 | -18 | 0 | 0 | 0 | 12 | -.5 | 0 | -10 | .9 | 0 | 0 | 5200 | 461 | 0 | 0 | 0 | 0 | 0 | -100 | 69 | 8 | 280 | 86 | 6 | 180 | 21.1 | 11.3 | 0 | 0 |
| 16874 | 211 | S 11 | 18 | .12 | 0 | 1010 | 240 | 7700 | 27.1 | 610 | 340 | 380 | 130 | 25 | -15 | 0 | 0 | 0 | 29 | -.5 | 0 | -10 | .8 | 0 | 0 | 2000 | 440 | 0 | 0 | 0 | 0 | 0 | -100 | 68 | 8 | 240 | 49 | 4 | 140 | 17.2 | 11.8 | 0 | 0 |
| 16878 | 209 | S 15 | 57 | .14 | 0 | 1310 | 400 | 10000 | 23.2 | 310 | 290 | 250 | 160 | 20 | 26 | 0 | 0 | 0 | 13 | -.5 | 0 | -10 | -.8 | 0 | 0 | 3600 | 623 | 0 | 0 | 0 | 0 | 0 | -100 | 110 | 11 | -10 | 65 | 2 | 300 | 27 | 13.5 | 0 | 0 |
| 16880 | 209 | S 14 | -40 | .13 | 0 | 1030 | 340 | 11000 | 22.5 | 320 | 290 | 260 | 160 | 15 | -15 | 0 | 0 | 0 | 13 | -.5 | 0 | -10 | -.9 | 0 | 0 | 2500 | 433 | 0 | 0 | 0 | 0 | 0 | -100 | 68 | 6 | -10 | 52 | -2 | 210 | 21.1 | 9.61 | 0 | 0 |
| 16882 | 209 | S 13 | 200 | .09 | 0 | 907 | 380 | 10000 | 23.7 | 420 | 330 | 280 | 150 | 15 | -14 | 0 | 0 | 0 | 11 | -.5 | 0 | -10 | -.7 | 0 | 0 | 1400 | 406 | 0 | 0 | 0 | 0 | 0 | -100 | 64 | 8 | 10 | 75 | 2 | 220 | 18 | 14.2 | 0 | 0 |
| 16883 | 209 | S 13 | 170 | .13 | 0 | 816 | 330 | 10000 | 26.4 | 460 | 330 | 300 | 130 | 27 | -10 | 0 | 0 | 0 | 10 | -.5 | 0 | -10 | -.6 | 0 | 0 | 900 | 340 | 0 | 0 | 0 | 0 | 0 | -100 | 48 | 9 | 60 | 73 | 2 | 190 | 18.8 | 7.56 | 0 | 0 |
| 16885 | 209 | S 13 | 420 | .11 | 0 | 767 | 330 | 9700 | 25.8 | 500 | 320 | 290 | 140 | 16 | -14 | 0 | 0 | 0 | 12 | -.5 | 0 | -10 | .7 | 0 | 0 | 100 | 347 | 0 | 0 | 0 | 0 | 0 | -100 | 60 | 9 | 10 | 74 | 2 | 190 | 15 | 13.4 | 0 | 0 |
| 16886 | 209 | S 13 | 69 | .15 | 0 | 796 | 330 | 11000 | 23.5 | 490 | 350 | 300 | 150 | 22 | 39 | 0 | 0 | 0 | 9 | -.5 | 0 | -10 | -.6 | 0 | 0 | 600 | 364 | 0 | 0 | 0 | 0 | 0 | -100 | 68 | 8 | 30 | 76 | 2 | 180 | 15.4 | 18.2 | 0 | 0 |
| 16887 | 209 | S 11 | 120000 | .13 | 0 | 1050 | 360 | 9700 | 24.2 | 460 | 300 | 260 | 130 | 44 | -11 | 0 | 0 | 0 | 11 | -.5 | 0 | -10 | -.9 | 0 | 0 | -1400 | 430 | 0 | 0 | 0 | 0 | 0 | -100 | 57 | 12 | 10 | 73 | 2 | 210 | 28.6 | 8.19 | 0 | 0 |
| 16898 | 108 | S 21 | -32 | -.05 | 0 | 780 | 540 | 7000 | 30.2 | 83 | 220 | 150 | 210 | 110 | -19 | 0 | 0 | 0 | 21 | -.5 | 0 | -10 | 1.7 | 0 | 0 | 3300 | 35 | 0 | 0 | 0 | 0 | 0 | -100 | 200 | -1 | -10 | 27 | -2 | 170 | 19.5 | 3.16 | 0 | 0 |
| 16899 | 108 | S 24 | 120 | -.05 | 0 | 704 | 650 | 6700 | 32.5 | 130 | 120 | 110 | 250 | 96 | -11 | 0 | 0 | 0 | 20 | -.5 | 0 | -10 | 1.7 | 0 | 0 | 2200 | 331 | 0 | 0 | 0 | 0 | 0 | -100 | 140 | 8 | -10 | 37 | -2 | 180 | 17.7 | 7.42 | 0 | 0 |
| 16900 | 108 | S 21 | -38 | .1 | 0 | 864 | 680 | 6400 | 29.4 | 81 | 120 | 130 | 300 | 110 | -20 | 0 | 0 | 0 | 27 | -.5 | 0 | -10 | 2.2 | 0 | 0 | 2200 | 434 | 0 | 0 | 0 | 0 | 0 | -100 | 210 | 10 | -10 | 39 | -2 | 200 | 23.3 | 2.52 | 0 | 0 |
| 16901 | 108 | S 14 | 33 | .18 | 0 | 301 | 290 | 7700 | 19.6 | 130 | 200 | 120 | 120 | 11 | 13 | 0 | 0 | 0 | 7 | -.5 | 0 | -10 | 2 | 0 | 0 | 500 | 149 | 0 | 0 | 0 | 0 | 0 | -100 | 33 | 4 | -10 | 23 | -2 | 30 | 7 | 30.8 | 0 | 0 |
| 16903 | 108 | S 11 | 140 | .18 | 0 | 333 | 210 | 8500 | 21.5 | 190 | 280 | 200 | 120 | 37 | -14 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | .5 | 0 | 0 | 300 | 192 | 0 | 0 | 0 | 0 | 0 | -100 | 48 | 5 | 10 | 21 | -2 | 41 | 11.4 | 51.5 | 0 | 0 |
| 16905 | 108 | S 11 | -19 | .21 | 0 | 297 | 220 | 9000 | 20.2 | 190 | 310 | 220 | 120 | 28 | -10 | 0 | 0 | 0 | 7 | -.5 | 0 | -10 | -.4 | 0 | 0 | 200 | 180 | 0 | 0 | 0 | 0 | 0 | -100 | 42 | 4 | -10 | 18 | -2 | 40 | 9 | 51.8 | 0 | 0 |
| 16906 | 108 | S 11 | 54 | .32 | 0 | 483 | 320 | 8900 | 27.9 | 250 | 290 | 180 | 130 | 34 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | .4 | 0 | 0 | 100 | 278 | 0 | 0 | 0 | 0 | 0 | -100 | 62 | 5 | -10 | 22 | -2 | 61 | 14.6 | 26.9 | 0 | 0 |
| 16907 | 108 | S 13 | -16 | .24 | 0 | 187 | 200 | 9800 | 19.6 | 170 | 280 | 210 | 100 | 37 | -10 | 0 | 0 | 0 | 7 | .5 | 0 | -10 | -.4 | 0 | 0 | -300 | 107 | 0 | 0 | 0 | 0 | 0 | -100 | 21 | 6 | -10 | 13 | -2 | 22 | 6.1 | 14.5 | 0 | 0 |
| 16912 | 103 | S 21 | 110 | .15 | 0 | 852 | 640 | 6300 | 25.4 | 62 | 100 | 110 | 230 | 77 | -10 | 0 | 0 | 0 | 13 | .5 | 0 | -10 | 1.9 | 0 | 0 | 1600 | 464 | 0 | 0 | 0 | 0 | 0 | -100 | 290 | 10 | 10 | 36 | -2 | 190 | 35.1 | 5.06 | 0 | 0 |
| 16914 | 103 | S 27 | 100 | .18 | 0 | 1140 | 870 | 6800 | 38.2 | 140 | 150 | 270 | 300 | 230 | -34 | 0 | 0 | 0 | 11 | .5 | 0 | 200 | 10 | 0 | 0 | 17000 | 614 | 0 | 0 | 0 | 0 | 0 | -100 | 210 | -9 | -10 | 570 | -2 | 160 | 43 | .21 | 0 | 0 |
| 16915 | 103 | S 26 | 79 | .21 | 0 | 310 | 280 | 11000 | 20.4 | 140 | 220 | 160 | 120 | 180 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | -.4 | 0 | 0 | -300 | 140 | 0 | 0 | 0 | 0 | 0 | -100 | 60 | 4 | -10 | 16 | -2 | 32 | 11.1 | 7.28 | 0 | 0 |
| 16916 | 103 | S 11 | 730 | .24 | 0 | 554 | 300 | 11000 | 21.4 | 140 | 230 | 180 | 160 | 210 | 11 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | -.4 | 0 | 0 | 500 | 309 | 0 | 0 | 0 | 0 | 0 | -100 | 74 | 3 | -10 | 33 | -2 | 65 | 16.6 | 8.16 | 0 | 0 |
| 16919 | 206 | S 21 | 1400 | .19 | 0 | 776 | 530 | 9200 | 25.9 | 73 | 120 | 500 | 180 | 60 | -10 | 0 | 0 | 0 | 10 | .5 | 0 | -10 | 1.9 | 0 | 0 | 5000 | 433 | 0 | 0 | 0 | 0 | 0 | -100 | 180 | 10 | -10 | 16 | -2 | 220 | 28.7 | 4.59 | 0 | 0 |
| 16923 | 206 | S 21 | 47 | .14 | 0 | 525 | 350 | 12000 | 20.9 | 76 | 150 | 170 | 360 | 27 | -10 | 0 | 0 | 0 | 10 | -.5 | 0 | -10 | 1.2 | 0 | 0 | 1600 | 327 | 0 | 0 | 0 | 0 | 0 | -100 | 76 | 8 | 20 | 24 | -2 | 120 | 11.8 | 13.1 | 0 | 0 |
| 16926 | 206 | S 17 | -30 | .34 | 0 | 653 | 420 | 8900 | 27.6 | 240 | 130 | 260 | 180 | 91 | -29 | 0 | 0 | 0 | 22 | .5 | 0 | 20 | 2 | 0 | 0 | 88000 | 412 | 0 | 0 | 0 | 0 | 0 | -100 | 71 | 8 | 1700 | -5 | -2 | 120 | 13.7 | .7 | 0 | 0 |
| 16928 | 206 | S 15 | 33 | .18 | 0 | 608 | 250 | 11000 | 19.9 | 170 | 270 | 220 | 160 | 16 | -10 | 0 | 0 | 0 | 10 | 1 | 0 | -10 | -.4 | 0 | 0 | 600 | 419 | 0 | 0 | 0 | 0 | 0 | -100 | 61 | 6 | 20 | 20 | 2 | 150 | 16.6 | 18.3 | 0 | 0 |
| 16933 | 101 | S 21 | 10 | .14 | 0 | 477 | 610 | 6700 | 24.1 | 55 | 110 | 84 | 270 | 92 | -10 | 0 | 0 | 0 | 19 | .5 | 0 | -10 | 3.9 | 0 | 0 | 3700 | 273 | 0 | 0 | 0 | 0 | 0 | -100 | 140 | 8 | -10 | 21 | -2 | 100 | 16.4 | 7.23 | 0 | 0 |
| 16938 | 101 | S 21 | 91 | .14 | 0 | 520 | 660 | 6900 | 23.2 | 54 | 130 | 97 | 290 | 88 | -10 | 0 | 0 | 0 | 17 | .5 | 0 | -10 | 3.7 | 0 | 0 | 4000 | 331 | 0 | 0 | 0 | 0 | 0 | -100 | 160 | 8 | -10 | 11 | -2 | 120 | 21.4 | 12 | 0 | 0 |
| 16940 | 101 | S 21 | 26 | .11 | 0 | 457 | 630 | 6900 | 23 | 53 | 120 | 80 | 270 | 88 | -12 | 0 | 0 | 0 | 18 | 2 | 0 | -10 | 3.4 | 0 | 0 | 4100 | 293 | 0 | 0 | 0 | 0 | 0 | -100 | 160 | 6 | -10 | 8 | -2 | 100 | 20.6 | 9.14 | 0 | 0 |
| 16941 | 101 | S 21 | 140 | .11 | 0 | 522 | 760 | 7200 | 22.9 | 51 | 95 | 78 | 270 | 94 | 23 | 0 | 0 | 0 | 16 | .5 | 0 | -10 | 3.7 | 0 | 0 | 4500 | 317 | 0 | 0 | 0 | 0 | 0 | -100 | 150 | 8 | -10 | 33 | -2 | 110 | 22 | 8.41 | 0 | 0 |
| 16942 | 101 | S 21 | -22 | .1 | 0 | 512 | 660 | 6500 | 23.3 | 55 | 130 | 96 | 290 | 83 | 10 | 0 | 0 | 0 | 15 | .5 | 0 | -10 | 3.6 | 0 | 0 | 5600 | 310 | 0 | 0 | 0 | 0 | 0 | -100 | 160 | 8 | -10 | 5 | -2 | 110 | 21.6 | 8.07 | 0 | 0 |
| 16944 | 101 | S 27 | 230 | .09 | 0 | 727 | 640 | 7400 | 26.4 | 83 | 160 | 150 | 270 | 92 | -10 | 0 | 0 | 0 | 15 | 1 | 0 | -10 | 3.5 | 0 | 0 | 4600 | 406 | 0 | 0 | 0 | 0 | 0 | -100 | 140 | -4 | -10 | 14 | -2 | 140 | 21.8 | 2.57 | 0 | 0 |
| 16945 | 101 | S 25 | -5 | .28 | 0 | 1410 | 390 | 10000 | 26.4 | 150 | 230 | 160 | 170 | 100 | -10 | 0 | 0 | 0 | 10 | .5 | 0 | -10 | 1.8 | 0 | 0 | 700 | 851 | 0 | 0 | 0 | 0 | 0 | -100 | 120 | 9 | -10 | 43 | -2 | 200 | 51.3 | 19.3 | 0 | 0 |
| 16946 | 101 | S 21 | -23 | .12 | 0 | 540 | 180 | 15000 | 22.9 | 110 | 270 | 140 | 120 | 62 | -10 | 0 | 0 | 0 | 8 | .5 | 0 | -10 | -.5 | 0 | 0 | -300 | 343 | 0 | 0 | 0 | 0 | 0 | -100 | 39 | -2 | -10 | 16 | -2 | 92 | 20.4 | 11.7 | 0 | 0 |
| 16954 | 106 | S 21 | -33 | .16 | 0 | 1070 | 800 | 5700 | 31.7 | 88 | 100 | 130 | 360 | 96 | -27 | 0 | 0 | 0 | 21 | .5 | 0 | -10 | 3.3 | 0 | 0 | 3300 | 640 | 0 | 0 | 0 | 0 | 0 | -100 | 300 | 6 | 40 | 17 | -2 | 200 | 29.2 | 1.53 | 0 | 0 |
| 16957 | 106 | S 21 | 73 | .12 | 0 | 1010 | 740 | 6200 | 30.7 | 89 | 110 | 170 | 240 | 130 | -27 | 0 | 0 | 0 | 15 | .5 | 0 | -10 | 3.8 | 0 | 0 | 4200 | 616 | 0 | 0 | 0 | 0 | 0 | -100 | 320 | 15 | -10 | 21 | -2 | 180 | 38 | 1.01 | 0 | 0 |
| 16958 | 106 | S 21 | 30 | .08 | 0 | 997 | 800 | 5900 | 29.4 | 94 | 100 | 120 | 200 | 180 | -20 | 0 | 0 | 0 | 19 | .5 | 0 | -10 | 3.8 | 0 | 0 | 1100 | 538 | 0 | 0 | 0 | 0 | 0 | -100 | 280 | 11 | -10 | 37 | -2 | 160 | 32.2 | 1.94 | 0 | 0 |
| 16960 | 106 | S 27 | 23 | .29 | 0 | 972 | 750 | 7400 | 27.8 | 110 | 140 | 230 | 270 | 92 | -20 | 0 | 0 | 0 | 11 | -.5 | 0 | -10 | 1.9 | 0 | 0 | 4800 | 473 | 0 | 0 | 0 | 0 | 0 | -100 | 180 | 7 | -10 | 47 | -2 | 210 | 32.5 | .11 | 0 | 0 |
| 16961 | 106 | S 11 | -28 | .27 | 0 | 1250 | 290 | 9700 | 24.7 | 310 | 340 | 250 | 140 | 64 | -10 | 0 | 0 | 0 | 8 | .5 | 0 | -10 | -.6 | 0 | 0 | -100 | 735 | 0 | 0 | 0 | 0 | 0 | -100 | 110 | 6 | 10 | 28 | -2 | 150 | 42.3 | 19 | 0 | 0 |
| 16962 | 106 | S 11 | 17 | .26 | 0 | 1080 | 230 | 10000 | 21.7 | 280 | 340 | 240 | 120 | 74 | -24 | 0 | 0 | 0 | 7 | .5 | 0 | -10 | -.6 | 0 | 0 | -300 | 657 | 0 | 0 | 0 | 0 | 0 | -100 | 100 | 5 | 170 | 15 | -2 | 140 | 34.4 | 22 | 0 | 0 |
| 16965 | 109 | S 21 | -27 | .14 | 0 | 1150 | 880 | 7400 | 23.3 | 45 | 74 | 73 | 220 | 41 | -29 | 0 | 0 | 0 | 11 | -.5 | 0 | -10 | 2 | 0 | 0 | 2700 | 631 | 0 | 0 | 0 | 0 | 0 | -100 | 310 | 14 | 10 | 13 | -2 | 250 | 31.1 | 2.68 | 0 | 0 |
| 16967 | 109 | S 21 | 14 | .09 | 0 | 816 | 690 | 6900 | 24.8 | 64 | 100 | 140 | 360 | 86 | -10 | 0 | 0 | 0 | 19 | .5 | 0 | -10 | 1.9 | 0 | 0 | 2000 | 448 | 0 | 0 | 0 | 0 | 0 | -100 | 250 | 10 | 10 | 39 | -2 | 180 | 23 | 2.33 | 0 | 0 |
| 16968 | 109 | S 21 | 21 | .12 | 0 | 782 | 700 | 6700 | 30 | 83 | 110 | 110 | 340 | 120 | -15 | 0 | 0 | 0 | 19 | .5 | 0 | -10 | 3 | 0 | 0 | 2500 | 448 | 0 | 0 | 0 | 0 | 0 | -100 | 270 | 10 | 10 | 37 | -2 | 230 | 27.9 | 5.21 | 0 | 0 |
| 16969 | 109 | S 21 | 29 | .1 | 0 | 779 | 840 | 6100 | 28.9 | 85 | 160 | 120 | 510 | 110 | -14 | 0 | 0 | 0 | 21 | .5 | 0 | -10 | 4.4 | 0 | 0 | 1600 | 557 | 0 | 0 | 0 | 0 | 0 | -100 | 310 | 10 | -10 | 31 | -2 | 170 | 29.2 | 1.59 | 0 | 0 |
| 16973 | 107 | S 21 | 10 | .14 | 0 | 798 | 660 | 6500 | 24.6 | 65 | 110 | 100 | 210 | 72 | -22 | 0 | 0 | 0 | 15 | .5 | 0 | -10 | 1.9 | 0 | 0 | 2500 | 437 | 0 | 0 | 0 | 0 | 0 | -100 | 260 | 7 | 80 | 15 | -2 | 170 | 27.7 | 3.63 | 0 | 0 |
| 16982 | 107 | S 14 | 110 | .26 | 0 | 202 | 360 | 9900 | 24.6 | 100 | 140 | 65 | 120 | 30 | -11 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | -.4 | 0 | 0 | -300 | 120 | 0 | 0 | 0 | 0 | 0 | -100 | 49 | 6 | -10 | 12 | -2 | 33 | 12.4 | 146 | 0 | 0 |
| 16984 | 107 | S 14 | 60 | .28 | 0 | 214 | 320 | 9600 | 21 | 86 | 130 | 61 | 130 | 15 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | -.4 | 0 | 0 | 100 | 116 | 0 | 0 | 0 | 0 | 0 | -100 | 50 | 4 | -10 | 12 | -2 | 29 | 9.6 | 158 | 0 | 0 |

## Appendix 9-9B continued.

| S.N. | DH | DH DT | AU | NA | SC | CE | CR | MN | FE | CO | NI | CU | ZN | AS | SE | BA | RB | ZR | MO | AG | CD | SN | SB | TE | CS | BA | LA | SM | EU | TB | YB | LU | IR | HF | TA | W | PB | BI | TH | U | WT | ZN2 | AG2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16986 | 107 | S 14 | 84 | .26 | 0 | 161 | 330 | 8800 | 19.1 | 72 | 130 | 60 | 140 | 11 | -10 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | .7 | 0 | 0 | -300 | 94 | 0 | 0 | 0 | 0 | 0 | -100 | 40 | 4 | -10 | 15 | -2 | 25 | 6.1 | 106 | 0 | 0 |
| 16988 | 107 | S 15 | 48 | .34 | 0 | 183 | 300 | 8400 | 17.1 | 63 | 130 | 56 | 140 | 11 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | -.3 | 0 | 0 | -200 | 107 | 0 | 0 | 0 | 0 | 0 | -100 | 48 | 6 | -10 | 16 | -2 | 27 | 5.7 | 110 | 0 | 0 |
| 16989 | 107 | S 14 | 60 | .24 | 0 | 255 | 320 | 9700 | 18.3 | 71 | 140 | 70 | 150 | 16 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | .4 | 0 | 0 | 100 | 135 | 0 | 0 | 0 | 0 | 0 | -100 | 65 | 5 | -10 | 19 | -2 | 35 | 6.2 | 130 | 0 | 0 |
| 16990 | 107 | S 15 | 39 | .21 | 0 | 270 | 340 | 10000 | 18.9 | 79 | 130 | 65 | 130 | 13 | -10 | 0 | 0 | 0 | 7 | -.5 | 0 | -10 | -.3 | 0 | 0 | -200 | 153 | 0 | 0 | 0 | 0 | 0 | -100 | 71 | 6 | -10 | 11 | -2 | 39 | 8.7 | 87 | 0 | 0 |
| 16994 | 110 | S 21 | 70 | .16 | 0 | 672 | 540 | 8700 | 24.7 | 88 | 120 | 150 | 210 | 58 | -10 | 0 | 0 | 0 | 13 | .5 | 0 | -10 | 1.2 | 0 | 0 | 1500 | 382 | 0 | 0 | 0 | 0 | 0 | -100 | 190 | 10 | 40 | 18 | 15 | 140 | 24.6 | 3.39 | 0 | 0 |
| 16996 | 110 | S 21 | -23 | .11 | 0 | 851 | 660 | 7600 | 25.3 | 150 | 140 | 180 | 200 | 110 | -10 | 0 | 0 | 0 | 13 | .5 | 0 | -10 | 1.5 | 0 | 0 | 2200 | 340 | 0 | 0 | 0 | 0 | 0 | -100 | 190 | 7 | 80 | 18 | -2 | 180 | 24.4 | 4.74 | 0 | 0 |
| 16998 | 110 | S 11 | 140 | .15 | 0 | 663 | 330 | 12000 | 19.9 | 240 | 210 | 190 | 120 | 41 | -16 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | .6 | 0 | 0 | 200 | 280 | 0 | 0 | 0 | 0 | 0 | -100 | 88 | 10 | -10 | 18 | -2 | 120 | 16.5 | 13.3 | 0 | 0 |
| 16999 | 110 | S 11 | 100 | .08 | 0 | 542 | 280 | 12000 | 22.7 | 230 | 270 | 240 | 130 | 240 | -18 | 0 | 0 | 0 | 8 | .5 | 0 | -10 | -.7 | 0 | 0 | -800 | 258 | 0 | 0 | 0 | 0 | 0 | -100 | 83 | 7 | 40 | 29 | -2 | 110 | 17.1 | 19.1 | 0 | 0 |
| 17003 | 105 | S 14 | 44 | .18 | 0 | 255 | 390 | 9300 | 18.3 | 41 | 93 | 24 | 130 | -2 | -10 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | -.3 | 0 | 0 | 400 | 148 | 0 | 0 | 0 | 0 | 0 | -100 | 60 | 6 | -10 | 14 | -2 | 33 | 7.1 | 74.5 | 0 | 0 |
| 17005 | 105 | S 14 | 26 | .18 | 0 | 163 | 320 | 9500 | 17.1 | 43 | 96 | 25 | 130 | -2 | -10 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | -.3 | 0 | 0 | -300 | 91 | 0 | 0 | 0 | 0 | 0 | -100 | 28 | 6 | -10 | 15 | -2 | 23 | 3.8 | 95.6 | 0 | 0 |
| 17007 | 105 | S 14 | 72 | .19 | 0 | 188 | 370 | 8900 | 20.1 | 68 | 120 | 42 | 120 | -4 | -10 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | -.4 | 0 | 0 | 400 | 109 | 0 | 0 | 0 | 0 | 0 | -100 | 34 | 6 | -10 | 15 | -2 | 28 | 6.1 | 102 | 0 | 0 |
| 17008 | 105 | S 14 | -18 | .22 | 0 | 200 | 340 | 8300 | 19.5 | 90 | 150 | 63 | 130 | 9 | -10 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | -.4 | 0 | 0 | -200 | 115 | 0 | 0 | 0 | 0 | 0 | -100 | 40 | 5 | -10 | 16 | -2 | 29 | 9 | 83.3 | 0 | 0 |
| 17010 | 105 | S 14 | 18 | .25 | 0 | 142 | 300 | 8700 | 17.6 | 74 | 140 | 58 | 130 | -4 | -10 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | .5 | 0 | 0 | -100 | 75 | 0 | 0 | 0 | 0 | 0 | -100 | 21 | 4 | -10 | 17 | -2 | 16 | 3.3 | 105 | 0 | 0 |
| 17013 | 210 | S 20 | 23 | .32 | 0 | 1290 | 370 | 9100 | 16.3 | 38 | 79 | 50 | 190 | 11 | 80 | 0 | 0 | 0 | 9 | -.5 | 0 | -10 | 2.4 | 0 | 0 | 700 | 777 | 0 | 0 | 0 | 0 | 0 | -100 | 200 | 11 | 20 | 440 | -2 | 230 | 33.7 | 3.38 | 0 | 0 |
| 17017 | 210 | S 13 | -33 | .29 | 0 | 431 | 270 | 15000 | 27.5 | 260 | 320 | 260 | 110 | -8 | -10 | 0 | 0 | 0 | 5 | 1 | 0 | -10 | -.7 | 0 | 0 | 400 | 285 | 0 | 0 | 0 | 0 | 0 | -100 | 29 | 4 | -10 | 35 | -2 | 100 | 15.4 | 60.8 | 0 | 0 |
| 17018 | 210 | S 13 | 51 | .2 | 0 | 582 | 290 | 14000 | 31.5 | 330 | 370 | 260 | 130 | 17 | 14 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | -.7 | 0 | 0 | -300 | 359 | 0 | 0 | 0 | 0 | 0 | -100 | 39 | 6 | -10 | 26 | -2 | 140 | 15.7 | 29.1 | 0 | 0 |
| 17019 | 210 | S 13 | -21 | .11 | 0 | 420 | 240 | 17000 | 24.6 | 240 | 340 | 260 | 150 | 19 | -10 | 0 | 0 | 0 | 4 | .5 | 0 | -10 | -.5 | 0 | 0 | 500 | 252 | 0 | 0 | 0 | 0 | 0 | -100 | 31 | 3 | -10 | 33 | -2 | 93 | 12.1 | 20.4 | 0 | 0 |
| 17028 | 207 | S 16 | 150 | .68 | 0 | 647 | 180 | 3800 | 9.8 | 51 | 110 | 74 | 170 | 9 | -10 | 0 | 0 | 0 | 2 | -.5 | 0 | -10 | .5 | 0 | 0 | 500 | 328 | 0 | 0 | 0 | 0 | 0 | -100 | 28 | 4 | -10 | 23 | -2 | 36 | 6.1 | 41.8 | 0 | 0 |
| 17029 | 207 | S 11 | -18 | .77 | 0 | 674 | 170 | 4000 | 10.5 | 46 | 100 | 50 | 170 | -4 | -10 | 0 | 0 | 0 | 2 | -.5 | 0 | -10 | .5 | 0 | 0 | 600 | 320 | 0 | 0 | 0 | 0 | 0 | -100 | 25 | 5 | -10 | 18 | -2 | 30 | 2.9 | 33.8 | 0 | 0 |
| 17030 | 207 | S 15 | -20 | .72 | 0 | 756 | 190 | 3800 | 11.4 | 57 | 100 | 57 | 150 | -4 | -10 | 0 | 0 | 0 | 2 | -.5 | 0 | -10 | .6 | 0 | 0 | 400 | 395 | 0 | 0 | 0 | 0 | 0 | -100 | 30 | 5 | -10 | 19 | -2 | 43 | 5.9 | 105 | 0 | 0 |
| 17031 | 207 | S 11 | -31 | .82 | 0 | 1000 | 280 | 3000 | 11.9 | 61 | 100 | 67 | 150 | -7 | -14 | 0 | 0 | 0 | 2 | -.5 | 0 | -10 | 1 | 0 | 0 | 600 | 522 | 0 | 0 | 0 | 0 | 0 | -100 | 31 | 4 | -10 | 15 | -2 | 33 | 5 | 121 | 0 | 0 |
| 17032 | 207 | S 11 | -39 | .8 | 0 | 1510 | 250 | 2500 | 12.3 | 63 | 110 | 63 | 160 | -8 | 36 | 0 | 0 | 0 | 2 | -.5 | 0 | -10 | 1.4 | 0 | 0 | 1400 | 729 | 0 | 0 | 0 | 0 | 0 | -100 | 37 | 4 | -10 | 15 | -2 | 30 | -4 | 82.8 | 0 | 0 |
| 17033 | 207 | S 13 | -30 | .86 | 0 | 881 | 220 | 2700 | 10.4 | 46 | 96 | 51 | 170 | -6 | -10 | 0 | 0 | 0 | 2 | -.5 | 0 | -10 | -.6 | 0 | 0 | 500 | 449 | 0 | 0 | 0 | 0 | 0 | -100 | 18 | 4 | -10 | 10 | -2 | 19 | .9 | 60.8 | 0 | 0 |
| 17037 | 102 | S 21 | 64 | .12 | 0 | 647 | 870 | 7200 | 26.1 | 87 | 100 | 90 | 240 | 89 | -16 | 0 | 0 | 0 | 13 | .5 | 0 | -10 | 3.1 | 0 | 0 | 4700 | 271 | 0 | 0 | 0 | 0 | 0 | -100 | 200 | 7 | -10 | 30 | -2 | 150 | 20.9 | 13.9 | 0 | 0 |
| 17043 | 102 | S 21 | 160 | .13 | 0 | 554 | 680 | 7800 | 27 | 94 | 120 | 94 | 240 | 95 | -14 | 0 | 0 | 0 | 13 | .5 | 0 | -10 | 3.3 | 0 | 0 | 3400 | 237 | 0 | 0 | 0 | 0 | 0 | -100 | 160 | 8 | -10 | 17 | -2 | 130 | 16.3 | 18 | 0 | 0 |
| 17049 | 102 | S 21 | 34 | .14 | 0 | 560 | 760 | 7300 | 26.4 | 86 | 110 | 100 | 310 | 92 | -10 | 0 | 0 | 0 | 11 | .5 | 0 | -10 | 3.7 | 0 | 0 | 6500 | 246 | 0 | 0 | 0 | 0 | 0 | -100 | 150 | 11 | -10 | 19 | -2 | 120 | 21.1 | 9.44 | 0 | 0 |
| 17050 | 102 | S 21 | 22 | .14 | 0 | 548 | 800 | 8900 | 29.5 | 90 | 130 | 120 | 270 | 110 | -11 | 0 | 0 | 0 | 16 | .5 | 0 | -10 | 4 | 0 | 0 | 8400 | 225 | 0 | 0 | 0 | 0 | 0 | -100 | 140 | 6 | -10 | 17 | -2 | 120 | 17.7 | 4.25 | 0 | 0 |
| 17051 | 102 | S 21 | 37 | .12 | 0 | 557 | 810 | 7100 | 31.5 | 91 | 130 | 100 | 360 | 100 | -15 | 0 | 0 | 0 | 15 | .5 | 0 | -10 | 4.9 | 0 | 0 | 5300 | 236 | 0 | 0 | 0 | 0 | 0 | -100 | 150 | 5 | -10 | 30 | -2 | 120 | 18.9 | 4.38 | 0 | 0 |
| 17053 | 102 | S 11 | 67 | .3 | 0 | 546 | 420 | 8800 | 23.5 | 100 | 160 | 63 | 120 | 40 | -10 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | -.5 | 0 | 0 | -300 | 358 | 0 | 0 | 0 | 0 | 0 | -100 | 69 | 6 | 210 | 30 | -2 | 110 | 11.2 | 38.5 | 0 | 0 |
| 17054 | 102 | S 14 | -23 | .29 | 0 | 341 | 530 | 9600 | 23.3 | 72 | 110 | 36 | 130 | 16 | -10 | 0 | 0 | 0 | 3 | -.5 | 0 | -10 | -.5 | 0 | 0 | -200 | 200 | 0 | 0 | 0 | 0 | 0 | -100 | 85 | 8 | -10 | 23 | -2 | 60 | 13.7 | 35.9 | 0 | 0 |
| 17055 | 102 | S 14 | 190 | .24 | 0 | 307 | 470 | 9000 | 21.4 | 64 | 110 | 32 | 140 | 13 | -10 | 0 | 0 | 0 | 3 | -.5 | 0 | -10 | -.5 | 0 | 0 | -200 | 178 | 0 | 0 | 0 | 0 | 0 | -100 | 74 | 7 | -10 | 21 | -2 | 52 | 13.2 | 39.8 | 0 | 0 |
| 17056 | 102 | S 10 | -24 | .42 | 0 | 352 | 480 | 9500 | 21.5 | 63 | 100 | 37 | 140 | 11 | -10 | 0 | 0 | 0 | 3 | -.5 | 0 | -10 | -.5 | 0 | 0 | -200 | 197 | 0 | 0 | 0 | 0 | 0 | -100 | 87 | 7 | -10 | 21 | -2 | 58 | 12.6 | 30.1 | 0 | 0 |
| 17057 | 102 | S 14 | 46 | .3 | 0 | 434 | 510 | 8300 | 21.3 | 67 | 110 | 42 | 140 | 17 | -14 | 0 | 0 | 0 | 3 | -.5 | 0 | -10 | -.2 | 0 | 0 | -100 | 255 | 0 | 0 | 0 | 0 | 0 | -100 | 95 | 8 | -10 | 26 | -2 | 76 | 14.1 | 35.7 | 0 | 0 |
| 17061 | 104 | S 21 | -25 | .13 | 0 | 859 | 720 | 7200 | 29 | 80 | 130 | 120 | 280 | 97 | -19 | 0 | 0 | 0 | 9 | .5 | 0 | -10 | 2.1 | 0 | 0 | 2400 | 463 | 0 | 0 | 0 | 0 | 0 | -100 | 210 | 11 | 30 | 60 | -2 | 200 | 28.7 | 2.83 | 0 | 0 |
| 17066 | 104 | S 21 | 45 | .1 | 0 | 583 | 880 | 7300 | 27.8 | 99 | 120 | 94 | 310 | 97 | -10 | 0 | 0 | 0 | 9 | .5 | 0 | -10 | 2.9 | 0 | 0 | 4500 | 264 | 0 | 0 | 0 | 0 | 0 | -100 | 110 | 6 | -10 | 31 | -2 | 130 | 16.6 | 11.6 | 0 | 0 |
| 17068 | 104 | S 21 | 60 | .09 | 0 | 498 | 650 | 6600 | 28.2 | 99 | 110 | 110 | 280 | 100 | -18 | 0 | 0 | 0 | 12 | .5 | 0 | -10 | 3.2 | 0 | 0 | 12000 | 225 | 0 | 0 | 0 | 0 | 0 | -100 | 120 | 4 | -10 | 22 | -2 | 110 | 15.6 | 8.49 | 0 | 0 |
| 17069 | 104 | S 21 | 3400 | .12 | 0 | 490 | 520 | 6500 | 27.4 | 80 | 120 | 150 | 400 | 3 | -10 | 0 | 0 | 0 | 10 | -.5 | 0 | -10 | 4.3 | 0 | 0 | 4600 | 266 | 0 | 0 | 0 | 0 | 0 | -100 | 130 | 15 | -10 | 55 | -2 | 96 | 16.5 | 2.71 | 0 | 0 |
| 17070 | 104 | S 21 | -16 | .08 | 0 | 290 | 310 | 5700 | 34.2 | 88 | 150 | 140 | 220 | 140 | -10 | 0 | 0 | 0 | 11 | 2 | 0 | -10 | 4.5 | 0 | 0 | 5600 | 163 | 0 | 0 | 0 | 0 | 0 | -100 | 44 | 2 | -10 | 50 | -2 | 85 | 9.4 | 7.73 | 0 | 0 |
| 17071 | 104 | S 27 | -24 | .16 | 0 | 528 | 360 | 10000 | 25 | 130 | 200 | 110 | 140 | 55 | 18 | 0 | 0 | 0 | 6 | .5 | 0 | -10 | .7 | 0 | 0 | 1000 | 275 | 0 | 0 | 0 | 0 | 0 | -100 | 56 | -3 | -10 | 17 | -2 | 94 | 14.3 | 5.58 | 0 | 0 |
| 17072 | 104 | S 10 | 1100 | .2 | 0 | 558 | 290 | 11000 | 22.9 | 140 | 220 | 100 | 120 | 40 | -10 | 0 | 0 | 0 | 4 | .5 | 0 | -10 | .8 | 0 | 0 | 600 | 310 | 0 | 0 | 0 | 0 | 0 | -100 | 56 | -3 | -10 | 21 | -2 | 97 | 15.2 | 15.1 | 0 | 0 |
| 17073 | 104 | S 15 | 180 | .23 | 0 | 617 | 310 | 12000 | 26.1 | 170 | 230 | 97 | 110 | 84 | -10 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | .6 | 0 | 0 | 500 | 343 | 0 | 0 | 0 | 0 | 0 | -100 | 68 | 7 | -10 | 40 | -2 | 110 | 22.7 | 10.8 | 0 | 0 |
| 17557 | | 11 | 568 | -1.2 | 110 | 3280 | 560 | 702 | 27 | 88 | 130 | 30 | -200 | -14 | -36 | -5 | -56 | 8300 | -12 | .4 | -56 | -690 | 22.9 | -120 | -3 | -340 | 2520 | 199 | 9 | 21 | 45 | -5.1 | -100 | 140 | 12 | -39 | 26 | 0 | 934 | 44 | 17.93 | 16 | -19 |
| 17558 | | 11 | 390 | -1.7 | 141 | 4640 | 650 | 530 | 33 | 35 | -120 | 26 | -430 | -20 | -44 | -13 | -79 | 8900 | -18 | .1 | -79 | -970 | 1.2 | -170 | -4 | -470 | 3720 | 284 | -14 | 28 | 65 | -6.3 | -280 | 160 | 9 | -56 | 23 | 0 | 0 | 46 | 13.76 | 52 | -26 |
| 17559 | | -2 | 32 | -.34 | 84.4 | 490 | 270 | 768 | 28 | 280 | 200 | 130 | -200 | 28 | -10 | -5 | -26 | 4300 | -6 | 2.4 | -27 | -200 | -.2 | -53 | -1 | -100 | 260 | 38 | 5 | 5 | 19 | 2.8 | -100 | 80 | 8 | -21 | 12 | 0 | 85.7 | 13 | 34.68 | 36 | -11 |
| 17560 | | -2 | 63 | .29 | 105 | 270 | 500 | 644 | 24 | 69 | 77 | 16 | -200 | 9 | -10 | -5 | -10 | 3600 | -4 | .2 | -23 | -200 | .6 | -43 | -1 | -100 | 130 | 29 | 3 | 5 | 23 | 3.8 | -100 | 62 | 9 | -19 | 8 | 0 | 45 | 9.1 | 39.9 | 22 | -5 |
| 17561 | | -2 | -21 | -.38 | 121 | 460 | 440 | 702 | 23 | 67 | 89 | 14 | 210 | -9 | -10 | -5 | -31 | 2100 | -6 | -.1 | -33 | -200 | .7 | -61 | -2 | -100 | 190 | 41 | 7 | 7 | 28 | 4.4 | -100 | 60 | 9 | -23 | 5 | 0 | 57 | 11 | 12.56 | 18 | -14 |
| 17562 | | -2 | 220 | -.42 | 104 | 450 | 500 | 570 | 24 | 71 | -65 | 16 | 290 | -9 | -10 | -5 | -31 | 2900 | -6 | -.2 | -34 | -200 | -.2 | -62 | -2 | -100 | 240 | 36 | 4 | 5 | 25 | 3.8 | -100 | 60 | 8 | -29 | 8 | 0 | 102 | 14 | 10.61 | 14 | -14 |
| 17563 | | -2 | -23 | -.5 | 98.3 | 620 | 390 | 552 | 21 | 65 | -63 | 33 | -200 | -10 | -10 | -5 | -35 | 3300 | -7 | -.1 | -37 | -200 | -.2 | -67 | -2 | -220 | 310 | 44 | -4 | 6 | 22 | 3.4 | -100 | 38 | 6 | -30 | 10 | 0 | 132 | 14 | 8.21 | 41 | -15 |
| 17564 | | -2 | 180 | -.41 | 120 | 620 | 470 | 552 | 24 | 79 | 92 | 22 | -200 | -8 | -10 | -5 | -26 | 3300 | -5 | -.2 | -30 | -200 | .4 | -56 | -1 | -100 | 320 | 47 | 4 | 8 | 26 | 4.1 | -100 | 59 | 7 | -25 | 6 | 0 | 120 | 16 | 22.26 | 14 | -12 |
| 17573 | 208 | S 11 | -5 | .48 | 27 | 300 | 350 | 289 | 13 | 100 | 120 | 66 | 400 | 8 | -10 | -5 | -10 | 1000 | -2 | -.1 | -10 | -200 | .4 | -20 | -1 | -100 | 140 | 25 | 4 | 3 | 8 | 1.2 | -100 | 18 | 4 | -12 | 7 | 0 | 55 | 6.2 | 32.21 | 15 | -5 |
| 18601 | 20804 | M 13 | 120 | .46 | 0 | 493 | 690 | 4300 | 30.3 | 280 | 260 | 510 | 160 | 61 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | 1.1 | 0 | 0 | 2000 | 281 | 0 | 0 | 0 | 0 | 0 | -100 | 42 | -3 | 21 | 52 | 4 | 85 | 12.5 | 34.5 | 0 | 0 |
| 18602 | 20804 | M 13 | 22 | .35 | 0 | 330 | 470 | 4900 | 24.1 | 220 | 240 | 560 | 140 | 53 | 20 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | 1.3 | 0 | 0 | 1600 | 192 | 0 | 0 | 0 | 0 | 0 | -100 | 26 | -2 | 41 | 58 | 4 | 64 | 6.9 | 68.7 | 0 | 0 |
| 18603 | 20804 | M 13 | -22 | .24 | 0 | 647 | 460 | 7700 | 24.2 | 170 | 190 | 270 | 120 | 36 | -60 | 0 | 0 | 0 | 4 | 1 | 0 | -10 | .9 | 0 | 0 | 800 | 393 | 0 | 0 | 0 | 0 | 0 | -100 | 55 | 8 | 67 | 60 | 2 | 150 | 14.9 | 29.3 | 0 | 0 |
| 18604 | 20804 | M 13 | -9 | .13 | 0 | 295 | 180 | 6600 | 10.1 | 70 | 210 | 630 | 140 | 11 | -10 | 0 | 0 | 0 | 6 | .5 | 0 | -10 | .4 | 0 | 0 | 400 | 174 | 0 | 0 | 0 | 0 | 0 | -100 | 29 | 6 | 75 | 39 | 2 | 65 | 7.8 | 10.6 | 0 | 0 |
| 18604R | 20804 | M 13 | 32 | .24 | 0 | 490 | 470 | 9100 | 21.1 | 170 | 220 | 280 | 150 | 42 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | 1.8 | 0 | 0 | 600 | 341 | 0 | 0 | 0 | 0 | 0 | -100 | 59 | 7 | 320 | 86 | 2 | 120 | 10.3 | 18.7 | 0 | 0 |
| 18605 | 20801 | M 13 | 25 | .08 | 0 | 211 | 350 | 7500 | 13.3 | 160 | 270 | 410 | 110 | 41 | -10 | 0 | 0 | 0 | 7 | 1 | 0 | -10 | 1.1 | 0 | 0 | 300 | 124 | 0 | 0 | 0 | 0 | 0 | -100 | -2 | 3 | 550 | 66 | 4 | 43 | 5.4 | 15.4 | 0 | 0 |
| 18606 | 20801 | M 13 | 910 | .17 | 0 | 647 | 890 | 9300 | 30.3 | 310 | 260 | 320 | 110 | 90 | -20 | 0 | 0 | 0 | 6 | 1 | 0 | -10 | 1.9 | 0 | 0 | -600 | 396 | 0 | 0 | 0 | 0 | 0 | -100 | 48 | 12 | 690 | 69 | 3 | 160 | 14.1 | 26 | 0 | 0 |
| 18607 | 20801 | M 13 | 58 | .16 | 0 | 577 | 630 | 9400 | 26.5 | 220 | 210 | 210 | 120 | 67 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | 2.4 | 0 | 0 | -600 | 373 | 0 | 0 | 0 | 0 | 0 | -100 | 51 | 10 | 610 | 75 | 2 | 140 | 15.6 | 25.5 | 0 | 0 |
| 18608 | 20801 | M 13 | 67 | .17 | 0 | 878 | 640 | 11000 | 25.4 | 190 | 190 | 160 | 110 | 98 | -30 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | .9 | 0 | 0 | 400 | 564 | 0 | 0 | 0 | 0 | 0 | -100 | 78 | 8 | 400 | 81 | -2 | 230 | 23.9 | 27.6 | 0 | 0 |
| 18609 | 20801 | M 13 | 160 | .21 | 0 | 824 | 1700 | 9400 | 27.9 | 250 | 260 | 240 | 140 | 100 | 40 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | 2.4 | 0 | 0 | -600 | 529 | 0 | 0 | 0 | 0 | 0 | -100 | 74 | 10 | 610 | 70 | 3 | 220 | 19.1 | 29.3 | 0 | 0 |
| 18610 | 20801 | M 13 | 600 | .15 | 0 | 339 | 1500 | 3500 | 39.2 | 730 | 470 | 660 | 440 | 320 | -20 | 0 | 0 | 0 | 5 | 1 | 0 | -10 | 6.3 | 0 | 0 | -600 | 181 | 0 | 0 | 0 | 0 | 0 | -100 | 60 | -4 | 230 | 93 | 7 | 71 | 12 | 22.2 | 0 | 0 |
| 18611 | 20801 | M 13 | 690 | .07 | 0 | 0 | 490 | 2400 | 34.5 | 560 | 550 | 660 | 170 | 490 | 30 | 0 | 0 | 0 | 4 | 2 | 0 | 35 | 4.8 | 0 | 0 | 400 | 143 | 0 | 0 | 0 | 0 | 0 | -100 | 39 | 5 | 210 | 187 | 7 | 60 | 6 | 12.9 | 0 | 0 |
| 18612 | 20801 | M 13 | 420 | .17 | 0 | 192 | 400 | 1800 | 34.8 | 690 | 570 | 330 | 140 | 360 | -10 | 0 | 0 | 0 | 6 | 1.5 | 0 | -10 | 10 | 0 | 0 | 600 | 124 | 0 | 0 | 0 | 0 | 0 | -100 | 92 | -3 | 91 | 151 | 10 | 47 | 9.5 | 34.4 | 0 | 0 |
| 18614 | 20902 | M 13 | 240 | .12 | 0 | 204 | 170 | 11000 | 9.4 | 40 | 130 | 110 | 98 | 12 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | .7 | 0 | -2 | 400 | 112 | 0 | 0 | 0 | 0 | 0 | -100 | 19 | 4 | 550 | 56 | -2 | 44 | 4.7 | 7.95 | 0 | 0 |
| 18614R | 20902 | M 13 | 66 | .31 | 0 | 518 | 370 | 10000 | 21.2 | 110 | 130 | 92 | 110 | 24 | -30 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | 1.4 | 0 | 0 | -700 | 310 | 0 | 0 | 0 | 0 | 0 | -100 | 68 | -1 | 1400 | 56 | -2 | 110 | 12.4 | 3.63 | 0 | 0 |
| 18615 | 20902 | M 13 | -15 | .09 | 0 | -5 | 190 | 21000 | 13.7 | 120 | 250 | 270 | 97 | 16 | 30 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | .8 | 0 | 0 | -300 | 143 | 0 | 0 | 0 | 0 | 0 | -100 | -2 | 4 | 1000 | 48 | 2 | 53 | 5.4 | 17.2 | 0 | 0 |
| 18617 | 20902 | M 39 | 80 | .24 | 0 | 461 | 390 | 13000 | 26.4 | 280 | 290 | 320 | 120 | 29 | -20 | 0 | 0 | 0 | 18 | -.5 | 0 | -10 | 1.3 | 0 | 0 | -1200 | 334 | 0 | 0 | 0 | 0 | 0 | -100 | 80 | 6 | 5400 | 56 | 2 | 120 | 15.8 | 12.9 | 0 | 0 |
| 18618 | 20906 | M 13 | 110 | .11 | 0 | 530 | 390 | 8300 | 26.1 | 400 | 480 | 520 | 130 | 59 | -20 | 0 | 0 | 0 | 6 | .5 | 0 | -10 | 1.2 | 0 | 0 | 500 | 363 | 0 | 0 | 0 | 0 | 0 | -100 | 64 | 9 | 110 | 138 | 7 | 140 | 14.8 | 51.9 | 0 | 0 |
| 18620 | 20906 | M 39 | 120 | .26 | 0 | 580 | 450 | 7600 | 28.7 | 400 | 390 | 410 | 160 | 63 | -20 | 0 | 0 | 0 | 0 | 3.5 | 0 | 0 | 1.4 | 0 | 0 | 800 | 435 | 0 | 0 | 0 | 0 | 0 | -100 | 110 | 7 | 210 | 0 | 0 | 150 | 16.9 | 16.6 | 0 | 0 |
| 18621 | 20804 | M 39 | 62 | .53 | 0 | 755 | 910 | 6300 | 27.8 | 220 | 410 | 390 | 150 | 39 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | 1.7 | 0 | 0 | 1500 | 561 | 0 | 0 | 0 | 0 | 0 | -100 | 120 | 10 | 120 | 101 | 3 | 190 | 19.2 | 16.9 | 0 | 0 |
| 18622 | 20704 | M 13 | 21 | .58 | 0 | 555 | 180 | 4700 | 10.9 | 40 | 120 | 66 | 170 | 5 | -10 | 0 | 0 | 0 | 7 | -.5 | 0 | -10 | -.3 | 0 | 0 | 500 | 262 | 0 | 0 | 0 | 0 | 0 | -100 | 25 | 6 | 110 | 26 | -2 | 33 | 4.5 | 72.2 | 0 | 0 |
| 18623 | 20704 | M 13 | 49 | .52 | 0 | 421 | 270 | 4100 | 14.6 | 70 | 210 | 67 | 150 | 15 | -10 | 0 | 0 | 0 | 3 | -.5 | 0 | -10 | .7 | 0 | 0 | -300 | 210 | 0 | 0 | 0 | 0 | 0 | -100 | 23 | 5 | 240 | 25 | -2 | 29 | 4.3 | 50.3 | 0 | 0 |
| 18625 | 20704 | M 39 | -26 | .55 | 0 | 756 | 310 | 4000 | 15.7 | 80 | 180 | 77 | 170 | 13 | -90 | 0 | 0 | 0 | 7 | -.5 | 0 | -10 | -.5 | 0 | 0 | -400 | 409 | 0 | 0 | 0 | 0 | 0 | -100 | 48 | 6 | 630 | 26 | -2 | 48 | 4 | 48.7 | 0 | 0 |
| 18626 | 20702 | M 10 | 66 | .32 | 0 | 221 | 120 | 8400 | 8.8 | 30 | 120 | 97 | 150 | 9 | -10 | 0 | 0 | 0 | 2 | 3.5 | 0 | -10 | .2 | 0 | 0 | 200 | 111 | 0 | 0 | 0 | 0 | 0 | -100 | 11 | -1 | 44 | 42 | -2 | 22 | 2.1 | 20 | 0 | 0 |
| 18626R | 20702 | M 10 | -16 | .74 | 0 | 360 | 250 | 7800 | 16 | 60 | 110 | 130 | 160 | 22 | 10 | 0 | 0 | 0 | 2 | -.5 | 0 | -10 | 1 | 0 | 0 | 500 | 194 | 0 | 0 | 0 | 0 | 0 | -100 | 21 | 3 | 37 | 73 | -2 | 35 | 6.3 | 6.94 | 0 | 0 |
| 18627 | 20702 | M 10 | -18 | .42 | 0 | 564 | 430 | 8700 | 19.6 | 60 | 120 | 96 | 130 | 22 | -10 | 0 | 0 | 0 | 3 | .5 | 0 | -10 | .8 | 0 | 0 | -400 | 335 | 0 | 0 | 0 | 0 | 0 | -100 | 43 | 10 | 28 | 46 | -2 | 90 | 10.4 | 39.2 | 0 | 0 |
| 18628 | 20702 | M 14 | 160 | .31 | 0 | 629 | 570 | 9800 | 22 | 60 | 120 | 80 | 120 | 28 | 30 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | 1 | 0 | 0 | -400 | 388 | 0 | 0 | 0 | 0 | 0 | -100 | 49 | 14 | 25 | 54 | -2 | 130 | 10.1 | 38.8 | 0 | 0 |
| 18629 | 20702 | M 14 | -19 | .38 | 0 | 614 | 490 | 8700 | 21 | 100 | 170 | 150 | 130 | 23 | -10 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | .9 | 0 | 0 | 1000 | 337 | 0 | 0 | 0 | 0 | 0 | -100 | 50 | 7 | 23 | 51 | -2 | 99 | 10.3 | 33.9 | 0 | 0 |
| 18631 | 20702 | M 39 | 90 | .36 | 0 | 874 | 780 | 7000 | 23 | 80 | 140 | 110 | 180 | 19 | -10 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | .8 | 0 | 0 | 600 | 514 | 0 | 0 | 0 | 0 | 0 | -100 | 79 | 13 | 120 | 66 | -2 | 160 | 12.6 | 19.5 | 0 | 0 |
| 18632 | 20803 | M 10 | 200 | .25 | 0 | 822 | 820 | 9700 | 27.1 | 240 | 250 | 290 | 140 | 75 | -10 | 0 | 0 | 0 | 4 | .5 | 0 | -10 | 2.3 | 0 | 0 | 700 | 514 | 0 | 0 | 0 | 0 | 0 | -100 | 91 | 6 | 26 | 69 | 2 | 200 | 19.3 | 21.4 | 0 | 0 |

