

ICE SATAN RIVER YT C-72

67° 00' 134° 00'

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Company: Imperial Oil Enterprises Ltd.

Signed by: Peter Schuff

Title: Manager N.W.T. Exploration District

Date: March 14 1967

Section 1. Summary of Well Data

- (a) Well Name and Number  
IOE Satah River YT G-72
- (b) Permittee - Imperial Oil Enterprises Ltd.
- (c) Name of Operator - Imperial Oil Enterprises Ltd.  
11160 - Jasper Avenue, Edmonton, Alta.
- (d) Location G-72 67 00 134 00  
Latitude 66°51'28" Longitude 134°13'57"
- (e) Co-ordinates - Not applicable
- (f) Permit Number 3626
- (g) Drilling Contractor - P. Bawden #16 64B Oilwell
- (h) Drilling Authority - #240 Dec. 14, 1966
- (i) Classification - N.F.W.
- (j) Elevations - Gr 282, K.B. 294
- (k) Spudded - Jan. 13, 1967
- (l) Completed Drilling - March 5, 1967
- (m) Total Depth - 7500
- (n) Well Status - Dry & Abandoned
- (o) Rig Release - March 9, 1967
- (p) Hole Size - Surface to 415' 17 1/2"  
415' to 900' 12 1/4"  
900' to 7500' 7 7/8"
- (q) Casing - Ran 13 joints 13 3/8" 54.5# J55 STC Range 2  
8 thread Steward & Lloyds new casing landed at 415'  
Cemented with 325 sacks cement plus 3.5% CaCl<sub>2</sub>.
- Ran 28 joints 903.01' 9 5/8" N80 40# casing landed  
at 900' Cemented with 275 sacks cement plus 3.5% CaCl<sub>2</sub>.

Section 2. Geological Summary

(a) Formation Tops

| <u>Formation</u>  | <u>Sample</u> | <u>Log</u> | <u>Sub-Sea</u> |
|-------------------|---------------|------------|----------------|
| Cretaceous        | -             | 70         | +224           |
| Imperial          | 770           | 760        | -466           |
| Canol-Hare Indian | 5950          | 5950       | -5656          |
| Hume              | 6152          | 6152       | -5858          |
| Bear Rock         |               | 6490       | -6196          |

(b) Cored Intervals

|         | <u>Interval</u> | <u>Recovery</u> | <u>Formation</u> |
|---------|-----------------|-----------------|------------------|
| Core #1 | 6500-6535       | 35              | Bear Rock        |

(c) Core Description

Core #1 6500-6535 Rec. 35/35

6500-6518  
(18') Limestone micritic brownish grey, medium dark grey microscopically. Some vague bonding structures locally 1-2 stringers of calcareous shale. 2% skeletal grains, Brachiopods, Grinoids, Ostracods. Trace of fine pyrite particularly in argillaceous bonding bands. Top six inches of core still contains a few stringers of light olive shale such as separates Hume limestone from Bear Rock limestone

6518-6522  
(4') Limestone, argillaceous, micritic, brownish grey. Very few fossils or fossil fragments. A few thin calcite veins. Some 1/4 inch dark grey shale breaks, otherwise massive.

6522-6535  
(13') Limestone micritic, pale brown. Some color mottling through clay content but total argillaceous material negligible. Fossil debris 2% mostly recrystallized; some patches of white calcite. Bottom five feet numerous very small clear calcite patches but total cement less than 5%.

Coring times minutes/foot 8, 11, 9, 11, 8, 7, 9, 8, 9, 9, 9, 10, 9,  
8, 7, 8, 6, 12, 13, 9, 18, 9, 8, 8, 7, 8,  
7, 8, 7, 7, 8, 10, 7, 7, 10

(d)

Sample Description

LOGGED BY: Brunner

DATE: Jan 1967

UNIT: \_\_\_\_\_

LO  
NA

| INTERVAL | QUALITY | %   | ROCK NAME        | WET / DRY                    |   | REMARKS<br>SEDIMENTARY STRUCTURES, DIAGENESIS,<br>ENVIRONMENT, FRACTURES, ETC.  | TYPE |
|----------|---------|-----|------------------|------------------------------|---|---|------|
|          |         |     |                  | <input type="checkbox"/> WET | <input checked="" type="checkbox"/> DRY |   |      |
| 0-30     | F       | 80  | sand             |                              |   | unconsolidated medium sand<br>nearly sorted subangular to well rounded<br>essentially all clean grains. 90% not<br>coloured. Some red coloured light yellow<br>Only trace of rock fragments |      |
|          |         | 20  | shale            | med                          |   | grey, soft  |      |
| 30-70    | F       | 100 | shale            | med                          |   | grey, soft  |      |
|          |         | 20  | sand             |                              |   | med coarse; red coloured quartz;<br>predominant, also uncoloured quartz<br>(more rock fragments than above) (granitic)  |      |
| 40-70    | F       | 50  | shale as above   |                              |   |   |      |
|          |         | 50  | sand as above    |                              |   |   |      |
| 70-100   | F       | 100 | shale            | med                          |   | grey, very soft; small part brown and<br>ferruginous (concretions?). One piece<br>hard dark grey shale in 70-80 sample<br>Inoceramus prisms 80-90<br>Grain of dark green glauconite 100-130 |      |
| 150-200  | F       | 100 | shale as above   | med                          |   | grey very soft, flaky<br>40 to 70% surface sandavings   |      |
| 200-400  | F       | 100 | shale            | med                          |   | grey, very soft (10-20% surface sands)  |      |
| 240-500  | F       | 100 | shale as above   |                              |   | 40% surface sands   |      |
| 250-300  | F       | 100 | shale            | med                          |   | grey, soft, flaky   |      |
| 310-330  | F       | 90  | shale as above   |                              |   | trace of light green glauconite   |      |
|          |         | 10  | siltstone        | very                         |   | light grey, slightly greenish, trace<br>no. lenticles   |      |
|          |         |     |                  |                              |   | siltstone in part very fine sandstone<br>Present as paper thin laminae in shale   |      |
| 310-800  | F       | 80  | shale            | medium                       |   | grey, soft  |      |
|          |         | 20  | siltstone, shaly | very                         |   | light grey, silt. generally clean, slightly<br>irregular  |      |
|          |         |     | irregular        |                              |   | irregular in the contact area with the shale  |      |



| INTERVAL | QUALITY % | ROCK NAME   | COLOR                        |   | REMARKS<br>SEDIMENTARY STRUCTURES, DIAGENESIS,<br>ENVIRONMENT, FRACTURES, ETC.   | PO<br>TYPE |
|----------|-----------|---|------------------------------|---|--|------------|
|          |           |   | <input type="checkbox"/> WET | <input checked="" type="checkbox"/> DRY |  |            |
| 380-390  | 60        | siltstone slightly<br>argillaceous trace<br>glauconitic | dark                         | brownish light grey                     |  |            |
|          | 10        | shale   | med                          | light grey                              |  |            |
| 410-207  |           | shale as above  |                              |   | sample is mostly cement (losing @ 415 ft)  |            |
| 420-206  | 60        | shale slightly silty                                    | med                          | dark grey                               |  |            |
|          | 40        | siltstone slightly arg                                  | dark                         | light grey                              | Siltstone in fine laminae in<br>the shale. Finely disseminated pyrite common   |            |
| 430-506  | 80        | shale as above  |                              |   | trace of silt sized and very fine glauconite   |            |
|          | 20        | siltstone as above                                      |                              |   |  |            |
| 450-706  | 6-100     | shale, slightly silty                                   | med                          | dark grey                               | some of the silt is scattered through<br>the shale, some occurs in discrete laminae<br>shale is micromassaceous. Finely disseminated<br>pyrite common. Silt laminae contain some<br>brown mica |            |
| 470-906  | 100       | shale, silty  | med                          | dark grey                               | intermixed and interbedded as above<br>but with more silt than above<br>Micromassaceous, trace of silt sized light<br>green glauconite   |            |
| 490-106  | 70        | shale, silty as above                                   | med                          | dark grey                               |  |            |
|          | 30        | siltstone slightly<br>argillaceous part                 |                              |   |  |            |
| 500-516  | 100       | siltstone, shaly, with<br>some shale stringers          | med                          | dark grey                               | trace of light green<br>glauconite. Some scattered very fine<br>and fine quartz  |            |

| INTERVAL | QUALITY | %   | ROCK NAME                     | WET / DRY                |                                     | REMARKS<br>SEDIMENTARY STRUCTURES, DIAGENESIS,<br>ENVIRONMENT, FRACTURES, ETC.  | PO<br>TYPE |
|----------|---------|-----|-------------------------------|--------------------------|-------------------------------------|---|------------|
|          |         |     |                               | <input type="checkbox"/> | <input checked="" type="checkbox"/> |   |            |
| 510-20   | 6       | 80  | siltstone                     | light grey               |                                     | traces of well rounded fine sand and fine glauconite  |            |
|          |         | 20  | siltstone, argill.            | med. dark grey           |                                     | as above  |            |
| 520-30   | 6       | 70  | shale                         | med. dark grey           |                                     | micromicaceous  |            |
|          |         | 30  | siltstone                     | light grey               |                                     | as above traces of well rounded fine sand and fine glauconite   |            |
| 530-40   | 6       | 100 | siltstone sandstone and shale | light grey               |                                     | siltstone and sandstone, med. dark grey shale all three probably closely interbedded and interlaminated. Silt and sandstone both light sandstone is trace glauconitic fine rounded frosted some of the silt is slightly argillaceous, some of the shale slightly silty glauconitic chips of <del>rock</del> also finely crystalline sand is subangular to rounded, clear to frosted | Et         |
| 540-50   | 6       | 100 | as above more shale           |                          |                                     |   |            |
| 560-56   | 6       | 60  | shale                         | med. dark grey           |                                     | partly micromicaceous grainy partly mudstone  |            |
|          |         | 40  | siltstone/sandstone           | light grey               |                                     | slightly argillaceous in part trace glauconitic; glauconite commonly concentrated in the coarser chips, sub-angular to subround, some chips have a pyrite cement  |            |
|          |         |     |                               |                          |                                     | siltstone very well indurated. sometimes hard to break  |            |