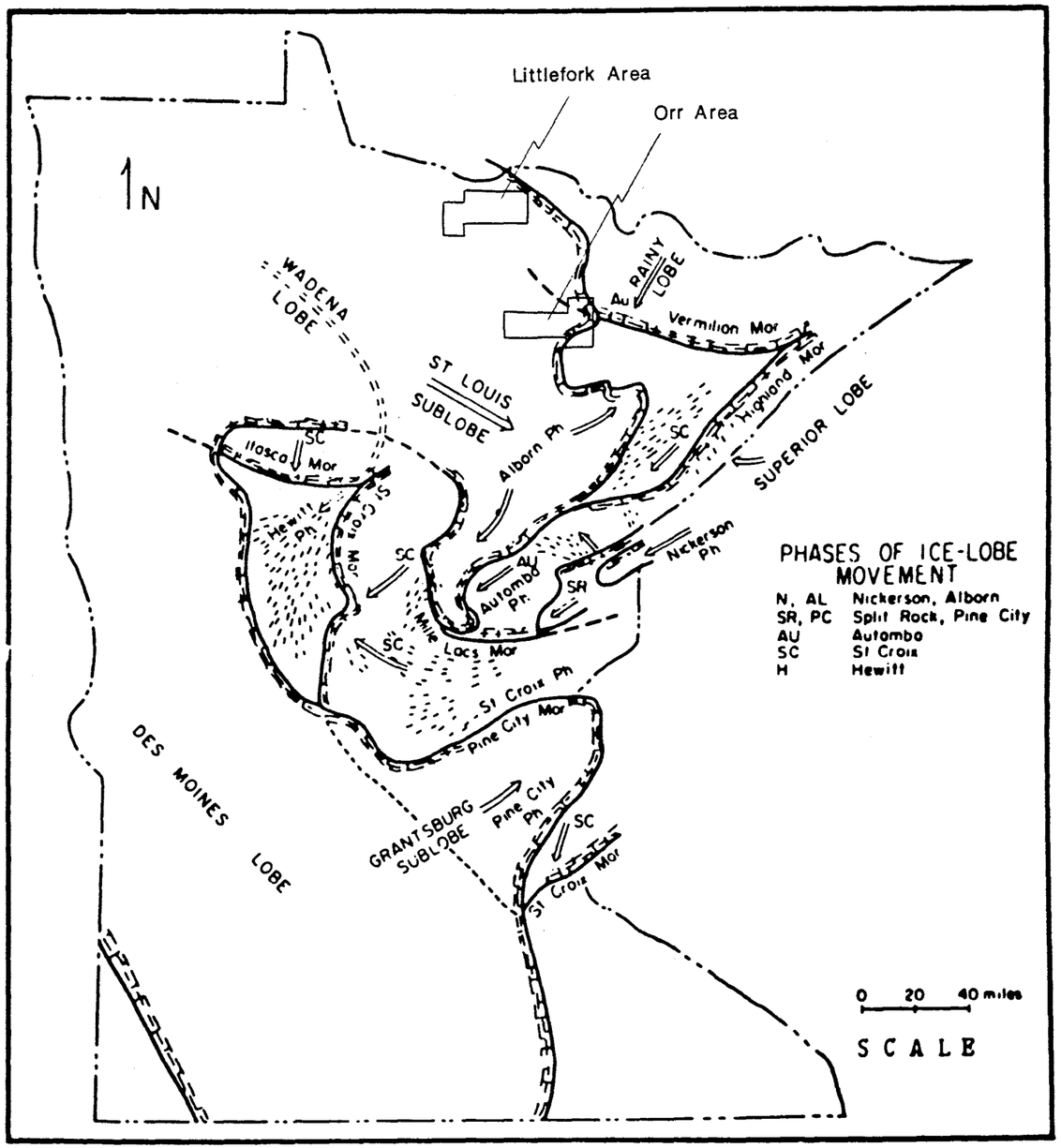
## Appendix 9-9B continued.

| S.N. | DH | DH DT | AU | NA | SC | CE | CR | MN | FE | CO | NI | CU | ZN | AS | SE | BR | RB | ZR | MO | AG | CD | SN | SB | TE | CS | BA | LA | SM | EU | TB | YB | LU | IR | HF | TA | W | PB | BI | TH | U | WT | ZN2 | AG2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18633 | 20803 | M 10 | 88 | .17 | 0 | 568 | 750 | 10000 | 23.8 | 200 | 240 | 250 | 130 | 63 | -20 | 0 | 0 | 0 | 6 | .5 | 0 | -10 | 1.4 | 0 | 0 | 400 | 359 | 0 | 0 | 0 | 0 | 0 | -100 | 53 | 9 | 8 | 123 | 3 | 140 | 14.2 | 41.7 | 0 | 0 |
| 18634 | 20803 | M 10 | 86 | .15 | 0 | 635 | 960 | 10000 | 25.6 | 210 | 240 | 290 | 120 | 63 | -10 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | 1.9 | 0 | 0 | 600 | 409 | 0 | 0 | 0 | 0 | 0 | -100 | 57 | 11 | 12 | 46 | 2 | 160 | 15 | 39.1 | 0 | 0 |
| 18635 | 20803 | M 10 | 220 | .18 | 0 | 542 | 970 | 10000 | 25.6 | 200 | 220 | 200 | 120 | 55 | 70 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | 1.1 | 0 | 0 | -500 | 331 | 0 | 0 | 0 | 0 | 0 | -100 | 42 | 10 | -6 | 40 | 2 | 130 | 11.4 | 26.4 | 0 | 0 |
| 18637 | 20803 | M 39 | 76 | .19 | 0 | 835 | 930 | 8200 | 22.6 | 210 | 320 | 220 | 160 | 33 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | -.6 | 0 | 0 | -500 | 461 | 0 | 0 | 0 | 0 | 0 | -100 | 140 | 6 | 60 | 69 | -2 | 180 | 15.9 | 18.2 | 0 | 0 |
| 18638 | 20901 | M 14 | 54 | .19 | 0 | 817 | 320 | 8600 | 30.4 | 280 | 280 | 430 | 180 | 23 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | .8 | 0 | 0 | 2000 | 545 | 0 | 0 | 0 | 0 | 0 | -100 | 76 | 9 | 38 | 52 | 3 | 190 | 21.9 | 22.1 | 0 | 0 |
| 18639 | 20901 | M 14 | 69 | .1 | 0 | 396 | 180 | 9700 | 13.8 | 110 | 280 | 220 | 110 | 22 | -10 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | .5 | 0 | 0 | 400 | 255 | 0 | 0 | 0 | 0 | 0 | -100 | 43 | 8 | 31 | 61 | 2 | 87 | 10.4 | 16.8 | 0 | 0 |
| 18639R | 20901 | M 14 | -23 | .3 | 0 | 499 | 270 | 8700 | 22.2 | 200 | 230 | 180 | 110 | 13 | -10 | 0 | 0 | 0 | 5 | -.5 | 0 | 23 | .7 | 0 | 0 | 700 | 360 | 0 | 0 | 0 | 0 | 0 | -100 | 64 | 7 | 65 | 99 | 4 | 120 | 12.7 | 13.6 | 0 | 0 |
| 18641 | 20901 | M 39 | -31 | .36 | 0 | 949 | 370 | 8200 | 28.7 | 350 | 500 | 380 | 140 | 28 | -30 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | -.8 | 0 | 0 | 800 | 714 | 0 | 0 | 0 | 0 | 0 | -100 | 140 | 10 | 100 | 109 | 3 | 240 | 30.6 | 11.3 | 0 | 0 |
| 18642 | 20603 | M 13 | -12 | .65 | 0 | 384 | 160 | 3000 | 8.2 | 50 | 110 | 120 | 150 | 3 | -10 | 0 | 0 | 0 | 1 | -.5 | 0 | -10 | -.2 | 0 | 0 | 400 | 193 | 0 | 0 | 0 | 0 | 0 | -100 | 21 | 3 | 5 | 20 | -2 | 17 | 4.2 | 112 | 0 | 0 |
| 18643 | 20603 | M 13 | -14 | .63 | 0 | 432 | 130 | 4100 | 9.7 | 60 | 110 | 110 | 150 | 3 | -10 | 0 | 0 | 0 | 2 | -.5 | 0 | -10 | -.2 | 0 | -2 | 300 | 222 | 0 | 0 | 0 | 0 | 0 | -100 | 21 | 2 | 7 | 23 | -2 | 18 | 4.4 | 121 | 0 | 0 |
| 18644 | 20603 | M 13 | -16 | .6 | 0 | 0 | 170 | 3500 | 10.5 | 70 | 110 | 93 | 170 | 4 | -10 | 0 | 0 | 0 | 1 | -.5 | 0 | -10 | -.3 | 0 | -1 | 1100 | 276 | 0 | 0 | 0 | 0 | 0 | -100 | 24 | 4 | 8 | 20 | -2 | 27 | 4.3 | 13.2 | 0 | 0 |
| 18645 | 20603 | M 39 | -33 | .78 | 0 | 873 | 270 | 3500 | 14.2 | 90 | 150 | 150 | 140 | 10 | -20 | 0 | 0 | 0 | 7 | -.5 | 0 | -10 | .7 | 0 | -1 | 500 | 430 | 0 | 0 | 0 | 0 | 0 | -100 | 51 | -3 | 55 | 25 | -2 | 43 | 10.6 | 75.5 | 0 | 0 |
| 18646 | 20402 | M 14 | 96 | .2 | 0 | 0 | 420 | 12000 | 23.7 | 140 | 160 | 560 | 130 | 23 | -10 | 0 | 0 | 0 | 5 | 2 | 0 | -10 | .7 | 0 | -2 | 400 | 355 | 0 | 0 | 0 | 0 | 0 | -100 | 66 | 12 | 19 | 55 | -2 | 130 | 13.3 | 21.7 | 0 | 0 |
| 18647 | 20402 | M 34 | 70 | .21 | 0 | 0 | 360 | 12000 | 27.5 | 130 | 160 | 540 | 120 | 23 | -10 | 0 | 0 | 0 | 5 | .5 | 0 | -10 | .5 | 0 | -2 | -300 | 233 | 0 | 0 | 0 | 0 | 0 | -100 | 50 | 7 | 51 | 45 | -2 | 81 | 10.6 | 17.5 | 0 | 0 |
| 18649 | 20402 | M 39 | 120 | .27 | 0 | 686 | 580 | 12000 | 25.2 | 170 | 230 | 290 | 170 | 26 | 50 | 0 | 0 | 0 | 10 | -.5 | 0 | -10 | -.8 | 0 | -1 | -1400 | 496 | 0 | 0 | 0 | 0 | 0 | -100 | 120 | 11 | 2800 | 196 | -2 | 180 | 19.3 | 10.7 | 0 | 0 |
| 18650 | 20401 | M 13 | -5 | .14 | 0 | 0 | 240 | 12000 | 26.2 | 100 | 170 | 420 | 140 | 11 | -20 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | -.9 | 0 | -5 | -700 | 225 | 0 | 0 | 0 | 0 | 0 | -100 | 26 | 11 | 800 | 111 | -2 | 83 | 12.5 | 9.92 | 0 | 0 |
| 18651 | 20401 | M 13 | -35 | .13 | 0 | 0 | 250 | 9700 | 23.9 | 100 | 200 | 540 | 120 | 19 | -10 | 0 | 0 | 0 | 10 | -.5 | 0 | 27 | -.8 | 0 | 8 | -700 | 205 | 0 | 0 | 0 | 0 | 0 | -100 | 47 | 4 | 1500 | 86 | -2 | 73 | 9.7 | 17.4 | 0 | 0 |
| 18654 | 20401 | M 39 | 410 | .16 | 0 | 505 | 400 | 11000 | 26.2 | 190 | 170 | 310 | 160 | 32 | -10 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | -1.3 | 0 | -1 | -1600 | 362 | 0 | 0 | 0 | 0 | 0 | -100 | 70 | 12 | 4200 | 111 | -2 | 130 | 10.7 | 6.91 | 0 | 0 |
| 18655 | 20601 | M 13 | 160 | .1 | 0 | 0 | 210 | 11000 | 23.9 | 210 | 220 | 170 | 120 | 23 | -10 | 0 | 0 | 0 | 7 | 1 | 0 | -10 | .4 | 0 | -2 | 700 | 278 | 0 | 0 | 0 | 0 | 0 | -100 | 36 | 8 | 20 | 47 | 3 | 110 | 12.4 | 12.5 | 0 | 0 |
| 18656 | 20601 | M 13 | -5 | -.05 | 0 | 0 | -50 | 11000 | 5.5 | 50 | 300 | 260 | 160 | 5 | -10 | 0 | 0 | 0 | 7 | 1 | 0 | -10 | .2 | 0 | -2 | 200 | 81 | 0 | 0 | 0 | 0 | 0 | -100 | 12 | -1 | 5 | 75 | 3 | 25 | 2.6 | 2.79 | 0 | 0 |
| 18658 | 20601 | M 39 | 78 | .21 | 0 | 476 | 310 | 11000 | 27.8 | 250 | 250 | 190 | 150 | 19 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | .6 | 0 | -1 | 400 | 373 | 0 | 0 | 0 | 0 | 0 | -100 | 61 | 6 | 190 | 69 | 3 | 120 | 13.3 | 18.7 | 0 | 0 |
| 18659 | 20904 | M 13 | 21 | .17 | 0 | 0 | 170 | 11000 | 28 | 100 | 140 | 210 | 120 | 11 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | .6 | 0 | -3 | 400 | 148 | 0 | 0 | 0 | 0 | 0 | -100 | 15 | -2 | 270 | 55 | -2 | 45 | 7.7 | 14.4 | 0 | 0 |
| 18660 | 20904 | M 13 | -19 | .21 | 0 | 0 | 130 | 12000 | 28.8 | 160 | 190 | 340 | 110 | 10 | 20 | 0 | 0 | 0 | 11 | -.5 | 0 | 83 | .8 | 0 | -4 | 1100 | 314 | 0 | 0 | 0 | 0 | 0 | -100 | 27 | 7 | 130 | 129 | -2 | 66 | 10.5 | 12.6 | 0 | 0 |
| 18661 | 20904 | M 13 | -5 | -.05 | 0 | 0 | -50 | 7900 | 4.7 | 50 | 300 | 410 | 230 | 6 | 10 | 0 | 0 | 0 | 11 | 1.5 | 0 | -10 | -.2 | 0 | -2 | 200 | 77 | 0 | 0 | 0 | 0 | 0 | -100 | 9 | -1 | 11 | 65 | 4 | 16 | 3 | 2.37 | 0 | 0 |
| 18662 | 20904 | M 39 | -38 | .28 | 0 | 1210 | 380 | 9400 | 37.4 | 370 | 320 | 450 | 220 | 22 | -30 | 0 | 0 | 0 | 18 | 1 | 0 | -10 | -.2 | 0 | -1 | 1100 | 716 | 0 | 0 | 0 | 0 | 0 | -100 | 82 | -4 | 190 | 66 | 2 | 190 | 33.5 | 3.91 | 0 | 0 |
| 18663 | 20405 | M 13 | -14 | .16 | 0 | 0 | 440 | 13000 | 27.6 | 110 | 200 | 140 | 120 | 24 | -10 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | .9 | 0 | -2 | -300 | 194 | 0 | 0 | 0 | 0 | 0 | -100 | 30 | 4 | 28 | 50 | -2 | 71 | 6.8 | 20.5 | 0 | 0 |
| 18665 | 20405 | M 39 | 80 | .17 | 0 | 515 | 710 | 13000 | 30.9 | 130 | 180 | 150 | 170 | 23 | -10 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | .8 | 0 | -1 | -600 | 292 | 0 | 0 | 0 | 0 | 0 | -100 | 56 | 7 | 110 | 55 | -2 | 120 | 14.2 | 11.3 | 0 | 0 |
| 18666 | 20502 | M 13 | -5 | -.05 | 0 | 0 | 50 | 14000 | 5.6 | 30 | 230 | 290 | 190 | 15 | -10 | 0 | 0 | 0 | 4 | .5 | 0 | -10 | .3 | 0 | -2 | -100 | 99 | 0 | 0 | 0 | 0 | 0 | -100 | 12 | 3 | 5 | 72 | -2 | 38 | 3.1 | 2.49 | 0 | 0 |
| 18667 | 20502 | M 35 | -19 | .24 | 0 | 0 | 280 | 11000 | 30.3 | 110 | 170 | 230 | 190 | 93 | 40 | 0 | 0 | 0 | 7 | -.5 | 0 | -10 | 1.2 | 0 | -4 | -1200 | 337 | 0 | 0 | 0 | 0 | 0 | -100 | 48 | 17 | 64 | 77 | -2 | 120 | 23.2 | 9.78 | 0 | 0 |
| 18668A | 20502 | M 13 | -5 | .05 | 0 | 0 | -50 | 13000 | 4.8 | 20 | 190 | 340 | 180 | 18 | -10 | 0 | 0 | 0 | 2 | 1 | 0 | -10 | .2 | 0 | -2 | -100 | 85 | 0 | 0 | 0 | 0 | 0 | -100 | 11 | 1 | 21 | 96 | -2 | 30 | 3.1 | 2.4 | 0 | 0 |
| 18668B | 20502 | M 13 | 830 | .05 | 0 | 0 | -50 | 13000 | 4.7 | 30 | 190 | 300 | 170 | 12 | -10 | 0 | 0 | 0 | 10 | .5 | 0 | -10 | -.2 | 0 | -2 | -100 | 97 | 0 | 0 | 0 | 0 | 0 | -100 | 12 | 2 | 23 | 133 | -2 | 37 | 3.7 | 2.64 | 0 | 0 |
| 18669 | 20502 | M 13 | 55 | -.05 | 0 | 0 | -50 | 13000 | 4.7 | 20 | 200 | 200 | 170 | 13 | -10 | 0 | 0 | 0 | 15 | -.5 | 0 | -10 | .2 | 0 | -2 | -100 | 73 | 0 | 0 | 0 | 0 | 0 | -100 | 11 | 1 | 10 | 56 | -2 | 25 | 2.6 | 2.13 | 0 | 0 |
| 18670 | 20502 | M 15 | 790 | .2 | 0 | 0 | 370 | 11000 | 26.7 | 90 | 160 | 150 | 120 | 29 | -20 | 0 | 0 | 0 | 14 | -.5 | 0 | -10 | 1.7 | 0 | -5 | 1000 | 546 | 0 | 0 | 0 | 0 | 0 | -100 | 110 | 9 | 43 | 68 | -2 | 180 | 22.2 | 8.03 | 0 | 0 |
| 18671 | 20502 | M 15 | -5 | .06 | 0 | 0 | 60 | 12000 | 4.6 | 10 | 140 | 150 | 150 | 4 | 20 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | .3 | 0 | -2 | 200 | 110 | 0 | 0 | 0 | 0 | 0 | -100 | 17 | 2 | 6 | 67 | -2 | 41 | 2.8 | 1.99 | 0 | 0 |
| 18672 | 20502 | M 15 | -16 | .34 | 0 | 0 | 270 | 8200 | 27.1 | 150 | 180 | 280 | 110 | 20 | -10 | 0 | 0 | 0 | 39 | -.5 | 0 | -10 | 1.2 | 0 | -4 | -400 | 306 | 0 | 0 | 0 | 0 | 0 | -100 | 54 | 8 | 14 | 53 | -2 | 120 | 16.1 | 13.6 | 0 | 0 |
| 18674 | 20502 | M 39 | 350 | .25 | 0 | 1060 | 460 | 11000 | 26.7 | 180 | 230 | 240 | 170 | 50 | -20 | 0 | 0 | 0 | 11 | -.5 | 0 | -10 | -.6 | 0 | -1 | 500 | 656 | 0 | 0 | 0 | 0 | 0 | -100 | 98 | 13 | 86 | 67 | -2 | 270 | 24.4 | 19.5 | 0 | 0 |
| 18675 | 21002 | M 13 | 39 | .18 | 0 | 0 | 530 | 13000 | 34.1 | 260 | 350 | 550 | 190 | 25 | 20 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | .8 | 0 | 6 | -600 | 359 | 0 | 0 | 0 | 0 | 0 | -100 | 52 | 6 | 21 | 66 | 2 | 120 | 17.5 | 8.81 | 0 | 0 |
| 18676 | 21002 | M 13 | -5 | -.05 | 0 | 0 | -50 | 10000 | 6.5 | 70 | 480 | 910 | 130 | 11 | -10 | 0 | 0 | 0 | 5 | .5 | 0 | -10 | -.2 | 0 | -2 | -100 | 77 | 0 | 0 | 0 | 0 | 0 | -100 | 10 | 1 | 8 | 141 | 4 | 27 | 2.6 | 2.8 | 0 | 0 |
| 18677 | 21002 | M 13 | -20 | .16 | 0 | 0 | 370 | 9500 | 37.6 | 380 | 450 | 750 | 130 | 35 | 20 | 0 | 0 | 0 | 7 | -.5 | 0 | -10 | -.2 | 0 | -4 | 1100 | 472 | 0 | 0 | 0 | 0 | 0 | -100 | 80 | 7 | 24 | 123 | 3 | 180 | 24.5 | 12.9 | 0 | 0 |
| 18680 | 21005 | M 10 | -23 | .22 | 0 | 0 | 330 | 12000 | 34.1 | 180 | 270 | 350 | 240 | 38 | -10 | 0 | 0 | 0 | 7 | -.5 | 0 | -10 | 1.9 | 0 | -5 | 1000 | 512 | 0 | 0 | 0 | 0 | 0 | -100 | 97 | 12 | 24 | 123 | 2 | 180 | 22.4 | 8.85 | 0 | 0 |
| 18681 | 21005 | M 10 | -16 | .3 | 0 | 0 | 240 | 9000 | 34.5 | 270 | 400 | 1700 | 150 | 140 | 40 | 0 | 0 | 0 | 9 | 1 | 0 | -10 | 12 | 0 | 5 | -400 | 558 | 0 | 0 | 0 | 0 | 0 | -100 | 85 | -4 | 18 | 226 | 5 | 160 | 21.6 | 2.27 | 0 | 0 |
| 18683 | 21005 | M 39 | -32 | .27 | 0 | 1380 | 510 | 10000 | 39.3 | 300 | 320 | 520 | 220 | 75 | -30 | 0 | 0 | 0 | 7 | -.5 | 0 | -10 | 3 | 0 | 0 | 800 | 814 | 0 | 0 | 0 | 0 | 0 | -100 | 150 | 10 | 53 | 119 | 3 | 310 | 39.3 | 4.36 | 0 | 0 |
| 18685 | 20404 | M 39 | 65 | .28 | 0 | 546 | 310 | 12000 | 31.3 | 220 | 400 | 300 | 130 | 21 | -20 | 0 | 0 | 0 | 9 | .5 | 0 | -10 | -.7 | 0 | 0 | 1000 | 293 | 0 | 0 | 0 | 0 | 0 | -100 | 52 | 7 | 31 | 35 | 2 | 96 | 15.8 | 4.07 | 0 | 0 |
| 18687 | 20103 | M 39 | -14 | .07 | 0 | 350 | 360 | 7700 | 14.8 | 50 | 190 | 460 | 300 | 26 | -10 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | .8 | 0 | 0 | 200 | 213 | 0 | 0 | 0 | 0 | 0 | -100 | 73 | 5 | 84 | 91 | -2 | 76 | 7.9 | 21.1 | 0 | 0 |
| 18688 | 20100 | M 10 | 27 | -.05 | 0 | 0 | 50 | 9500 | 4.3 | 10 | 120 | 110 | 150 | 4 | -10 | 0 | 0 | 0 | 3 | 1.5 | 0 | -10 | -.2 | 0 | -2 | 100 | 72 | 0 | 0 | 0 | 0 | 0 | -100 | 18 | 1 | 2 | 147 | -2 | 19 | 1.5 | 2.27 | 0 | 0 |
| 18689 | 20100 | M 10 | 25 | .15 | 0 | 0 | 330 | 11000 | 32.7 | 70 | 130 | 120 | 110 | 24 | -10 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | .8 | 0 | -4 | 800 | 368 | 0 | 0 | 0 | 0 | 0 | -100 | 91 | 8 | -7 | 94 | -2 | 120 | 13.1 | 12 | 0 | 0 |
| 18690 | 20100 | M 10 | 20 | .13 | 0 | 0 | 1900 | 7800 | 31.5 | 80 | 150 | 190 | 110 | 28 | -10 | 0 | 0 | 0 | 12 | -.5 | 0 | -10 | 1.1 | 0 | -3 | 700 | 419 | 0 | 0 | 0 | 0 | 0 | -100 | 94 | -3 | 14 | 88 | -2 | 140 | 12.8 | 17.2 | 0 | 0 |
| 18691 | 20100 | M 10 | -18 | .12 | 0 | 0 | 610 | 12000 | 26.4 | 80 | 160 | 110 | 110 | 23 | -20 | 0 | 0 | 0 | 8 | .5 | 0 | -10 | .7 | 0 | -2 | 600 | 499 | 0 | 0 | 0 | 0 | 0 | -100 | 75 | 10 | 9 | 63 | -2 | 180 | 14.1 | 20 | 0 | 0 |
| 18692 | 20100 | M 10 | 1800 | .11 | 0 | 0 | 490 | 9200 | 23.4 | 70 | 140 | 81 | 140 | 35 | -20 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | -.4 | 0 | -1 | 400 | 381 | 0 | 0 | 0 | 0 | 0 | -100 | 73 | 10 | 10 | 75 | -2 | 160 | 14.6 | 10 | 0 | 0 |
| 18693 | 20100 | M 13 | 43 | .12 | 0 | 0 | 460 | 10000 | 25 | 70 | 130 | 74 | 100 | 29 | -10 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | -.3 | 0 | -2 | -200 | 425 | 0 | 0 | 0 | 0 | 0 | -100 | 91 | 11 | 17 | 59 | -2 | 160 | 12.5 | 21.6 | 0 | 0 |
| 18695 | 20100 | M 39 | -24 | .2 | 0 | 764 | 1000 | 8100 | 25.6 | 80 | 200 | 140 | 150 | 23 | -170 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | .6 | 0 | 0 | -400 | 503 | 0 | 0 | 0 | 0 | 0 | -100 | 120 | 15 | 160 | 77 | -2 | 170 | 20.1 | 14.8 | 0 | 0 |
| 18696 | 20104 | M 10 | -20 | .12 | 0 | 0 | 620 | 11000 | 24.4 | 90 | 150 | 110 | 200 | 79 | -20 | 0 | 0 | 0 | 9 | .5 | 0 | -10 | 1.4 | 0 | -1 | 800 | 473 | 0 | 0 | 0 | 0 | 0 | -100 | 160 | 12 | 12 | 67 | -2 | 200 | 24.7 | 10.9 | 0 | 0 |
| 18697 | 20104 | M 10 | 61 | .27 | 0 | 0 | 320 | 11000 | 19.3 | 90 | 230 | 300 | 160 | 51 | 10 | 0 | 0 | 0 | 7 | -.5 | 0 | -10 | 1.1 | 0 | -2 | 700 | 589 | 0 | 0 | 0 | 0 | 0 | -100 | 150 | 9 | 25 | 105 | -2 | 200 | 25.8 | 10.2 | 0 | 0 |
| 18698 | 20104 | M 13 | 22 | -.05 | 0 | 0 | 50 | 13000 | 5.1 | 10 | 160 | 160 | 130 | 15 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | .2 | 0 | -2 | 100 | 96 | 0 | 0 | 0 | 0 | 0 | -100 | 15 | 1 | 11 | 78 | -2 | 33 | 3.4 | 2.42 | 0 | 0 |
| 18699 | 20104 | M 39 | 660 | .27 | 0 | 901 | 670 | 8400 | 26.6 | 90 | 190 | 170 | 160 | 53 | -10 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | 1.4 | 0 | 0 | 800 | 567 | 0 | 0 | 0 | 0 | 0 | -100 | 150 | 11 | 110 | 83 | -2 | 200 | 22.8 | 19.5 | 0 | 0 |
| 18705 | 20101 | M 10 | 22 | .12 | 0 | 0 | 460 | 14000 | 22.3 | 60 | 130 | 62 | 140 | 19 | -10 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | .5 | 0 | -2 | -900 | 337 | 0 | 0 | 0 | 0 | 0 | -100 | 45 | 9 | 13 | 59 | -2 | 150 | 16.5 | 11.3 | 0 | 0 |
| 18706 | 20101 | M 10 | -5 | -.05 | 0 | 0 | 70 | 13000 | 5.3 | 10 | 140 | 94 | 150 | 6 | -10 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | -.2 | 0 | -2 | -100 | 83 | 0 | 0 | 0 | 0 | 0 | -100 | 12 | 1 | 3 | 66 | -2 | 30 | 1.9 | 2.54 | 0 | 0 |
| 18708 | 20101 | M 39 | 86 | .13 | 0 | 618 | 420 | 10000 | 21.4 | 60 | 110 | 64 | 130 | 16 | -10 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | 1.1 | 0 | 0 | -300 | 406 | 0 | 0 | 0 | 0 | 0 | -100 | 55 | 9 | 23 | 34 | -2 | 160 | 12.2 | 32.9 | 0 | 0 |
| 18709 | 20303 | M 16 | 44 | .24 | 0 | 0 | 240 | 10000 | 22.7 | 100 | 140 | 140 | 110 | 14 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | .5 | 0 | -2 | 200 | 134 | 0 | 0 | 0 | 0 | 0 | -100 | 33 | 2 | 16 | 50 | -2 | 44 | 5.6 | 32.6 | 0 | 0 |
| 18711 | 20303 | M 39 | 63 | .21 | 0 | 39 | 60 | 10000 | 21.7 | 80 | 140 | 180 | 150 | -2 | -10 | 0 | 0 | 0 | 2 | -.5 | 0 | -10 | .2 | 0 | 0 | -100 | 20 | 0 | 0 | 0 | 0 | 0 | -100 | 4 | 1 | 16 | 19 | -2 | 5.2 | -1.1 | 67.7 | 0 | 0 |
| 18712 | 20204 | M 17 | 65 | .16 | 0 | 0 | 400 | 11000 | 27.9 | 70 | 140 | 220 | 160 | 56 | -10 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | -.6 | 0 | -4 | 900 | 415 | 0 | 0 | 0 | 0 | 0 | -100 | 140 | 11 | 11 | 79 | -2 | 150 | 17.4 | 13.2 | 0 | 0 |
| 18713 | 20204 | M 13 | 47 | .25 | 0 | 0 | 450 | 12000 | 25.2 | 110 | 160 | 150 | 110 | 30 | -30 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | -.2 | 0 | -3 | 600 | 445 | 0 | 0 | 0 | 0 | 0 | -100 | 65 | 13 | -10 | 57 | -2 | 160 | 12.3 | 22.8 | 0 | 0 |
| 18714 | 20204 | M 13 | -23 | .24 | 0 | 0 | 490 | 11000 | 24.4 | 100 | 140 | 170 | 130 | 24 | -20 | 0 | 0 | 0 | 7 | -.5 | 0 | -10 | -.5 | 0 | -3 | -500 | 403 | 0 | 0 | 0 | 0 | 0 | -100 | 54 | 9 | -8 | 44 | -2 | 140 | 13.7 | 30.7 | 0 | 0 |
| 18716 | 20204 | M 39 | 130 | .22 | 0 | 603 | 430 | 12000 | 21.1 | 70 | 130 | 140 | 150 | 18 | -10 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | -.5 | 0 | 0 | -700 | 353 | 0 | 0 | 0 | 0 | 0 | -100 | 50 | 5 | -14 | 33 | -2 | 130 | 11.3 | 23.9 | 0 | 0 |
| 18717 | 20201 | M 13 | -5 | .21 | 0 | 0 | 2600 | 11000 | 34.1 | 180 | 230 | 590 | 130 | 39 | 20 | 0 | 0 | 0 | 7 | -.5 | 0 | -10 | 1.2 | 0 | -4 | 900 | 386 | 0 | 0 | 0 | 0 | 0 | -100 | 110 | 7 | 19 | 72 | -2 | 130 | 17 | 16.9 | 0 | 0 |
| 18718 | 20201 | M 10 | -29 | .24 | 0 | 0 | 23000 | 6800 | 36.7 | 330 | 640 | 1200 | 220 | 64 | 50 | 0 | 0 | 0 | 9 | 2.5 | 0 | -10 | 3 | 0 | -6 | -800 | 550 | 0 | 0 | 0 | 0 | 0 | -100 | 110 | 12 | 28 | 109 | -2 | 110 | 16.5 | 7.34 | 0 | 0 |
| 18720 | 20201 | M 39 | -33 | .32 | 0 | 855 | 5600 | 10000 | 33 | 220 | 380 | 740 | 190 | 28 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | 1.4 | 0 | 0 | -600 | 470 | 0 | 0 | 0 | 0 | 0 | -100 | 120 | 9 | 94 | 59 | -2 | 170 | 19.9 | 3.71 | 0 | 0 |
| 18721 | 20200 | M 10 | 150 | .29 | 0 | 0 | 440 | 12000 | 31.1 | 100 | 180 | 130 | 120 | 39 | -20 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | -.8 | 0 | -5 | 1200 | 537 | 0 | 0 | 0 | 0 | 0 | -100 | 120 | 13 | -11 | 63 | -2 | 210 | 20.5 | 9.07 | 0 | 0 |
| 18722 | 20200 | M 13 | 300 | .23 | 0 | 0 | 410 | 12000 | 22.5 | 80 | 160 | 96 | 120 | 20 | -20 | 0 | 0 | 0 | 16 | -.5 | 0 | -10 | -.5 | 0 | -2 | 900 | 539 | 0 | 0 | 0 | 0 | 0 | -100 | 76 | 10 | 14 | 62 | -2 | 220 | 18 | 17.2 | 0 | 0 |
| 18723 | 20200 | M 10 | 27 | .27 | 0 | 0 | 370 | 13000 | 30.3 | 90 | 160 | 100 | 110 | 30 | -10 | 0 | 0 | 0 | 13 | -.5 | 0 | -10 | -.7 | 0 | -5 | 800 | 552 | 0 | 0 | 0 | 0 | 0 | -100 | 79 | 10 | 12 | 63 | -2 | 210 | 18.9 | 13.2 | 0 | 0 |
| 18724 | 20200 | M 10 | 300 | .2 | 0 | 0 | 1600 | 9000 | 34.9 | 470 | 200 | 410 | 98 | 19 | -10 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | .7 | 0 | 5 | -500 | 379 | 0 | 0 | 0 | 0 | 0 | -100 | 80 | 6 | 13 | 51 | -2 | 140 | 15.4 | 12.4 | 0 | 0 |
| 18726 | 20200 | M 39 | 350 | .24 | 0 | 790 | 1500 | 12000 | 23.4 | 240 | 170 | 170 | 210 | 24 | -20 | 0 | 0 | 0 | 9 | -.5 | 0 | -10 | -.6 | 0 | 0 | 900 | 491 | 0 | 0 | 0 | 0 | 0 | -100 | 71 | 12 | 38 | 56 | -2 | 200 | 23 | 16 | 0 | 0 |
| 18727A | 20200 | M 40 | 51 | .16 | 0 | 0 | 2100 | 11000 | 21.8 | 230 | 170 | 200 | 200 | 23 | 30 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | .8 | 0 | -2 | 900 | 436 | 0 | 0 | 0 | 0 | 0 | -100 | 94 | 7 | 11 | 34 | -2 | 200 | 22.2 | 12 | 0 | 0 |
| 18727B | 20200 | M 40 | 36 | .18 | 0 | 0 | 2100 | 11000 | 21.6 | 230 | 180 | 200 | 200 | 24 | -10 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | -.4 | 0 | -2 | 700 | 461 | 0 | 0 | 0 | 0 | 0 | -100 | 92 | 11 | 15 | 46 | -2 | 200 | 22.1 | 11.6 | 0 | 0 |
| 18728 | 20705 | M 13 | 180 | .39 | 0 | 0 | 380 | 7400 | 17 | 70 | 130 | 130 | 170 | 20 | 50 | 0 | 0 | 0 | 3 | -.5 | 0 | -10 | .8 | 0 | -2 | 600 | 398 | 0 | 0 | 0 | 0 | 0 | -100 | 45 | 7 | 8 | 28 | -2 | 110 | 9.1 | 11.4 | 0 | 0 |
| 18729 | 20705 | M 10 | 68 | .27 | 0 | 0 | 490 | 11000 | 20.8 | 60 | 120 | 56 | 160 | 12 | 30 | 0 | 0 | 0 | 3 | -.5 | 0 | -10 | .7 | 0 | -2 | -1000 | 409 | 0 | 0 | 0 | 0 | 0 | -100 | 54 | 12 | 9 | 38 | -2 | 150 | 16 | 10.8 | 0 | 0 |
| 18730 | 20705 | M 13 | 1300 | .4 | 0 | 0 | 360 | 8600 | 17.8 | 60 | 120 | 54 | 160 | 13 | -10 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | .4 | 0 | -2 | 300 | 285 | 0 | 0 | 0 | 0 | 0 | -100 | 38 | 6 | -5 | 20 | -2 | 84 | 7.8 | 10.9 | 0 | 0 |
| 18731 | 20705 | M 10 | -18 | .51 | 0 | 0 | 260 | 6800 | 14.5 | 50 | 110 | 60 | 160 | 10 | -10 | 0 | 0 | 0 | 3 | -.5 | 0 | -10 | .5 | 0 | -2 | 300 | 264 | 0 | 0 | 0 | 0 | 0 | -100 | 37 | 5 | 6 | 21 | -2 | 58 | 6.1 | 11.7 | 0 | 0 |
| 18732 | 20705 | M 13 | -18 | .47 | 0 | 0 | 300 | 6700 | 16.7 | 60 | 110 | 64 | 170 | 15 | -20 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | .4 | 0 | -2 | 500 | 330 | 0 | 0 | 0 | 0 | 0 | -100 | 45 | 8 | 8 | 29 | -2 | 86 | 45 | 11.8 | 0 | 0 |
| 18733 | 20705 | M 13 | -18 | .27 | 0 | 0 | 320 | 10000 | 22.3 | 70 | 130 | 71 | 160 | 29 | 20 | 0 | 0 | 0 | 12 | -.5 | 0 | -10 | .4 | 0 | -2 | -400 | 302 | 0 | 0 | 0 | 0 | 0 | -100 | 34 | 8 | 6 | 28 | -2 | 96 | 11.5 | 9.76 | 0 | 0 |