| INTERVAL | QUALITY | %   | ROCK NAME  | <input type="checkbox"/> WET<br>COLOR<br><input checked="" type="checkbox"/> DRY | REMARKS<br>SEDIMENTARY STRUCTURES, DIAGENESIS,<br>ENVIRONMENT, FRACTURES, ETC.   | PO<br>TYPE |
|----------|---------|-----|--|--|--|------------|
| 520-540  | 6       | 50  | shale  | med. dark grey   |  |            |
|          |         | 50  | sandstone, slightly arg.   | light grey   | trace glauconitic, tight, some finely disseminated pyrite  |            |
| 540-640  |         |     | trip with new bit @ 606  |  | samples unreliable, containing surface sands, cement and chips from the cementing plug. Essentially no sample  |            |
| 640-650  | 5       | 100 | shale, silty and sandy with a few hard clean silt and sand stringers | med. dark grey   | Some of the shale is clean some chips contain only a few silt or sand grain. others are silty or sandy throughout.   |            |
| 650-660  | 6       | 50  | shale  | med. grey (lighter than above)   | some brown ferruginous   |            |
|          |         | 50  | sandstone  | light grey   | very hard, breaks in part across grain subangular to round. a few rare grains of glauconite. Some black pyritomena? trace of intergranular, probably blind porosity    |            |
| 720-740  | 6       | 80  | siltstone/sandstone  | light grey   | very hard, poorly sorted, subangular in part breaking across grains  |            |
|          |         | 20  | shale  | med. dark grey   |  |            |
| 740-750  | 6       | 100 | sandstone with silt stringers  | light grey   | hard, tight, subangular. a few rare grains of glauconite, trace of pyrite. 10% broken quartz grains, mostly quartzite, breaks across grains, silt breaks around grains |            |
| 750-760  | P       |     | interbedded sandstone  | as above   | poor samples full of cement and shale casing (washing out from behind first string casing?)  |            |
| 760-770  | F       | 60  | shale  | med. dark grey   |  |            |
|          |         |     | sandstone with silt stringers as above                               |  |  |            |
|          |         |     | 750-760  |  |  |            |

| INTERVAL | QUALITY | %   | ROCK NAME                     | WET                        |     | REMARKS   |
|----------|---------|-----|-------------------------------|----------------------------|-----|---|
|          |         |     |                               | COLOR                      | DRY |   |
| 770-780  | P       | 60  | shale                         | med dark grey              |     | Sample contains large amount of cement  |
|          |         | 40  | siltstone with silt stringers | light grey                 |     |   |
|          |         |     |                               |                            |     | Top of Imperial?  |
| 780-790  | F       | 70  | shale                         | med dark grey              |     |   |
|          |         | 20  | siltstone                     | light grey                 |     |   |
|          |         | 10  | siltstone quartzitic as above | light grey                 |     | (comes from Cretaceous?)  |
| 790-800  | F       | 90  | shale                         | med dark grey to dark grey |     | macromicroscopic has laminae of   |
|          |         | 10  | siltstone                     | light grey                 |     |   |
| 800-810  | F       | 50  | shale                         | med grey                   |     | with small amount of black carbonaceous material (trace of dark shale as 790-800)                                     |
|          |         | 50  | siltstone as above            | light grey                 |     |   |
| 810-820  | F       | 60  | coarse siltstone              | light grey                 |     |   |
|          |         | 40  | shale                         | med grey                   |     | with "plant remains?"   |
| 820-850  | F       | 80  | shale                         | med dark grey              |     | macromicroscopic with laminae of  |
|          |         | 20  | siltstone                     | light grey                 |     |   |
| 850-860  | F       | 70  | siltstone                     | light grey                 |     |   |
|          |         | 30  | shale                         | med dark grey              |     |   |
| 860-870  | F       | 100 | shale                         | dark grey                  |     |   |
| 870-900  | F       | 50  | shale                         | med grey to med dark grey  |     | only a trace of dark shale as above. Interbedded with   |
|          |         | 50  | siltstone                     | light grey                 |     | slightly argillaceous in part some scattered fine pyrite  |
| 900-920  | F       | 90  | shale                         | med grey                   |     | samples contaminated with cement  |
|          |         | 10  | siltstone arg.                | med grey                   |     | over 900' casing. Siltstone is on the border between silt and very fine sand, mostly quartzitic (but in below casing) |

| INTERVAL           | QUALITY      | %             | ROCK NAME   | COLOR                        |   | REMARKS<br>SEDIMENTARY STRUCTURES, DIAGENESIS,<br>ENVIRONMENT, FRACTURES, ETC.   | PI<br>TYPE |
|--------------------|--------------|---------------|---|------------------------------|---|--|------------|
|                    |              |               |   | <input type="checkbox"/> WET | <input checked="" type="checkbox"/> DRY |  |            |
| <del>920-940</del> | <del>F</del> | <del>80</del> | <del>shale</del>  | <del>med</del>               | <del>dark grey</del>                    | <del>732 bit #3 below</del>  |            |
|                    |              | 20            | siltstone as above  | med                          | grey                                    |  |            |
| 960-990            | G            | 100           | shale with a few silt<br>laminiae   | med                          | grey to med dark grey                   | Some of the silt-<br>stringers are quartzitic  |            |
| 990-1040           | G            | 75            | shale   | med                          | grey to med dark grey                   |  |            |
|                    |              | 25            | siltstone arg   | dirty                        | light grey                              |  |            |
| 1040-1110          | G            | 100           | shale   | med                          | grey                                    | contains a few pyrite globules<br>Only a trace of silt in paper thin laminae<br>1068 bit #3<br>This shale is fairly soft; all cuttings have rounded edges. |            |
| 1110-1140          | G            | 100           | shale, slightly silty   | med                          | grey to med dark grey                   | Most of the silt is present as laminae; very little is scattered   |            |
| 1140-90            | G            | 100           | shale   | med                          | grey to med dark grey                   | a few pyrite globules up to 0.5 mm in diameter.  |            |
| 1190-1230          | G            | 100           | shale, silty  | med                          | grey to med dark grey                   | silt is concentrated in laminae of very argillaceous siltstone<br>The shale is still fairly soft, all chips have rounded edges                             |            |
| 1230-1270          | G            | 100           | shale   |                              |   | as above but with only a trace of silt   |            |
| 1270-1320          | G            | 90            | shale   | med                          | grey to med dark grey                   | Fairly soft as above   |            |
|                    |              | 10            | siltstone arg   | med                          | light grey                              | Part of the silt is very fine sand   |            |
| 1320-1360          | G            | 100           | shale   | med                          | grey to med dark grey                   | Only traces of silt  |            |
| 1360-1400          | G            | 100           | shale interbedded with<br>stringers and laminae of<br>silt and very fine sand |                              |   | shale as above. Siltstone is always argillaceous,<br>the sandstone (med light grey) is quartzitic<br>in part. Traces of fine pyrite                        |            |

LOGGED BY: Brusseker

DATE: Jan. 1967

UNIT: Imperial form

LC  
NA

| INTERVAL  | QUALITY % | ROCK NAME            | WET<br>COLOR<br>DRY | REMARKS<br>SEDIMENTARY STRUCTURES, DIAGENESIS,<br>ENVIRONMENT, FRACTURES, ETC. | PI<br>TYPE |
|-----------|-----------|----------------------|---------------------|--|------------|
| 1350-750  | 80        | shale                | med. grey           | lgh, chips all have rounded edges  |            |
|           | 20        | siltstone arg.       | med. light grey     |  |            |
| 1370-1420 | 100       | shale as above       |                     |  |            |
| 1420-800  | 100       | shale silty          | med. grey           | silt in stringers and laminae  |            |
| 1480-900  | 80        | shale                | med. grey           | Interbedded siltst and sandst  |            |
|           | 20        | siltst + sandst.     | med. light grey     | both argillaceous  |            |
|           |           |                      |                     | minor circulation problems begin at this depth                                 |            |
|           |           |                      |                     | there is no indication of porosity in the rock chips                           |            |
|           |           |                      |                     | but there may be hair line fractures in the                                    |            |
|           |           |                      |                     | sometimes quartzitic silt and sandstone  |            |
| 1490-1500 | 100       | shale slightly silty | med. grey           | Bed #2 @ 1495  |            |
| 1500-200  | 90        | shale                | med. grey           | Interbedded siltstone is now clean   |            |
|           | 10        | siltstone            | light grey          | and lighter coloured   |            |
| 1520-300  | 70        | shale                | med. grey           |  |            |
|           | 30        | siltstone, sandst    | light grey          |  |            |
| 1530-700  | 90        | shale                | med. grey           |  |            |
|           | 10        | siltstone            | light grey          |  |            |
| 1590-400  | 100       | shale                | med. grey           |  |            |
| 1610-300  | 90        | shale                | med. grey           |  |            |
|           | 10        | siltstone            | light grey          |  |            |
| 1620-500  | 70        | shale                | med. grey           |  |            |
|           | 30        | sandstone            | light grey          | in part quartzitic; where not quartzitic grains are rounded and frosted        |            |

9

LOGGED BY: Bruce

DATE: Jan 1967

UNIT: Ingersoll formation

| INTERVAL           | QUALITY       | %             | ROCK NAME        | COLOR                        |   | REMARKS<br>SEDIMENTARY STRUCTURES, DIAGENESIS,<br>ENVIRONMENT, FRACTURES, ETC.  |
|--------------------|---------------|---------------|------------------|------------------------------|---|---|
|                    |               |               |                  | <input type="checkbox"/> WET | <input checked="" type="checkbox"/> DRY |   |
| <del>1650-90</del> | <del>90</del> | <del>90</del> | <del>shale</del> | <del>med</del>               | <del>grey</del>                         | <del>interbedded</del>  |
|                    |               | 10            | siltstone, arg   | med.                         | grey                                    |   |
| 1690-1730          |               | 80            | shale            | med.                         | grey                                    | some brown ferruginous  |
|                    |               | 20            | siltstone        | med.                         | grey                                    | This appears to be a very hard, almost quartzitic siltstone   |
| 1710-30            | F             |               |                  |                              |   | Lost circulation at 1712. No indication of porosity in samples or in drilling times. Mud dropped only slightly in hole. Formation could not hold full hydrostatic head until after mixing gel and lost circulation material. By-passed shale shaker for a while and collected contaminant samples from mud ditch. |
|                    |               | 90            | shale            | med                          | grey                                    |   |
|                    |               | 10            | silt             | med.                         | grey                                    | Trace of loose, fine quartz grains  |
| 1730-80            | F             |               |                  |                              |   | ditch samples. Really contaminated  |
| 1780-1820          | G             | 80            | shale            | med                          | grey                                    |   |
|                    |               | 20            | siltstone        | med                          | light grey                              |   |
| 1820-1870          | G             | 90            | shale            | med                          | dark grey                               | shale chips have rounded edges  |
|                    |               | 10            | siltstone        | med.                         | light grey                              |   |
|                    |               |               |                  |                              |   | Few pieces of globular pyrite; a few grains of clear angular quartz (contamination?)  |
| 1910-30            | G             | 100           | shale            | med                          | dark grey                               |   |
| 1930-70            | G             | 90            | shale            | med                          | dark grey                               |   |
|                    |               | 10            | siltstone        | med.                         | light grey                              |   |
| 1970-90            | G             | 100           | shale            | med.                         | dark grey                               |   |