## Appendix 9-9B continued.

| S.N. | OH | OH | DT | AU | NA | SC | CE | CR | MN | FE | CO | NI | CU | ZN | AS | SE | BR | RB | ZR | MO | AG | CD | SM | SB | TE | CS | BA | LA | SM | EU | TB | YB | LU | IR | HF | TA | W | PB | BI | TH | U | WT | ZN2 | AG2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18734 | 20705 | M | 13 | 49 | .15 | 0 | 0 | 190 | 12000 | 20.4 | 50 | 110 | 89 | 140 | 33 | -10 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | .5 | 0 | -2 | 300 | 191 | 0 | 0 | 0 | 0 | 0 | -100 | 21 | 2 | 5 | 34 | -2 | 46 | 4.3 | 12.4 | 0 | 0 |
| 18735 | 20705 | M | 12 | -14 | .14 | 0 | 0 | 180 | 12000 | 20.4 | 50 | 110 | 76 | 140 | 17 | -10 | 0 | 0 | 0 | 3 | -.5 | 0 | -10 | .3 | 0 | -2 | 400 | 180 | 0 | 0 | 0 | 0 | 0 | -100 | 19 | 4 | 4 | 50 | -2 | 50 | 4.9 | 11.9 | 0 | 0 |
| 18736 | 20705 | M | 13 | 170 | .12 | 0 | 0 | 180 | 12000 | 23.3 | 60 | 110 | 120 | 140 | 26 | -10 | 0 | 0 | 0 | 3 | -.5 | 0 | -10 | .7 | 0 | -2 | 600 | 182 | 0 | 0 | 0 | 0 | 0 | -100 | 25 | 3 | -4 | 48 | -2 | 53 | 4.9 | 11.6 | 0 | 0 |
| 18737 | 20705 | M | 39 | 42 | .41 | 0 | 737 | 330 | 7500 | 16.8 | 60 | 130 | 82 | 170 | 17 | -10 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | -.4 | 0 | 0 | -300 | 395 | 0 | 0 | 0 | 0 | 0 | -100 | 55 | 12 | 21 | 27 | -2 | 100 | 8.9 | 33.6 | 0 | 0 |
| 18743C | 20804 | M | 13 | 150 | .33 | 0 | 511 | 630 | 6500 | 30.4 | 250 | 230 | 470 | 140 | 52 | -10 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | 1 | 0 | 0 | 1600 | 340 | 0 | 0 | 0 | 0 | 0 | -100 | 48 | 4 | 64 | 46 | 3 | 120 | 14.4 | 73.7 | 0 | 0 |
| 18744C | 20801 | M | 13 | 190 | .19 | 0 | 456 | 880 | 7400 | 35.5 | 410 | 280 | 350 | 150 | 160 | -20 | 0 | 0 | 0 | 7 | -.5 | 0 | 71 | 4.5 | 0 | 0 | -600 | 293 | 0 | 0 | 0 | 0 | 0 | -100 | 35 | 9 | 1100 | 192 | 4 | 100 | 7.7 | 28.3 | 0 | 0 |
| 18745C | 20902 | M | 13 | -38 | .19 | 0 | 296 | 290 | 24000 | 25.1 | 300 | 230 | 260 | 140 | 44 | -20 | 0 | 0 | 0 | 7 | -.5 | 0 | -10 | 1.1 | 0 | 0 | -600 | 181 | 0 | 0 | 0 | 0 | 0 | -100 | 36 | 6 | 750 | 51 | 3 | 71 | 12 | 4.46 | 0 | 0 |
| 18746C | 20906 | M | 13 | 36 | .12 | 0 | 759 | 730 | 0 | 40.6 | 350 | 0 | 0 | 0 | 82 | -20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2.3 | 0 | 0 | -600 | 355 | 0 | 0 | 0 | 0 | 0 | -100 | 79 | 8 | 870 | 0 | 0 | 160 | 14.8 | .08 | 0 | 0 |
| 18747C | 20704 | M | 13 | -15 | .6 | 0 | 486 | 230 | 4300 | 14.9 | 70 | 160 | 57 | 190 | 13 | -10 | 0 | 0 | 0 | 3 | -.5 | 0 | -10 | .8 | 0 | 0 | 400 | 225 | 0 | 0 | 0 | 0 | 0 | -100 | 27 | 5 | 180 | 22 | -2 | 27 | 3.3 | 43.3 | 0 | 0 |
| 18748C | 20702 | M | 14 | -19 | .38 | 0 | 563 | 530 | 8100 | 23.4 | 70 | 110 | 70 | 140 | 17 | -10 | 0 | 0 | 0 | 3 | -.5 | 0 | -10 | .8 | 0 | 0 | 400 | 337 | 0 | 0 | 0 | 0 | 0 | -100 | 44 | 7 | 20 | 54 | -2 | 110 | 6.3 | 81.2 | 0 | 0 |
| 18749C | 20803 | M | 10 | 35 | .19 | 0 | 283 | 600 | 9300 | 23.6 | 180 | 180 | 190 | 120 | 82 | -10 | 0 | 0 | 0 | 3 | -.5 | 0 | -10 | 2.8 | 0 | 0 | 600 | 183 | 0 | 0 | 0 | 0 | 0 | -100 | 18 | 4 | -12 | 91 | 2 | 66 | 7.3 | 14.7 | 0 | 0 |
| 18750C | 20803 | M | 10 | 100 | .16 | 0 | 656 | 1100 | 9800 | 29.8 | 240 | 210 | 250 | 150 | 99 | -10 | 0 | 0 | 0 | 5 | -.5 | 0 | -10 | 1.6 | 0 | 0 | -600 | 465 | 0 | 0 | 0 | 0 | 0 | -100 | 72 | 12 | 20 | 66 | 3 | 170 | 14.8 | 43 | 0 | 0 |
| 18751C | 20901 | M | 14 | 17 | .22 | 0 | 268 | 290 | 11000 | 23 | 190 | 190 | 180 | 130 | 24 | -10 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | 1.6 | 0 | 0 | 700 | 193 | 0 | 0 | 0 | 0 | 0 | -100 | 28 | 6 | 71 | 72 | 3 | 71 | 8.7 | .85 | 0 | 0 |
| 18752C | 20603 | M | 13 | -20 | .7 | 0 | 504 | 180 | 4400 | 11.6 | 60 | 110 | 130 | 180 | 4 | -10 | 0 | 0 | 0 | 2 | -.5 | 0 | -10 | -.5 | 0 | 0 | 200 | 254 | 0 | 0 | 0 | 0 | 0 | -100 | 28 | 4 | -14 | 18 | -2 | 18 | -2.9 | 117 | 0 | 0 |
| 18753C | 20402 | M | 14 | 56 | .22 | 0 | 449 | 350 | 13000 | 21.7 | 140 | 130 | 440 | 150 | 20 | -20 | 0 | 0 | 0 | 6 | -.5 | 0 | -10 | 1 | 0 | 0 | 1000 | 307 | 0 | 0 | 0 | 0 | 0 | -100 | 82 | 8 | 38 | 57 | -2 | 110 | 12.5 | 8.72 | 0 | 0 |
| 18754C | 20401 | M | 13 | 24 | -.05 | 0 | 363 | 240 | 10000 | 24.2 | 120 | 140 | 690 | 130 | 14 | -10 | 0 | 0 | 0 | 8 | -.5 | 0 | -10 | .7 | 0 | 0 | -300 | 249 | 0 | 0 | 0 | 0 | 0 | -100 | 41 | -1 | 1900 | 48 | -2 | 31 | 6.2 | 6.55 | 0 | 0 |
| 18755C | 20603 | M | 13 | 47 | .78 | 0 | 523 | 180 | 3400 | 12.7 | 60 | 94 | 72 | 160 | 7 | -10 | 0 | 0 | 0 | 2 | -.5 | 0 | -10 | .8 | 0 | 0 | 600 | 268 | 0 | 0 | 0 | 0 | 0 | -100 | 30 | 2 | -10 | 17 | -2 | 21 | 4.5 | 150 | 0 | 0 |
| 18756C | 20601 | M | 13 | 58 | .13 | 0 | 266 | 190 | 9300 | 25.1 | 160 | 160 | 140 | 120 | 24 | -10 | 0 | 0 | 0 | 4 | -.5 | 0 | -10 | -.6 | 0 | 0 | 800 | 178 | 0 | 0 | 0 | 0 | 0 | -100 | 21 | -1 | 30 | 42 | -2 | 58 | 9.1 | 15.5 | 0 | 0 |
| 18757C | 20904 | M | 13 | 97 | .25 | 0 | 459 | 260 | 9100 | 31.1 | 190 | 130 | 190 | 110 | 21 | -30 | 0 | 0 | 0 | 9 | -.5 | 0 | -10 | -1 | 0 | 0 | 900 | 266 | 0 | 0 | 0 | 0 | 0 | -100 | 21 | -4 | -30 | 48 | 2 | 65 | 6.4 | 22 | 0 | 0 |
| 18763 | 10501 | A | 13 | 30 | .34 | 83.3 | 200 | 370 | 1270 | 26 | 230 | 170 | 91 | -200 | 82 | -10 | -5 | -10 | 1700 | 8 | 2 | -10 | -200 | .7 | -20 | -1 | 370 | 100 | 21 | 2 | 4 | 19 | -3.4 | -100 | 33 | 8 | 22 | 27 | 0 | 35 | 6.7 | 31.57 | 44 | -5 |
| 18765 | 10501 | A | 11 | 71 | .28 | 91.8 | 380 | 460 | 360 | 26 | 210 | 140 | 73 | -200 | 64 | -10 | -5 | 21 | 5200 | 3 | 1.9 | -10 | 230 | .6 | -20 | -1 | -100 | 180 | 35 | 5 | 6 | 25 | -4.1 | -100 | 92 | 11 | 466 | 17 | 0 | 57.1 | 12 | 27.29 | 54 | -5 |
| 18768 | 10704 | A | 13 | 15 | .35 | 82.2 | 730 | 340 | 395 | 20 | 120 | 130 | 94 | 210 | 27 | -10 | -5 | 15 | 7600 | -2 | 1 | -10 | 210 | .5 | -44 | -1 | -100 | 390 | 58.1 | 7 | 8 | 24 | -4.7 | -100 | 140 | 8 | 24 | 11 | 0 | 94.5 | 23 | 20.16 | 28 | -5 |
| 18771 | 10704 | A | 15 | 32 | .26 | 93.3 | 740 | 370 | 408 | 23 | 160 | 140 | 102 | 230 | 31 | -10 | -5 | -10 | 7600 | -2 | 1.4 | -10 | 210 | .5 | -20 | -1 | -100 | 390 | 59.8 | 6 | 8 | 28 | -5.2 | -100 | 140 | 9 | 85 | 11 | 0 | 105 | 22 | 19.37 | 30 | -5 |
| 18774 | 10401 | A | 10 | -12 | -.39 | 100 | 1420 | 420 | 539 | 24 | 190 | 140 | 109 | -200 | 50 | -10 | -5 | -10 | 7500 | -5 | 1.5 | -20 | -370 | .4 | -20 | -1 | -100 | 767 | 104 | 10 | 14 | 34 | -6.1 | -100 | 150 | 8 | -17 | 15 | 0 | 201 | 44 | 15.66 | 20 | |
| 18776 | 10401 | A | 15 | 10 | .72 | 77.6 | 580 | 360 | 329 | 13 | 120 | 130 | 65 | -200 | 24 | -10 | -5 | -10 | 7000 | 2 | 1.3 | -10 | -200 | .5 | -33 | -1 | -100 | 270 | 52.1 | 8 | 7 | 20 | -3.9 | -100 | 120 | 8 | -10 | 8 | 0 | 68.3 | 19 | 15.88 | 18 | -5 |
| 18778 | 10401 | A | 13 | -12 | .65 | 94.1 | 740 | 500 | 464 | 25 | 210 | 190 | 99 | 210 | 46 | -10 | -5 | -10 | 8800 | 3 | 1.4 | -21 | -270 | .5 | -40 | -1 | -100 | 370 | 57.3 | 6 | 9 | 29 | -5.1 | -100 | 170 | 10 | -18 | 17 | 0 | 113 | 23 | 10.22 | 30 | -5 |
| 18783 | 10401 | A | 11 | -5 | .38 | 120 | 1090 | 370 | 631 | 25 | 150 | 130 | 462 | -200 | 23 | -10 | -5 | -10 | 5000 | -4 | .9 | -10 | -280 | .4 | -45 | -1 | -100 | 604 | 85.7 | 5 | 12 | 33 | -6.3 | -100 | 75 | 6 | -14 | 27 | 0 | 180 | 47 | 30.81 | 25 | -5 |
| 18784 | 10401 | A | 11 | 350 | -.44 | 183 | 1560 | 270 | 1175 | 31 | 78 | 120 | 288 | -200 | 22 | -10 | -5 | -20 | 3100 | -5 | 1.2 | 49 | -400 | -.2 | -54 | -1 | -100 | 878 | 113 | 5 | 16 | 57 | -10 | -100 | 48 | 1 | -22 | 27 | 0 | 257 | 72.2 | 14.28 | 18 | 0 |
| 18789 | 10700 | A | 14 | -5 | .29 | 85.9 | 180 | 310 | 490 | 22 | 130 | 120 | 54 | -200 | 24 | -10 | -5 | -10 | 2100 | 4 | 1.2 | -10 | -200 | .4 | -20 | -1 | -100 | 89 | 19 | 3 | 4 | 18 | -3.4 | -100 | 41 | 6 | -11 | 10 | 0 | 23 | 6.3 | 25.62 | 19 | -5 |
| 18791 | 10700 | A | 14 | -5 | .21 | 89.1 | 160 | 340 | 468 | 22 | 120 | 140 | 43 | -200 | 27 | -10 | -5 | 20 | 1900 | 6 | .9 | 15 | 210 | .5 | -20 | -1 | -100 | 70 | 18 | 3 | 4 | 19 | -3 | -100 | 26 | 5 | -14 | 6 | 0 | 24 | 5.2 | 17.82 | 27 | -5 |
| 18793 | 10700 | A | 14 | 29 | .24 | 100 | 200 | 330 | 405 | 23 | 120 | 120 | 43 | -200 | 22 | -10 | -5 | 12 | 2100 | 6 | 1.1 | -10 | -200 | .4 | -20 | -1 | -100 | 92 | 21 | 3 | 4 | 20 | -3.8 | -100 | 34 | 7 | -11 | 8 | 0 | 25 | 6.6 | 42.65 | 28 | -5 |
| 18795 | 10700 | A | 14 | 27 | .28 | 92.5 | 190 | 320 | 438 | 21 | 120 | 110 | 116 | -200 | 21 | -10 | -5 | -10 | 1900 | 2 | .6 | 21 | -200 | .4 | -20 | -1 | -100 | 87 | 20 | 4 | 4 | 19 | -3.6 | -100 | 33 | 6 | -9 | 8 | 0 | 24 | 6.1 | 52.43 | 28 | -5 |
| 18797 | 10700 | A | 15 | 11 | .34 | 91.3 | 310 | 360 | 340 | 22 | 120 | 85 | 52 | -200 | 25 | -10 | -5 | -10 | 3900 | 2 | .4 | -10 | -200 | .5 | -20 | -1 | -100 | 140 | 32 | 5 | 5 | 22 | -4.2 | -100 | 77 | 9 | -9 | 6 | 0 | 33 | 12 | 63.16 | 17 | -5 |
| 18799 | 10700 | A | 15 | 73 | .4 | 93 | 380 | 420 | 372 | 24 | 120 | 120 | 52 | -200 | 21 | -10 | -5 | -10 | 6100 | 3 | .2 | -10 | -200 | .6 | -26 | -1 | -100 | 190 | 35 | 6 | 6 | 22 | -4.4 | -100 | 110 | 10 | -11 | 8 | 0 | 57 | 14 | 34.34 | 20 | -5 |
| 18803 | 10700 | A | 10 | -5 | .41 | 91.4 | 340 | 390 | 364 | 22 | 110 | 100 | 38 | -200 | 17 | -10 | -5 | -10 | 4600 | 3 | .8 | 14 | -200 | .4 | -20 | -1 | -100 | 170 | 35 | 6 | 6 | 20 | -4 | -100 | 87 | 8 | -10 | 7 | 0 | 44 | 12 | 45.33 | 24 | -5 |
| 18804 | 10700 | A | 13 | 56 | -.34 | 84.5 | 1260 | 390 | 408 | 23 | 220 | 210 | 156 | -200 | 21 | -10 | -5 | -10 | 6300 | -4 | .8 | -10 | -200 | .5 | -51 | -1 | 130 | 729 | 85.6 | 6 | 10 | 24 | -4.5 | -100 | 120 | 9 | 21 | 16 | 0 | 245 | 25 | 31.83 | 25 | -5 |
| 18806 | 10602 | A | 14 | 25 | .46 | 89.6 | 470 | 270 | 616 | 22 | 200 | 190 | 179 | -200 | 23 | -10 | -5 | 12 | 4300 | 4 | 1.1 | -10 | -200 | .4 | -20 | -1 | -100 | 240 | 44 | 7 | 7 | 20 | -3.8 | -100 | 74 | 7 | -11 | 15 | 0 | 50.9 | 15 | 37.07 | 38 | -5 |
| 18808 | 10602 | A | 11 | 2840 | .23 | 81.2 | 340 | 410 | 365 | 23 | 210 | 180 | 99 | 220 | 27 | -10 | -5 | 12 | 4600 | 6 | .6 | -10 | -200 | .5 | -20 | -1 | -100 | 170 | 30 | 5 | 5 | 19 | -3.5 | -100 | 77 | 8 | 110 | 15 | 0 | 46 | 15 | 25.66 | 18 | -5 |
| 18812 | 10303 | A | 11 | -28 | -1 | 112 | 3620 | 300 | 859 | 30 | 580 | 650 | 1039 | -200 | 91 | -24 | -5 | -37 | 7600 | 50 | 3 | -40 | -740 | .6 | -140 | -2 | 580 | 2150 | 306 | 13 | 41 | 53 | -11 | -100 | 99 | 4 | 120 | 89 | 0 | 903 | 186 | 12.76 | | |
| 18814 | 10304 | A | 11 | 100 | .53 | 76.3 | 340 | 290 | 1318 | 24 | 180 | 170 | 204 | 400 | 245 | -10 | -5 | -10 | 3700 | 6 | 1.2 | -10 | -300 | .8 | -20 | -1 | 160 | 150 | 31 | 6 | 6 | 25 | -4.3 | -100 | 72 | 6 | 29 | 22 | 0 | 34 | 11 | 16.58 | 80 | -5 |
| 18816 | 10603 | A | 11 | 27 | .71 | 87.3 | 2600 | 260 | 745 | 24 | 380 | 310 | 534 | -200 | 120 | -10 | -5 | -24 | 5700 | -7 | 1.7 | -26 | -500 | -.2 | -120 | -1 | -100 | 1440 | 206 | 11 | 30 | 68 | -13 | -100 | 98 | 5 | 51 | 30 | 0 | 346 | 103 | 17.66 | 45 | |
| 18819 | 10601 | A | 11 | 23 | .43 | 71.3 | 410 | 300 | 419 | 22 | 220 | 210 | 161 | 210 | 177 | -10 | -5 | -10 | 5300 | 12 | .8 | -10 | -200 | .7 | -20 | -1 | -100 | 190 | 36 | 5 | 5 | 24 | -4.4 | -100 | 100 | 9 | 53 | 23 | 0 | 45 | 13 | 22.79 | 77 | -5 |
| 18824 | 10503 | A | 14 | -5 | .3 | 87.4 | 330 | 440 | 298 | 21 | 75 | 79 | 22 | -200 | 4 | -10 | -5 | 17 | 3200 | -2 | .4 | -10 | -200 | .4 | -20 | -1 | -100 | 170 | 30 | 4 | 4 | 16 | -3.1 | -100 | 63 | 7 | -11 | 6 | 0 | 51.3 | 10 | 35.34 | 16 | -5 |
| 18826 | 10503 | A | 15 | -5 | .41 | 88 | 420 | 440 | 228 | 21 | 70 | 97 | 11 | -200 | 5 | -10 | -5 | 10 | 3400 | -2 | .3 | -10 | -200 | .4 | -20 | -1 | -100 | 220 | 36 | 3 | 5 | 19 | -3.5 | -100 | 66 | 7 | -10 | 5 | 0 | 64.7 | 12 | 43.41 | 10 | -5 |
| 18828 | 10503 | A | 13 | 62 | .52 | 85.7 | 710 | 490 | 345 | 21 | 62 | -50 | 13 | -200 | 5 | -10 | -5 | -10 | 6500 | -2 | .5 | -10 | -200 | .4 | -31 | -1 | -100 | 390 | 56.9 | 6 | 8 | 21 | -4.1 | -100 | 120 | 8 | -13 | 8 | 0 | 113 | 23 | 31.14 | 11 | -5 |
| 18830 | 10503 | A | 12 | -12 | -.35 | 103 | 590 | 440 | 284 | 25 | 130 | 66 | 81 | -200 | 8 | -10 | -5 | -10 | 3600 | 7 | .7 | -10 | -200 | .4 | -20 | -1 | 140 | 300 | 47 | 7 | 8 | 26 | -4.5 | -100 | 67 | 8 | 54 | 11 | 0 | 94.6 | 16 | 10.9 | 23 | -5 |
| 18832 | 10503 | A | 14 | -11 | .28 | 102 | 530 | 430 | 301 | 23 | 100 | 77 | 40 | -200 | 6 | -10 | -5 | -10 | 3900 | 4 | .4 | -10 | -200 | .4 | -20 | -1 | -100 | 270 | 45 | 5 | 7 | 24 | -4.4 | -100 | 66 | 11 | -17 | 7 | 0 | 90.8 | 16 | 15.03 | 10 | -5 |
| 18834 | 10503 | A | 12 | 31 | -.33 | 89.6 | 600 | 400 | 210 | 21 | 100 | 130 | 32 | -200 | 6 | -10 | -5 | -10 | 4700 | -2 | .7 | -10 | -200 | .4 | -20 | -1 | -100 | 310 | 52.2 | 5 | 8 | 21 | -3.8 | -100 | 79 | 11 | 23 | 4 | 0 | 111 | 20 | 12.72 | 14 | -5 |
| 18836 | 10503 | A | 12 | 47 | -.23 | 79.3 | 370 | 380 | 374 | 21 | 150 | 160 | 68 | -200 | 38 | -10 | -5 | -10 | 3900 | 2 | .6 | -10 | -200 | .6 | -20 | -1 | -100 | 200 | 38 | 4 | 6 | 19 | -3.3 | -100 | 71 | 9 | -14 | 10 | 0 | 66.3 | 14 | 28.16 | 127 | -5 |
| 18837 | 10503 | A | 12 | 1360 | -.31 | 76.9 | 710 | 320 | 478 | 22 | 240 | 270 | 258 | -200 | 33 | -10 | -5 | -10 | 4100 | 5 | 1.7 | -10 | -200 | .5 | -20 | -1 | -100 | 380 | 51.2 | 3 | 6 | 21 | -3.3 | -100 | 76 | 6 | -15 | 20 | 0 | 132 | 18 | 25.05 | 43 | -5 |
| 18842 | 10901 | A | 15 | 48 | -.53 | 93.7 | 900 | 360 | 874 | 26 | 280 | 260 | 315 | -200 | 82 | -22 | -5 | -39 | 9700 | -9 | .5 | -41 | -470 | .9 | -82 | -3 | -230 | 512 | 84.5 | 10 | 15 | 35 | -5.7 | -100 | 190 | 13 | -31 | 35 | 0 | 166 | 40 | 17.9 | 80 | -15 |
| 18844 | 10901 | A | 15 | 84 | -.29 | 103 | 390 | 220 | 1156 | 24 | 220 | 200 | 203 | -200 | 61 | -10 | -5 | -23 | 3900 | 3 | .6 | -28 | -200 | 1.2 | -51 | -1 | -100 | 180 | 41 | 3 | 8 | 28 | 4.4 | -100 | 86 | 10 | -24 | 20 | 0 | 56.3 | 18 | 47.6 | 71 | -5 |
| 18845 | 10901 | A | 13 | 1800 | -.27 | 116 | 320 | 250 | 1634 | 26 | 240 | 220 | 233 | -200 | 68 | -10 | -5 | -21 | 2500 | -6 | .5 | -26 | -200 | .7 | -47 | -1 | -100 | 150 | 34 | 5 | 7 | 27 | 5.1 | -100 | 66 | 10 | -23 | 22 | 0 | 44 | 15 | 61.22 | 65 | -5 |
| 18847 | 10902 | A | 11 | 120 | -.57 | 92.2 | 1080 | 330 | 818 | 27 | 170 | 98 | 155 | 300 | 79 | -10 | -5 | -34 | 8300 | -7 | .2 | -36 | -410 | -.2 | -70 | -2 | -210 | 591 | 74 | 8 | 10 | 41 | -5.7 | -100 | 170 | 16 | 110 | 25 | 0 | 230 | 36 | 13.16 | 84 | -14 |
| 18849 | 11102 | A | 11 | 72 | -.92 | 73 | 2110 | 530 | 1050 | 24 | 260 | -83 | 450 | -200 | 44 | -31 | -5 | -49 | 12000 | -11 | .6 | -48 | -550 | 1 | -100 | -3 | -290 | 1200 | 118 | 11 | 14 | 38 | -4.9 | -100 | 229 | 12 | 544 | 50 | 0 | 520 | 37 | 7.66 | 50 | |
| 18851 | 11006 | A | 11 | 93 | -.34 | 88 | 410 | 440 | 1044 | 25 | 230 | 130 | 166 | -200 | 105 | -10 | -5 | -27 | 4700 | -6 | -.2 | -29 | -200 | .9 | -55 | -1 | 340 | 210 | 31 | -2 | 6 | 24 | 4 | -100 | 84 | 9 | 140 | 18 | 0 | 92.8 | 13 | 11.18 | 22 | -11 |
| 18852 | 11006 | A | 11 | 120 | -.35 | 128 | 620 | 330 | 1134 | 26 | 260 | 340 | 194 | -200 | 30 | -10 | -5 | 32 | 3600 | -5 | .2 | -27 | -200 | .5 | -52 | -1 | -100 | 330 | 50 | 5 | 8 | 26 | 4 | -100 | 79 | 9 | 57 | 20 | 0 | 92.8 | 19 | 20.28 | 49 | -11 |
| 18854 | 10403 | A | 11 | 1260 | .66 | 103 | 740 | 390 | 1542 | 26 | 310 | 310 | 295 | 270 | 58 | -10 | -5 | -28 | 4500 | 6 | .6 | -33 | 410 | .4 | -62 | 2 | 1600 | 400 | 51.6 | 6 | 9 | 26 | -4.6 | -100 | 92 | 6 | 120 | 21 | 0 | 102 | 31 | 24.86 | 43 | -12 |
| 18857 | 10202 | A | 13 | 72 | -.65 | 71.3 | 950 | 1000 | 2124 | 30 | 190 | 180 | 183 | -200 | 111 | -25 | -5 | -41 | 17000 | 7 | .9 | -44 | -520 | 4.1 | -90 | -3 | 5200 | 530 | 57.1 | -5 | 9 | 26 | -4.9 | -100 | 334 | 14 | 69 | 47 | 0 | 286 | 41 | 7.21 | 83 | -15 |
| 18861 | 10202 | A | 13 | 772 | -1.2 | 92.2 | 2470 | 790 | 2538 | 36 | 260 | 290 | 136 | -200 | 181 | -37 | -11 | -62 | 16000 | -14 | 1 | -65 | -720 | 1.5 | -130 | -4 | -330 | 1530 | 147 | -9 | 18 | 41 | 5.7 | -220 | 261 | 22 | -49 | 51 | 0 | 761 | 47 | 6.7 | | |
| 18863 | 10202 | A | 13 | 28 | -.45 | 82.8 | 780 | 530 | 870 | 22 | 120 | 120 | 48 | -200 | 41 | -10 | -5 | -28 | 7200 | -6 | -.2 | -30 | -200 | .6 | -56 | -1 | 270 | 410 | 58.5 | 5 | 9 | 23 | 3.4 | -100 | 130 | 12 | -24 | 22 | 0 | 183 | 20 | 16.92 | 26 | -11 |
| 18865 | 10202 | A | 15 | 34 | .4 | 84.5 | 360 | 460 | 740 | 20 | 90 | 93 | 26 | -200 | 17 | -10 | -5 | 28 | 5100 | -2 | -.2 | -10 | -200 | .5 | -20 | -1 | -100 | 190 | 34 | 4 | 5 | 18 | 3.1 | -100 | 99 | 9 | -16 | 8 | 0 | 70.6 | 12 | 39.84 | 20 | -5 |
| 18867 | 10202 | A | 15 | -13 | .31 | 84.8 | 400 | 480 | 462 | 20 | 84 | 87 | 38 | -200 | 16 | -10 | -5 | -10 | 5500 | -4 | -.2 | -10 | -200 | .3 | -20 | 2 | -100 | 210 | 35 | 4 | 6 | 21 | 3.2 | -100 | 110 | 10 | -16 | 8 | 0 | 75.2 | 10 | 46.88 | 14 | -5 |
| 18869 | 10202 | A | 13 | 55 | .6 | 82.3 | 840 | 470 | 1098 | 22 | 110 | 160 | 38 | -200 | 23 | -10 | -5 | -22 | 3900 | -6 | -.2 | -26 | -200 | .5 | -47 | -1 | -100 | 490 | 62 | 6 | 9 | 19 | 3.5 | -100 | 91 | 12 | -20 | 26 | 0 | 193 | 15 | 41.75 | 24 | -5 |
| 18872 | 10102 | A | 15 | -17 | -.5 | 102 | 1010 | 410 | 1120 | 24 | 160 | 170 | 88 | -200 | 41 | -10 | -5 | 25 | 5900 | -7 | .6 | -28 | -200 | 1.4 | -53 | -1 | -100 | 590 | 90.7 | 6 | 12 | 28 | -5 | -100 | 120 | 9 | -24 | 22 | 0 | 147 | 35 | 68.19 | 56 | -5 |
| 18873 | 10102 | A | 13 | 79 | -.54 | 107 | 1190 | 310 | 1910 | 30 | 280 | 420 | 154 | -200 | 72 | -10 | -5 | -27 | 5600 | -2 | .4 | -31 | -200 | .4 | -59 | -1 | -100 | 692 | 95 | 5 | 14 | 33 | -5.7 | -100 | 96 | 7 | -26 | 35 | 0 | 198 | 37 | 76.02 | 52 | -1 |
| 18875 | 10105 | A | 15 | 220 | -.6 | 112 | 1090 | 330 | 1856 | 25 | 170 | 280 | 108 | -200 | 27 | -10 | -5 | -31 | 4900 | -7 | .2 | -35 | 390 | -.2 | -65 | -2 | -200 | 565 | 83.2 | 12 | 12 | 30 | -4.8 | -100 | 86 | 5 | -30 | 30 | 0 | 166 | 34 | 11.95 | 65 | 0 |
| 18876 | 10105 | A | 13 | 28 | -.59 | 127 | 1180 | 350 | 1396 | 26 | 220 | 270 | 116 | -200 | 30 | -21 | -5 | -27 | 5800 | -8 | -.2 | -32 | 730 | 1.9 | -60 | -1 | -100 | 736 | 103 | 6 | 14 | 34 | -5.6 | -100 | 99 | 7 | -28 | 26 | 0 | 183 | 41 | 67.61 | 42 | -1 |
| 18877 | 10105 | A | 13 | -17 | .85 | 116 | 1100 | 300 | 1272 | 25 | 210 | 230 | 106 | -200 | 28 | -10 | -5 | -24 | 5300 | -8 | .4 | -29 | -200 | -.2 | -56 | -1 | -100 | 640 | 97.1 | 5 | 13 | 30 | -5.3 | -100 | 87 | 6 | -26 | 58 | 0 | 165 | 37 | 79.71 | 56 | -5 |
| 18878 | 10105 | A | 15 | -18 | -.49 | 90.6 | 960 | 190 | 1968 | 21 | 190 | 300 | 152 | -200 | 24 | -10 | 6 | -23 | 5500 | -7 | .4 | -27 | 300 | -.2 | -52 | -1 | -100 | 557 | 92.2 | 6 | 12 | 23 | -4.2 | -100 | 86 | 6 | -24 | 30 | 0 | 163 | 34 | 70.2 | 106 | -5 |
| 18879 | 10105 | A | 13 | 49 | -.37 | 101 | 560 | 270 | 1862 | 25 | 240 | 360 | 186 | 200 | 51 | -10 | -5 | -22 | 2400 | -7 | .2 | -27 | -200 | -.2 | -50 | -1 | -100 | 320 | 54.5 | 4 | 9 | 24 | 4.4 | -100 | 56 | 6 | 25 | 24 | 0 | 103 | 19 | 66.06 | 134 | -5 |
| 18881 | 10105 | A | 13 | 68 | .43 | 98.2 | 530 | 340 | 2210 | 25 | 190 | 260 | 109 | -200 | 47 | -10 | -5 | -20 | 2500 | -6 | .2 | -25 | -200 | .5 | -46 | -1 | -100 | 260 | 48 | 5 | 7 | 21 | 3.9 | -100 | 60 | 7 | -22 | 19 | 0 | 85.5 | 16 | 61.74 | 117 | -5 |
| 18882 | 10202 | A | 13 | 52 | -.55 | 83.4 | 1070 | 460 | 2484 | 25 | 120 | 170 | 88 | -200 | 38 | -10 | 7 | -25 | 3900 | -7 | -.2 | -29 | -200 | .6 | -53 | -1 | -100 | 654 | 90.2 | 6 | 9 | 20 | 3.3 | -100 | 65 | 9 | 42 | 22 | 0 | 285 | 15 | 46.62 | 34 | -5 |

## MAP 10-1B. LOCATION OF AREAS, with glacial geology
(modified from Wright, 1972).

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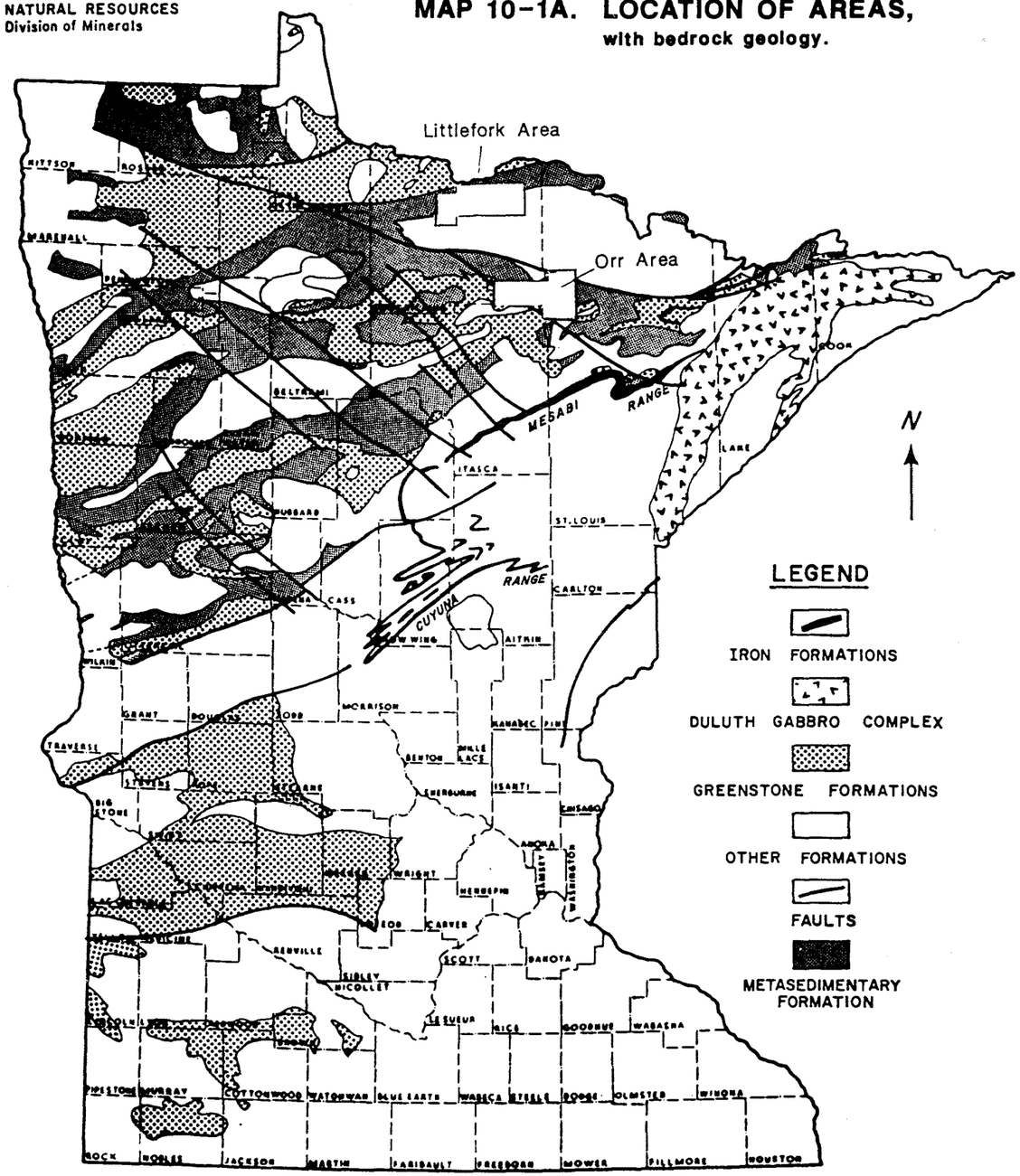
## MAP 10-1A. LOCATION OF AREAS, with bedrock geology.




Note: Greenstone areas north of the fault passing from Bigstone County northeastward to Morrison County are adapted from G. B. Morey etal, Map S-13, 1982. Protolith for the areas south of this fault are probably older mafic to intermediate greenstones as adapted from P. K. Sims, Geologic Map of Minnesota, 1970.

# MAP 10-2
# ORR AREA

## DRILL HOLE LOCATIONS

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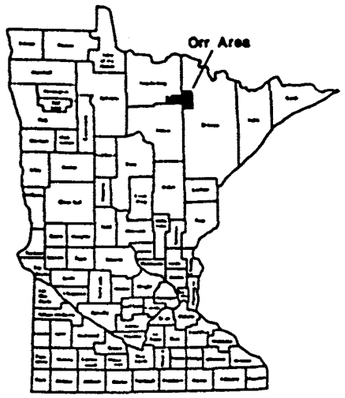


MAP LOCATION

T.64N.

T.63N.

T.62N.

R.24W. R.23W. R.22W. R.21W. R.20W.

OB-20303 AMPHIBOLITE (BASALT)
OB-20502 GRAYWACKE ?
OB-21005 GRAYWACKE
OB-211 AMPH.-GAR.-BIOT. SCHIST
OB-210 MONZONITE
OB-21002
OB-20904
OB-20101
OB-20204
OB-20201 AMPHIBOLITE (BASALT)
OB-20404 GRAYWACKE
OB-20604
OB-20601 GRANO-DIORITE
OB-20104
OB-20200 AMPHIBOLITE (BASALT)
OB-202 DACITE CRYSTAL TUFF
OB-204 METAGRAYWACKE
OB-20401 QTZ. DIORITE ?
OB-209 HBL.-BIOT. SCHIST
OB-20901 GRAYWACKE ?
OB-20100 GRANO-DIORITE
OB-20405
OB-206 AMPHIBOLITE
OB-20103 ANDESITE
OB-20402
OB-20603
OB-212 SYENITE
OB-20906 SILTSTONE
OB-20902 GRAYWACKE
OB-20804
OB-207 PYROXENE SYENITE
OB-20801
OB-20704 GRAYWACKE
OB-20705
OB-20702
OB-20803 GRAYWACKE ?
OB-208 QTZ.-BIOT. SCHIST

E S T

V A L L E Y

L I N D E N G R O V E

STURGEON RIVER STATE FOREST

## LEGEND

202 (Three Digits) = Rotasonic Drill
20201 (Five Digits) = Mud Rotary Drill

Note: If first three digits are same, then holes are in the same township. Example: 204, 20401, 20402, 20404, 20405 are all in T63N-R22W.

0 1 2 3 4 5 6
scale ½"=1mi. miles

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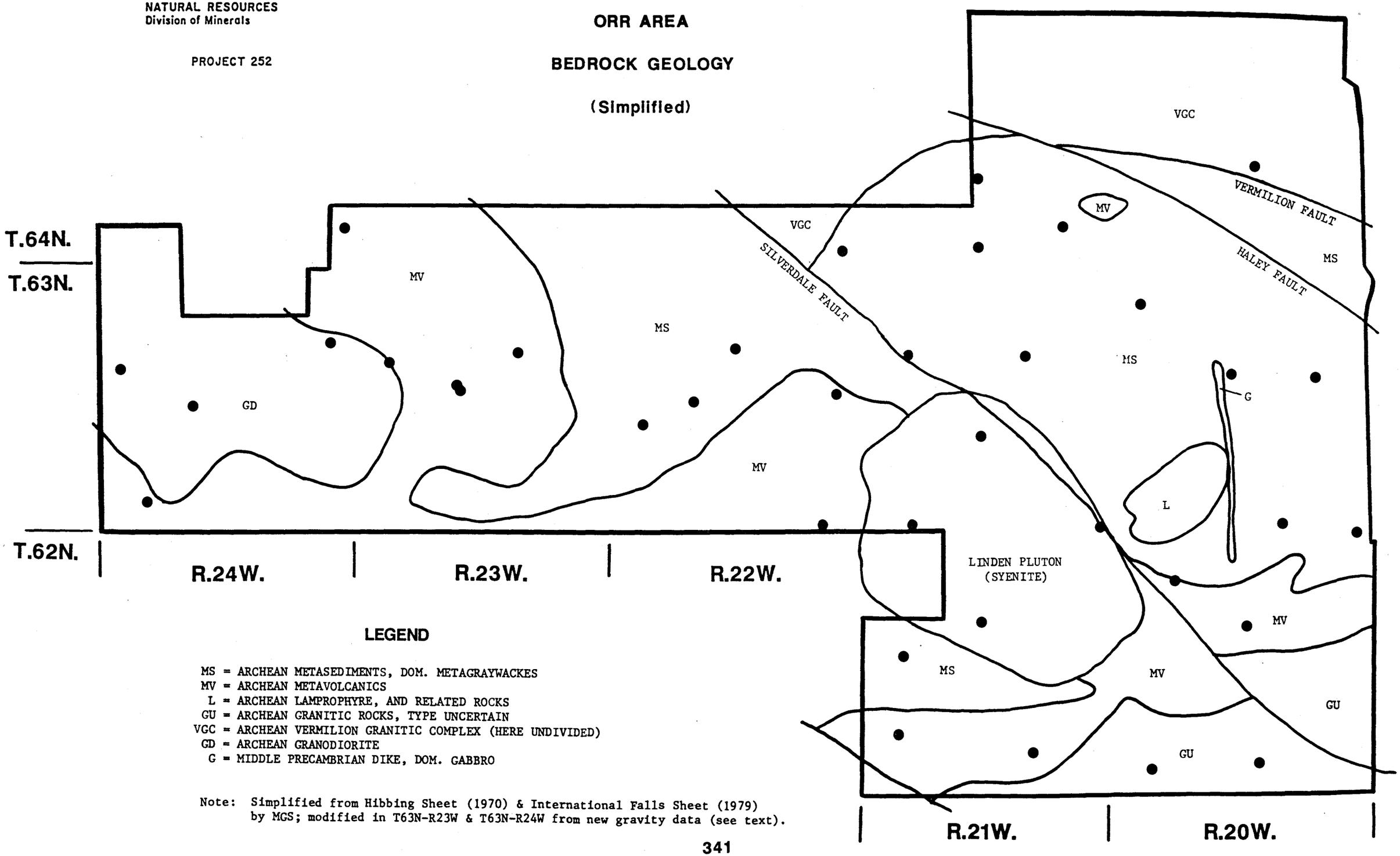
# MAP 10-3

# ORR AREA

# BEDROCK GEOLOGY

## (Simplified)



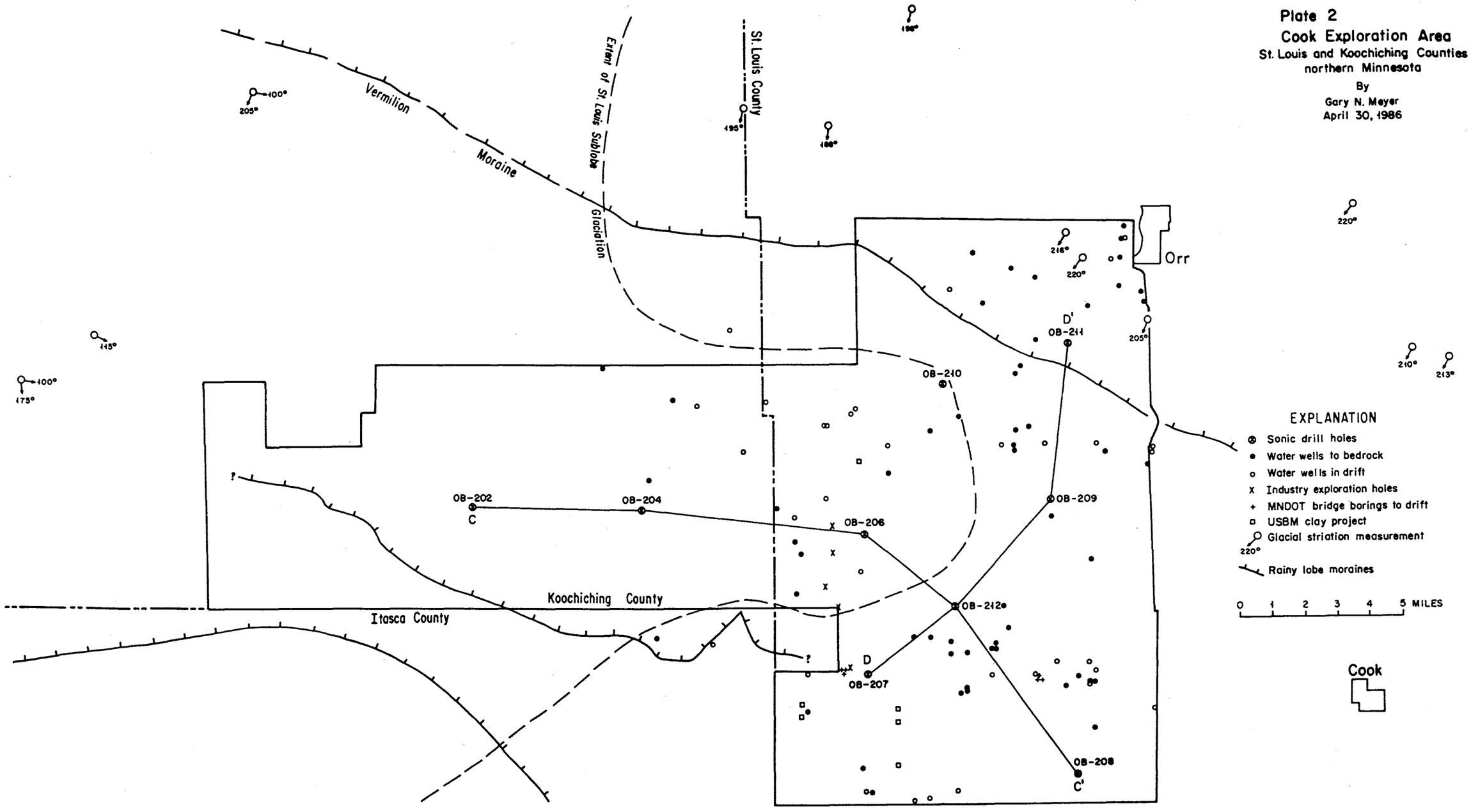

### LEGEND

MS = ARCHEAN METASEDIMENTS, DOM. METAGRAYWACKES
MV = ARCHEAN METAVOLCANICS
L = ARCHEAN LAMPROPHYRE, AND RELATED ROCKS
GU = ARCHEAN GRANITIC ROCKS, TYPE UNCERTAIN
VGC = ARCHEAN VERMILION GRANITIC COMPLEX (HERE UNDIVIDED)
GD = ARCHEAN GRANODIORITE
G = MIDDLE PRECAMBRIAN DIKE, DOM. GABBRO

Note: Simplified from Hibbing Sheet (1970) & International Falls Sheet (1979) by MGS; modified in T63N-R23W & T63N-R24W from new gravity data (see text).

# Plate 2
## Cook Exploration Area
St. Louis and Koochiching Counties
northern Minnesota

By
Gary N. Meyer
April 30, 1986





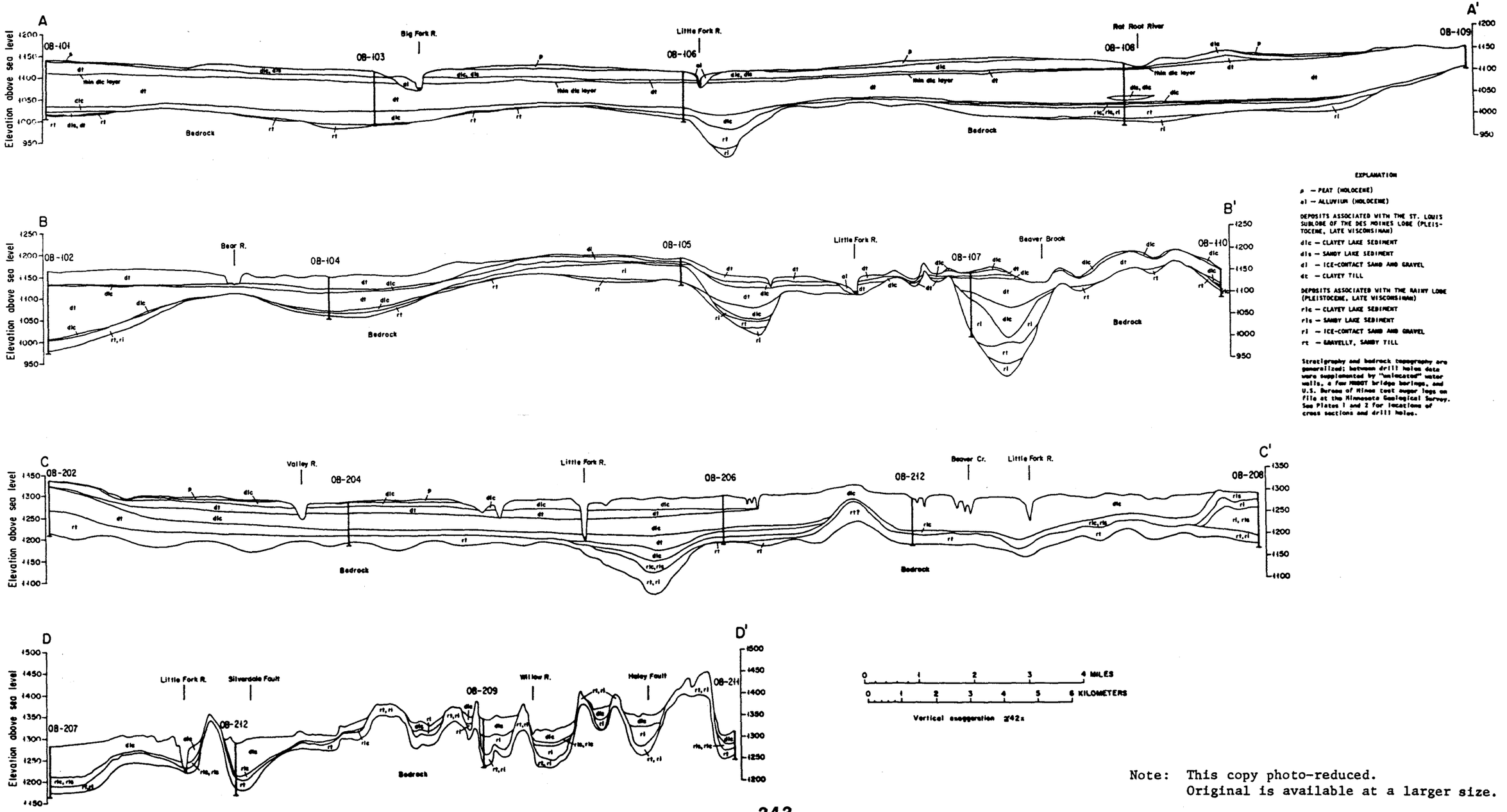

Note: This copy photo-reduced.
Original at ½" = mile available.

MAP 10-5

# CROSS SECTIONS

## Little Fork and Cook Minnesota, Exploration Areas

PLATE 3




Note: This copy photo-reduced.
Original is available at a larger size.

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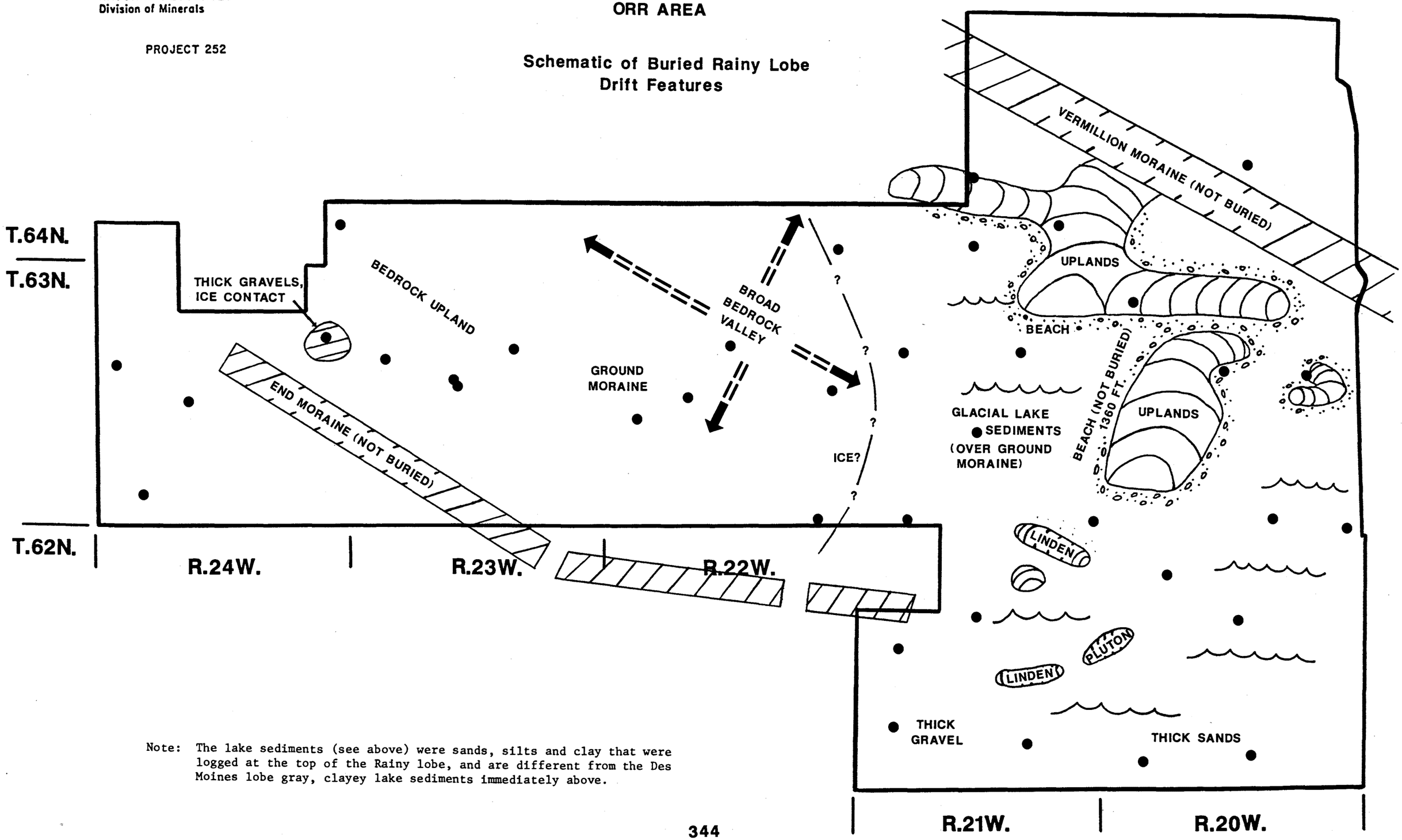
# MAP 10-6
# ORR AREA

## Schematic of Buried Rainy Lobe Drift Features




Note: The lake sediments (see above) were sands, silts and clay that were logged at the top of the Rainy lobe, and are different from the Des Moines lobe gray, clayey lake sediments immediately above.

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# MAP 10-7

## Orr Area

## Gold Grain Counts in All Nonmag HMC

(by sample down the hole, with descriptions)

T.64N.

T.63N.

T.62N.

R.24W. R.23W. R.22W. R.21W. R.20W.

1 SBT
1 FS
1 SBT
1 FS IRG
1 FS
2 T 1IRG
3 SBT
3 SBT
1 FS
3 SBT
1 T
6 T
2 T
1 T
1 T
1 SBT
2 T
2 SBT
3 SBT 1IRG
1 T
1 T
3 SBT
1 T
1 T R
1 SBT
1 T
1 SBT
3 G
2 SBT
2 FS
4 SBT
3 SBT
4 SBT 1IRG
2 FS
1 T
1 T
1 G
1 T
1 SBT
1 G
3 T
1 G R
1 G
1 G R
2 SBT 1IRG
6 T 1IRG
1DEL
2 T 2DEL R
4 SBT 2IRG
4 T
3 T
2 T
1 SBT
2 T
6 T 2IRG
2 T R
3 T
3 T R
7 T 5DEL
2 T
13 T 11DEL R
1IRG
25 SBT 2IRG
17DEL

## LEGEND

| # GOLD GRAINS | RAINY LOBE DRIFT (OR SAMPLE) TYPE | GOLD GRAIN SHAPE |
|---|---|---|
| 1 | T = Till | DEL = DELICATE |
| | G = Gravel | IRG = IRREGULAR |
| | FS = Fgr Sed | |
| | SBT = Sluice Box | |
| | R = Replicate Sample | |

● DRILL HOLE LOCATION

GENERAL DIRECTION OF RAINY LOBE FLOW

MAP 10-8

ORR AREA

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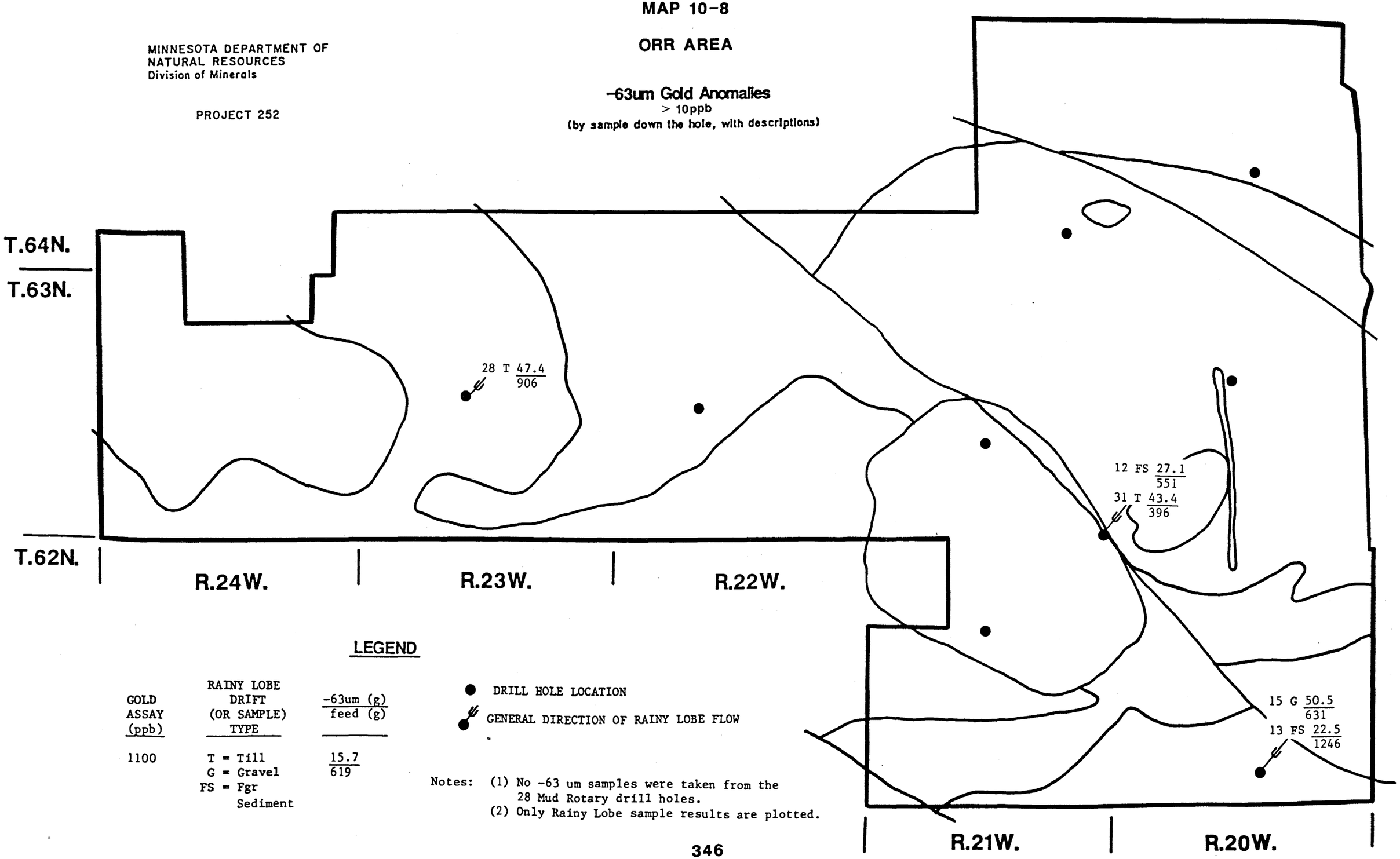
## -63um Gold Anomalies
> 10ppb
(by sample down the hole, with descriptions)




## LEGEND

| GOLD ASSAY (ppb) | RAINY LOBE DRIFT (OR SAMPLE) TYPE | -63um (g) / feed (g) |
|---|---|---|
| 1100 | T = Till<br>G = Gravel<br>FS = Fgr Sediment | 15.7/619 |

● DRILL HOLE LOCATION

GENERAL DIRECTION OF RAINY LOBE FLOW

Notes: (1) No -63 um samples were taken from the 28 Mud Rotary drill holes.
(2) Only Rainy Lobe sample results are plotted.

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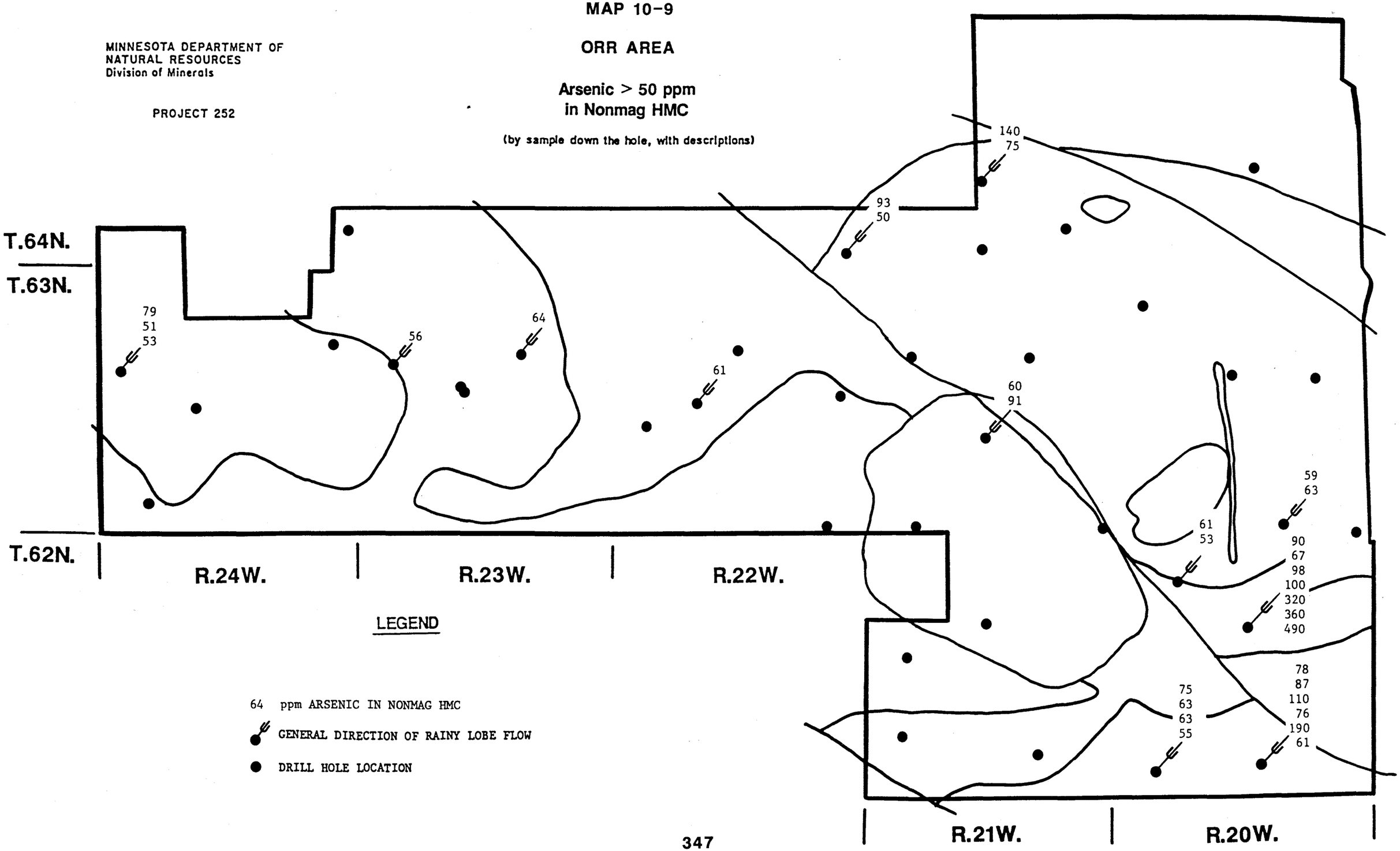
# MAP 10-9

## ORR AREA

## Arsenic > 50 ppm in Nonmag HMC

(by sample down the hole, with descriptions)




LEGEND

64 ppm ARSENIC IN NONMAG HMC

GENERAL DIRECTION OF RAINY LOBE FLOW

DRILL HOLE LOCATION

MINNESOTA DEPARTMENT OF
NATURAL RESOURCES
Division of Minerals

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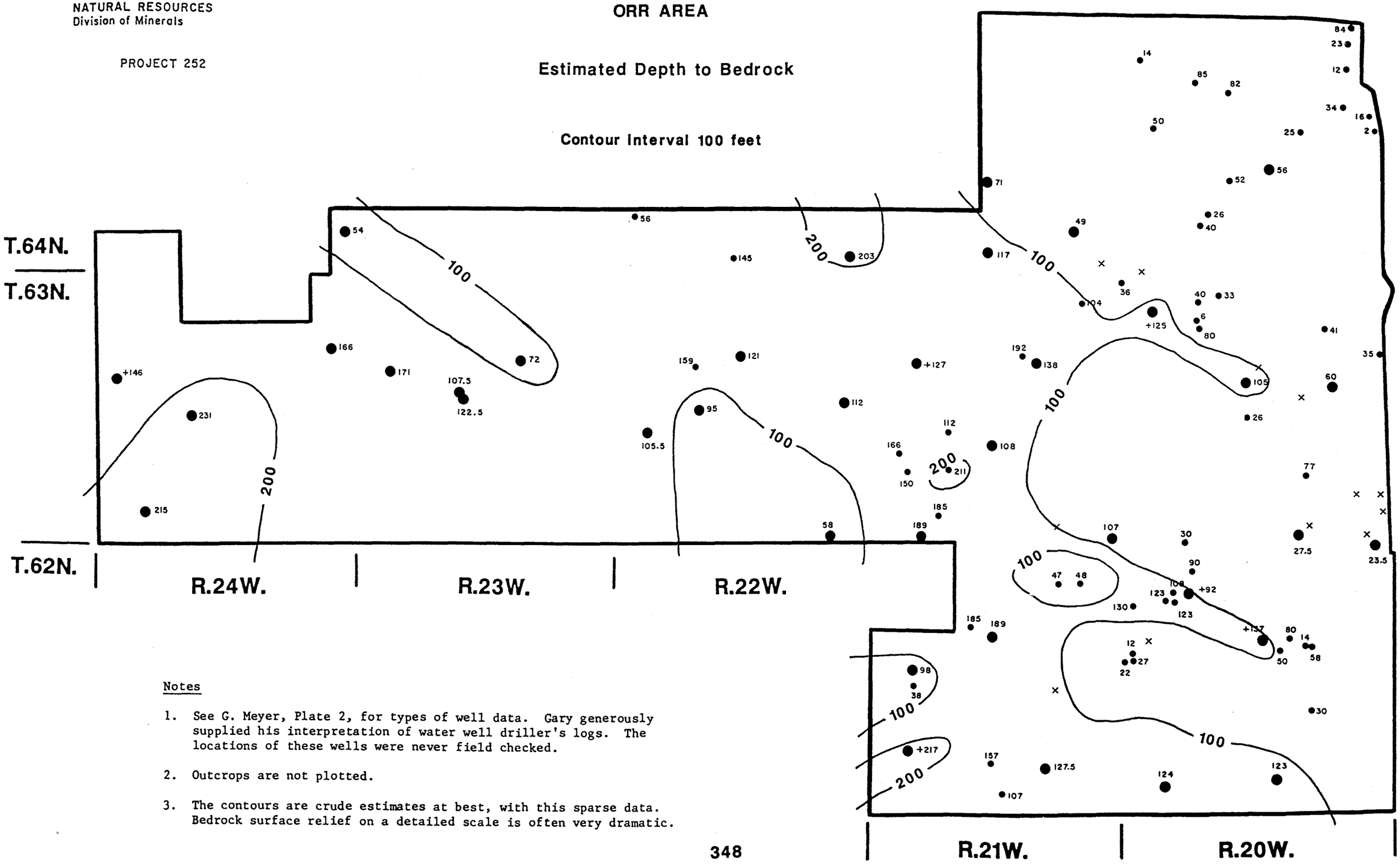
# MAP 10-10
# ORR AREA

## Estimated Depth to Bedrock

### Contour Interval 100 feet




Notes

1. See G. Meyer, Plate 2, for types of well data. Gary generously supplied his interpretation of water well driller's logs. The locations of these wells were never field checked.

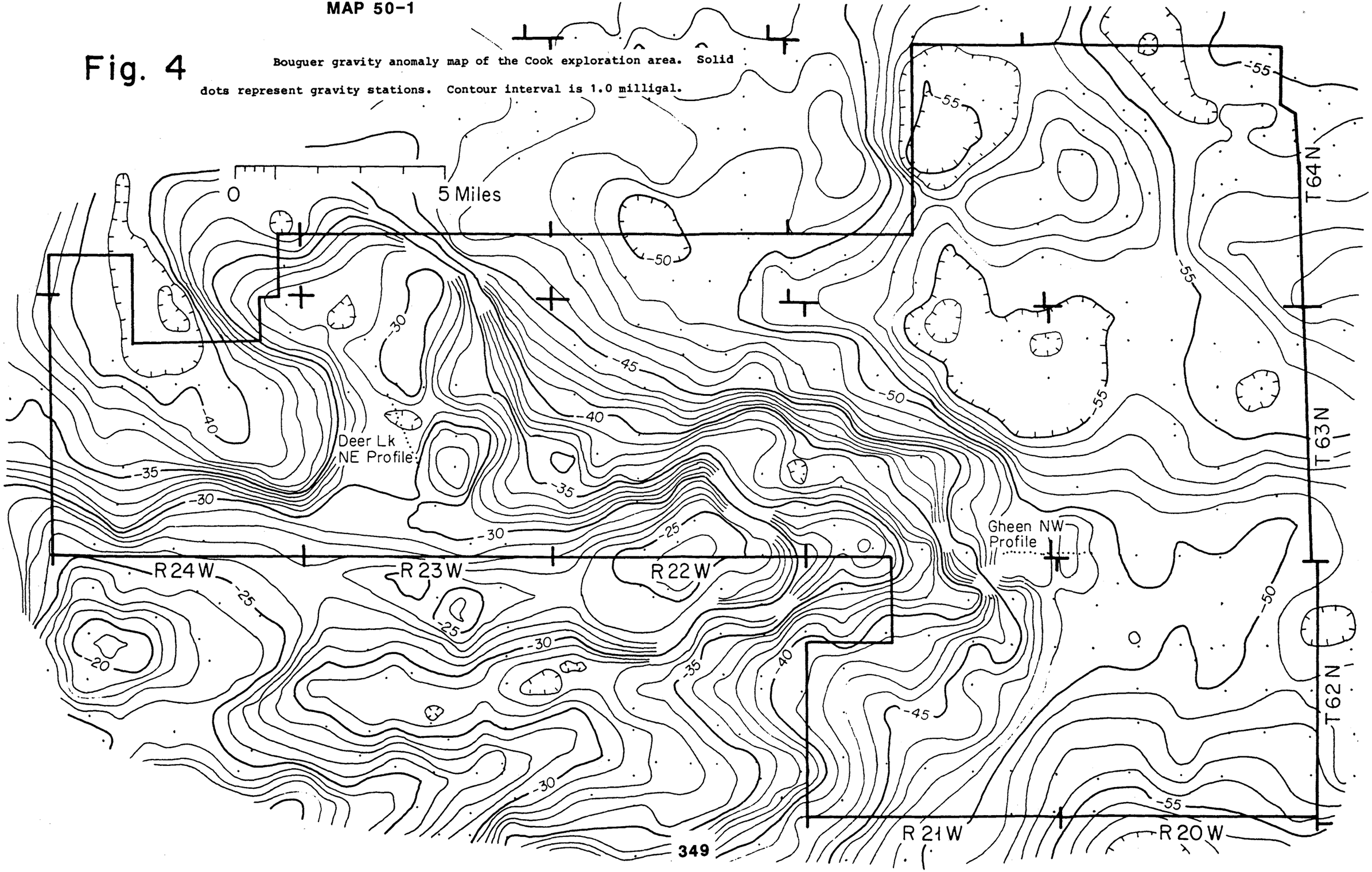
2. Outcrops are not plotted.

3. The contours are crude estimates at best, with this sparse data. Bedrock surface relief on a detailed scale is often very dramatic.

MAP 50-1

Fig. 4

Bouguer gravity anomaly map of the Cook exploration area. Solid dots represent gravity stations. Contour interval is 1.0 milligal.



MAP 50-2

Fig. 5 The second vertical derivative (SVD) of the gravity anomaly in the Cook exploration area. Solid dots represent gravity stations. Contour interval is 0.1 milligal/km$^2$.

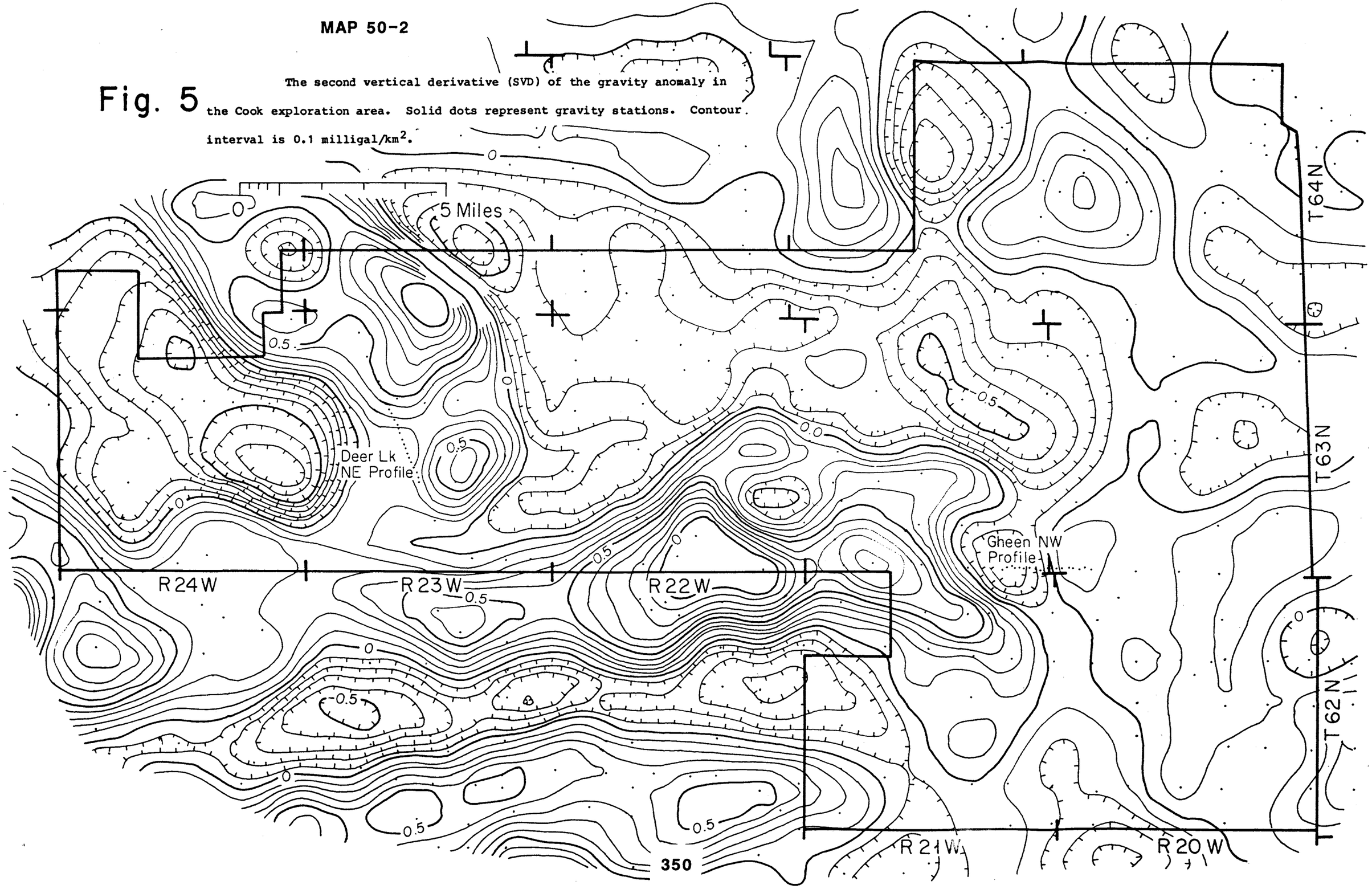
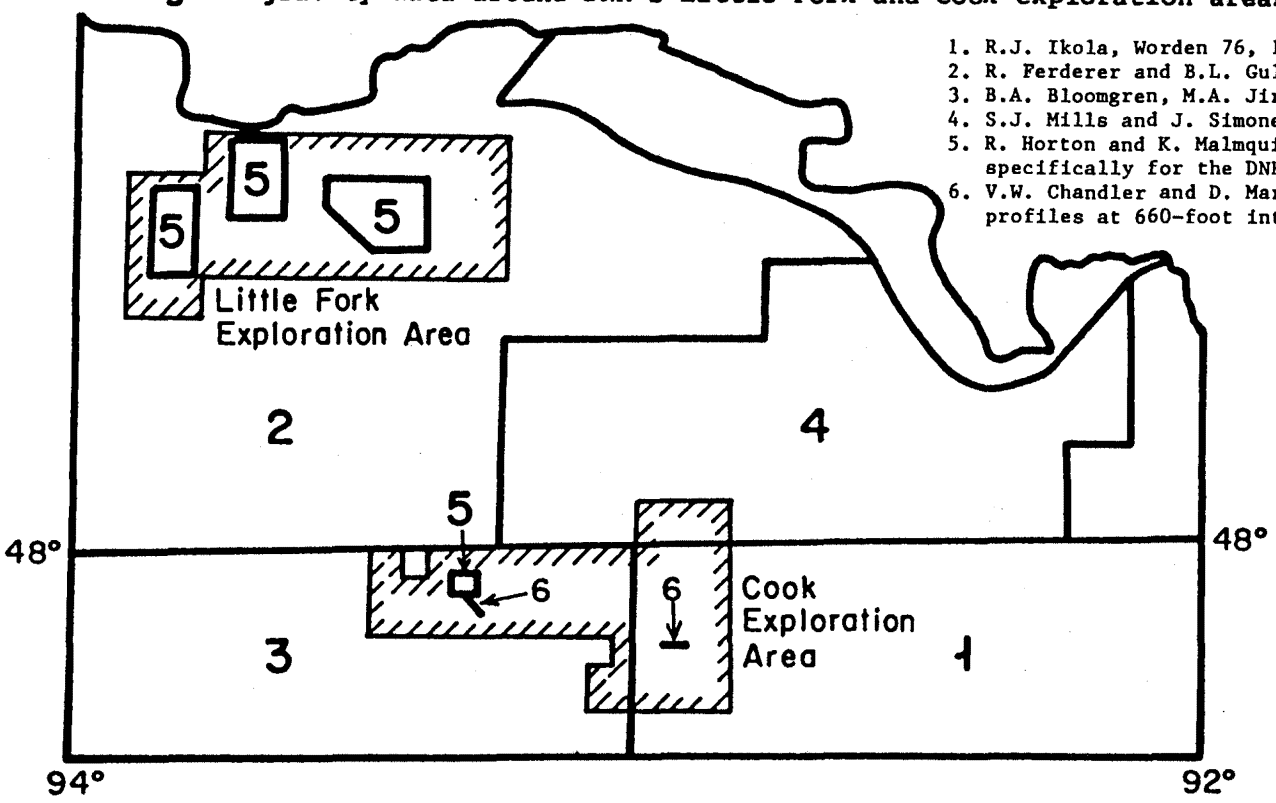


Fig. 1 Index map showing field responsibility and instrumentation for gravity data around DNR's Little Fork and Cook exploration areas.




1. R.J. Ikola, Worden 76, 1966.
2. R. Ferderer and B.L. Gulbranson, La Coste-Romberg G-320, 1983.
3. B.A. Bloomgren, M.A. Jirsa, and P.L. McSwiggen, La Coste-Romberg G-226, 1984
4. S.J. Mills and J. Simonet, La Coste-Romberg G-226 and G-320, 1985.
5. R. Horton and K. Malmquist, La Coste-Romberg G-551, 1986 (collected specifically for the DNR project).
6. V.W. Chandler and D. Martin, La Coste-Romberg 364 (collected along profiles at 660-foot intervals specifically for the DNR project).



Fig. 6 Detailed gravity data along the Deer Lake NE profile.

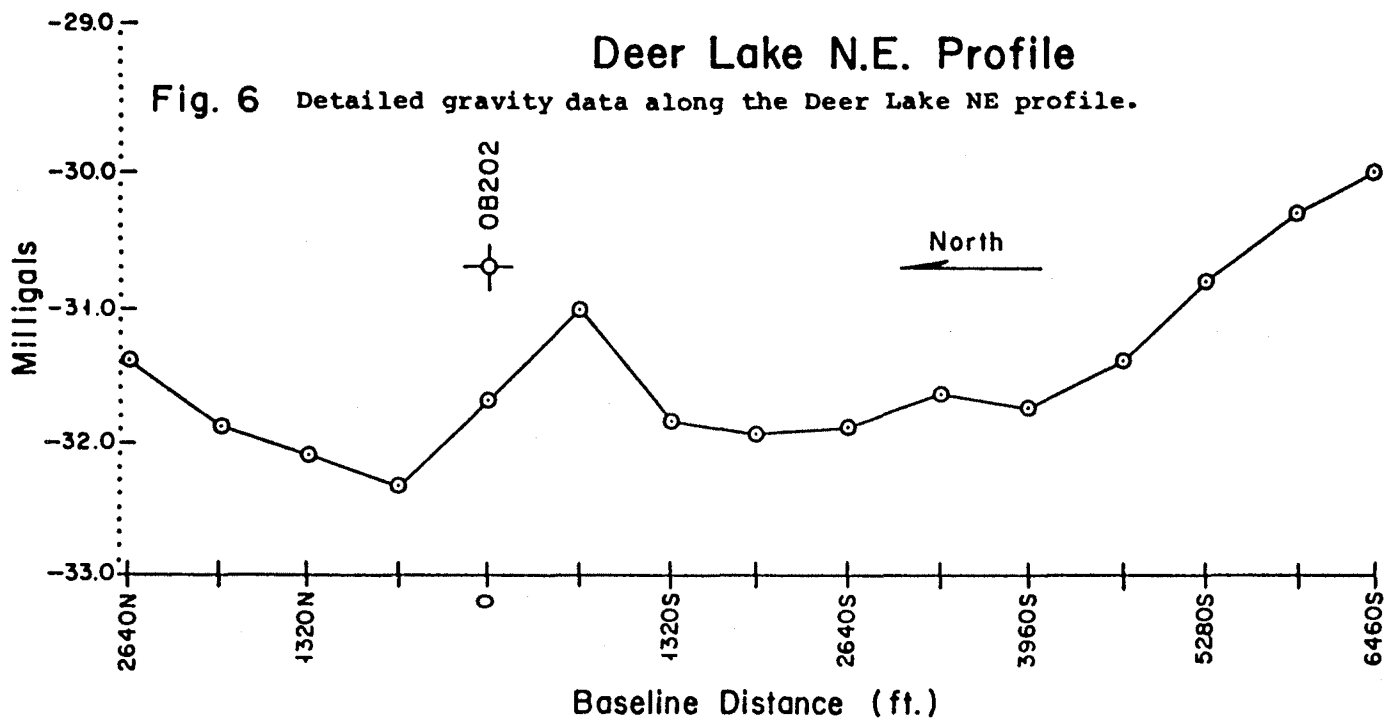
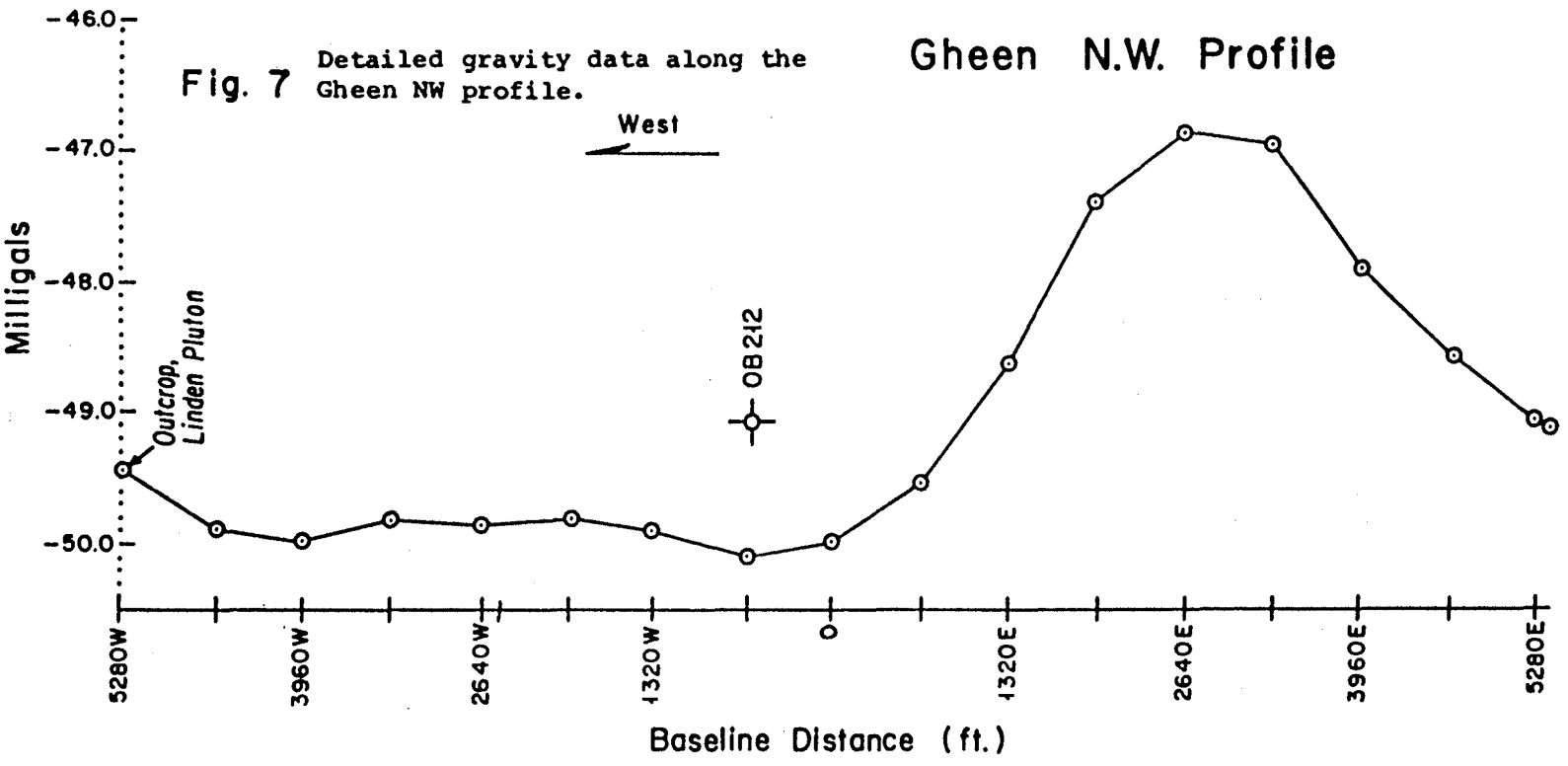


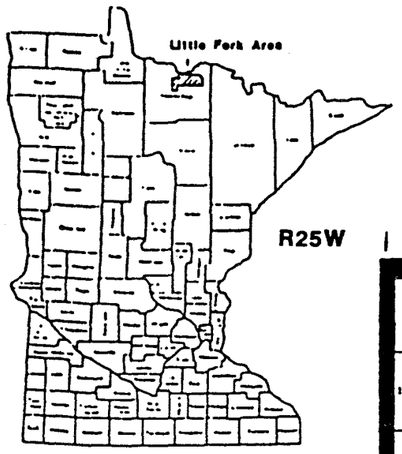

Fig. 7 Detailed gravity data along the Gheen NW profile.



# LITTLE FORK AREA

## DRILL HOLE LOCATIONS

MAP 11-1




MAP LOCATION

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R25W R27W R26W R25W R24W R23W

T158N

T157N

T156N

T69N

T68N

OB-10304 METASEDIMENT

OB-10601 METAGRAYWACKE

OB-108 TONALITE

OB-10901 METAGRAYWACKE

OB-109 PARAGNEISS

OB-103 GNEISS

OB-106 SCHIST

SMOKY BEAR STATE FOREST

OB-10603 SCHIST

OB-10602 SCHIST

OB-10902 GRANITIC MIGMATITE

OB-10303 SCHIST

OB-10501 PARAGNEISS

OB-101 SCHIST

OB-10401 SCHIST

OB-10404 SCHIST

OB-11006 SCHIST-RICH MIGMATITE

OB-110 SCHIST

OB-10102 SCHIST

OB-104 PARAGNEISS

OB-10105

OB-1070 PEGMATITE

OB-10403 SCHIST

OB-10503 GNEISS

OB-10700 OB-107 PARAGNEISS

OB-10505 PARAGNEISS

OB-11102 GRANITE-RICH MIGMATITE

OB-105 TONALITIC GNEISS

OB-102 PARAGNEISS

OB-10202

½-1mi. 0 1 2 3 4 5 scale miles

N

352

## LEGEND

101 (Three Digits) = Rotasonic Drill
10102 (Five Digits) = Mud Rotary Drill

Note: If first three digits are same, then holes are in same township.
Example: 204, 20401, 20402, 20404, 20405 are all in T63N-R22W.

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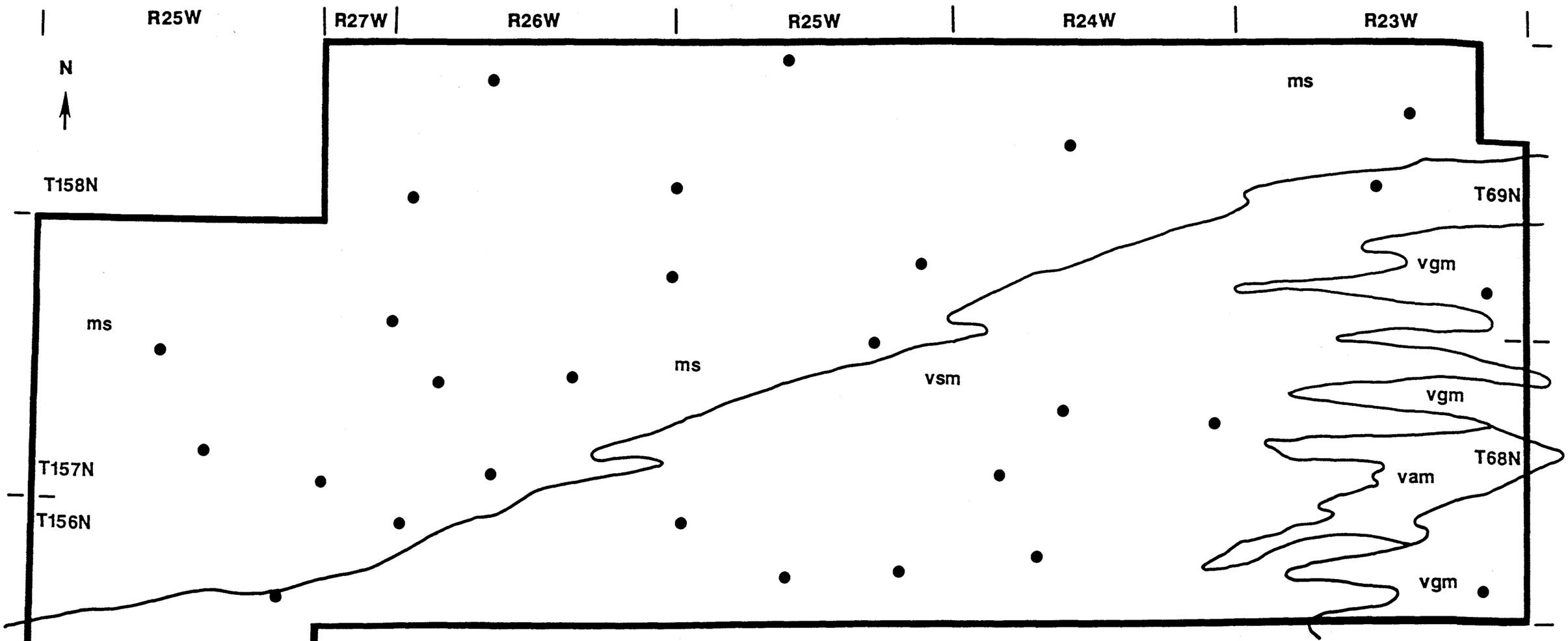
MAP 11-2

# LITTLE FORK AREA
# BEDROCK GEOLOGY
## (Simplified)




## LEGEND

MS = ARCHEAN METASEDIMENTS, DOM. METAGRAYWACKES
VSM = ARCHEAN SCHIST-RICH MIGMATITE OF THE VERMILION GRANITIC COMPLEX
VGM = ARCHEAN GRANITE-RICH MIGMATITE OF THE VERMILION GRANITIC COMPLEX
VAM = ARCHEAN AMPHIBOLE-RICH MIGMATITE OF THE VERMILION GRANITIC COMPLEX

Note: Simplified from the International Falls (1979) Sheet by the MGS.