1712 Re-run bit # 4

1805 Bit # 5

9.

| INTERVAL  | QUALITY | %   | ROCK NAME | COLOR                        |   | REMARKS<br>SEDIMENTARY STRUCTURES, DIAGENESIS,<br>ENVIRONMENT, FRACTURES, ETC. | PG<br>TYPE  |
|-----------|---------|-----|-----------|------------------------------|---|--|-------------|
|           |         |     |           | <input type="checkbox"/> WET | <input checked="" type="checkbox"/> DRY |  |             |
| 1990-2050 | G       | 90  | shale     | med.                         | dark grey                               | Pyrite globules  |             |
|           |         | 10  | siltstone | med.                         | light grey                              | Trace pyritic  | Bit # 62055 |
| 2050-2100 | G       | 100 | shale     | med.                         | grey to med. dark grey                  | Trace pyritic<br>rounded edges on all chips                                    |             |
| 2070-2110 | G       | 90  | shale     | med.                         | grey to med. dark grey                  | as above.  |             |
|           |         | 10  | siltstone | med.                         | light grey                              | hard   |             |
| 2120-2210 | G       | 100 | shale     | med.                         | grey                                    | Trace of pyrite a few pyrite<br>globules, trace of silt stringers              |             |
| 2210-2260 | G       | 90  | shale     | med.                         | grey                                    | as above   |             |
|           |         | 10  | siltstone | med.                         | light grey                              |  |             |
| 2270-2330 | G       | 100 | shale     | med.                         | grey                                    |  |             |
| 2330-2340 | G       | 90  | shale     | med.                         | grey                                    |  |             |
|           |         | 10  | siltstone | med.                         | light grey                              |  |             |
| 2340-2350 | G       | 100 | shale     | med.                         | grey                                    |  |             |
| 2350-2400 | G       | 90  | shale     | med.                         | grey                                    |  |             |
|           |         | 20  | siltstone | med.                         | light grey                              |  |             |
| 2390-2410 | G       | 90  | shale     | med.                         | grey                                    |  |             |
|           |         | 10  | siltstone | med.                         | light grey                              |  |             |
| 2410-2470 | G       | 100 | shale     | med.                         | grey to med. dark grey                  |  |             |

Bit # 74485



10.

| INTERVAL                | QUALITY | %   | ROCK NAME   | COLOR                              |   | REMARKS<br>SEDIMENTARY STRUCTURES, DIAGENESIS,<br>ENVIRONMENT, FRACTURES, ETC.                              | FO<br>NO. |
|-------------------------|---------|-----|-------------|------------------------------------|---|---|-----------|
|                         |         |     |             | <input type="checkbox"/> WET       | <input checked="" type="checkbox"/> DRY |   |           |
| 2670                    | G       | 100 | Shale       | med gy                             | to med dk gy                            | trace of pyrite globules -<br>concretions or fossils, also scattered pyrite cubes<br>appears micromicaceous |           |
|                         |         | tr. | Siltstone   | med light grey                     |   | contains occasional grain<br>of glauconite  |           |
|                         |         |     | 2670 - 2680 | Noted a chip of coal in cuttings   |   | Otherwise the same  |           |
| 2680 -                  | G       | 90  | Shale       | med gy                             | to med dk gy                            | micromicaceous  |           |
| <del>2680</del><br>2700 |         | 10  | Siltstone   | med light grey                     |   | contains tr pyrite, slightly<br>argillaceous in part, appears non dolomitic                                 |           |
| 2700 -                  | G       | 80  | Shale       | med gy                             | to med dk gy                            | As above  |           |
| 2710                    |         | 20  | Siltstone   | med light grey                     |   | contains occasional grain of<br>glauconite  |           |
| 2710 -                  | G       | 90  | Shale       | med gy                             | to med dk gy                            | As above, scattered pyrite  |           |
| 2730                    |         | 10  | Siltstone   | med light grey                     |   | slightly argillaceous in part   |           |
| 2730                    | G       | 100 | Shale       | med gy                             | to med dk gy                            |   |           |
| 2750                    |         | tr  | Siltstone   | med light grey                     |   | As previously   |           |
| 2750                    | G       | 90  | Shale       | med gy                             | to med dk gy                            |   |           |
| 2790                    |         | 10  | Siltstone   | med light grey                     |   |   |           |
|                         |         |     | 2780 - 2790 | Saw one coal chip in cuttings      |   |   |           |
| 2790 -                  | G       | 100 | Shale       | med gy                             | to med dk gy                            | scattered pyrite - globules<br>+ cubes  |           |
| 2850                    |         | tr  | siltstone   | med lt gy                          |   | contains occasional grain of glauconite<br>noted at 2850'   |           |
|                         |         |     | Coal        |                                    |   | one chip noted in cuttings  |           |
|                         |         |     |             |                                    |   | Occasional chip of v. fine sand stone   |           |
| 2850                    | G       | 90  | Shale       | med gy                             | to med dk gy                            | micromicaceous  |           |
| 2870                    |         | 10  | Siltstone   | med lt gy                          |   |   |           |
| 2870 -                  | G       | 100 | Shale       | med gy                             | to med dk gy                            | micromicaceous, scattered<br>pyrite - globules + cubes  |           |
| 3020                    |         | tr  | Siltstone   | med lt gy                          |   | v. sl. dol tr scattered pyrite  |           |
|                         |         |     | 2890 - 2900 | Chip of coal from a very thin seam |   |   |           |