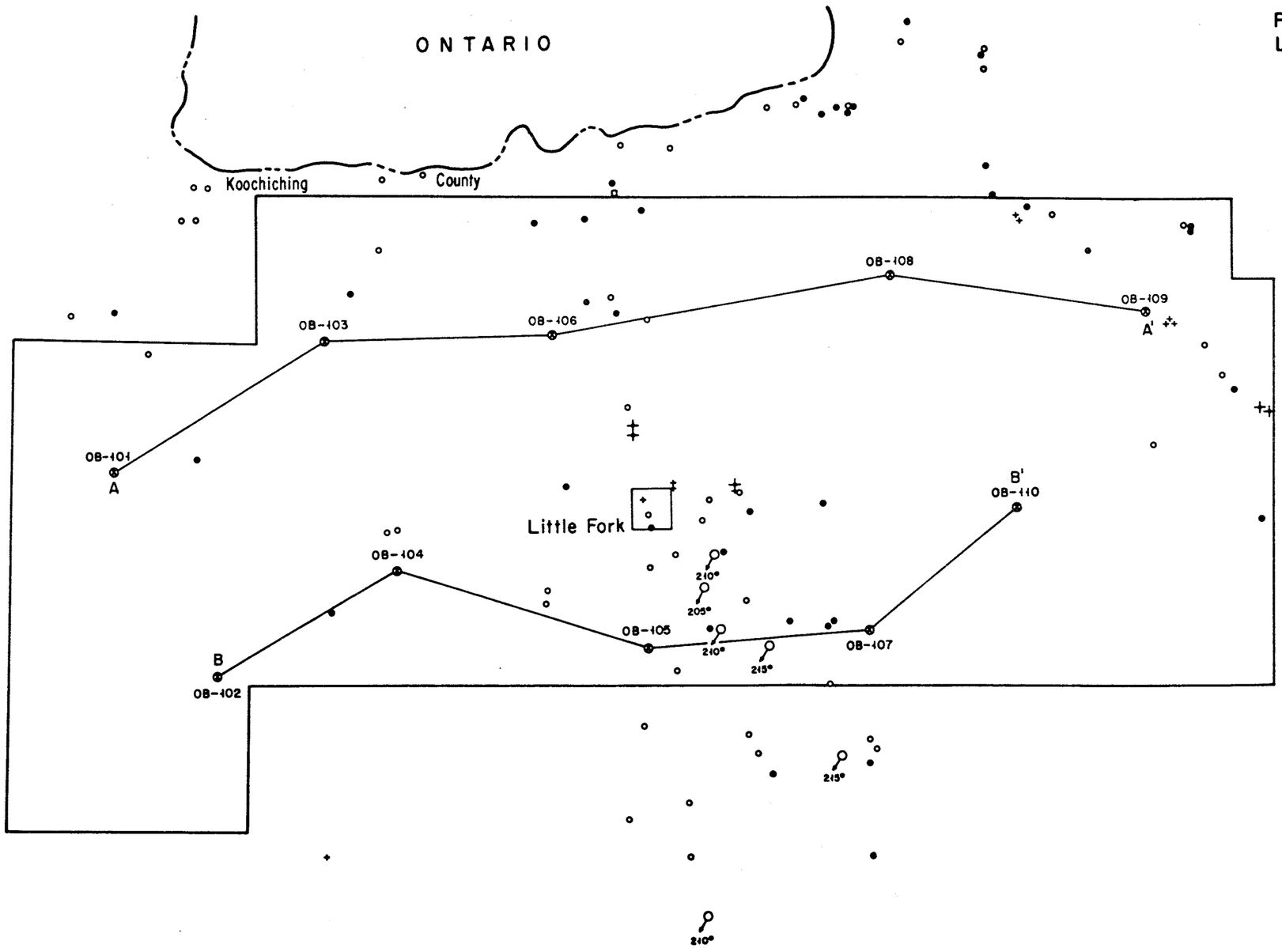



Plate I
Little Fork Exploration Area
Koochiching County
northern Minnesota

By
Gary N. Meyer
April 30, 1986

Note: This copy photo-reduced.
Original at ½" = mile available.

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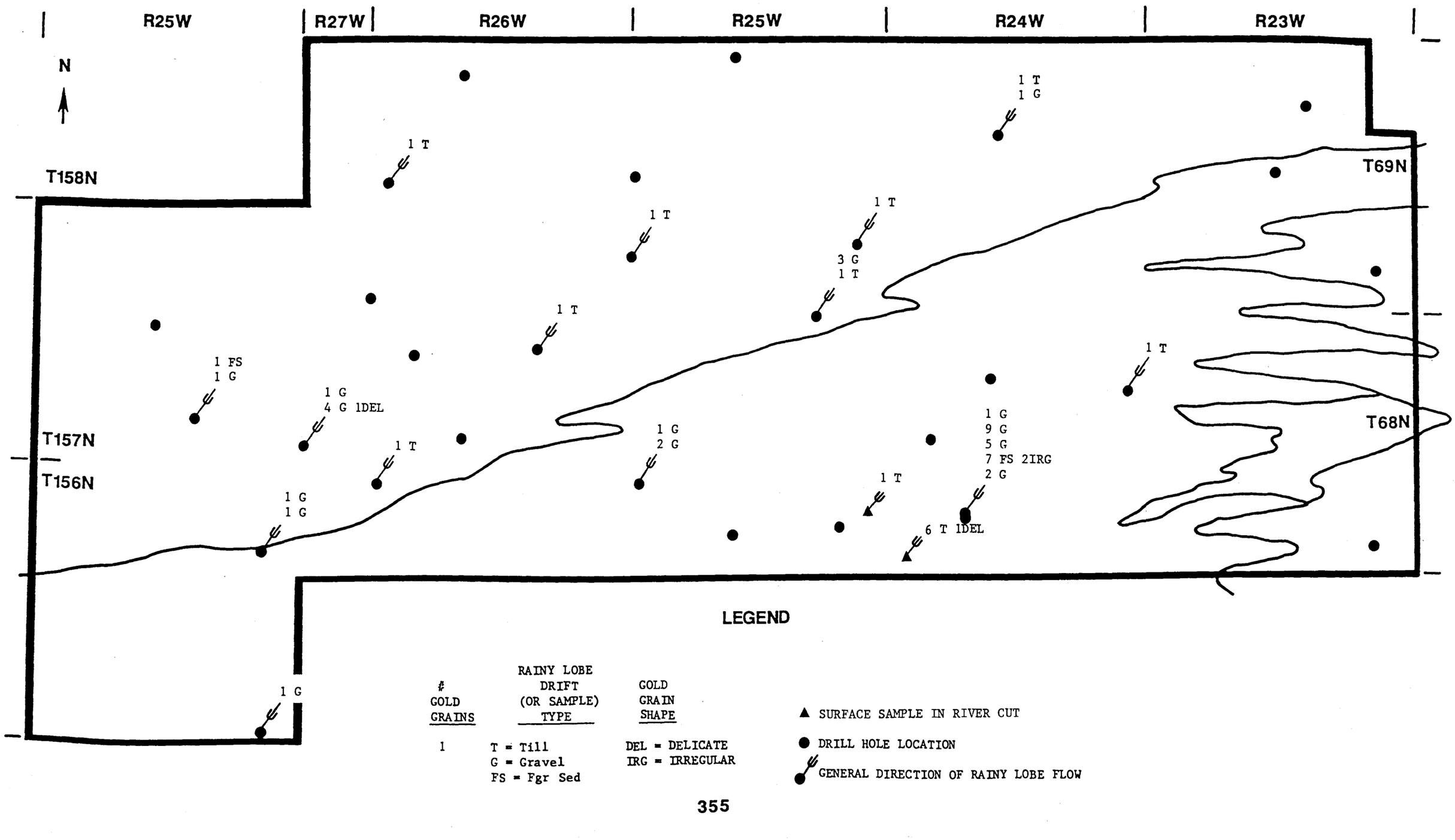
# LITTLE FORK AREA

## Gold Grain Counts
## In All Nonmag HMC

(by sample down the hole, with descriptions)

MAP 11-4




## LEGEND

| # GOLD GRAINS | RAINY LOBE DRIFT (OR SAMPLE) TYPE | GOLD GRAIN SHAPE |
|---|---|---|
| 1 | T = Till<br>G = Gravel<br>FS = Fgr Sed | DEL = DELICATE<br>IRG = IRREGULAR |

▲ SURFACE SAMPLE IN RIVER CUT

● DRILL HOLE LOCATION

GENERAL DIRECTION OF RAINY LOBE FLOW

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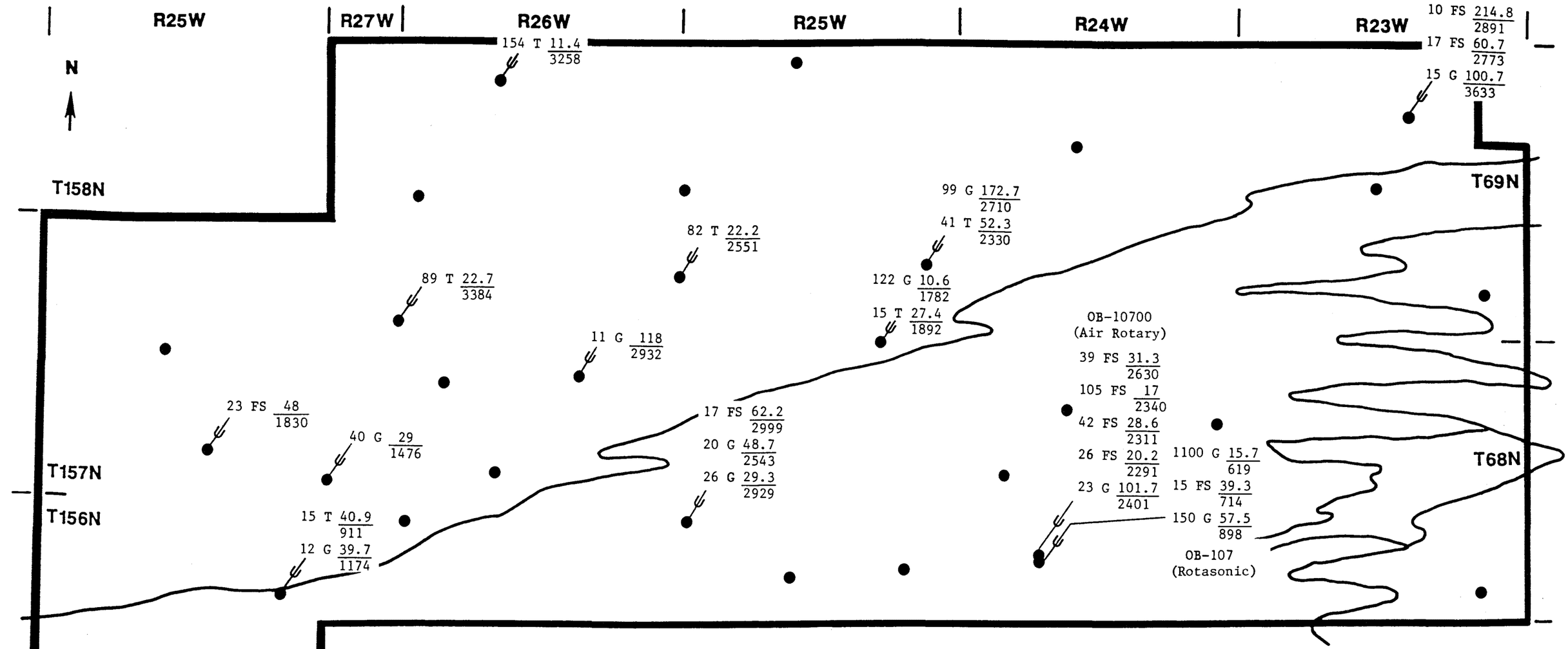
# LITTLE FORK AREA

## -63um Gold Anomalies

(by sample down the hole, with descriptions)

MAP 11-5




## LEGEND

| GOLD ASSAY (ppb) | RAINY LOBE DRIFT (OR SAMPLE) TYPE | -63um (g) / feed (g) |
|---|---|---|
| 1100 | T = Till<br>G = Gravel<br>FS = Fgr Sediment | 15.7 / 619 |

● DRILL HOLE LOCATION

GENERAL DIRECTION OF RAINY LOBE FLOW

Notes: (1) Only Rainy Lobe samples are plotted.
(2) Feed wt was increased from approx 1 kg (Rotasonic) to 2 kg (Air Rotary). See feed wts listed above.

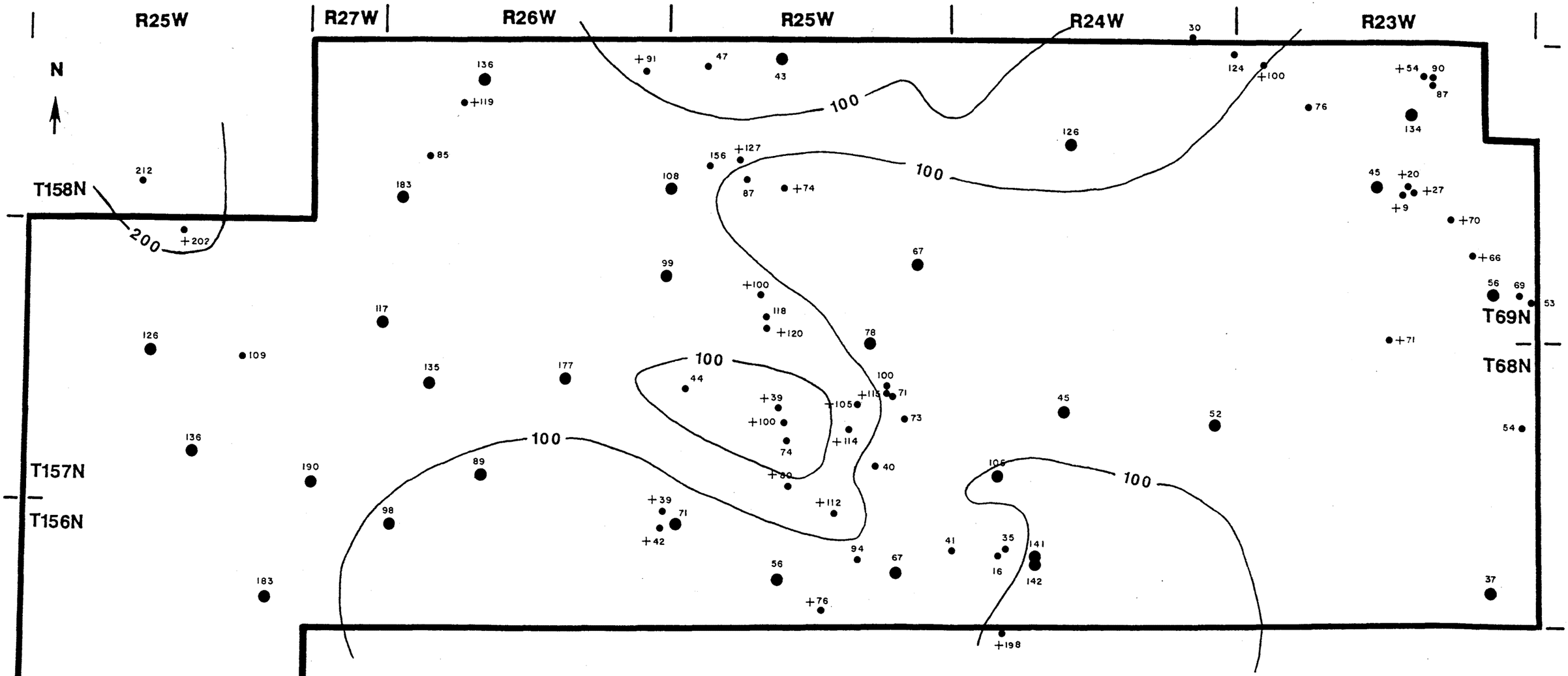
MINNESOTA DEPARTMENT OF
NATURAL RESOURCES
Division of Minerals

PROJECT 252

# LITTLE FORK AREA

MAP 11-6

## Estimated Depth to Bedrock
Contour interval 100 feet




Notes

1. See G. Meyer, Plate 2, for types of well data. Gary generously supplied his interpretation of water well driller's logs. The locations of these wells were never field checked.

2. Outcrops are not plotted.

3. The contours are crude estimates at best, with this sparse data. Bedrock surface relief on a detailed scale is often very dramatic.

Fig. 2 Bouguer gravity anomaly map of the Little Fork exploration area and environs. Solid dots represent gravity stations. Countour interval is 1.0 milligal.

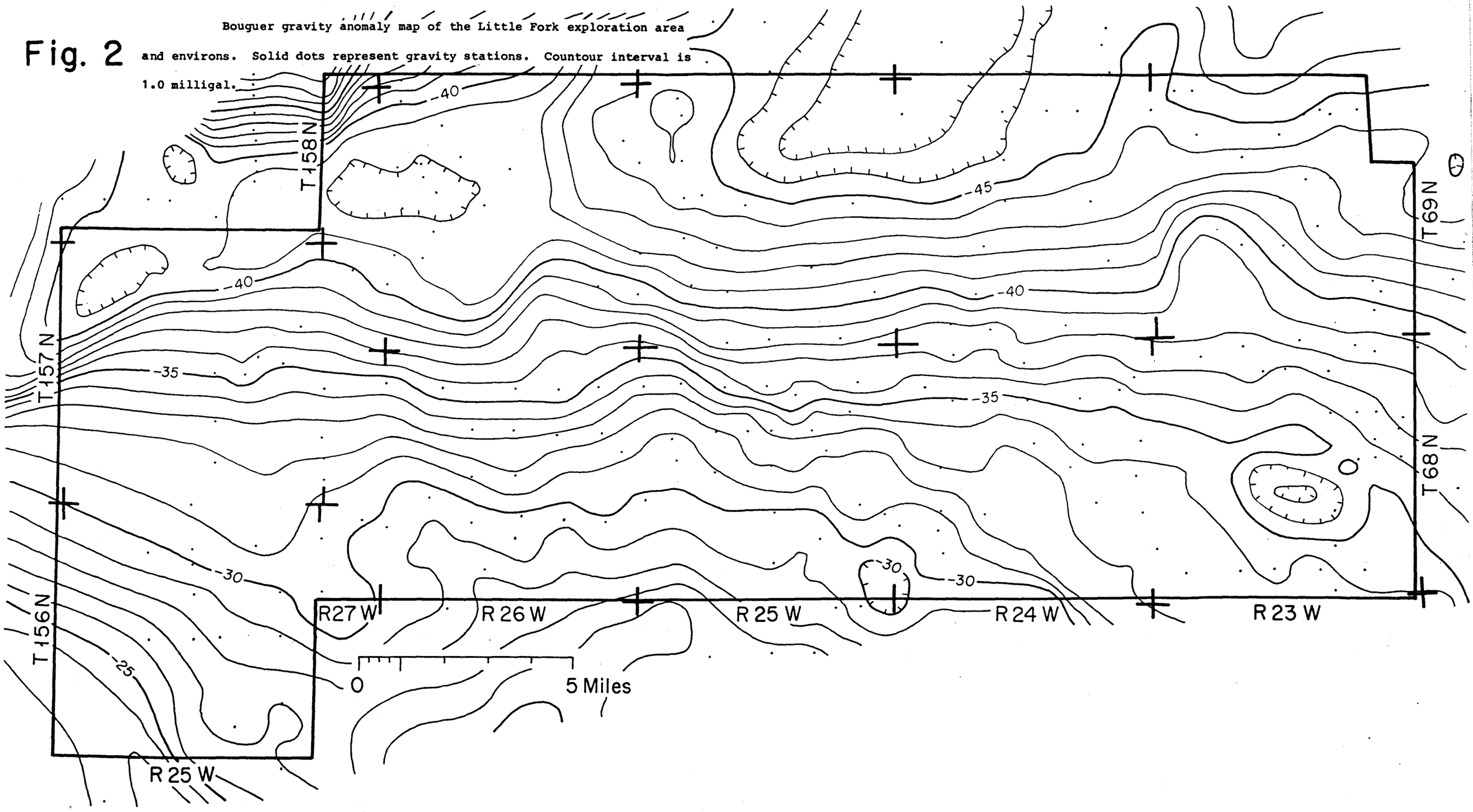
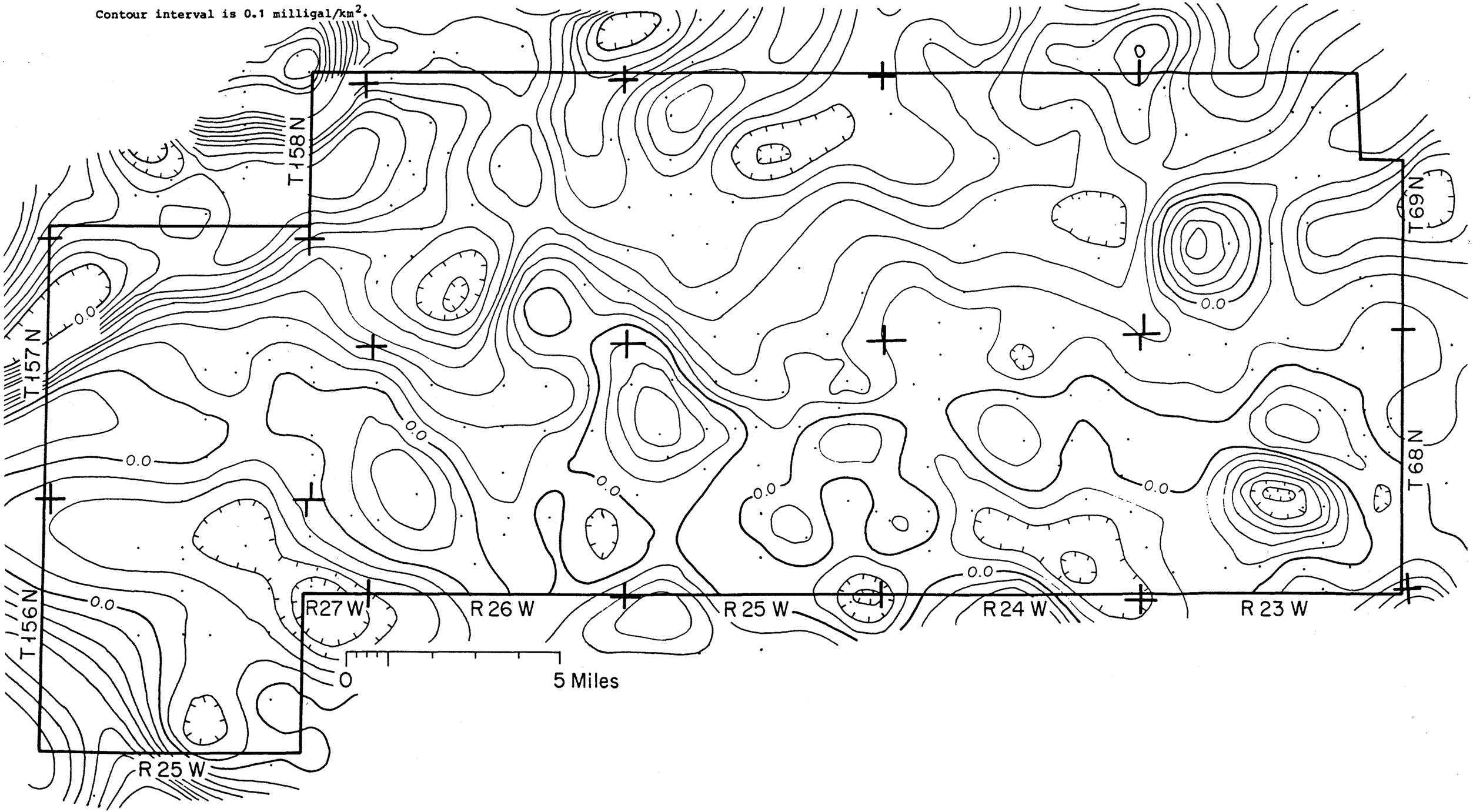


Fig. 3 The second vertical derivative (SVD) of the gravity anomaly in the Little Fork exploration area. Solid dots represent gravity stations. Contour interval is 0.1 milligal/km$^2$.

MAP 50-5



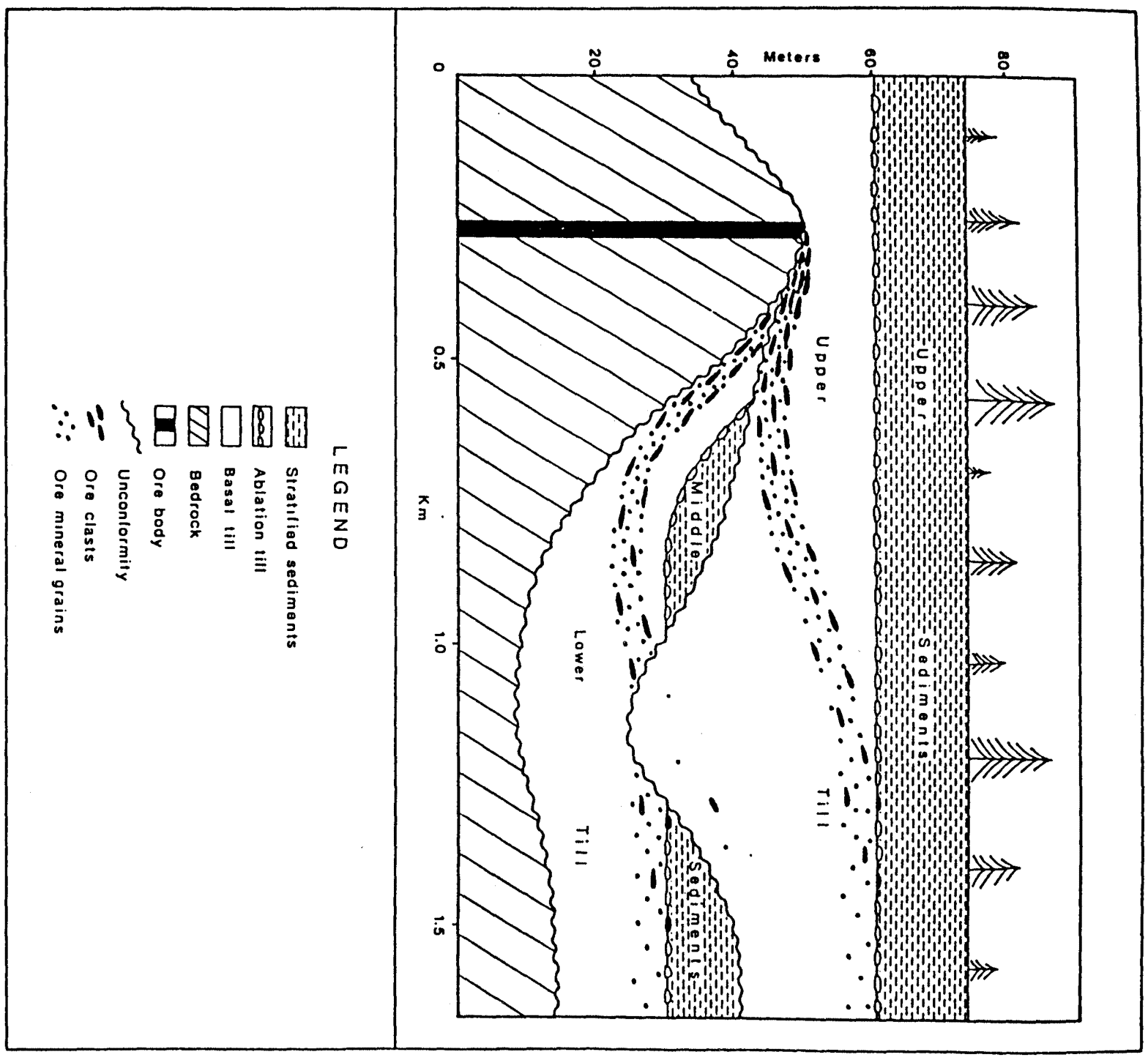
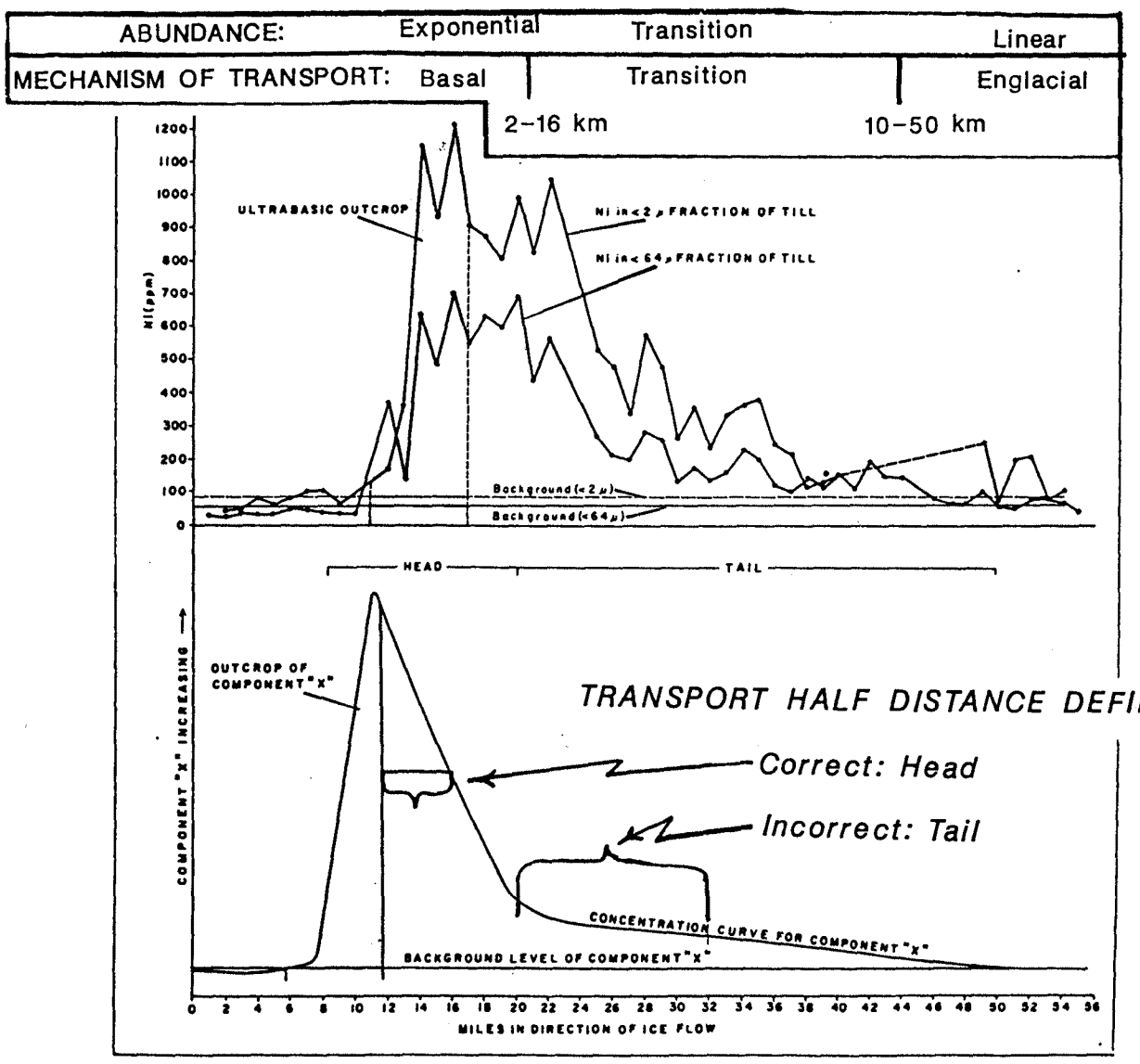



Figure 1-1. Dispersion pattern for two tills with gold source on a bedrock high (Developed by Overburden Drilling Management Ltd.).



Figure 1-2. Example of actually found and idealized glacial dispersal curves. (Modified from Bolviken and Gleeson, 1979; after Shilts, 1976; and Strobel and Faure, 1987.)



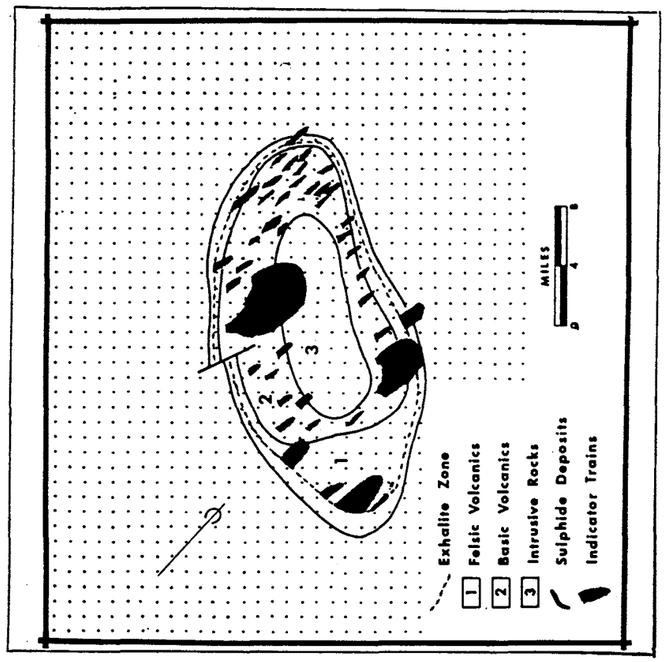



Figure 1-3. A cluster of dispersal trains of Cu-Ni showings in a regional survey in Archean terrane in the Rankin-Ennadai area, Canada (from Shilts, 1975).

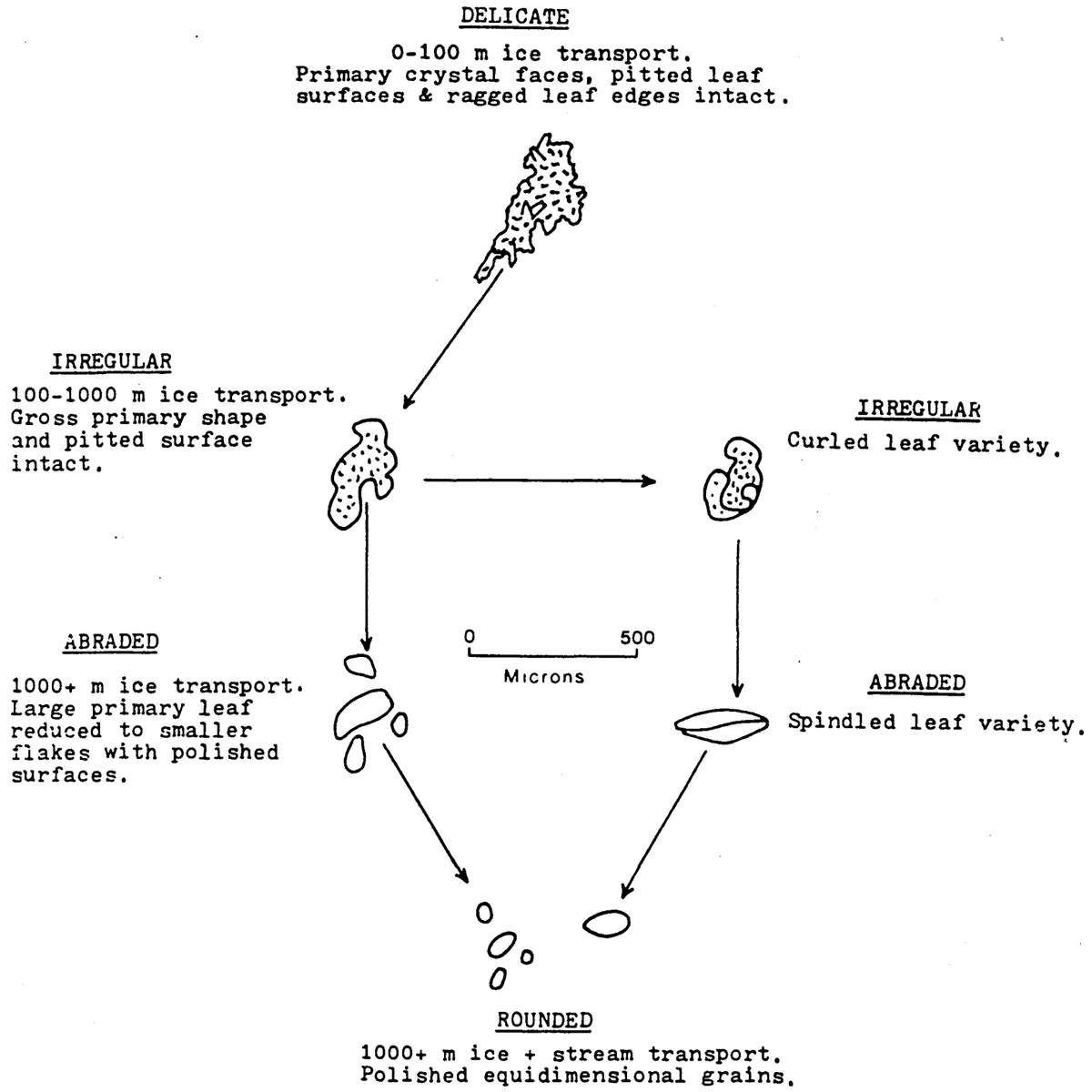
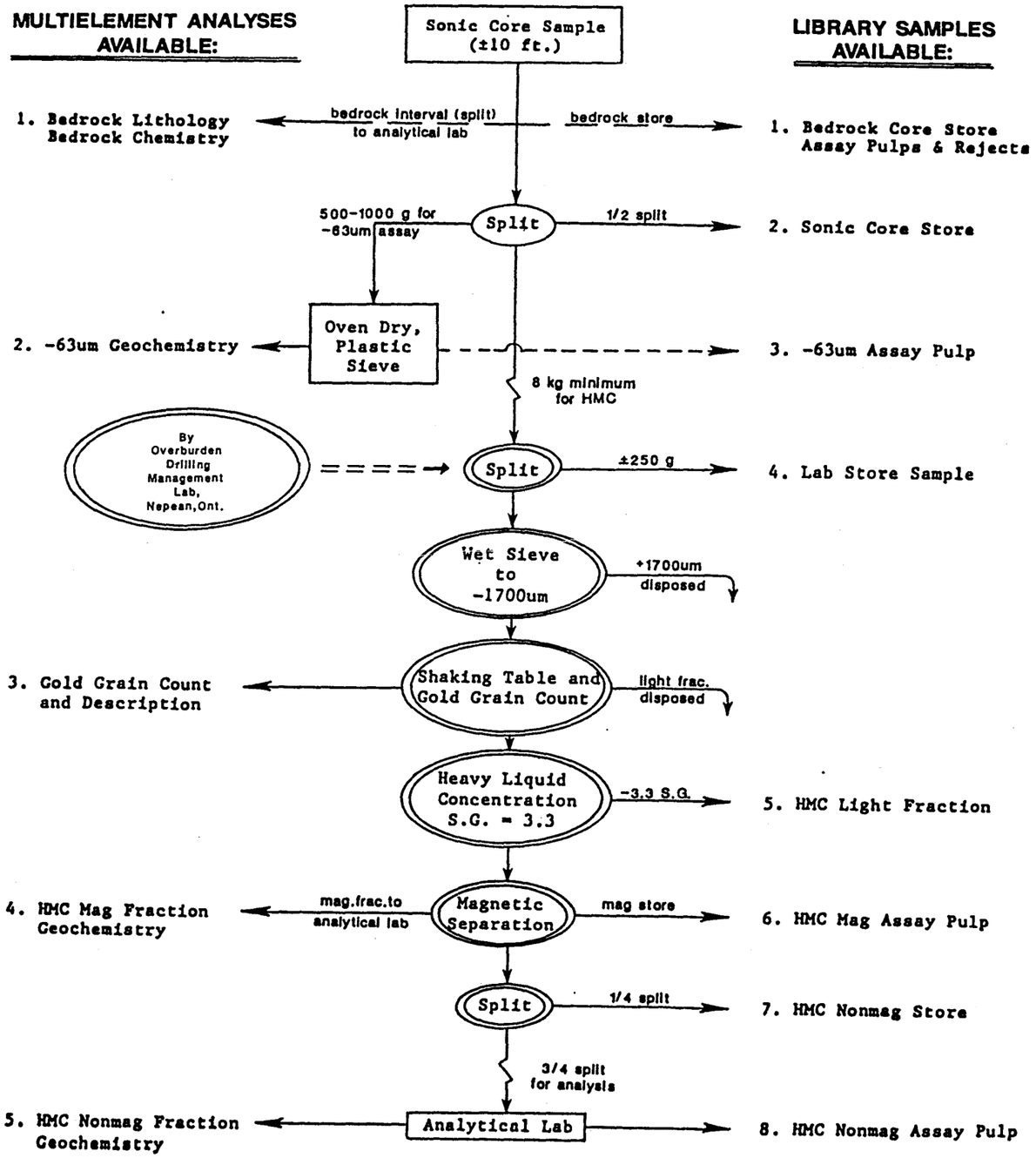



Figure 1-4. Effects of glacial transport on gold particle size and shape. (Developed by Overburden Drilling Management Ltd.)

Figure 3-4. Sample prep flowsheet for Rotasonic samples.





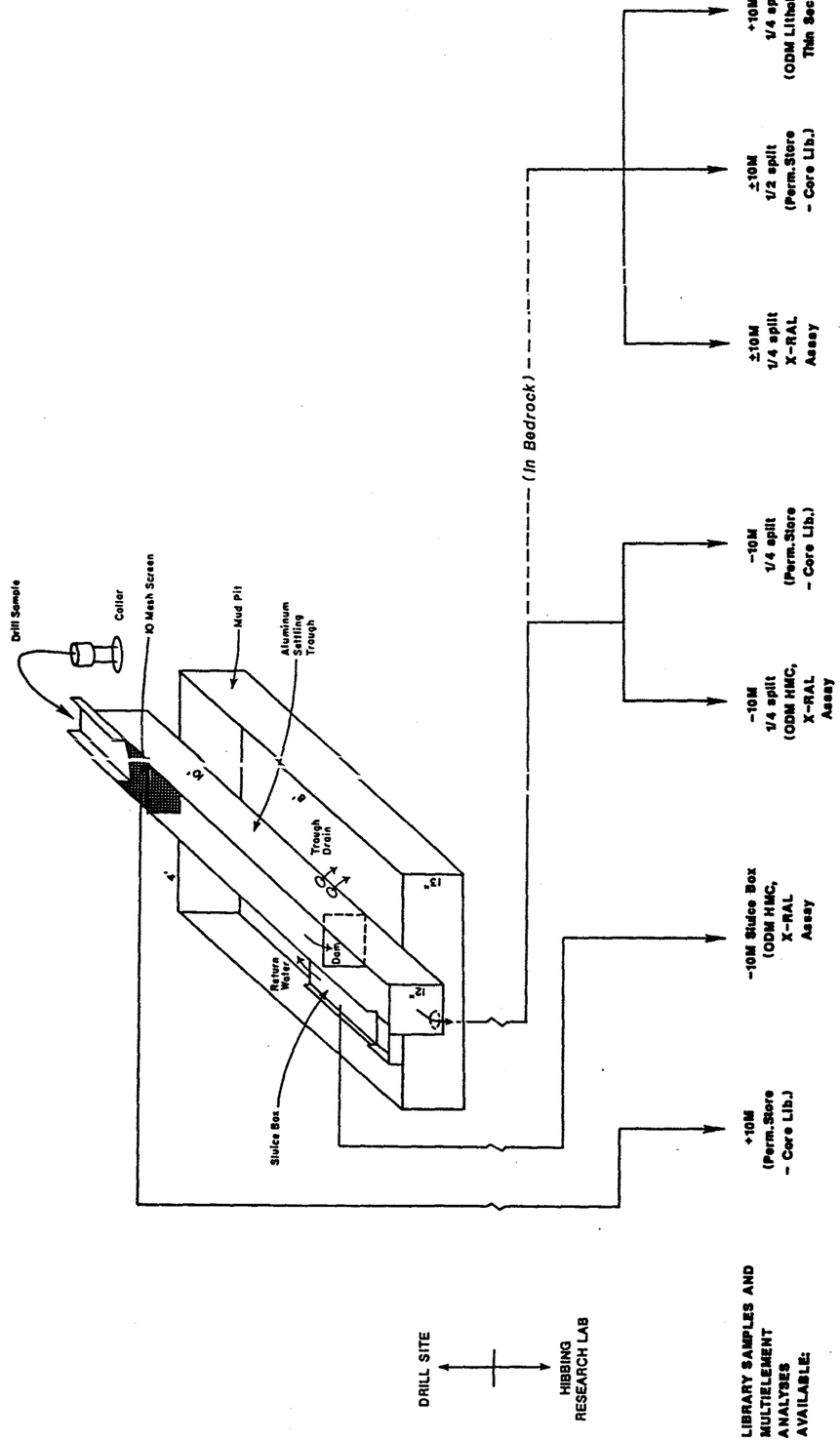




FIGURE 3-5. SAMPLE FLOW DIAGRAM FOR MUD ROTARY DRILLING.

Figure 3-6. Sample prep flowsheet for mud rotary samples.

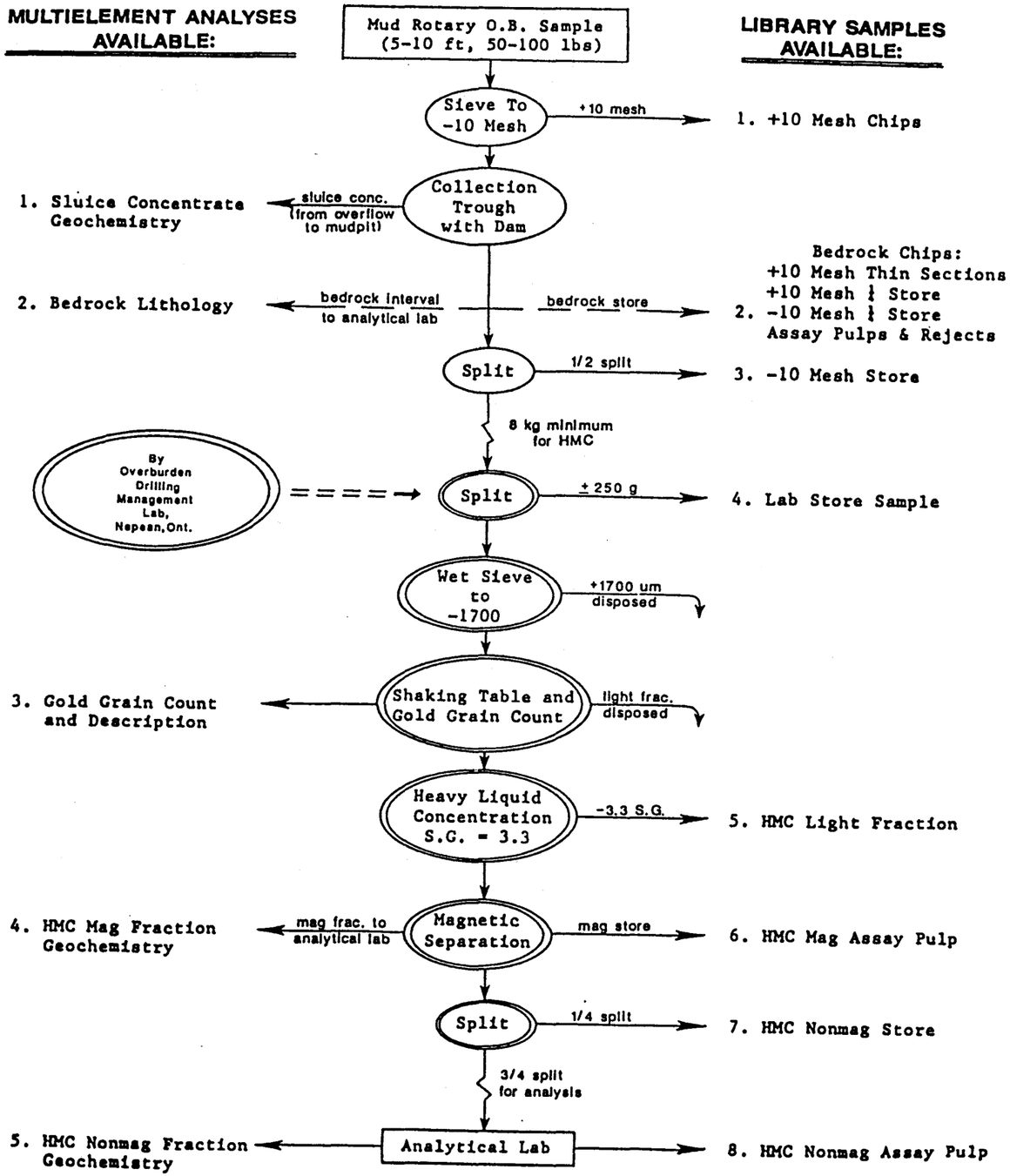



Figure 3-7. Sample prep flowsheet for air rotary samples.

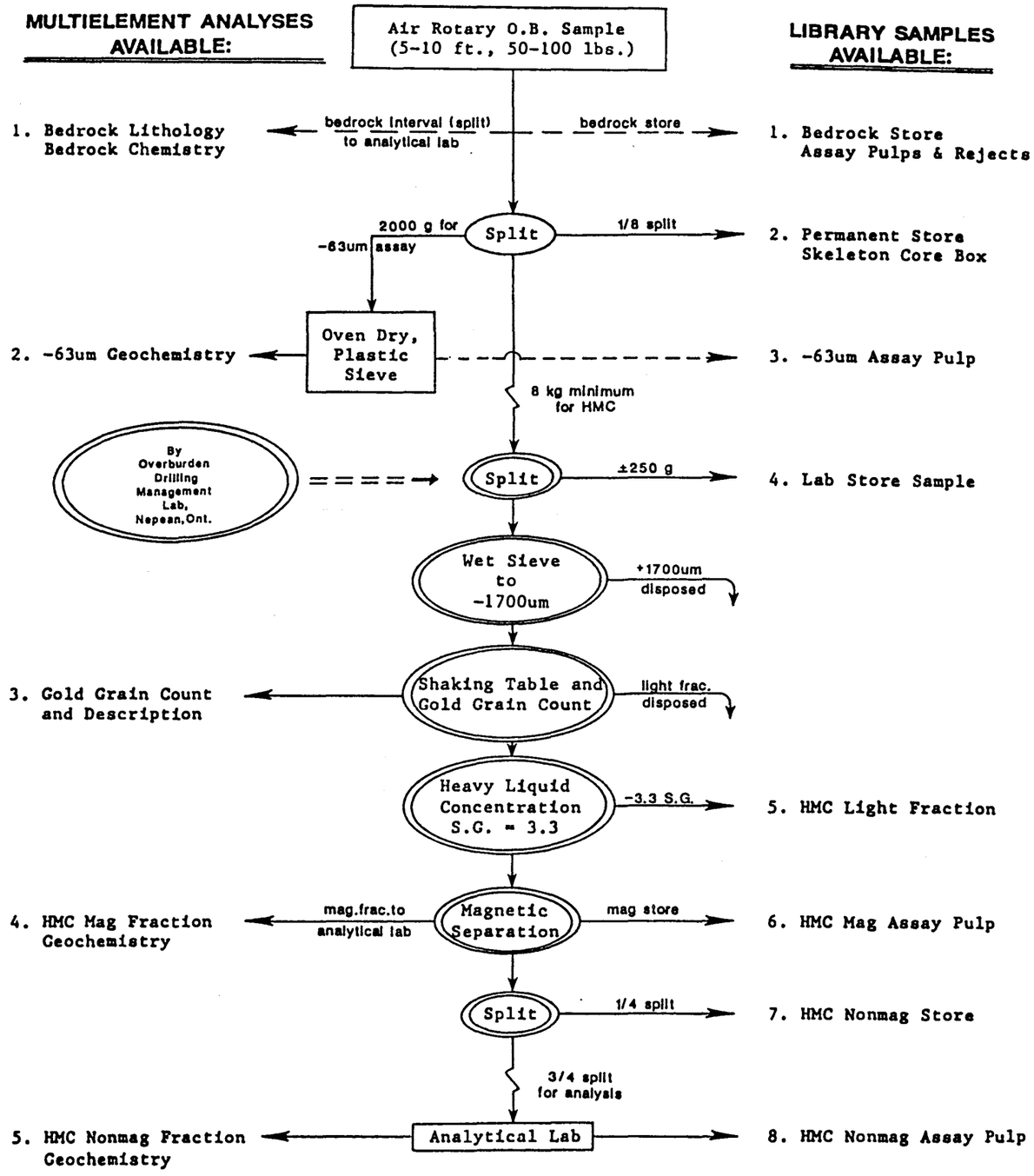
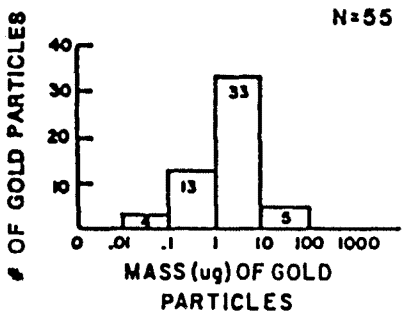
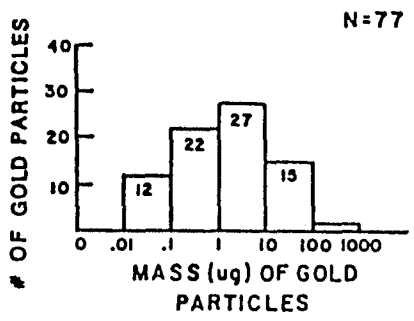


FIGURE 4-8. GOLD PARTICLE SIZE VS. FREQUENCY DISTRIBUTION

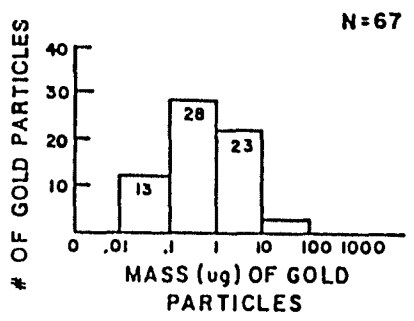
A. SONIC - TOTAL = ORR & LITTLEFORK AREA



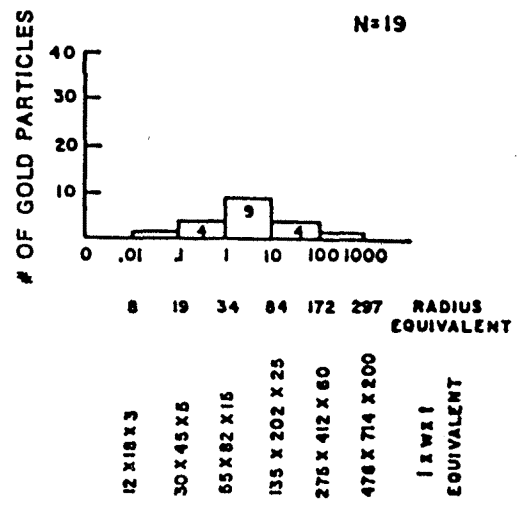

B. MUD ROTARY = ORR AREA



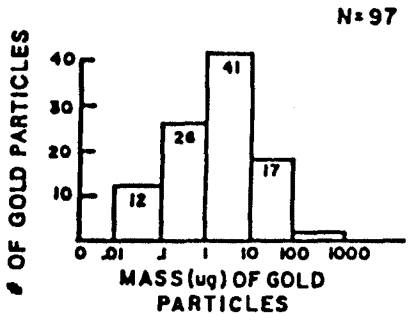

C. SLUICE BOX MUD ROTARY = ORR AREA



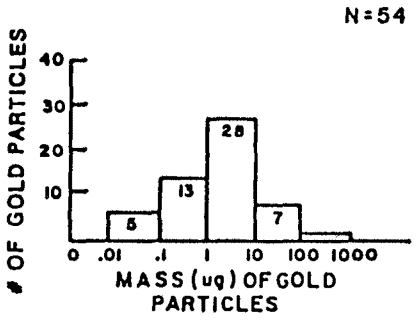

D. AIR ROTARY = LITTLEFORK AREA



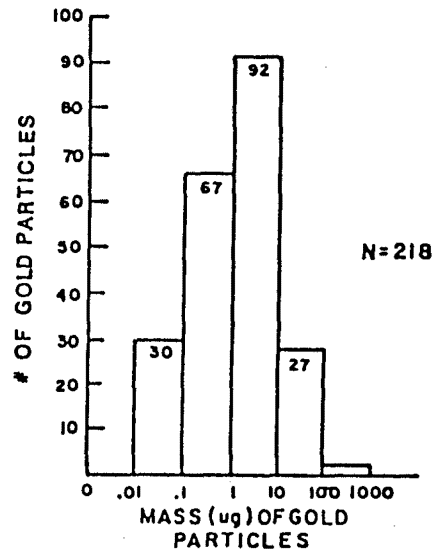

E. MUD AND SONIC = ORR AREA




F. AIR AND SONIC = LITTLEFORK AREA




G. TOTAL = BOTH AREAS




EQUATIONS USED:

$m = dv$

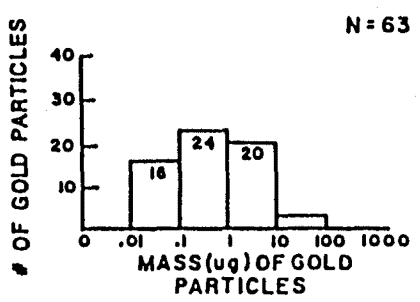
$d(gold) = 18 g/cm^3$

$v = \pi r^2 t$

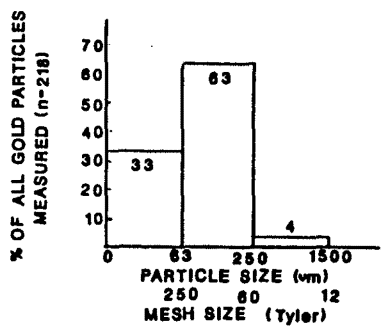
$r = \frac{(1.5)l + w}{4}$

$t = [0.2 - 0.01(\frac{2r - 100}{100})]2r$

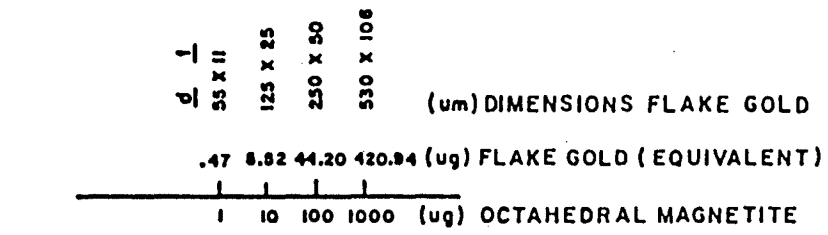
H. ALL GOLD GRAINS DRILL HOLE OB-20801

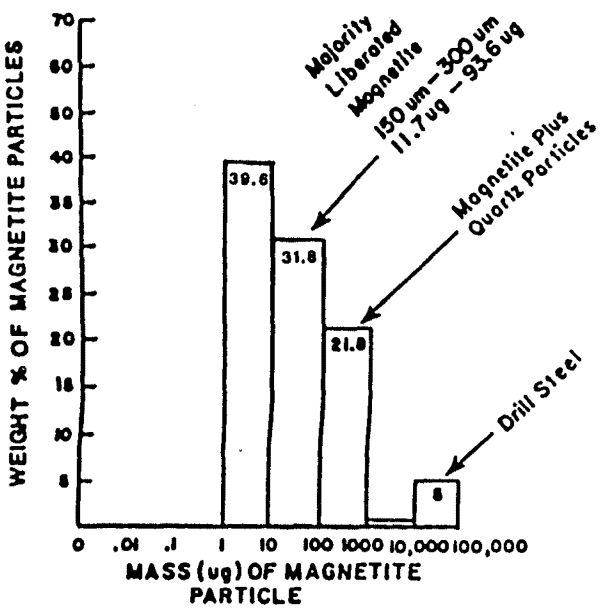



J. TOTAL = BOTH AREAS




I. MAGNETITE SIZE DISTRIBUTION - from mudpit sample collected from mud rotary hole 20200. This magnetite was not collected by our sample system. Note that this was not cleaned by heavy liquid seperation as the HMC's are.




EQUATIONS USED:

$m = dv$

$d(gold) = 18 g/cm^3$

$d(magnetite) = 5.2 g/cm^3$

$d(quartz) = 2.7 g/cm^3$

$v(cylinder) = \pi r^2 t$

$v(octahedron) = \frac{(Ah)2}{3}$

$v(sphere) = \frac{4\pi r^3}{3}$

$A = lxw$

$t = [0.2 - 0.01(d - 100)]d$

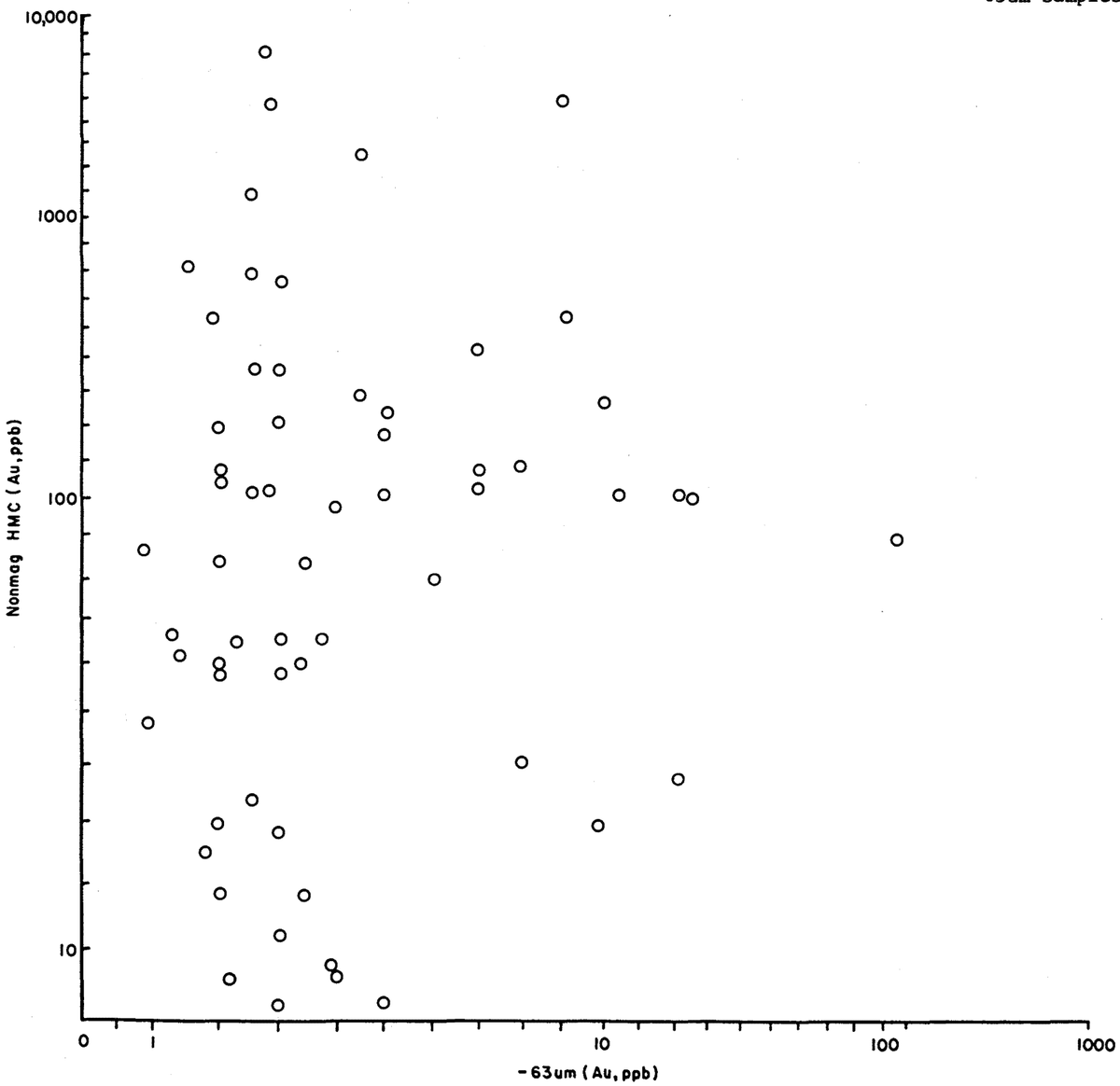
(FROM OVERBURDEN DRILLING MANAGEMENT LAB, 1988)

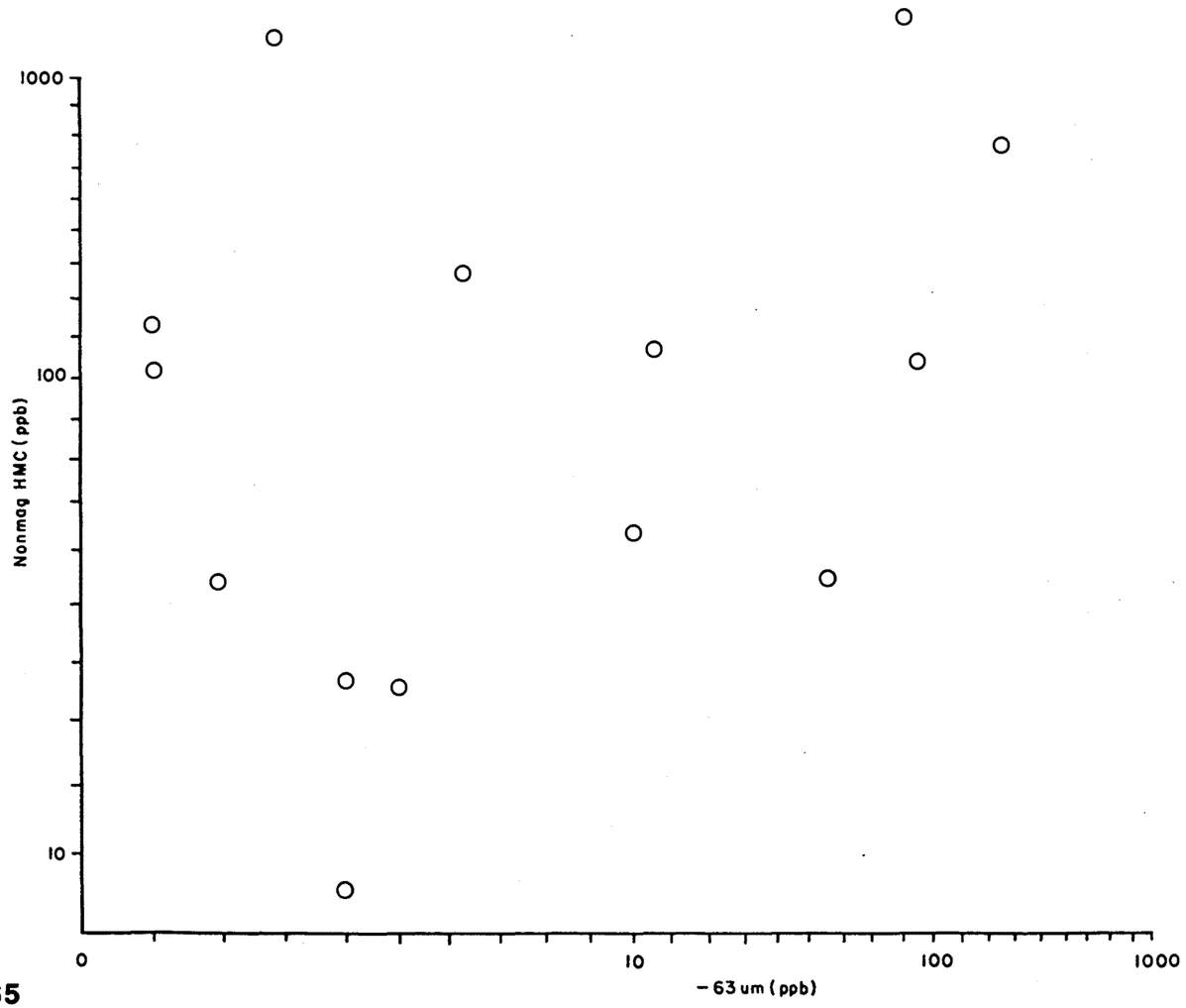
NOTE: Stokes' Law is not strictly applicable to diameters above about 0.14 mm (140um). Quartz, magnetite and gold equivalent particles were calculated using Stokes' Law (TOURTELOT, 1968, HYDRAULIC EQUIVALENCE OF QUARTZ AND HEAVIER MINERALS, AND IMPLICATIONS FOR THE STUDY OF PLACERS).

Figure 4-9. Plot of gold assays (ppb) of Rotasonic drilling, all till samples, nonmag HMC fraction vs. -63 micron fraction of same interval. Calculated correlation coefficient equals .06.

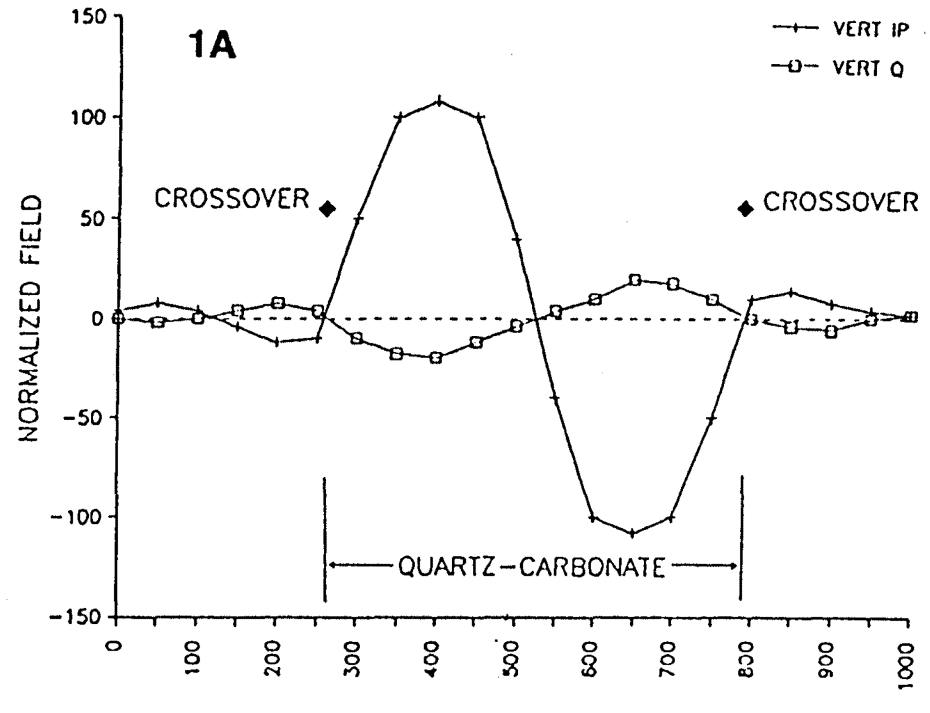
Figure 4-10. Plot of gold assays (ppb) of Air rotary drilling, all till samples, nonmag HMC fraction vs. -63 micron fraction of same interval. Calculated correlation coefficient equals .25.

Note: Nonmag HMC samples normalized to 27g/10kg, and -63um samples normalized to 2000g.

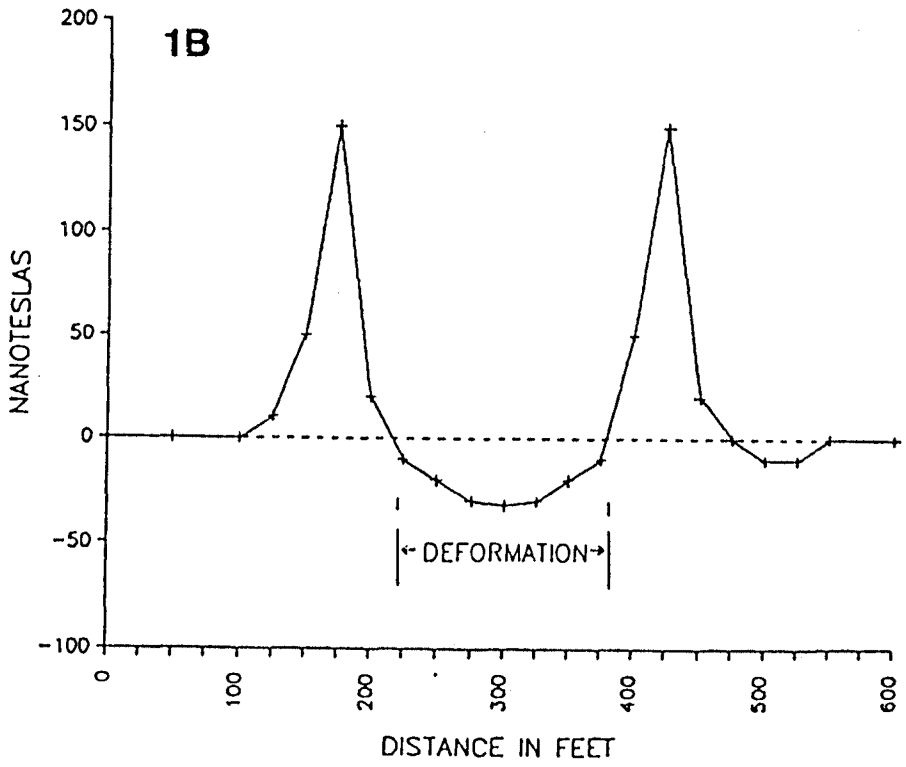


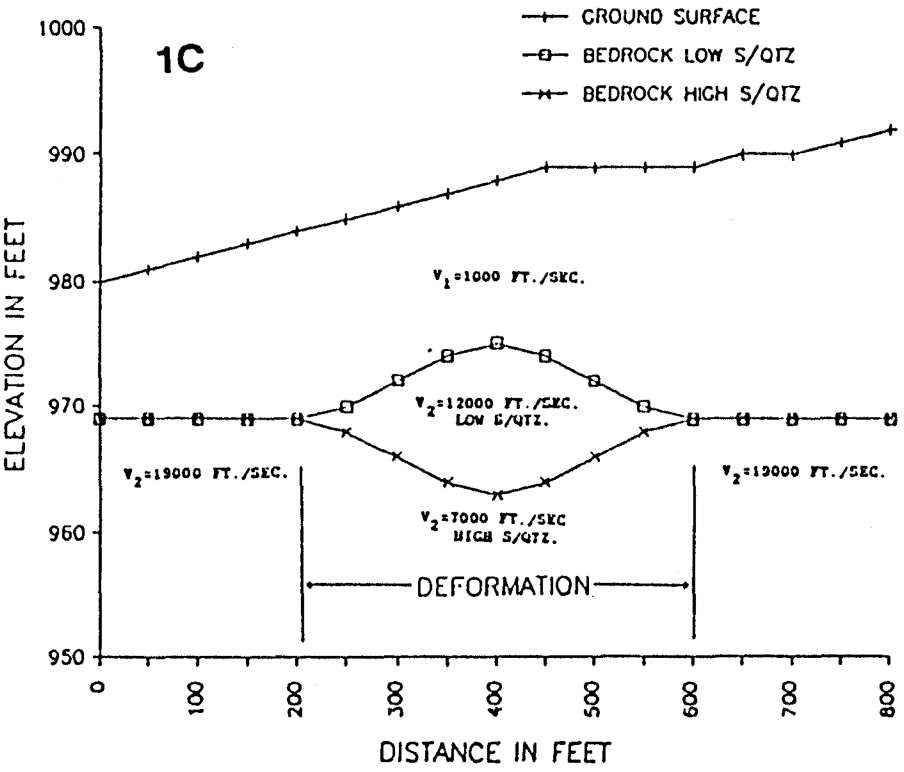
# FIGURE 55-1: IDEALIZED GEOPHYSICAL PROFILES




Idealized very low frequency electromagnetic profile

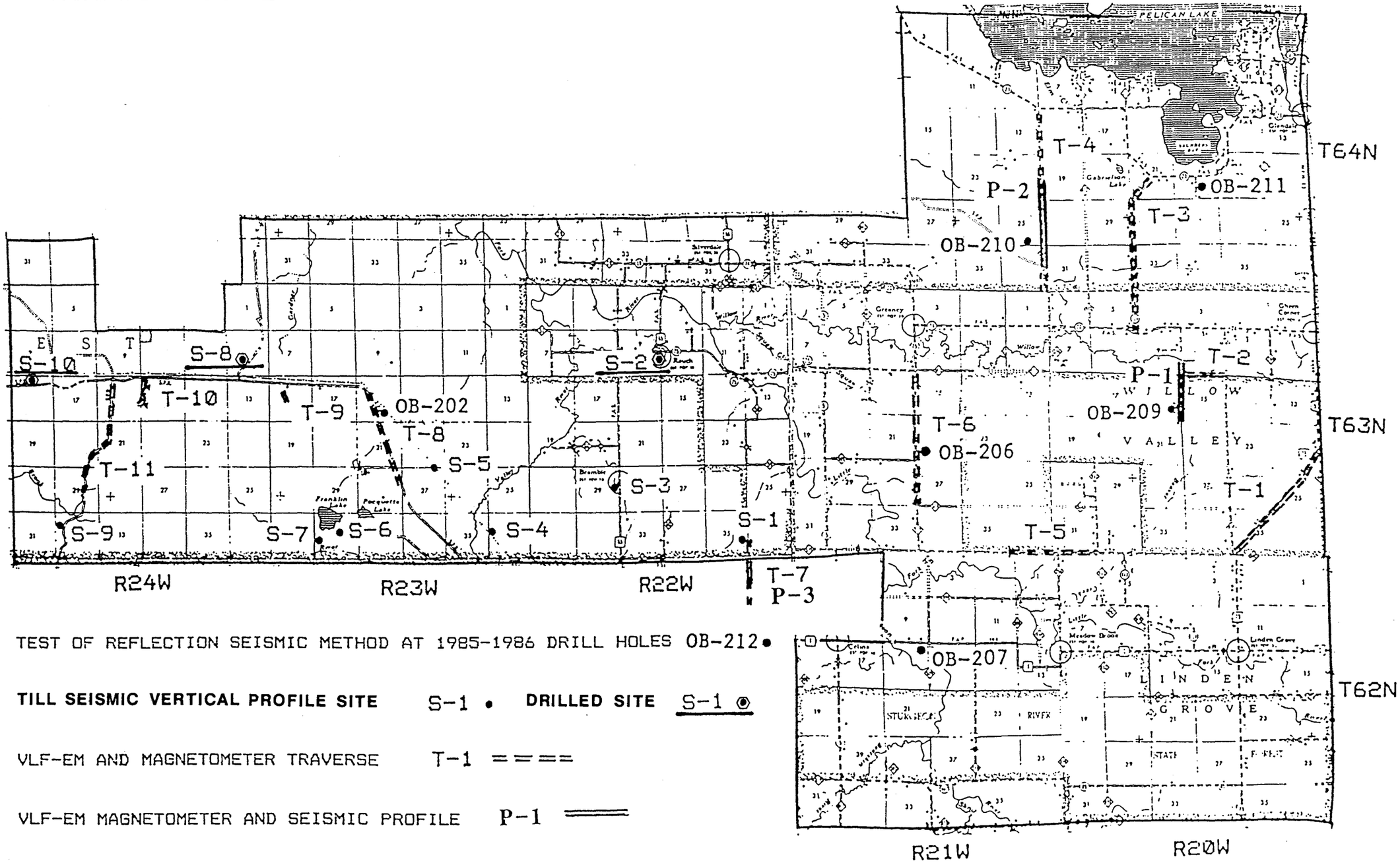



Idealized magnetic susceptibility profile.