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| INTERVAL       | QUALITY | %   | ROCK NAME     | COLOR                        |  | REMARKS<br>SEDIMENTARY STRUCTURES, DIAGENESIS,<br>ENVIRONMENT, FRACTURES, ETC.                                    | PO<br>TYPE |
|----------------|---------|-----|---------------|------------------------------|--|---|------------|
|                |         |     |               | <input type="checkbox"/> WET | <input checked="" type="checkbox"/> DRY    |   |            |
| 3020<br>3090   | 6       | 80  | Shale         | med gy                       | to med dk gy                               | micromicaceous  |            |
|                |         | 10  | Siltstone     | med lt gy                    |  |   |            |
| 3040<br>3050   | 6       | 80  | Shale         | med gy                       | to med dk gy                               |   |            |
|                |         | 20  | Siltstone     | med lt gy                    | tr dolomite<br>in part                     | slightly argillaceous   |            |
| 3050<br>3090   | 6       | 60  | Shale         | med gy                       | to med dk gy                               |   |            |
|                |         | 40  | Siltstone     | med lt gy                    | tr dol                                     | slightly argillaceous in part   |            |
|                |         | tr  | Sandstone     | med lt gy                    | angular v. fine - fine<br>fragments, tight | quartz <sup>grains</sup> and shale  |            |
|                |         |     | 30.80 - 30.90 |                              |  | What appear to be very thin coal seams.   |            |
| 3090<br>3140   | 6       | 90  | Shale         | med gy                       | to med dk gy                               |   |            |
|                |         | 10  | Siltstone     | med lt gy                    |  | slightly argillaceous   |            |
| 3140 -<br>3150 | 6       | 80  | Shale         | med gy                       | to med dk gy                               |   |            |
|                |         | 20  | Siltstone     | med lt gy                    |  | slightly argillaceous   |            |
| 3150<br>3190   | 6       | 100 | Shale         | med gy                       | to med dk gy                               | micromicaceous<br>pyrite globules   |            |
|                |         | tr  | Siltstone     | med lt gy                    |  | slightly argillaceous<br>tr glauconite noted at 3200  |            |
|                |         |     |               |                              |  | Several clear & opaque quartz sand grains - cavings?<br>lost circulation about 3180. No porosity noted in samples |            |
| 3190 -<br>3210 | 6       | 90  | Shale         | med gy                       | to med dk gy                               | pyrite globules   |            |
|                |         | 10  | Siltstone     | med lt gy                    |  | slightly argillaceous, tr pyrite<br>tr glauconite noted 3200 - 3200   |            |
|                |         |     |               |                              |  | Several clear quartz sand grains noted.   |            |

19

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| INTERVAL                | QUALITY      | %             | ROCK NAME        | WET / DRY                      |   | REMARKS<br>SEDIMENTARY STRUCTURES, DIAGENESIS,<br>ENVIRONMENT, FRACTURES, ETC.   | PO<br>TYPE |
|-------------------------|--------------|---------------|------------------|--------------------------------|---|--|------------|
|                         |              |               |                  | <input type="checkbox"/> WET   | <input checked="" type="checkbox"/> DRY |  |            |
| <del>3210</del><br>3230 | <del>5</del> | <del>45</del> | <del>Shale</del> | <del>med gy to med dk gy</del> |   |  |            |
|                         |              | 50            | Siltstone        | med lt gy                      |   | slightly argillaceous  |            |
|                         |              |               |                  |                                |   | Several clear quartz sand grains - some with frosted appearance  |            |
|                         |              | 5             | Sandstone        | med lt gy                      |   | sub rounded to angular quartz grains & shale fragments, sl argillaceous & fine to fine grained with some silt tight tr. pyrite, one chip would tend to indicate that there are some much larger grains that usually have been broken out & are now by themselves rather than in sandstone poorly sorted, tr. dolomite some of larger quartz grains are quite well rounded & have a frosted appearance. |            |
| 3230<br>3240            | 6            | 80            | Shale            | med gy to med dk gy            |   | micromicaceous   |            |
|                         |              | 20            | Siltstone        | med lt gy                      |   | As previously  |            |
|                         |              |               |                  |                                |   | some rounded clear qtz grains  |            |
| 3240<br>3260            | 6            | 90            | Shale            | med gy to med dk gy            |   | tr. pyrite   |            |
|                         |              | 10            | Siltstone        | med lt gy                      |   | tr. glauconite noted in one chip sl argillaceous in part   |            |
| 3260<br>3350            | 6            | 100           | Shale            | med gy to med dk gy            |   |  |            |
|                         |              | tr            | Siltstone        | med lt gy                      |   | slightly argillaceous in part  |            |
|                         |              |               |                  |                                |   | Some clear quartz sand grains - med to coarse generally well rounded. some are frosted. some clear angular chips appears to be parts of larger grains fractured & broken during drilling.  |            |
| 3350<br>3360            | 6            | 90            | Shale            | med gy to med dk gy            |   |  |            |
|                         |              | 10            | Siltstone        | med lt gy                      |   | slightly argillaceous in part  |            |