Idealized refraction seismic profile

# FIGURE 55-2: BASAL TILL SAMPLING COOK AREA GEOPHYSICAL SURVEYS



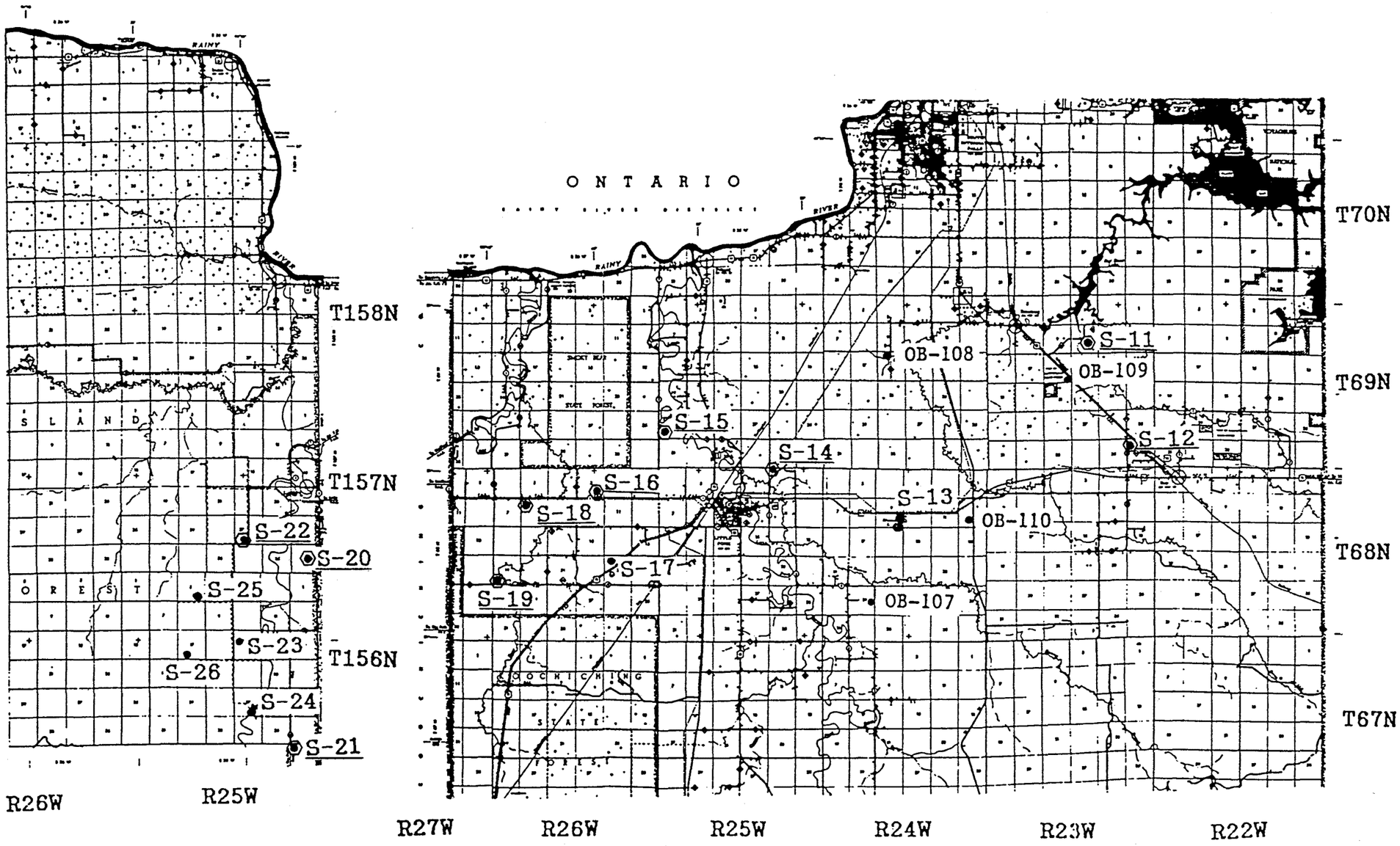

TEST OF REFLECTION SEISMIC METHOD AT 1985-1986 DRILL HOLES OB-212●

**TILL SEISMIC VERTICAL PROFILE SITE** S-1 ● **DRILLED SITE** S-1 ◉

VLF-EM AND MAGNETOMETER TRAVERSE T-1 ====

VLF-EM MAGNETOMETER AND SEISMIC PROFILE P-1 ═══

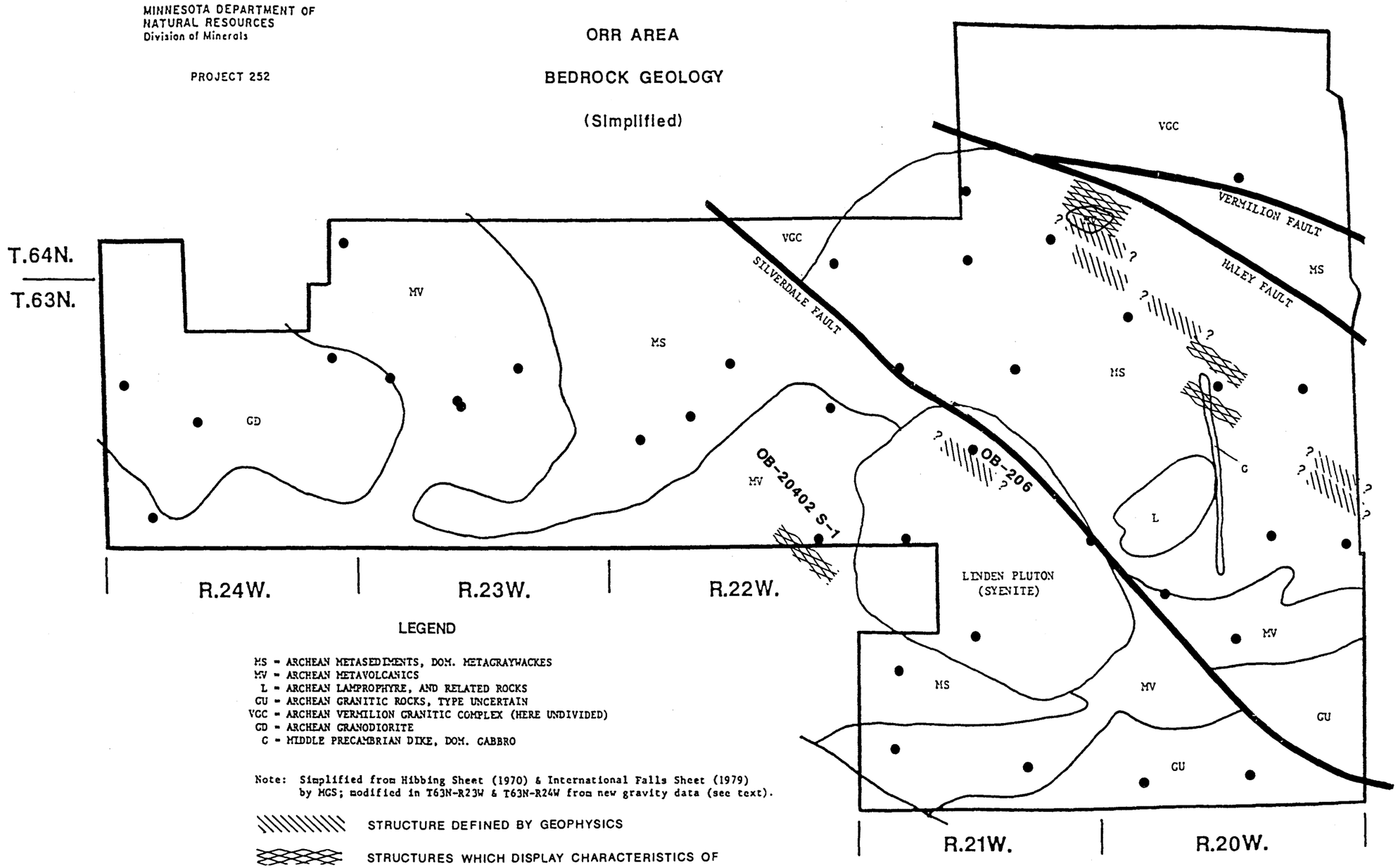
# FIGURE 55-3: BASAL TILL SAMPLING LITTLE FORK AREA GEOPHYSICAL SURVEYS



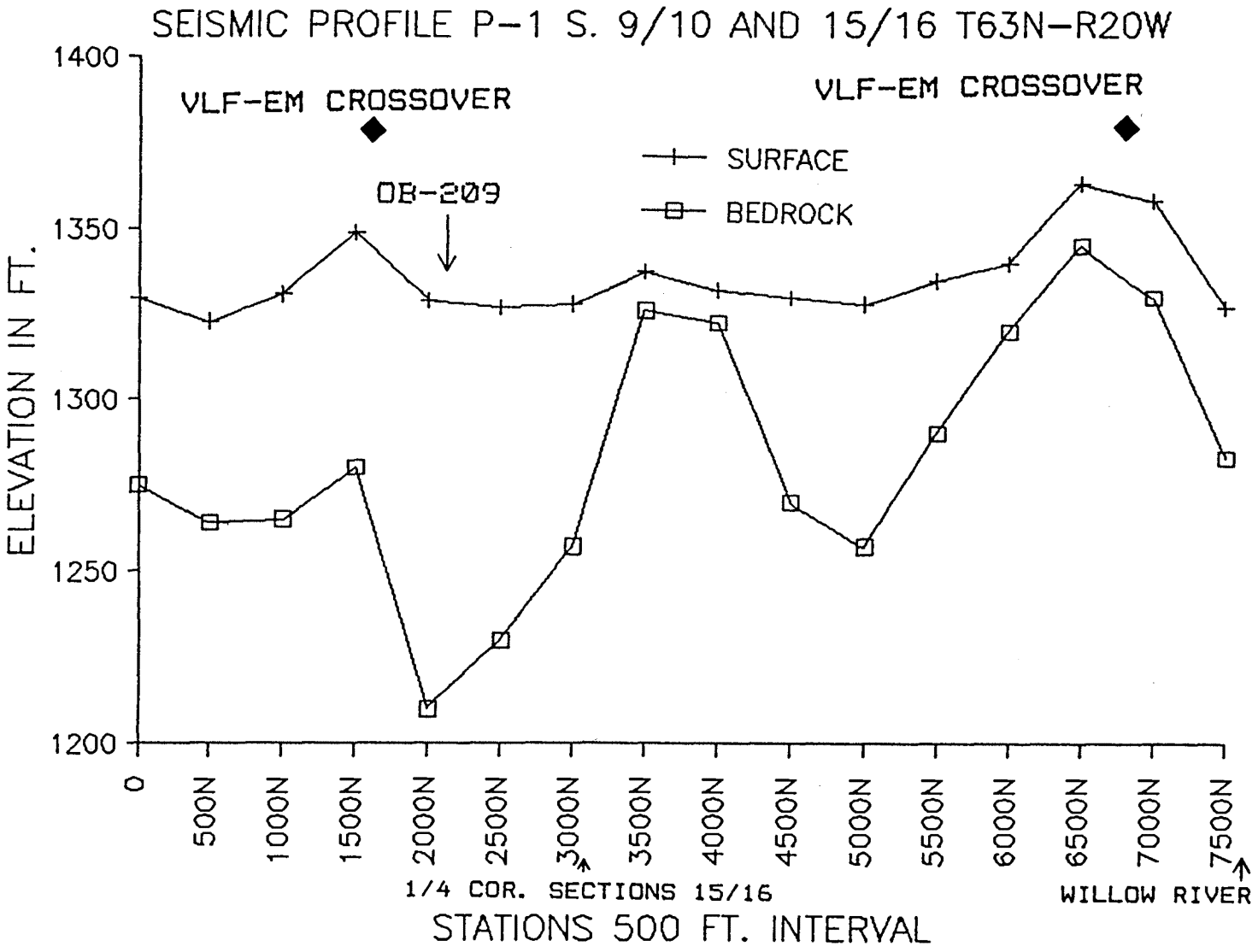

TEST OF REFLECTION SEISMIC METHOD AT 1985-1986 DRILL HOLES • OB-105

TILL SEISMIC VERTICAL PROFILE SITE • S-25 DRILLED SITE ◉ S-11

# FIGURE 55-4: GEOLOGIC FEATURES DEFINED BY GEOPHYSICS

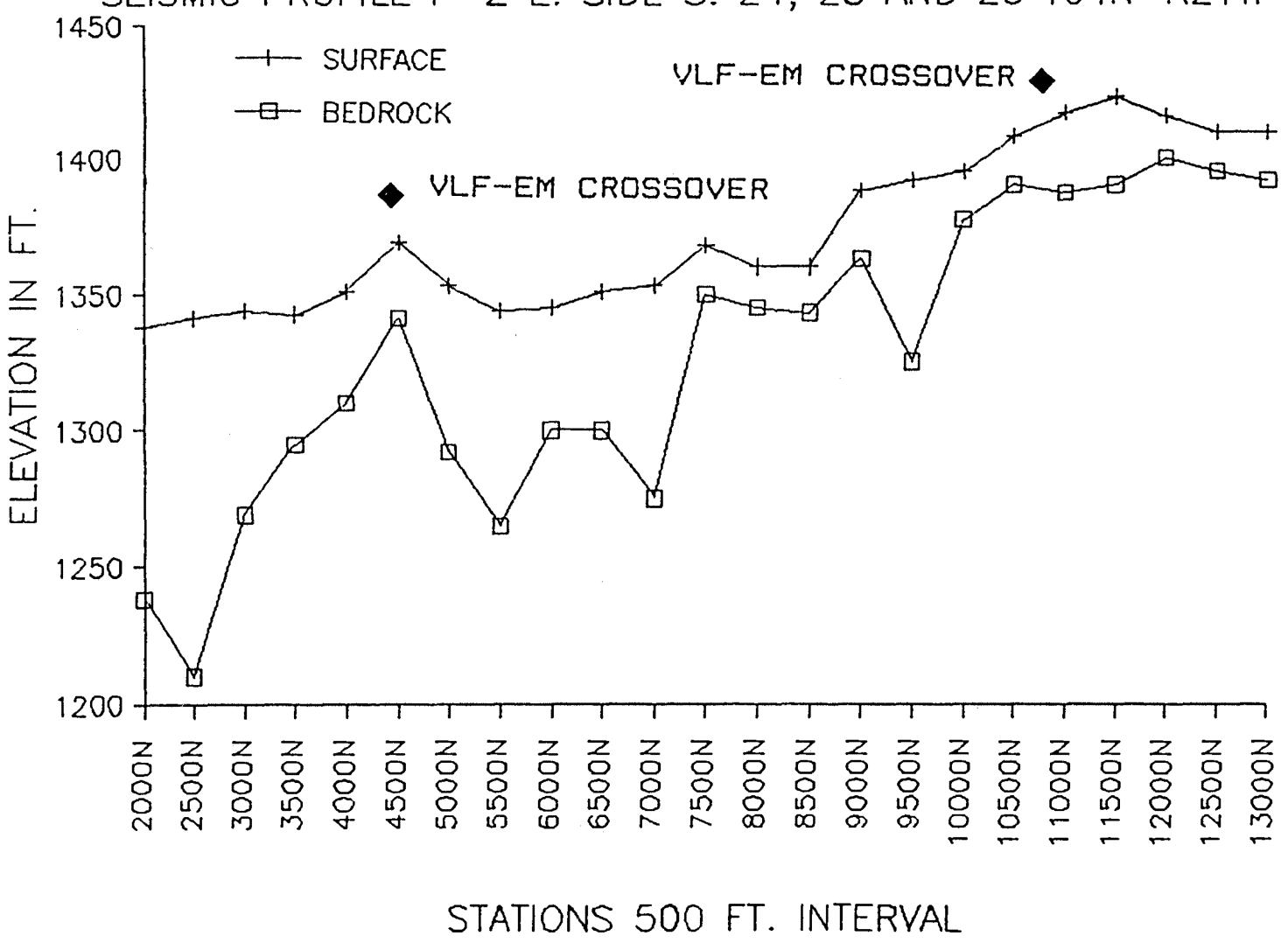


# FIGURE 55-5

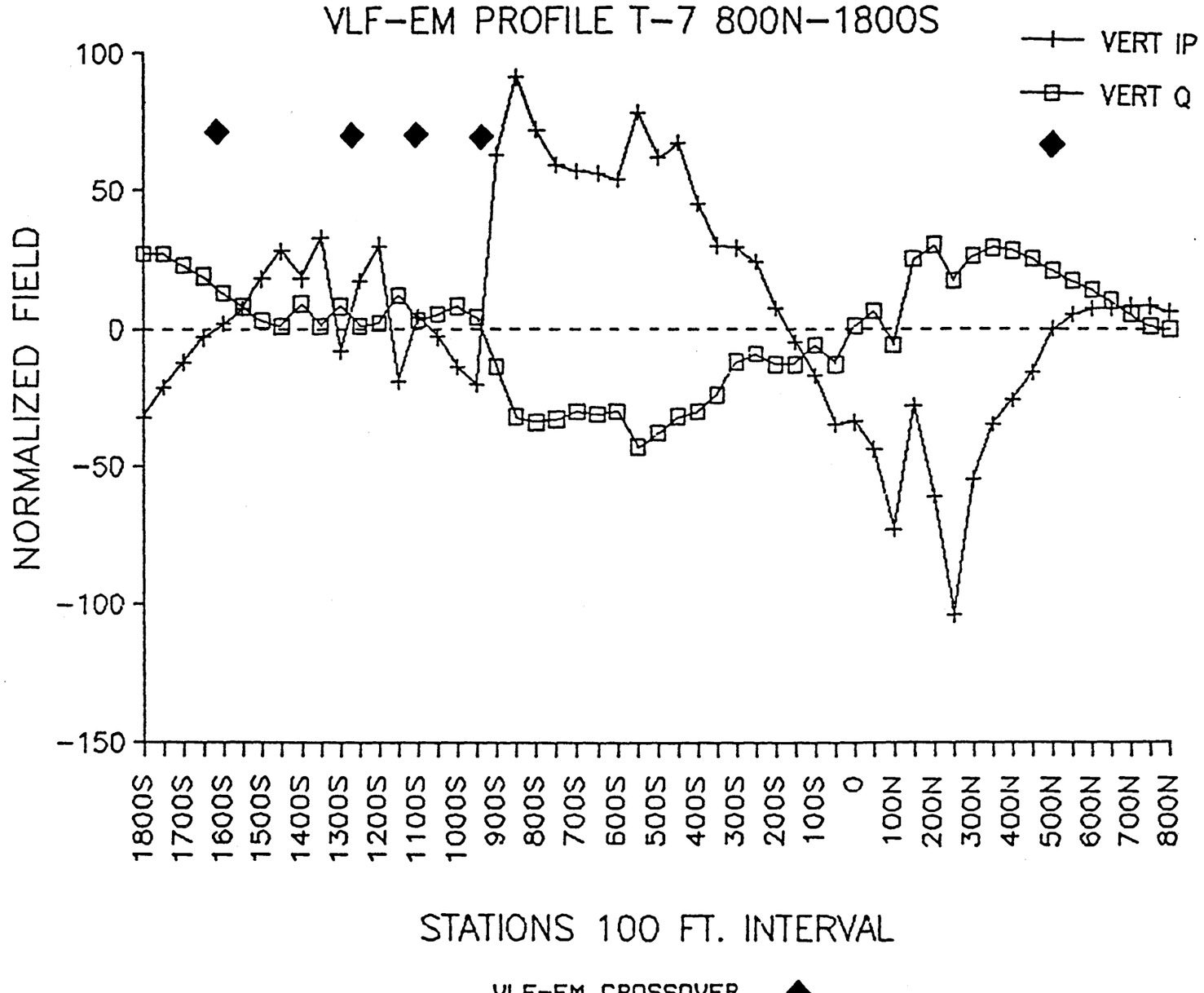




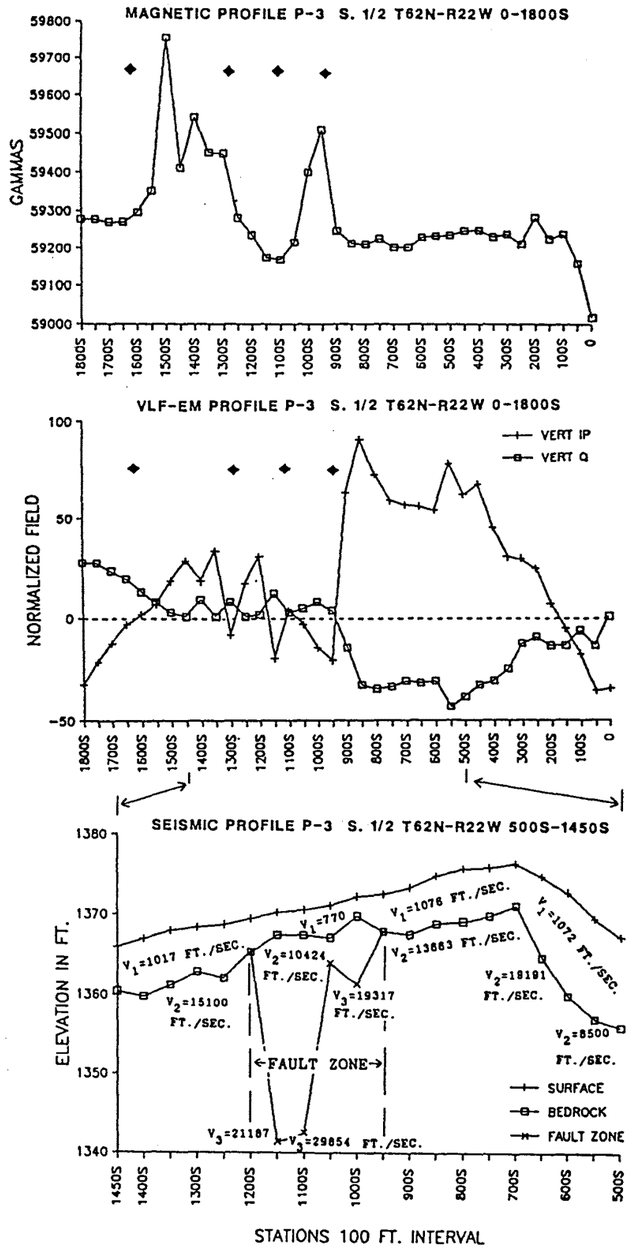

# FIGURE 55-6



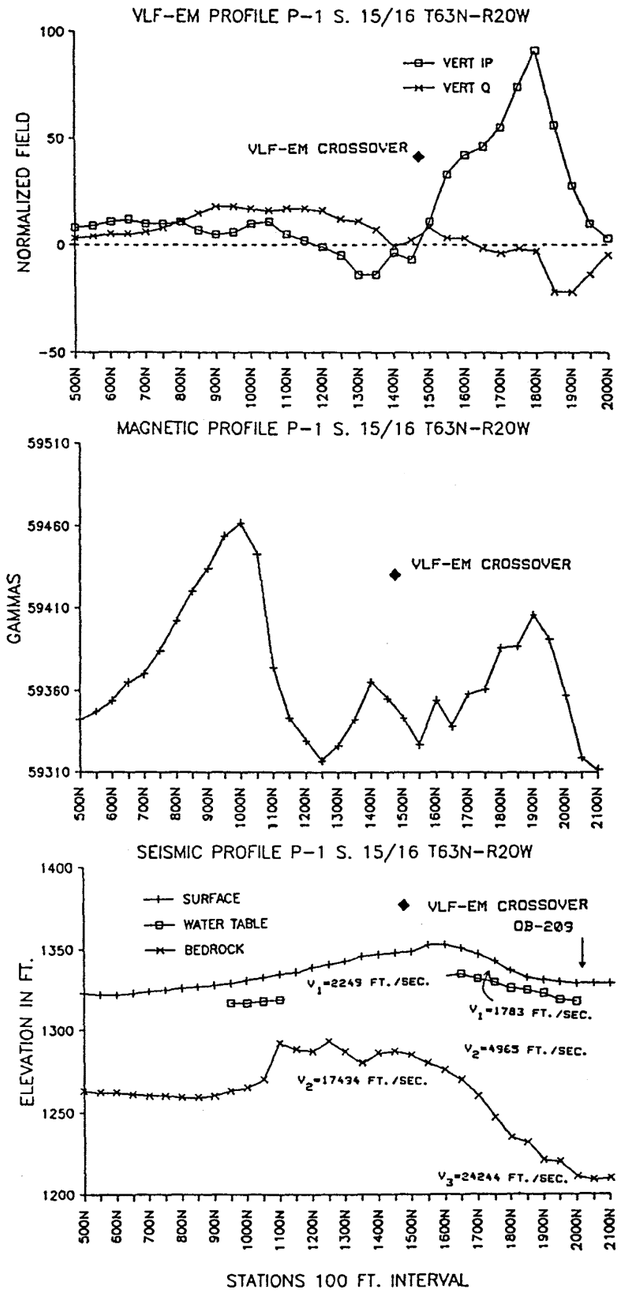
# FIGURE 55-7


VLF-EM PROFILE T-7 800N-1800S
VERT IP
VERT Q
NORMALIZED FIELD
100
50
0
-50
-100
-150
1800S
1700S
1600S
1500S
1400S
1300S
1200S
1100S
1000S
900S
800S
700S
600S
500S
400S
300S
200S
100S
0
100N
200N
300N
400N
500N
600N
700N
800N
STATIONS 100 FT. INTERVAL
VLF-EM CROSSOVER

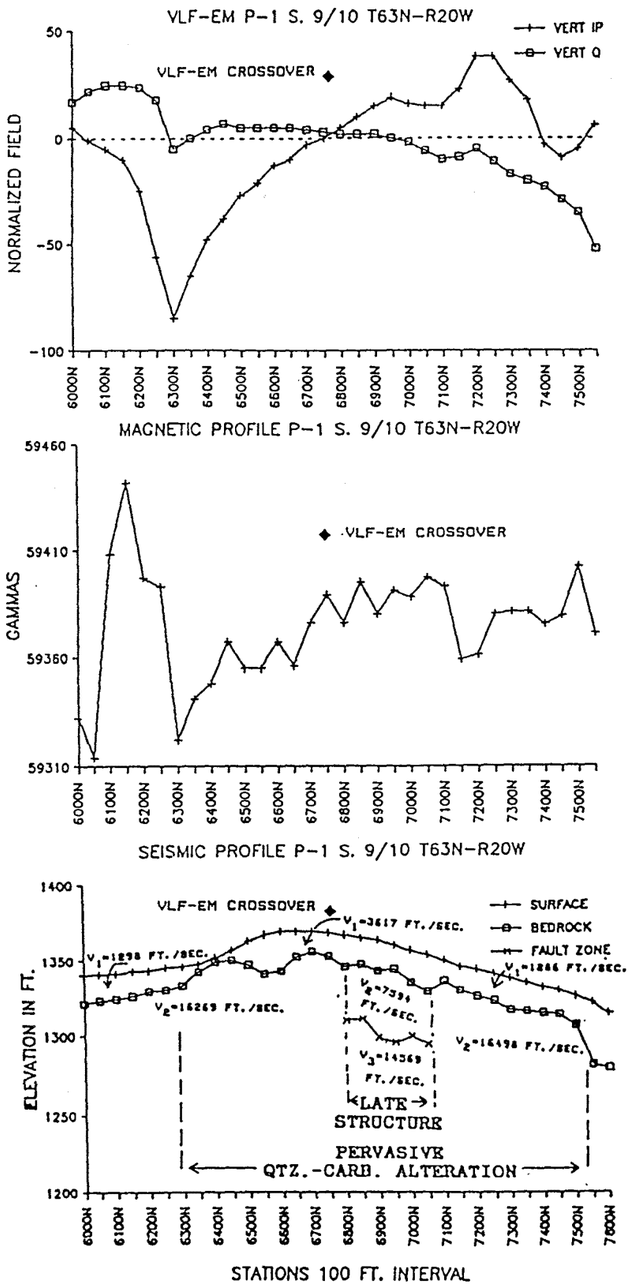
# FIGURE 55-8



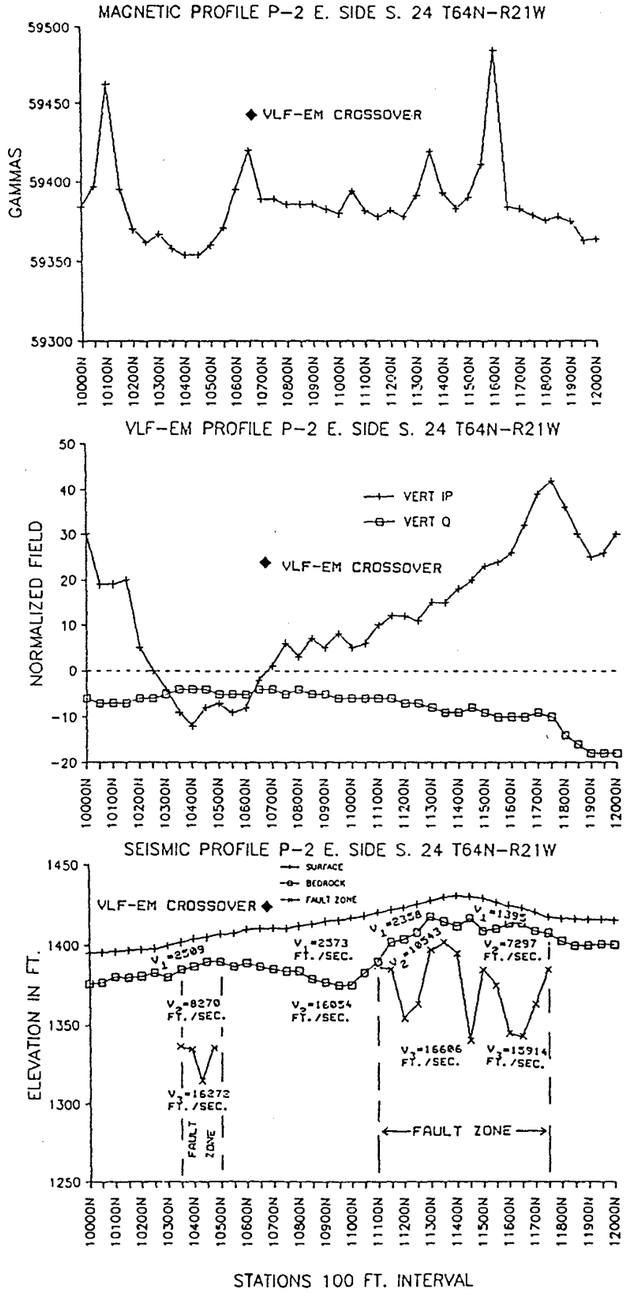

# FIGURE 55-9



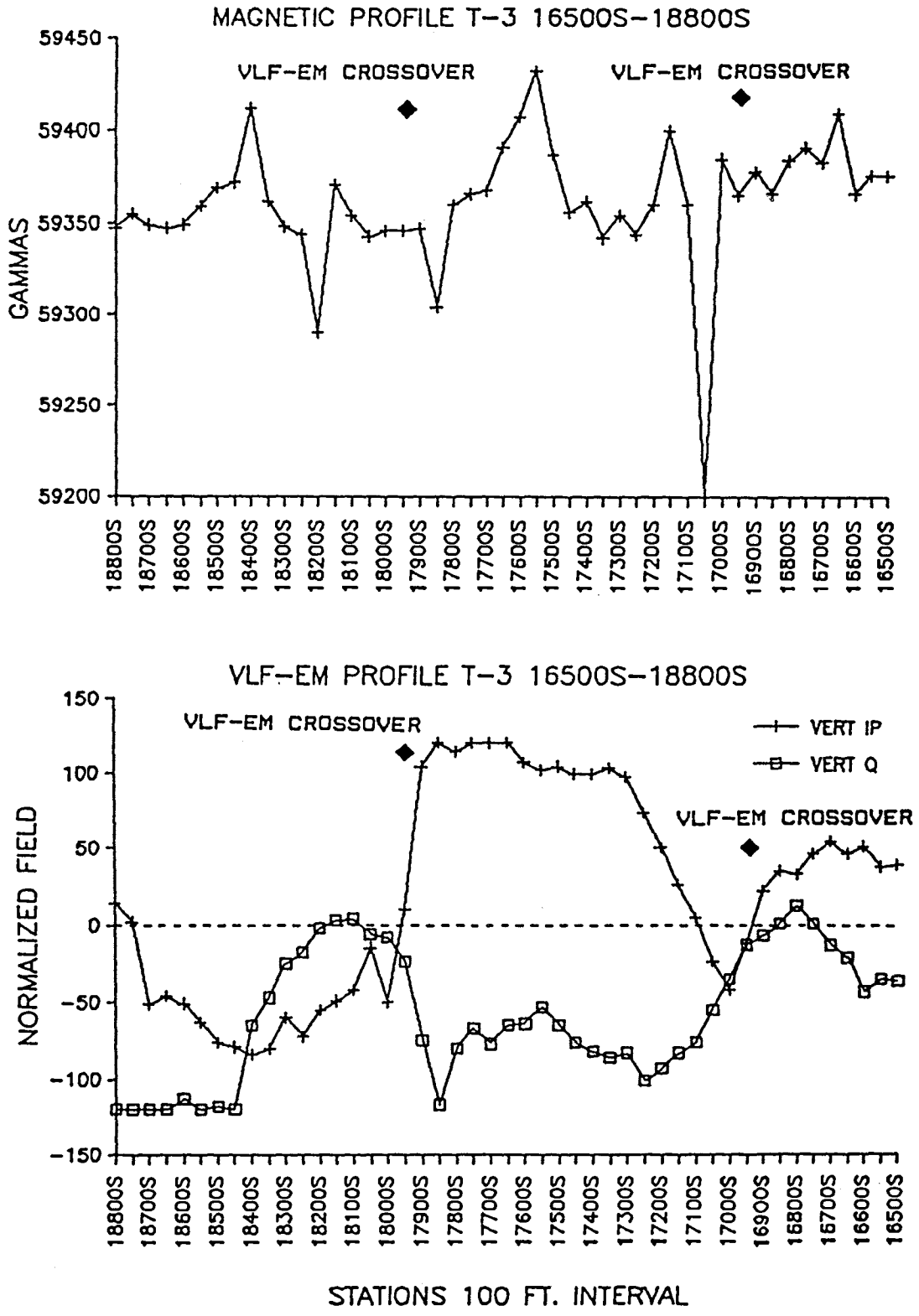
# FIGURE 55-10



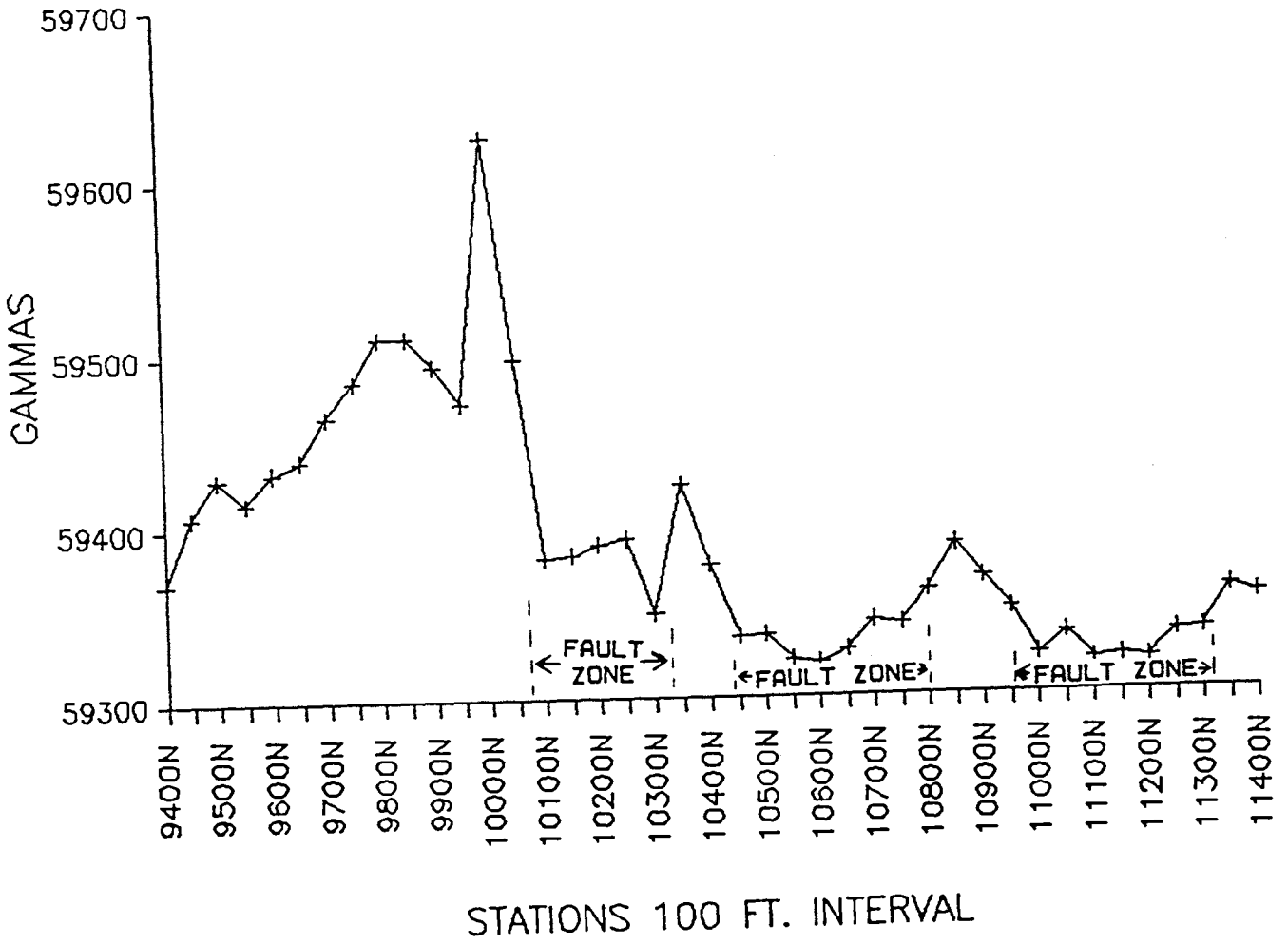

# FIGURE 55-11



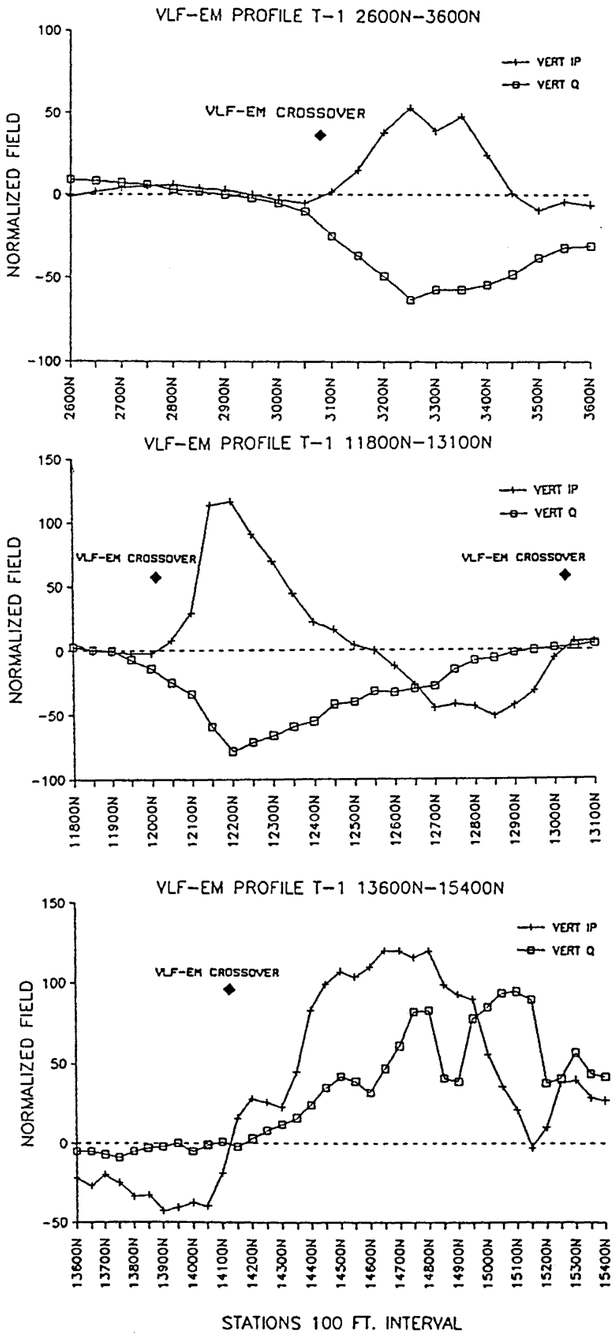
# FIGURE 55-12



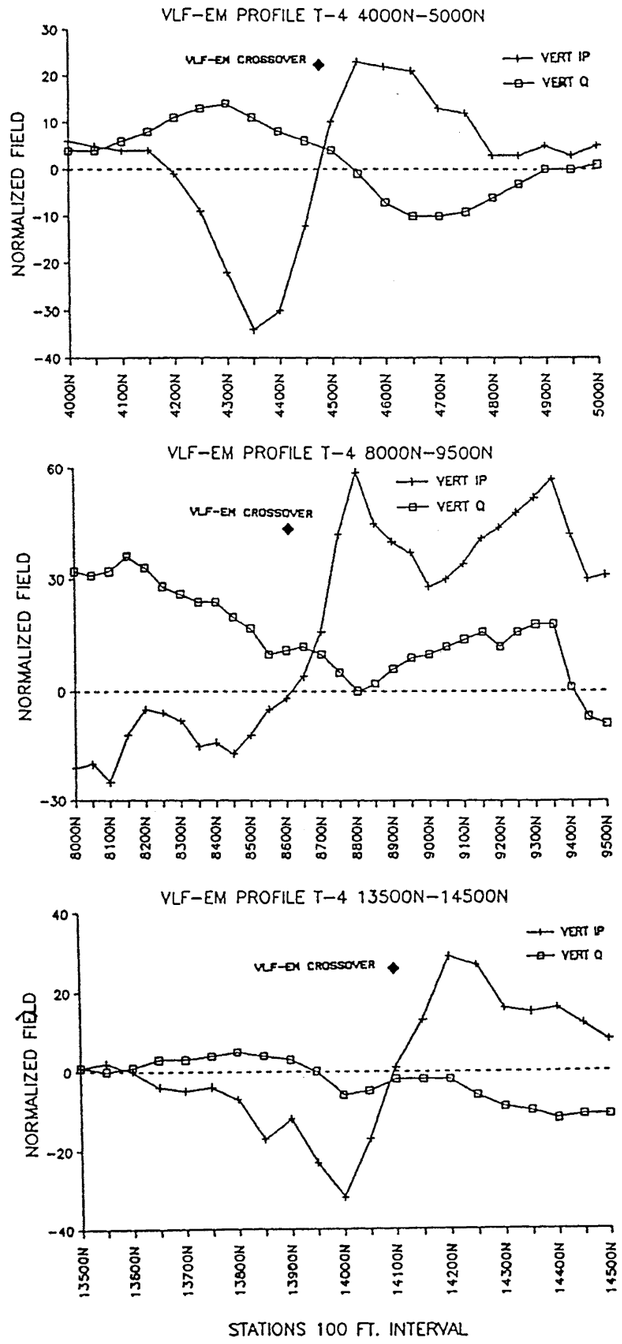

# FIGURE 55-13



# FIGURE 55-14




# FIGURE 55-15



# FIGURE 55-16

MAGNETIC PROFILE T-4 7200N-8400N

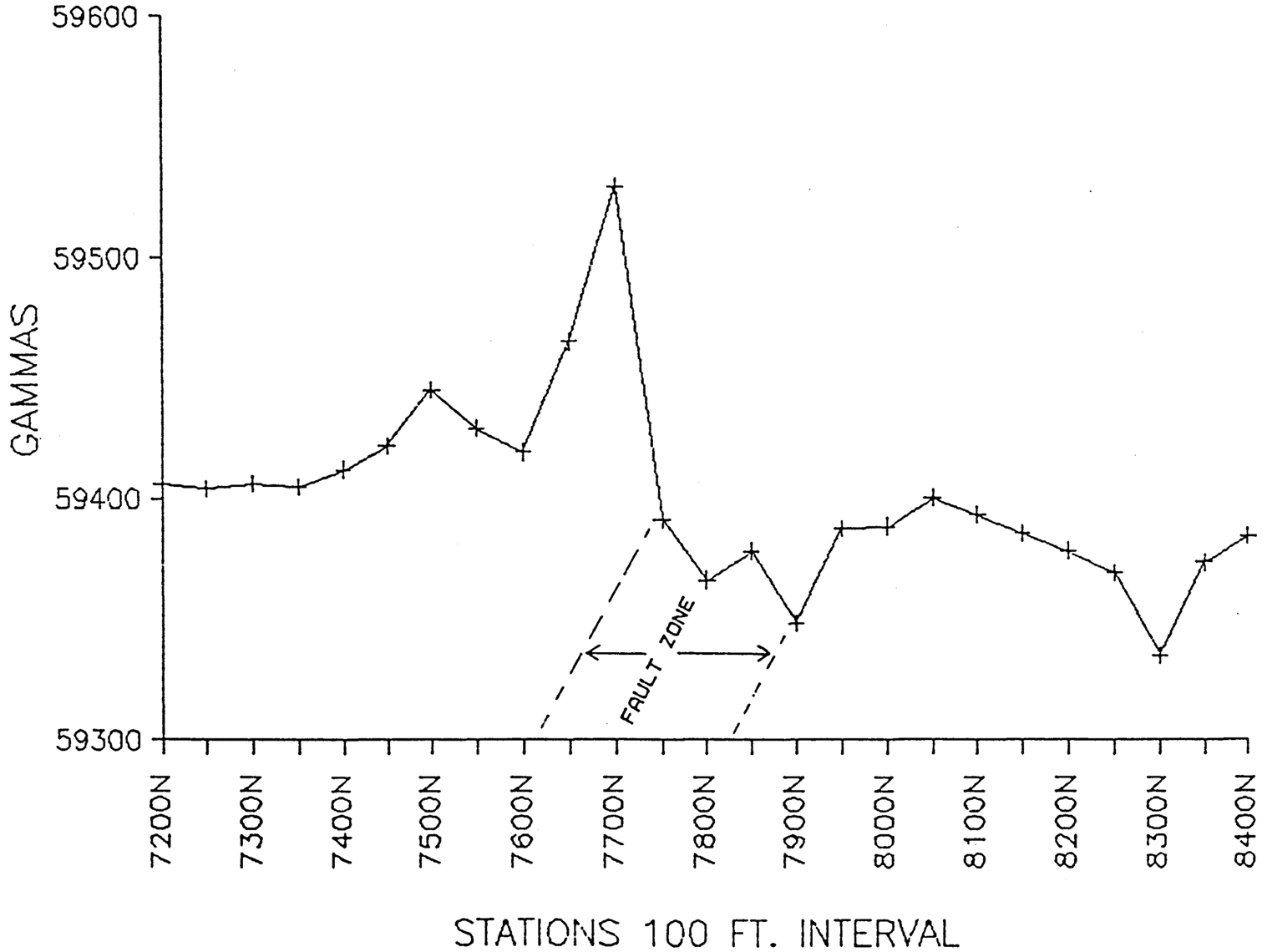


Table 30-1: Chronology of Events

| | | |
|---|---|---|
| 1. | July 1, 1985 | Funding available. Geologist assigned to project. Detail design begins. Portable drill tested for possible niche. |
| 2. | October, 1985 | Drilling contract written and obtained in record time. |
| 3. | November 1985 | Natural resource specialist hired. |
| 4. | December, 1985 | 19-hole Rotasonic drilling program performed during 80-year record low temperatures. |
| 5. | April, 1986 | Gary Meyer completes report on glacial stratigraphy from 19 drill cores. |
| 6. | August, 1986 | Geochemical results are finally received from 19 drill cores. Design of next phase of drilling can proceed. |
| 7. | October, 1986 | Second drilling contract written and sites in Orr area field checked. Gravity stations measured. Seismic work begins. |
| 8. | December, 1986 thru February, 1987 | 28-hole Mud Rotary drilling program performed in Orr area. New drilling contract for reverse circulation written. |
| 9. | March, 1987 | Low bidder defaults on contract (for winter drill sites). Computer database work begins. |
| 10. | May to Oct., 1987 | New contractor drills 20 holes with Air Rotary method at newly chosen summer drill sites. |
| 11. | October, 1987 | Air Rotary samples shipped out of Hibbing for final processing and analysis. Final report work begins. |
| 12. | February, 1988 | Final assay results received. Computer reporting of final results begins. |
| 13. | March to April, 1988 | Final writing and drafting of report. |



TABLE 30-2. SUMMARY OF DRILLING PROGRAMS

| DRILLING METHOD: | ROTASONIC CORING | MUD ROTARY | AIR ROTARY |
|---|---|---|---|
| CONTRACTOR/OPERATOR: | Midwest/Northstar | M. Traut Wells | Graves Well Drilling |
| DRILL RIG: | Sicard 6WD | TH-60 (& Simco) | Schramm |
| SAMPLING DIAMETER: | 3½" | 4" | 6" |
| SAMPLE: | Core | -½" chips (tricone bit, slurry) | -½" chips (tricone bit, slurry) |
| REGIONS (TWO): | Orr + Littlefork | Orr | Littlefork |
| NO. OF TOWNSHIPS: | 19 (9 + 10) | 9 | 10 |
| TOTAL DRILL HOLES (67): | 19 (9 + 10) | 28 | 20 |
| TOTAL FOOTAGE (7835.5): | 2065 (925.5 + 1139.5) | 3558.5 | 2212 |
| AVG (HOLE) DEPTH: | 109 (103 + 114) | 127 | 111 |
| CONTRACT COST: | $35.50/ft | $10/ft | $20/ft |
| DATES DRILLED: | Dec 1985 | Dec 1986/Jan-Feb 1987 | May-Oct 1987 |
| SITE TIME: | 14 days | 35 days | 106 days |
| DRILLING TIME (APPROX): | 13 days (11 hr/day) | 32 days (10 hr/day) | 44 days (9 hr/day) |
| AVG DRILL RATE (APPROX): | 14 ft/hr | 11 ft/hr | 6 ft/hr |
| DOWN TIME (APPROX): | 7% | 10% | 58% |
| O.B. SAMPLE QUALITY: | Excellent | Poor | Good to Poor |
| LITHOLOGICAL LOGGING: | Excellent | Very Difficult | Good to Poor |
| SUCCESS TO BEDROCK: | 19 of 19 | 23 of 28 | 19 of 20 |
| BEDROCK SAMPLE QUALITY: | Core, Excellent to Good | Chips (and sand), Good to Poor | Chips, Excellent to Poor |
| ANALYSES (TOTAL) | | | |
| HMC NONMAG (302): | 120 (56 + 64) | 128 | 54 |
| HMC MAG (131): | 63 (32 + 31) | 42 | 26 |
| -63 MICRON (310): | 222 (106 + 116) | 0 | 97 |
| BEDROCK (58): | 19 (9 + 10) | 21 | 18 |
| COBBLES (3): | 2 | 1 | 0 |
| SLUICE BOX (27): | 0 | 27 | 0 |

Table 30-3. Test of variability of splitting of mud rotary samples as reflected by HMC gold grain counts of 10 sample pairs.

| Sample No. | Weight (kg) Table Feed | No. of Gold Grains Counted in HMC |
|---|---|---|
| 18602 | 19.4 | 0 |
| 18602R | 8.3 | 4 |
| 18606 | 11.6 | 6 |
| 18606R | 1.6 | 2 |
| 18609 | 13.7 | 2 |
| 18609R | 10.5 | 13 |
| 18612 | 7.2 | 3 |
| 18612R | 13.0 | 3 |
| 18618 | 30.8 | 6 |
| 18618R | 9.7 | 2 |
| 18622 | 10.1 | 1 |
| 18622R | 8.7 | 1 |
| 18628 | 13.3 | 3 |
| 18628R | 10.7 | 0 |
| 18638 | 11.9 | 0 |
| 18638R | 9.7 | 1 |
| 18660 | 6.0 | 1 |
| 18660R | 10.0 | 0 |
| 18693 | 10.3 | 2 |
| 18693R | 7.8 | 0 |



Table 30-4. Test of analytical variability, as reflected by a reference standard, SO-1 from CANMET, submitted as every 20th sample of -63 um assay pulps. The top line (V) lists the recommended values. Calculated precision adapted from Garret (1969). Sample SO-1 is a somewhat weathered Champlain Sea clay (C horizon) near Hull, Quebec.

| S.N. | SI | S-T-R | CR | MN | FE% | CO | NI | CU | ZN | PB |
|---|---|---|---|---|---|---|---|---|---|---|
| 16812V | STD | SO-1 | 160 | 890 | 6.00 | 32 | 94 | 61 | 146 | 21 |

| S.N. | SI | S-T-R | V | CR | MN | FE% | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16812 | STD | SO-1 | 140 | 210 | 870 | 6.9 | 44 | 93 | 84 | 210 | 2 | -1 | -1 | -0.5 | -1 | 2 | -1 | -1 | -1 | 19 | -1 | 2 |
| 16839 | STD | SO-1 | 150 | 220 | 840 | 6.4 | 42 | 95 | 35 | 160 | 3 | -1 | 2 | -0.5 | 1 | 2 | -1 | -1 | -1 | 18 | -1 | 2 |
| 16867 | STD | SO-1 | 150 | 220 | 900 | 6.8 | 44 | 96 | 68 | 160 | 3 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | -1 | 17 | -1 | 2 |
| 16908 | STD | SO-1 | 150 | 220 | 850 | 6.3 | 42 | 95 | 65 | 150 | 3 | -1 | 2 | -0.5 | 1 | 2 | -1 | -1 | -1 | 18 | -1 | 1 |
| 16930 | STD | SO-1 | 140 | 230 | 850 | 6.5 | 42 | 96 | 64 | 160 | 2 | -1 | 2 | -0.5 | 1 | 2 | -1 | -1 | -1 | 27 | -1 | 2 |
| 16963 | STD | SO-1 | 140 | 230 | 820 | 6.6 | 45 | 100 | 68 | 170 | 3 | -1 | 1 | -0.5 | 1 | 2 | -1 | -1 | -1 | 18 | -1 | 1 |
| 16991 | STD | SO-1 | 150 | 250 | 900 | 6.8 | 46 | 110 | 69 | 160 | 7 | -1 | 2 | -0.5 | 1 | 2 | -1 | -1 | 1 | 24 | -1 | 2 |
| 17022 | STD | SO-1 | 180 | 250 | 850 | 6.3 | 45 | 100 | 65 | 160 | 3 | -1 | 1 | -0.5 | 1 | 2 | -1 | -1 | -1 | 26 | -1 | 2 |
| 17061 | STD | SO-1 | 150 | 230 | 750 | 6.4 | 43 | 97 | 35 | 170 | 3 | 1 | 4 | -0.5 | 1 | 3 | 1 | -1 | 1 | 19 | -1 | 2 |
| 17074 | STD | SO-1 | 150 | 220 | 870 | 6.8 | 45 | 100 | 67 | 180 | 2 | -1 | 4 | -0.5 | 1 | 3 | 1 | -1 | 1 | 23 | -1 | 2 |
| 18760 | STD | SO-1 | 174 | 107 | 829 | 5.19 | 31 | 91 | 67 | 141 | 19 | -5 | 7 | -0.5 | -1 | -10 | 7 | -10 | -10 | 35 | 7 | -10 |
| 18780 | STD | SO-1 | 186 | 117 | 871 | 5.57 | 31 | 91 | 69 | 143 | 7 | -5 | 7 | -0.5 | -1 | -10 | 13 | -10 | -10 | 26 | 11 | -10 |
| 18800 | STD | SO-1 | 187 | 119 | 885 | 5.67 | 31 | 87 | 81 | 149 | 21 | -5 | 7 | -0.5 | -1 | -10 | 13 | -10 | -10 | 35 | 11 | -10 |
| 18820 | STD | SO-1 | 114 | 117 | 897 | 5.69 | 31 | 95 | 79 | 161 | -5 | -5 | -1 | -0.5 | -1 | -10 | -5 | -10 | -10 | 11 | 11 | -10 |
| 18840 | STD | SO-1 | 111 | 119 | 889 | 5.91 | 31 | 103 | 75 | 157 | -5 | -5 | 1 | -0.5 | -1 | -10 | 5 | -10 | -10 | 27 | 17 | -10 |
| 18860 | STD | SO-1 | 122 | 125 | 953 | 5.73 | 39 | 135 | 81 | 165 | -5 | -5 | 3 | -0.5 | -1 | -10 | 25 | -10 | -10 | 51 | 5 | -10 |
| 18880 | STD | SO-1 | 100 | 111 | 903 | 5.39 | 37 | 125 | 77 | 153 | -5 | 29 | 3 | 0.9 | -1 | -10 | 29 | -10 | -10 | 61 | 3 | -10 |
| | | Precision % | ND | 10 | 1 | 8 | 10 | 4 | 9 | 4 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 21 | ND | ND |

Table 30-5. Re-analysis of the -63um fraction of an actual Rainy lobe fine sand sample, Littlefork area, air rotary drilling. Ten separate 20g subsamples were used for the gold assays, and ten 0.5g subsamples for total set of other elements. Calculated precision values are for the 95% confidence interval (adapted from Garret, 1973).

| S.N. | AU | V | CR | MN | FE | FE% | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18767 | 7 | 87 | 39 | 423 | 0 | 1.91 | 9 | 17 | 19 | 29 | 9 | -5 | 3 | -0.5 | -1 | 199 | -5 | -10 | -10 | 15 | 3 | -10 |
| 18767R | 6 | 70 | 34 | 464 | 0 | 1.92 | 14 | 32 | 20 | 40 | 10 | -5 | 2 | -0.5 | -1 | -10 | -5 | -10 | -10 | 18 | 3 | -10 |
| 18767R | 2 | 74 | 34 | 458 | 0 | 1.87 | 12 | 26 | 18 | 44 | 14 | -5 | 2 | -0.5 | -1 | -10 | -5 | -10 | -10 | 14 | 3 | -10 |
| 18767R | 2 | 70 | 32 | 452 | 0 | 1.86 | 12 | 26 | 18 | 40 | -5 | -5 | 2 | -0.5 | -1 | -10 | -5 | -10 | -10 | 20 | 3 | -10 |
| 18767R | 2 | 68 | 38 | 454 | 0 | 2.16 | 12 | 40 | 18 | 38 | 12 | -5 | 4 | 0.6 | -1 | -10 | -5 | -10 | -10 | 18 | 3 | -10 |
| 18767R | -1 | 70 | 38 | 454 | 0 | 1.87 | 12 | 26 | 18 | 42 | 22 | -5 | 2 | -0.5 | -1 | -10 | -5 | -10 | -10 | 18 | 5 | -10 |
| 18767R | -1 | 70 | 34 | 456 | 0 | 1.87 | 12 | 24 | 18 | 38 | 20 | -5 | 2 | -0.5 | -1 | -10 | -5 | -10 | -10 | 12 | 5 | -10 |
| 18767R | 2 | 74 | 38 | 454 | 0 | 1.92 | 12 | 26 | 18 | 40 | 20 | -5 | 2 | -0.5 | -1 | -10 | -5 | -10 | -10 | 10 | 3 | -10 |
| 18767R | 1 | 70 | 34 | 450 | 0 | 1.87 | 12 | 30 | 18 | 36 | 14 | -5 | 2 | -0.5 | -1 | -10 | -5 | -10 | -10 | 8 | 5 | -10 |
| 18767R | -1 | 74 | 34 | 454 | 0 | 1.87 | 12 | 26 | 18 | 40 | 14 | -5 | 2 | -0.5 | -1 | -10 | -5 | -10 | -10 | 10 | 3 | -10 |
| **Analytical Precision %:** | 244 | ND | 5 | 12 | ND | 15 | ND | 27 | 3 | 14 | 51 | ND | 67 | ND | ND | ND | ND | ND | ND | 21 | ND | ND |



Table 30-6. Test of total variability as reflected by 19 pairs of separate splits of Rotasonic samples. Calculated precision values are for the 95% confidence interval (adapted from Garret, 1973).