3350

| INTERVAL    | QUALITY | %   | ROCK NAME  | WET/DRY                      |   | REMARKS<br>SEDIMENTARY STRUCTURES, DIAGENESIS,<br>ENVIRONMENT, FRACTURES, ETC.   | PO<br>TYPE |  |
|-------------|---------|-----|--|------------------------------|---|--|------------|--|
|             |         |     |  | <input type="checkbox"/> WET | <input checked="" type="checkbox"/> DRY |  |            |  |
| 3360 - 3390 | G       | 100 | shale  | med gy to med dk gy          |   | pyrite globules, tr scattered<br>pyrite  |            |  |
|             |         | tr  | Siltstone  | med lt gy                    |   | sl argillaceous  |            |  |
|             |         |     | Sandstone<br>one chip<br>3360 - 3370   | med lt gy                    |   | v. fine grained, quartz with some<br>shale fragments, tight appears to be<br>silica cement with some dol                                 |            |  |
|             |         |     | Lost circulation   | 3375                         |   | Drilling ~ 2 1/2 - 3 min / ft<br>No indication of porosity in samples<br>Several chips of clear quartz sand grains - med. arse           |            |  |
| 3390 - 3430 | G       | 25  | shale  | med gy to med dk gy          |   | micromicaceous   |            |  |
|             |         | 25  | Siltstone  | med lt gy                    |   | slightly argillaceous<br>appears to be some very fine sandstone<br>interbeds in siltstone, tr glauconite noted<br>in one chip, tr pyrite |            |  |
|             |         |     | Samples caught in ditch because of lost circulation material   |                              |   |  |            |  |
| 3430 - 3440 | G       | 90  | shale  | med gy to med dk gy          |   | pyrite - globules and<br>scattered.  |            |  |
|             |         | 10  | Siltstone  | med lt gy                    |   | slightly argillaceous  |            |  |
| 3440 - 3480 | G       | 80  | Shale  |                              |   | As before tr pyrite  |            |  |
|             |         | 20  | Siltstone  |                              |   | tr glauconite<br>some sand size qtz grains in the siltstone<br>slightly argillaceous   |            |  |
| 3480 - 3490 | G       | 65  | Shale  |                              |   | As above.  |            |  |
|             |         | 35  | Siltstone  |                              |   |  |            |  |
| 3490 - 3540 | G       | 80  | shale  | med gy to med dk gy          |   | tr pyrite  |            |  |
|             |         | 20  | Siltstone  | med lt gy                    |   | sl. argillaceous tight   |            |  |
| 3540 - 3610 | G       | 90  | shale  | med gy to med dk gy          |   | tr pyrite micromicaceous   |            |  |
|             |         | 10  | Siltstone  | med lt gy                    |   | sl. argillaceous in part   |            |  |
|             |         |     | Several chips of v. fine sandstone tight   |                              |   |  |            |  |
|             |         |     | What appears to be a drilling break at 3590 from 2 1/2 min/ft to 2 1/2<br>No apparent change in samples. No visible porosity |                              |   |  |            |  |

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| INTERVAL  | QUALITY | %   | ROCK-NAME | WET / DRY                           |                                     | REMARKS<br>SEDIMENTARY STRUCTURES, DIAGENESIS,<br>ENVIRONMENT, FRACTURES, ETC.         | POROSITY |   |
|---|---------|-----|-----------|-------------------------------------|-------------------------------------|--|----------|---|
|   |         |     |           | WET                                 | DRY                                 |  | W        | S |
| 3670-3700   | G       | 100 | shale     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | med gy to med dk gy<br>tr pyrite<br>MICROMICACEOUS                                     |          |   |
|   |         | tr  | siltstone |                                     |                                     | med lt gy sl argillaceous<br>some sand size grains                                     |          |   |
| 3700-3720   | G       | 90  | Shale     |                                     |                                     | med gy to med dk gy  |          |   |
|   |         | 10  | Siltstone |                                     |                                     | med lt gy  |          |   |
| Lost circulation at 3710                              |         |     |           |                                     |                                     |  |          |   |
| 3720-3850   | G       | 100 | shale     |                                     |                                     | med gy to med dk gy<br>pyrite globules   |          |   |
|   |         | tr  | siltstone |                                     |                                     | med lt gy sl argillaceous  |          |   |
| Considerable more cavings in the samples from 3850 on |         |     |           |                                     |                                     |  |          |   |
| 3850-3910   | F       | 90  | Shale     |                                     |                                     | med gy to med dk gy<br>tr pyrite   |          |   |
|   |         | 10  | Siltstone |                                     |                                     | med lt gy sl argillaceous in part  |          |   |
| 3884 LOST CIRCULATION                                 |         |     |           |                                     |                                     |  |          |   |
| 3910-3940   | F       | 80  | Shale     |                                     |                                     | med gy to med dk gy<br>micromicaceous  |          |   |
|   |         | 20  | Siltstone |                                     |                                     | med lt gy sl argillaceous in part  |          |   |
| 3940-3970   | F       | 60  | Shale     |                                     |                                     | med gy to med dk gy<br>micromicaceous  |          |   |
|   |         | 40  | Siltstone |                                     |                                     | med lt gy sl argillaceous in part<br>soft green glauconite; some very fine sand grains |          |   |
| 3970-4030   | F       | 40  | Shale     |                                     |                                     | med gy to med dk gy<br>micromicaceous  |          |   |
|   |         | 60  | Siltstone |                                     |                                     | med lt gy sl argillaceous in part<br>some v. fine sand grains in the silt              |          |   |
| Less coarse cavings in the samples after 4000'        |         |     |           |                                     |                                     |  |          |   |