| S.N. | AU | V | CR | MN | FE% | CO | NI | CU | ZN | AS | SE | MO | AG | CD | SN | SB | TE | W | PB | BI | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16941 | 1 | 130 | 80 | 660 | 3.5 | 20 | 37 | 24 | 88 | 9 | -1 | 4 | -0.5 | -1 | 1 | -1 | -1 | -1 | 16 | -1 | 3 |
| 13830R | -1 | 130 | 79 | 550 | 3.0 | 17 | 33 | 22 | 79 | 9 | 2 | 3 | -0.5 | 1 | 8 | -1 | -1 | 1 | 13 | -1 | 3 |
| 17051 | 1 | 140 | 89 | 660 | 3.7 | 21 | 40 | 25 | 92 | 6 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | -1 | 15 | -1 | 3 |
| 13831R | -1 | 140 | 91 | 570 | 3.2 | 18 | 38 | 26 | 90 | 9 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | 1 | 14 | -1 | 3 |
| 17055 | 6 | 65 | 67 | 390 | 2.4 | 15 | 22 | 12 | 30 | 2 | -1 | 1 | -0.5 | -1 | -1 | -1 | -1 | 2 | 11 | -1 | -1 |
| 13832R | -1 | 71 | 77 | 410 | 2.5 | 15 | 24 | 17 | 37 | 7 | -1 | 1 | -0.5 | -1 | 2 | -1 | -1 | 2 | 7 | -1 | -1 |
| 16911 | -1 | 140 | 92 | 550 | 3.6 | 20 | 39 | 23 | 82 | 5 | -1 | 4 | -0.5 | 1 | 2 | 1 | -1 | 1 | 18 | -1 | 3 |
| 13833R | 2 | 140 | 90 | 480 | 3.2 | 17 | 36 | 23 | 81 | 5 | -1 | 3 | -0.5 | -1 | 1 | -1 | -1 | -1 | 12 | -1 | 3 |
| 17067 | 1 | 170 | 89 | 630 | 3.9 | 22 | 45 | 28 | 100 | 7 | 1 | 5 | -0.5 | 1 | 3 | -1 | -1 | -1 | 3 | -1 | -1 |
| 13834R | -1 | 150 | 100 | 580 | 3.6 | 20 | 42 | 28 | 100 | 7 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | 1 | 16 | -1 | 3 |
| 17073 | 2 | 87 | 97 | 470 | 3.2 | 20 | 36 | 20 | 60 | 3 | -1 | 5 | -0.5 | 1 | 2 | 1 | -1 | 5 | 18 | -1 | 3 |
| 13835R | -1 | 99 | 110 | 530 | 3.4 | 22 | 41 | 28 | 65 | 3 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | 5 | 14 | -1 | 2 |
| 17009 | -1 | 78 | 130 | 470 | 3.3 | 22 | 40 | 44 | 270 | 4 | -1 | 12 | -0.5 | 1 | 2 | -1 | -1 | 3 | 15 | -1 | -1 |
| 17010 | -1 | 75 | 220 | 520 | 4.1 | 23 | 53 | 53 | 92 | 4 | 1 | 30 | -0.5 | -1 | 2 | -1 | -1 | 3 | 19 | -1 | -1 |
| 16962 | 1 | 80 | 120 | 410 | 2.9 | 21 | 37 | 21 | 44 | 3 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | 5 | 11 | -1 | -1 |
| 13837R | -1 | 83 | 120 | 520 | 3.3 | 22 | 39 | 23 | 47 | 3 | -1 | 1 | -0.5 | -1 | 1 | -1 | -1 | 3 | 9 | -1 | -1 |
| 16900 | -1 | 180 | 100 | 670 | 4.3 | 25 | 48 | 31 | 110 | 11 | 3 | 4 | -0.5 | 1 | 2 | -1 | -1 | 1 | 17 | -1 | 3 |
| 13838R | -1 | 190 | 110 | 590 | 3.9 | 21 | 47 | 30 | 100 | 9 | 1 | 5 | -0.5 | -1 | 2 | -1 | -1 | 1 | 15 | -1 | 3 |
| 16999 | 7 | 110 | 110 | 600 | 4.3 | 26 | 47 | 47 | 140 | 3 | 2 | 4 | -0.5 | -1 | 2 | 1 | -1 | 3 | 22 | -1 | 4 |
| 13839R | -1 | 120 | 130 | 280 | 4.3 | 23 | 47 | 52 | 170 | 5 | -1 | 7 | -0.5 | -1 | 2 | -1 | -1 | 2 | 14 | -1 | 3 |
| 16813 | 1 | 88 | 86 | 500 | 3.3 | 17 | 36 | 24 | 72 | 5 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 15 | -1 | 2 |
| 13840R | 8 | 97 | 92 | 520 | 3.4 | 18 | 38 | 25 | 77 | 5 | -1 | 3 | -0.5 | -1 | 5 | -1 | -1 | -1 | 12 | -1 | 2 |
| 16824 | 1 | 49 | 58 | 320 | 1.8 | 11 | 19 | 12 | 33 | 1 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | 3 | 13 | -1 | -1 |
| 13841R | -1 | 52 | 63 | 340 | 2.0 | 13 | 21 | 13 | 37 | 2 | -1 | 1 | -0.5 | -1 | 9 | -1 | -1 | 3 | 9 | -1 | -1 |
| 16865 | 2 | 62 | 170 | 600 | 3.7 | 24 | 57 | 33 | 62 | 2 | -1 | 2 | -0.5 | -1 | -1 | -1 | -1 | -1 | 14 | -1 | 1 |
| 13842R | -1 | 92 | 180 | 530 | 3.3 | 23 | 58 | 32 | 62 | 2 | -1 | 1 | -0.5 | -1 | 11 | -1 | -1 | 1 | 9 | -1 | -1 |
| 17031 | 1 | 150 | 120 | 760 | 5.4 | 36 | 64 | 54 | 130 | 1 | -1 | 3 | -0.5 | -1 | 2 | -1 | -1 | 6 | 18 | -1 | 2 |
| 13844R | 1 | 130 | 180 | 790 | 5.6 | 37 | 70 | 63 | 160 | 2 | -1 | 4 | -0.5 | 1 | 12 | -1 | -1 | 5 | 18 | -1 | 1 |
| 16853 | 1 | 76 | 120 | 450 | 3.1 | 19 | 36 | 29 | 51 | 3 | -1 | 6 | -0.5 | -1 | 1 | -1 | -1 | 2 | 12 | -1 | -1 |
| 13845R | -1 | 92 | 130 | 400 | 3.1 | 18 | 38 | 31 | 55 | 2 | -1 | 6 | -0.5 | -1 | 9 | -1 | -1 | 4 | 12 | -1 | -1 |
| 16884 | -1 | 71 | 120 | 510 | 3.0 | 21 | 39 | 26 | 46 | 1 | -1 | -1 | -0.5 | -1 | 1 | -1 | -1 | -1 | 18 | -1 | 1 |
| 13846R | -1 | 77 | 110 | 430 | 2.7 | 17 | 36 | 29 | 43 | 1 | -1 | 1 | -0.5 | -1 | 9 | -1 | -1 | -1 | 14 | -1 | -1 |
| 17016 | -1 | 52 | 120 | 400 | 2.3 | 20 | 43 | 28 | 42 | 3 | -1 | 2 | -0.5 | -1 | 1 | -1 | -1 | -1 | 20 | -1 | -1 |
| 13847R | -1 | 62 | 110 | 320 | 2.1 | 16 | 38 | 24 | 39 | 2 | -1 | 2 | -0.5 | 1 | -1 | -1 | -1 | 1 | 13 | -1 | -1 |
| 16874 | 1 | 110 | 190 | 500 | 4.1 | 28 | 67 | 64 | 320 | 4 | 1 | 12 | -0.5 | 1 | 2 | -1 | -1 | 7 | 14 | -1 | -1 |
| 13848R | -1 | 120 | 210 | 530 | 4.4 | 29 | 74 | 80 | 400 | 5 | -1 | 14 | -0.5 | 1 | 2 | -1 | -1 | 5 | 10 | -1 | -1 |
| 16835 | -1 | 150 | 200 | 700 | 5.5 | 36 | 69 | 75 | 200 | 2 | -1 | 5 | -0.5 | 1 | 2 | -1 | -1 | 2 | 15 | -1 | 2 |
| 13849R | -1 | 180 | 210 | 770 | 6.2 | 41 | 82 | 91 | 240 | 3 | -1 | 4 | -0.5 | 1 | 2 | -1 | -1 | 2 | 11 | -1 | 2 |
| **Precision %:** | 167 | ND | 4 | ND | ND | ND | 4 | 7 | 4 | 52 | ND | ND | ND | ND | ND | ND | ND | ND | 28 | ND | ND |

**Table 40-7A.** Summary averages of gold grains and HMC magnetic and nonmagnetic sample fraction weights. The data is sorted by area, by drift type, and by drilling method.

| | # SA | HMC FEED WT (KG) | # GOLD GRAINS | GOLD GRAINS PER 10 KG | NONMAG HMC WT (G) | (G) NONMAG PER 10 KG | MAG HMC WT (G) | (G) MAG PER 10 KG |
|---|---|---|---|---|---|---|---|---|
| BY AREA: | | | | | | | | |
| L.F.-R.L. TILL | 39 | 391.8 | 19 | .48 | 1579.2 | 40 | 389.5 | 10 |
| ORR-R.L. TILL | 89 | 908.4 | 58 | .64 | 3615.8 | 40 | 839.5 | 9 |
| BOTH AREAS-R.L. TILL | 128 | 1300.2 | 77 | .60 | 5195.0 | 40 | 1229.0 | 9.5 |
| L.F.-DM.L. TILL | 26 | 380.2 | 5 | .13 | 206.2 | 5 | 61.2 | 2 |
| ORR-DM.L. TILL | 7 | 89.3 | 0 | 0 | 47.2 | 5 | 15.8 | 2 |
| BY DRIFT TYPE: | | | | | | | | |
| ORR-R.L. TILL | 89 | 908.4 | 58 | .64 | 3615.8 | 40 | 839.5 | 9 |
| ORR-R.L. GRAVEL | 11 | 109.4 | 4 | .37 | 296.8 | 27 | 98.9 | 9 |
| ORR-R.L. SAND | 41 | 484.5 | 6 | .12 | 1305.9 | 27 | 347.9 | 7 |
| L.F.-R.L. TILL | 39 | 391.8 | 19 | .48 | 1579.2 | 40 | 389.5 | 10 |
| L.F.-R.L. GRAVEL | 24 | 344.6 | 22 | .64 | 1966.1 | 57 | 417.8 | 12 |
| L.F.-R.L. SAND | 19 | 173.7 | 8 | .46 | 1095.0 | 63 | 259.2 | 15 |
| BY DRILLING METHOD: | | | | | | | | |
| ORR-R.L. TILL-SONIC | 32 | 345.1 | 20 | .58 | 1092.6 | 32 | 265.3 | 8 |
| ORR-R.L. TILL-MUD | 57 | 563.3 | 38 | .67 | 2523.2 | 45 | 574.2 | 10 |
| L.F.-R.L. TILL-SONIC | 10 | 113.2 | 4 | .35 | 363.3 | 32 | 73.9 | 7 |
| L.F.-R.L. TILL-AIR | 29 | 278.6 | 15 | .54 | 1215.9 | 44 | 315.6 | 11 |

LEGEND:

1) ALL ASSAY RESULTS IN PPM (UNLESS INDICATED)
2) SEE TABLE OF ANALYTICAL METHODS
3) 245 - ARITHMETIC AVERAGE (DATA NOT NORMALIZED)
4) (32/39) - (# SA. > DETECTION LIMIT / TOTAL # SA. INCLUDED)
5) L.F. - LITTLEFORK
6) R.L. - RAINY LOBE
7) DM.L. - DES MOINES LOBE
8) TILL - (ROTASONIC) TILL SAMPLES & (MUD & AIR ROTARY) TILL + GRAVELLY SAND SAMPLES
9) GRAVEL - INCLUDES MGR, CGR, VCGR SAND & GRAVEL
10) SAND - INCLUDES FGR SAND, SILTY SAND, SILT & CLAY
11) SONIC - ROTASONIC CORE DRILLING
12) MUD - MUD ROTARY DRILLING (NO -63 um OR DM.L. ASSAYS, +10M SCALPED AT DRILLSITE)
13) AIR - AIR ROTARY DRILLING (-63 um ASSAYS EXCLUDED, NO DM.L. ASSAYS)
14) ZN2 - ZINC ANALYZED BT DCP METHOD
15) EXCLUDED - 120,00 PPB AU IN SA. # 16887, (NONMAG HMC)
1100 PPB AU IN SA. # 16891, (-63 um)

**Table 40-7B .** Arithmetic averages of selected elements for two sample fractions. The data is sorted by area, by drift type, and by drilling method.

HMC-NONMAG DATA:

| | AU ppb | CR | MN | FE% | CO | NI | CU | ZN | AS | SE | MO | AG | SB | W | PB | U | BA | HF | TH | ZN2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BY AREA: | | | | | | | | | | | | | | | | | | | | |
| L.F.-R.L. TILL | 245 (32/39) | 375. (39/39) | 3422. (39/39) | 25. (39/39) | 214 (39/39) | 229 (37/39) | 204 (39/39) | 138 (18/39) | 71. (39/39) | 6.7 (1/39) | 6.0 (19/39) | .67 (28/39) | .61 (27/39) | 67. (22/39) | 27. (39/39) | 30. (39/39) | 312. (13/39) | 101 (39/39) | 176 (39/39) | 49.0 (29/29) |
| ORR-R.L. TILL | 126 (50/88) | 443. (83/89) | 9320. (88/88) | 22. (89/89) | 191 (89/89) | 218 (88/88) | 263 (88/88) | 150 (88/88) | 39. (83/89) | 11. (15/89) | 6.9 (87/88) | .38 (18/89) | .94 (57/89) | 197 (65/89) | 57. (89/89) | 12. (89/89) | 657. (60/89) | 49. (88/89) | 107 (89/89) | 15.0 (1/1) |
| BOTH AREAS-R.L. TILL | 163 (82/127) | 422. (122/128) | 7450. (127/127) | 23. (128/128) | 198 (128/128) | 220 (125/127) | 243 (127/127) | 145 (106/127) | 49. (122/128) | 9.6 (16/128) | 6.6 (106/127) | .47 (46/128) | .84 (84/128) | 158 (87/128) | 47. (128/128) | 18. (128/128) | 552. (73/128) | 65. (127/128) | 128 (128/128) | 48.0 (30/30) |
| L.F.-DML. TILL | 158 (20/29) | 678. (29/29) | 7179. (29/29) | 27. (29/29) | 81 (29/29) | 125 (29/29) | 116 (29/29) | 276 (29/29) | 94. (29/29) | 8.2 (2/29) | 15. (29/29) | .57 (25/29) | 3.0 (28/29) | 14. (9/29) | 27. (29/29) | 23. (29/23) | 3798 (28/29) | 194 (29/29) | 149 (29/29) | N/A |
| ORR-DML. TILL | 311 (4/7) | 703. (7/7) | 8471. (7/7) | 26. (7/7) | 68 (7/7) | 106 (7/7) | 144 (7/7) | 194 (7/7) | 34. (6/7) | 6.9 (0/7) | 12. (7/7) | .29 (1/7) | 1.5 (7/7) | 14. (4/7) | 44. (7/7) | 25. (7/7) | 2386 (7/7) | 227 (7/7) | 216 (7/7) | N/A |
| BY DRIFT TYPE: | | | | | | | | | | | | | | | | | | | | |
| ORR-R.L. TILL | 126 (50/88) | 443. (83/89) | 9320. (88/88) | 22. (89/89) | 191 (89/89) | 218 (88/88) | 263 (88/88) | 150 (88/88) | 39. (83/89) | 11. (15/89) | 6.9 (87/88) | .38 (18/89) | .94 (57/89) | 197 (65/89) | 57. (89/89) | 12. (89/89) | 657. (60/89) | 49. (88/89) | 107 (89/89) | 15.0 (1/1) |
| ORR-R.L. GRAVEL | 47 (7/11) | 385. (11/11) | 10355 (11/11) | 22. (11/11) | 142 (11/11) | 176 (11/11) | 230 (11/11) | 138 (11/11) | 21. (11/11) | 8.0 (1/11) | 5.6 (11/11) | .41 (1/11) | .87 (10/11) | 25. (9/11) | 54. (11/11) | 11. (11/11) | 900. (10/11) | 51. (11/11) | 119 (11/11) | N/A |
| ORR-R.L. SAND | 123 (28/41) | 1080 (41/41) | 9785. (41/41) | 24. (41/41) | 144 (41/41) | 194 (41/41) | 235 (41/41) | 146 (41/41) | 47. (40/41) | 12. (9/41) | 8.1 (41/41) | .49 (11/41) | 1.3 (33/41) | 54. (29/41) | 65. (41/41) | 15. (41/41) | 2728 (30/41) | 77. (41/41) | 151 (41/41) | N/A |
| L.F.-R.L. TILL | 245 (32/39) | 375. (39/39) | 3422. (39/39) | 25. (39/39) | 214 (39/39) | 229 (39/39) | 204 (39/39) | 138 (18/39) | 71. (39/39) | 6.7 (1/39) | 6.0 (19/39) | .67 (28/39) | .61 (27/39) | 67. (22/39) | 27. (39/39) | 30. (39/39) | 312. (13/39) | 101 (39/39) | 176 (39/39) | 49.1 (29/29) |
| L.F.-R.L. GRAVEL | 96 (17/24) | 368. (24/24) | 5069. (24/24) | 21. (24/24) | 103 (24/24) | 130 (24/24) | 68 (24/24) | 117 (13/24) | 15. (20/24) | 5.4 (1/24) | 4.3 (24/24) | .53 (11/24) | .42 (15/24) | 8.3 (2/24) | 14. (24/24) | 10. (24/24) | 125. (6/24) | 54. (24/24) | 49 (24/24) | 34.1 (11/11) |
| L.F.-R.L. SAND | 101 (12/19) | 365. (19/19) | 3248. (19/19) | 22. (19/19) | 138 (19/19) | 159 (18/18) | 90 (18/18) | 114 (5/18) | 32. (19/19) | 5.3 (0/19) | 3.1 (19/19) | .52 (13/19) | .51 (14/19) | 12. (18/19) | 17. (19/19) | 20. (19/19) | 117. (2/19) | 98. (19/19) | 92 (19/19) | 41.1 (14/14) |
| BY DRILLING METOD: | | | | | | | | | | | | | | | | | | | | |
| ORR-RL TILL-SONIC | 118 (17/32) | 525. (32/32) | 9547. (32/32) | 23. (32/32) | 242 (32/32) | 216 (32/32) | 215 (32/32) | 154 (32/32) | 22. (28/32) | 11. (4/32) | 8.7 (31/32) | .28 (2/32) | .71 (17/32) | 33. (15/32) | 41. (32/32) | 17. (32/32) | 977. (25/32) | 69. (32/32) | 152 (32/32) | 15.1 (1/1) |
| ORR-R.L. TILL-MUD | 131 (33/56) | 396. (51/57) | 9191. (56/56) | 21. (57/57) | 163 (57/57) | 220 (56/56) | 291 (56/56) | 148 (56/56) | 49. (57/57) | 11. (11/57) | 5.9 (56/56) | .44 (16/57) | 1.1 (40/57) | 290 (50/57) | 66. (57/57) | 9.8 (57/57) | 477. (35/57) | 38. (56/57) | 81 (57/57) | N/A |
| L.F.-RL TILL-SONIC | 128 (7/10) | 280. (10/10) | 9970. (10/10) | 22. (10/10) | 210 (10/10) | 271 (10/10) | 197 (10/10) | 126 (10/10) | 81. (10/10) | 7.2 (1/10) | 7.1 (10/10) | .35 (4/10) | .33 (3/10) | 47. (5/10) | 23. (10/10) | 18. (10/10) | 220. (5/10) | 70. (10/10) | 86 (10/10) | N/A |
| L.F.-R.L. TILL-AIR | 285 (25/29) | 408. (29/29) | 1163. (29/29) | 26. (29/29) | 216 (29/29) | 215 (27/29) | 206 (29/29) | 142 (8/29) | 67. (29/29) | 6.5 (0/29) | 5.6 (19/29) | .78 (24/29) | .70 (24/29) | 74. (17/29) | 28. (29/29) | 34. (29/29) | 344. (8/29) | 112 (29/29) | 208 (29/29) | 49.1 (29/29) |

-63 um DATA:

| | AU ppb | CR | MN | FE% | CO | NI | CU | ZN | AS | SE | MO | AG | SB | W | PB | U | V | CD | SN | BI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BY AREA: | | | | | | | | | | | | | | | | | | | | |
| L.F.-R.L. TILL | 2.7 (5/13) | 120. (13/13) | 580.0 (13/13) | 3.4 (13/13) | 25. (13/13) | 46. (13/13) | 31. (13/13) | 66. (13/13) | 3.2 (13/13) | .62 (1/13) | 2.5 (13/13) | .25 (0/13) | .58 (2/13) | 3.2 (11/13) | 16. (13/13) | 1.5 (9/13) | 92.5 (13/13) | .65 (4/13) | 1.3 (10/13) | .5 (0/13) |
| ORR-R.L. TILL | 2.5 (19/38) | 122. (38/38) | 506.1 (38/38) | 3.4 (38/38) | 23. (38/38) | 43. (38/38) | 35. (38/38) | 93. (38/38) | 2.0 (36/38) | .67 (5/38) | 2.9 (34/38) | .25 (0/38) | .5 (0/38) | 2.8 (28/38) | 16. (38/38) | .97 (18/38) | 81.1 (38/38) | .66 (12/38) | 1.2 (27/38) | .513 (1/38) |
| BOTH AREAS-R.L. TILL | 2.6 (24/51) | 121. (51/51) | 525.0 (51/51) | 3.4 (51/51) | 23. (51/51) | 44. (51/51) | 34. (51/51) | 86. (51/51) | 2.3 (49/51) | .66 (6/51) | 2.8 (47/51) | .25 (0/51) | .52 (2/51) | 2.9 (39/51) | 16. (51/51) | 1.1 (27/51) | 84.1 (51/51) | .66 (16/51) | 1.2 (37/51) | .51 (1/51) |
| L.F.-DML. TILL | .73 (15/46) | 88.2 (47/47) | 597.6 (46/46) | 3.5 (46/46) | 21. (46/46) | 41. (46/46) | 26. (46/46) | 89. (47/47) | 7.8 (47/47) | .73 (12/47) | 3.9 (47/47) | .25 (0/47) | .77 (17/47) | .96 (31/47) | 18. (46/46) | 3.2 (45/46) | 143. (46/46) | 1.4 (21/47) | 1.9 (46/46) | .5 (0/46) |
| ORR-DML. TILL | 4.1 (5/15) | 96.5 (15/15) | 509.3 (15/15) | 3.3 (15/15) | 18. (15/15) | 38. (15/15) | 27. (15/15) | 73. (15/15) | 6.1 (15/15) | .73 (5/15) | 2.7 (15/15) | .25 (0/15) | .5 (0/15) | 1.0 (4/15) | 16. (15/15) | 2.3 (14/15) | 109. (15/15) | .6 (3/15) | 2.1 (10/15) | .5 (0/15) |
| BY DRIFT TYPE: | | | | | | | | | | | | | | | | | | | | |
| ORR-R.L. TILL | 2.5 (19/38) | 122. (38/38) | 506.1 (38/38) | 3.4 (38/38) | 23. (38/38) | 43. (38/38) | 35. (38/38) | 93. (38/38) | 2.0 (36/38) | .67 (5/38) | 2.9 (34/38) | .25 (0/38) | .5 (0/38) | 2.8 (28/38) | 16. (38/38) | .97 (18/38) | 81.1 (38/38) | .66 (12/38) | 1.2 (27/38) | .513 (1/38) |
| ORR-R.L. GRAVEL | 15. (1/1) | 170. (1/1) | 650.0 (1/1) | 4.6 (1/1) | 35. (1/1) | 78. (1/1) | 90. (1/1) | 70. (1/1) | 11. (1/1) | .5 (0/1) | 6.0 (1/1) | .25 (0/1) | .5 (0/1) | 2.0 (1/1) | 14. (1/1) | .5 (0/1) | 110 (1/1) | .5 (0/1) | 1.0 (1/1) | .5 (0/1) |
| ORR-R.L. SAND | 2.4 (6/17) | 114. (17/17) | 451.8 (17/17) | 3.1 (17/17) | 21. (17/17) | 41. (17/17) | 33. (17/17) | 52. (17/17) | 4.4 (17/17) | .53 (1/17) | 1.9 (17/17) | .25 (0/17) | .5 (0/17) | .59 (3/17) | 15. (17/17) | .82 (9/17) | 77.2 (17/17) | .65 (5/17) | .88 (9/17) | .5 (0/17) |
| L.F.-R.L. TILL | 2.7 (5/13) | 120. (13/13) | 580.0 (13/13) | 3.4 (13/13) | 25. (13/13) | 46. (13/13) | 31. (13/13) | 66. (13/13) | 3.2 (13/13) | .62 (1/13) | 2.5 (13/13) | .25 (0/13) | .58 (2/13) | 3.2 (11/13) | 16. (13/13) | 1.5 (9/13) | 92.5 (13/13) | .65 (4/13) | 1.3 (10/13) | .5 (0/13) |
| L.F.-R.L. GRAVEL | 12. (6/16) | 110. (17/17) | 521.8 (17/17) | 3.7 (17/17) | 24. (17/17) | 43. (17/17) | 32. (17/17) | 125 (17/17) | 3.8 (17/17) | .53 (1/17) | 3.6 (16/17) | .25 (0/17) | .59 (3/17) | 1.9 (16/17) | 17. (17/17) | 1.1 (8/17) | 94.9 (17/17) | .68 (6/17) | 1.4 (14/17) | .5 (0/17) |
| L.F.-R.L. SAND | 4.4 (4/7) | 116. (7/7) | 590.0 (7/7) | 4.0 (7/7) | 26. (7/7) | 42. (7/7) | 27. (7/7) | 78. (7/7) | 3.7 (7/7) | .5 (0/7) | 3.7 (7/7) | .25 (0/7) | .71 (3/7) | 2.3 (7/7) | 17. (7/7) | 1.8 (4/7) | 103 (7/7) | .64 (2/7) | 1.6 (6/7) | .5 (0/7) |
| BY DRILLING METHOD: | | | | | | | | | | | | | | | | | | | | |
| ORR-RL TILL-SONIC | 2.5 (19/38) | 122. (38/38) | 506.1 (38/38) | 3.4 (38/38) | 23. (38/38) | 43. (38/38) | 35. (38/38) | 93. (38/38) | 2.0 (36/38) | .67 (5/38) | 2.9 (34/38) | .25 (0/38) | .5 (0/38) | 2.8 (28/38) | 16. (38/38) | .97 (18/38) | 81.1 (38/38) | .66 (12/38) | 1.2 (27/38) | .513 (1/38) |
| L.F.-RL TILL-SONIC | 2.7 (5/13) | 120. (13/13) | 580.0 (13/13) | 3.4 (13/13) | 25. (13/13) | 46. (13/13) | 31. (13/13) | 66. (13/13) | 3.2 (13/13) | .62 (1/13) | 2.5 (13/13) | .25 (0/13) | .58 (2/13) | 3.2 (11/13) | 16. (13/13) | 1.5 (9/13) | 92.5 (13/13) | .65 (4/13) | 1.3 (10/13) | .5 (0/13) |
| L.F.-R.L. TILL-AIR | 20. (34/37) | 58.8 (37/37) | 649.5 (37/37) | 3.1 (37/37) | 17. (37/37) | 50. (37/37) | 54. (37/37) | 53. (37/37) | 8.1 (13/37) | 3.2 (3/37) | 3.1 (34/37) | .71 (16/37) | 6.6 (19/37) | 23. (11/37) | 33. (37/37) | 5.0 (0/37) | 85.5 (37/37) | .82 (2/37) | 5.8 (1/37) | 3.70 (19/37) |

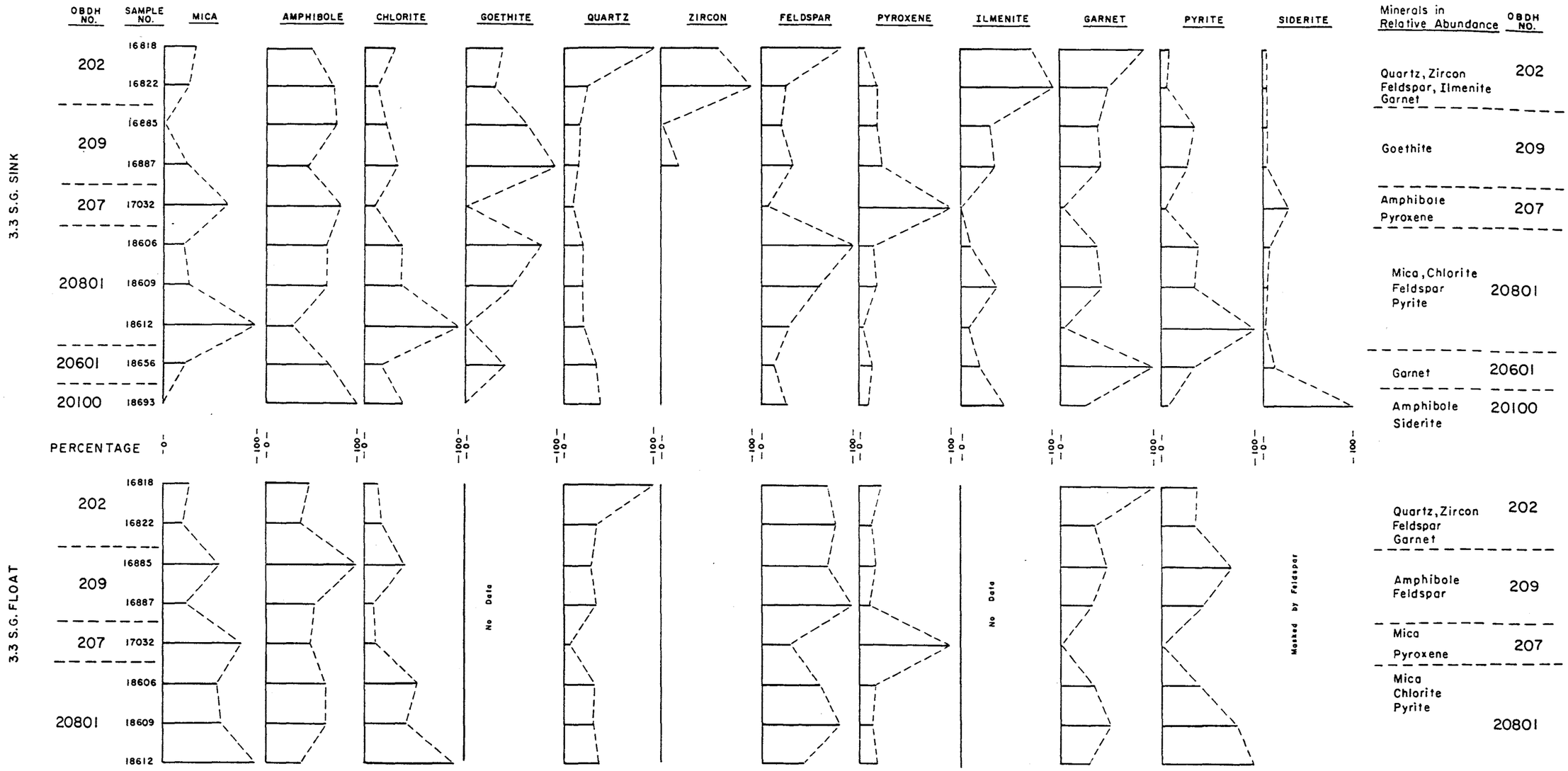
LEGEND:

1) ALL ASSAY RESULTS IN PPM (UNLESS INDICATED)
2) SEE TABLE OF ANALYTICAL METHODS
3) 245 - ARITHMETIC AVERAGE (DATA NOT NORMALIZED)
4) (32/39) - (# SA. > DETECTION LIMIT / TOTAL # SA. INCLUDED)
5) L.F. - LITTLEFORK
6) R.L. - RAINY LOBE
7) DM.L. - DES MOINES LOBE
8) TILL - (ROTASONIC) TILL SAMPLES & (MUD & AIR ROTARY) TILL + GRAVELLY SAND SAMPLES
9) GRAVEL - INCLUDES MGR,CGR,VCGR SAND & GRAVEL
10) SAND - INCLUDES FGR SAND,SILTY SAND,SILT & CLAY
11) SONIC - ROTASONIC CORE DRILLING
12) MUD - MUD ROTARY DRILLING (NO -63 um OR DM.L. ASSAYS, +10M SCALPED AT DRILLSITE)
13) AIR - AIR ROTARY DRILLING (-63 um ASSAYS EXCLUDED, NO DM.L. ASSAYS)
14) ZN2 - ZINC ANALYZED BT DCP METHOD
15) EXCLUDED - 120,00 PPB AU IN SA. # 16887, (NONMAG HMC)
1100 PPB AU IN SA. # 16891, (-63 um)

Table 40-8. Sieve analysis of magnetite removed from a 16.5 lb. split from sample #18727C, drillers mudpit. This material was lost from our mud rotary sample collection system from hole OB-20200, 71-117 feet.

| Held On (Microns) | Weight (g) | Weight (%) | Cum (%) | Remarks |
|---|---|---|---|---|
| 1,700 | 1.1 | 5.0 | 5.0 | magnetite & quartz, visible steel particles |
| 1,180 | .4 | 1.8 | 6.8 | magnetite & quartz, visible steel particles |
| 600 | 1.7 | 7.7 | 14.5 | magnetite & quartz, visible steel particles |
| 300 | 3.1 | 14.1 | 28.6 | magnetite & quartz particles |
| 150 | 7.0 | 31.8 | 60.4 | liberated magnetite |
| 53 | 6.7 | 30.5 | 90.9 | liberated magnetite |
| Pan | 2.0 | 9.1 | 100.0 | liberated magnetite |
| | 22.0 | 100.0 | | |

Table 43-1. This table shows the variation in mineralogy of selected Rainy Lobe till samples. The samples are in two groups, the sink and float products of 3.3 S.G. heavy liquid separation of the shaking table concentrate.




NOTE: An x-ray diffraction pattern was run on each sample with identical instrument parameters and the results graphed to compare the relative amounts of each mineral between samples. For each mineral, a specific peak is selected and the sample with that highest peak is assigned 100%. Every other sample is compared to that peak height. The results are semi-quantitative. For each mineral, relative variations between samples (and thus between drill holes) are shown by looking down columns. The mineralogy of each sample is shown by looking across rows.

Table 43-2. Bedrock group correlation to Rainy lobe till samples nonmag HMC assays.

| Bedrock Group | No. DH's | HMC Nonmag "Till" Assays | AU | CR | MN | FE% | CO | NI | CU | ZN | AS | SE | MO | AG | SB | BA | HF | W | PB | TH | U | ZN2 | AG2 | Weight of Nonmag HMC (grams per kg of feed) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SC | 1 | 4 | 112 | 238 | 7950 | 28 | 590 | 363 | 365 | 135 | 23 | 8 | 20 | .3 | .75 | 3075 | 77 | 171 | 60 | 160 | 22 | 0 | 0 | 1.5 |
| MV | 9 | 18 | 287 | 682 | 8578 | 25 | 231 | 243 | 262 | 156 | 108 | 14 | 6 | .5 | 2.2 | 422 | 49 | 254 | 77 | 108 | 13 | 0 | 0 | 3.78 |
| MS | 19 | 39 | 87 | 349 | 10095 | 21 | 186 | 228 | 312 | 146 | 27 | 10 | 7 | .3 | .60 | 523 | 39 | 301 | 62 | 96 | 11 | .375 | .06 | 2.91 |
| LP | 4 | 13 | 16 | 219 | 3915 | 15 | 73 | 107 | 192 | 158 | 6.3 | 12 | 4 | .3 | .65 | 877 | 63 | 5.5 | 19 | 48 | 9.7 | 0 | 0 | 12.5 |
| GR | 3 | 7 | 49 | 241 | 12471 | 23 | 189 | 263 | 203 | 127 | 17 | 6 | 5 | .6 | .29 | 407 | 37 | 12 | 45 | 99 | 11 | 0 | 0 | 3.23 |
| DA | 1 | 7 | 227 | 1099 | 13143 | 25 | 113 | 149 | 78 | 149 | 28 | 11 | 8 | .3 | 1 | 486 | 81 | 17 | 49 | 250 | 22 | 0 | 0 | 1.69 |
| QB | 8 | 7 | 607 | 313 | 3589 | 26 | 336 | 364 | 373 | 150 | 72 | 7 | 12 | 1 | .37 | 361 | 96 | 85 | 33 | 269 | 64 | 28.3 | 3.3 | 3.87 |
| MG | 4 | 8 | 260 | 330 | 1303 | 25 | 220 | 233 | 134 | 126 | 68 | 6 | 5 | .8 | .66 | 90 | 74 | 77 | 27 | 91 | 20 | 73.6 | 2.9 | 7.05 |
| GP | 11 | 17 | 165 | 451 | 3496 | 25 | 171 | 183 | 162 | 132 | 84 | 7 | 4 | .6 | .75 | 463 | 115 | 41 | 25 | 192 | 25 | 28 | 3.2 | 3.35 |
| GM | 4 | 7 | 60 | 307 | 5495 | 23 | 193 | 204 | 216 | 154 | 41 | 7 | 5 | .4 | .41 | 150 | 102 | 100 | 23 | 144 | 20 | 23.1 | 2.6 | 2.89 |

Legend

1. Gold assays in ppb. Other elements ppm.
2. Only the Rainy lobe till samples (and gravelly sand of mud rotary drilling) were included in these estimates.
3. The bedrock was grouped into the following categories:

Orr Area

SC = garnet-biotite schist
MV = metavolcanics
MS = metasediments
LP = Linden Pluton
GR = granodiorite
DA = dacite

Littlefork Area

QB = quartz-biotite schist
MG = metagraywacke
GP = gneiss, paragneiss, and schist-rich migmatite
GM = granite-rich migmatite, tonalite, and pegmatite

Table 43-3. Comparison of Two Sample Fractions

| HMC | vs. | -63 Micron (250 mesh Tyler) Screened Fraction |
|---|---|---|
| 1. Heavy liquid (3.3 SG) excludes most Middling particles & rock frags, so result is dominantly MONOMINERAL PARTICLES. | | 1. For Rainy Lobe this is a concentration process, since +33% gold grains will be in 6% of wt. |
| 2. Every HMC Flowsheet produces a different CONCENTRATION RATIO. Concentration ratio 300 to 1500 (should be normalized to some value such as 1000). | | 2. Difficult to distinguish nugget effect vs. multiple gold grains. |
| 3. # of gold grains is more important than the assay. | | 3. Large number of particles improves subsample assay statistics. But gold grains do not break down like silicate particles, into expotentially greater number of particles. |
| 4. 8 kg sample of till shown by Stu Averill to be adequate size for reproducible results for gold: contains 10 particles if in dispersal train - reproducible. | | 4. Streaks of gold can occur on hard silicate particles by abrasion of soft gold. |
| 5. Gold particles are classified to estimate (ex. delicate) transport distance. | | 5. Heterogenous tills may not be well represented by typical sample weights used. |
| 6. Indicator and/or pathfinder heavy minerals helpful (ex. Aspy or supergene indicators native Cu & pyromorphite) | | 6. Au content in till does not appear to be as homogeneous vertically as HMC. |
| 7. Magnetic fraction is available and can be helpful. | | 7. If oxidation has occurred, clays and hydrous iron oxides should "fix" cations such as CU, Pb, Zn. |
| 8. Claims (ODM) ore grade estimate is possible. | | 8. If pre-glacial weathering: Secondary Gold in Regolith or Gossan or Cretaceous or Pre-Wisconsin oxidized (old) tills should be identified with this fraction. |
| 9. Rainy Lobe Till with a relatively low silt and clay content should work well for HMC gold recovery. low silt and clay content should work well for HMC gold recovery. | | 9. Lower cost, but results indirect. |
| 10. Probable gold grain loss if: occluded in silicates or quartz, native gold flakes 25 micron diameter. | | 10. Potential for larger dispersal target? Finland and works well there for base metals. |
| | | 11. Used exclusively by Geol. Survey Finland and works well there for base metals. |

Both Fractions

A. permit +10M clasts and chips to be examined visually to interpret local bedrock types and ore types. Example Zn as Sph in banded massive sulfides vs in veins; Au as stratiform vs vein.

B. drill bit can grind up pebbles to liberate Au or other elements into HMC or -63 -63 um.



Table 43-4. List of some factors to consider for interpretation of distance of transport.

A. Artificial
   1. Definition of transport distance used: the distance over which the percentage of the object of study proper diminishes to half measured from the distal contact (Salminen & Hartikainen, 1985).

B. Probably Two Most Important Factors (Clark, 1987)
   1. Topography of bedrock subcrop: often directs path of basal debris toward topographic low
      a. Scales - detailed vs local vs regional vs continental
      b. Relief on detailed scale: 10 vs 100 feet
   2. Basal Ice (or sliding) Velocity: determine rates of entrainment, dilution and deposition; low velocity = short transport, lodging, new entrainment, high rate of mixing
      a. Thickness of ice
      b. Relative location, middle of lobe vs edge
      c. Location proximal vs distal to a specific end moraine: (Salminen and Hartikainen, 1985)
      d. Dilution by distal debris

C. Site Landscape Factors
   1. Strike, dip, & topographic position of bedrock ore target: flame vs ribbon shape train
   2. Area, esp. width, of target ore zone subcrop
   3. Area & lithology of nearby unmineralized bedrock: dilution and trace element content
   4. Stratigraphic horizons of till
   5. Sampling depth
   6. Characteristics of target ore zone (Shilts, 1976)
      a. Resistance to plucking, abrasion, & crushing
      b. Grade of primary & pathfinder elements
      c. Mineralogy affects both strength & size of dispersal train
      d. Liberation size of ore minerals
   7. Presence of regolith or older drift at site: secondary gold in regolith
   8. Post-depositional weathering
   9. Fraction of till analyzed: -63 um, HMC, pebbles, boulders (Ex: Sulfides, chromite, magnetite often in sand sizes; gold often in sand & silt sizes; serpentine in silt & clay)

D. Other Unnecessary Evils
   1. Complex transport: two ice directions or ice + water + ice
   2. Secondary interglacial processes: ODM example: fluvial gold anomaly

E. Notes
   1. Variability of Results = sum of variability of till + drilling + processing + analytical
   2. Scale of Transport (Klassen, 1987)
      a. Detailed: 100 m to few km's
      b. Local: tens of km's
      c. Regional: 100's km

**Table 55-1:** 1986 SEISMIC DEPTHS COMPARED WITH 1985-1986 DRILL DEPTHS

| SITE | LOCATION | SEISMIC DEPTHS | | DRILL DEPTHS | | PERCENT DIFFERENCE | |
|---|---|---|---|---|---|---|---|
| | | BEDROCK | GLACIAL | BEDROCK | GLACIAL | BEDROCK | GLACIAL |
| OB-107 | NE1/4-SE1/4, S. 29, T68N-R24W | 140 FT. | - FT. | 142 FT. | - FT. | 1.4% | - % |
| OB-108 | NW1/4-NE1/4, S. 16, T69N-R24W | 106 | - | 131.5 | - | 19.4% | - |
| OB-109 | SE1/4-SE1/4, S. 16, T69N-R23W | 64 | - | 45 | - | 29.7% | - |
| OB-110 | NW1/4-SE1/4, S. 12, T68N-R24W | 52 | 37 | 52 | 37.5 | - | 1.3% |
| OB-202 | SE1/4-SW1/4, S. 16, T63N-R23W | 87 | 64 | 122.5 | 69.5 | 29.0% | 7.9% |
| OB-206 | SW1/4-SW1/4, S. 22, T63N-R21W | 103 | 45 | 108 | 37 | 4.6% | 21.6% |
| OB-207 | NE1/4-NE1/4, S. 16, T62N-R21W | 102 | 86 | 108 | 70.5 | 5.6% | 22.0% |
| OB-209 | NE1/4-SE1/4, S. 16, T63N-R20W | 104 | 73 | 105 | 52 | 1.0% | 40.4% |
| OB-210 | SW1/4-SE1/4, S. 25, T64N-R21W | 48 | - | 48 | - | - | - |
| OB-211 | NW1/4-SE1/4, S. 22, T64N-R20W | 54 | - | 56 | - | 3.6% | - |
| | | | | | | --- | --- |
| | | | | AVERAGE ERROR | | 9.4% | 18.6% |

**Table 55-2:** COOK AREA SEISMIC GLACIAL TILL PROFILES

| SITE | LOCATION | SEISMIC DEPTHS | | DRILL DEPTHS | | PERCENT DIFFERENCE |
|---|---|---|---|---|---|---|
| | | BEDROCK | GLACIAL | BEDROCK | GLACIAL | BEDROCK |
| S-1 | E1/16 COR. SE1/4, S. 35 T63N-R22W | 80 FT. | - FT. | - FT. | - FT. | - |
| S-2 | E1/16 COR. SE1/4, S. 9 T63N-R22W | 119 | 88 | 121 | - | 1.7% |
| S-3 | E1/16 COR. SE1/4, S. 29 T63N-R22W | 183 | 150 | - | - | - |
| S-4 | NW1/4-SW1/4, S. 36 T63N-R23W | 138 | 90 | - | - | - |
| S-5 | NE1/4-NE1/4, S. 27 T63N-R23W | 101 | 61 | - | - | - |
| S-6 | SW1/4-NE1/4, S. 32 T63N-R23W | 143 | - | - | - | - |
| S-7 | SW1/4, S.32 T63N-R23W | 140 | 112 | - | - | - |
| S-8 | E1/16 COR. SW1/4, S. 12 T63N-R24W | 178 | 115 | 167 | 41 | 6.6% |
| S-9 | SW1/4-NW1/4, S. 32 T63N-R24W | 160 | 115 | - | - | - |
| S-10 | NW1/4-NE1/4, S. 18 T63N-R24W | 155 | 111 | -* | 40 | - |

* Hole bottomed at 146 feet in glacial drift.

**Table 55-3:** LITTLE FORK AREA SEISMIC GLACIAL TILL PROFILES

| SITE | LOCATION | SEISMIC DEPTHS | | DRILL DEPTHS | | PERCENT DIFFERENCE | |
|---|---|---|---|---|---|---|---|
| | | BEDROCK | GLACIAL | BEDROCK | GLACIAL | BEDROCK | GLACIAL |
| S-11 | CENTER S. 10 T69N-R23W | 122 FT. | - FT. | 134 FT. | 113 FT. | 9 % | - % |
| S-12 | NW1/4-NW1/4, S. 36 T69N-R23W | 31-51 | - | 56.5 | 56 | 10 | - |
| S-13 | E1/16 COR. SE1/4, S. 9 T68N-R24W | 4-6 | - | - | - | - | - |
| S-14 | CENTER NW1/4, S. 2 T68N-R25W | 75 | - | 78.5 | 62 | 5 | - |
| S-15 | W1/16 COR. SW1/4, S. 30 T69N-R25W | 115 | - | 95 | 99 | 14* | - |
| S-16 | S1/16 COR. SE1/4, S. 3 T68N-R26W | 183 | - | 177 | 117 | 4 | - |
| S-17 | NW1/4-NE1/4, S. 23 T68N-R26W | 37-41 | - | - | - | - | - |
| S-18 | NW COR., S. 8 T68N-R26W | 165 | 66 | 135.5 | - | 18* | - |
| S-19 | S1/16 COR. SW1/4, S. 19 T68N-R26W | 100 | 80 | 92 | 98 | 2 | 13 |
| S-20 | E1/4 COR., S. 36 T157N-R25W | 162 | 145 | 190 | 145 | 15 | 0 |
| S-21 | SW COR., S. 36 T156N-R25W | 92 | - | +174 | 102 | 47 | - |
| S-22 | S1/4 COR., S. 27 T157N-R25W | 203 | 137 | 136.5 | 119 | 33 | 14 |
| S-23 | W1/16 COR. NW1/4, S. 15 T156N-R25W | 85 | - | - | - | - | - |
| S-24 | SW1/4-SE1/4, S. 27 T156N-R25W | 123 | 103 | - | - | - | - |
| S-25 | S1/16 COR. SE1/4, S. 5 T156N-R25W | 170 | 144 | - | - | - | - |
| S-26 | S1/16 COR. SW1/4, S. 17 T156N-R25W | 82 | - | - | - | - | - |

* Drill site is far enough away from seismic site to account for difference.