16

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| INTERVAL       | QUALITY | %  | ROCK-NAME   | COLOR                        |   | REMARKS<br>SEDIMENTARY STRUCTURES, DIAGENESIS,<br>ENVIRONMENT, FRACTURES, ETC.                             | TYPE |
|----------------|---------|----|-------------|------------------------------|---|--|------|
|                |         |    |             | <input type="checkbox"/> WET | <input checked="" type="checkbox"/> DRY                     |  |      |
| 4030<br>4060   | F       | 33 | shale       | medgy                        | to meddkgy  |  |      |
|                |         | 35 | Siltstone   | medlgy                       |   | sl. argillaceous in part<br>tr v. fine - fine sandstone<br>tr coaly or carbonaceous interbeds in siltstone |      |
|                |         |    | 4060 - 4070 | very thin                    | coal seam in shale - pyrite along one contact of coal shale |  |      |
| 4060 -<br>4070 | F       | 35 | shale       | medgy                        | to meddkgy  | 4060-4070 associated thin coal seams with pyrite along one contact   |      |
|                |         | 35 | Siltstone   | medgy                        |   | tr v. fine sandstone<br>sl. argillaceous   |      |
| 4070 -<br>4090 | F       | 60 | shale       | medgy                        | to meddkgy  |  |      |
|                |         | 40 | Siltstone   | medgy                        |   | sl. argillaceous   |      |
|                |         | tr | Sandstone   | medgy                        |   | well rounded quartzose, fair sorting mainly v. fine with occasional med. sized grain                       |      |
| 4090 -<br>4140 | F       | 70 | Siltstone   | medgy                        |   | sl. argillaceous in part some v. fine sand grains some v. thin coal seams - (4080-4090 other samples also) |      |
|                |         | 30 | Shale       | medgy                        | - meddkgy   |  |      |
| 4140 -<br>4150 | F       | 60 | shale       | medgy                        | - meddkgy   |  |      |
|                |         | 40 | Siltstone   | medgy                        |   | tr pyrite  |      |
| 4150<br>4160   | F       | 80 | shale       | medgy                        | to med dkgy   | micromicaceous   |      |
|                |         | 20 | Siltstone   | medgy                        |   | tr pyrite some very fine sandstone   |      |
| 4160<br>4180   | F       | 65 | shale       | medgy                        | to meddkgy  | micromicaceous   |      |
|                |         | 35 | Siltstone   | medgy                        |   |  |      |

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16

| INTERVAL                        | QUALITY | %   | ROCK NAME | WET/DRY                      |   | REMARKS<br>SEDIMENTARY STRUCTURES, DIAGENESIS,<br>ENVIRONMENT, FRACTURES, ETC. | POR. |
|---------------------------------|---------|-----|-----------|------------------------------|---|--|------|
|                                 |         |     |           | <input type="checkbox"/> WET | <input checked="" type="checkbox"/> DRY |  |      |
| <del>4150</del><br>4200         | F       | 80  | Shale     |                              |   | med gy to med dk gy micromicaceous   |      |
|                                 |         | 20  | Siltstone |                              |   | med gy tr pyrite a few v. fine sand grains                                     |      |
| 4200<br><del>4250</del><br>4250 | F       | 65  | Shale     |                              |   | med gy to med dk gy  |      |
|                                 |         | 35  | Siltstone |                              |   | med gy   |      |
| <del>4250</del><br>4260<br>4280 | F       | 80  | Shale     |                              |   | med gy to med dk gy micromicaceous   |      |
|                                 |         | 20  | Siltstone |                              |   | med gy   |      |
| 4280<br>4330                    | G       | 90  | Shale     |                              |   | med gy to med dk gy micromicaceous   |      |
|                                 |         | 10  | Siltstone |                              |   | med gy   |      |
| 4330<br>4350                    | G       | 80  | Shale     |                              |   | med gy to med dk gy  |      |
|                                 |         | 20  | Siltstone |                              |   | med gy some v. fine sand grains  |      |
| 4350<br><del>4400</del><br>4450 | G       | 90  | Shale     |                              |   | med gy to med dk gy micromicaceous   |      |
|                                 |         | 10  | Siltstone |                              |   | med gy tr pyrite & pyrite globules   |      |
| <del>4400</del><br>4450         | G       | 100 | Shale     |                              |   | med gy to med dk gy micromicaceous   |      |
|                                 |         | 0   | Siltstone |                              |   | med gy   |      |
| 4450<br>4460                    | G       | 80  | Shale     |                              |   | med gy to med dk gy micromicaceous   |      |
|                                 |         | 20  | Siltstone |                              |   | med gy tr pyrite   |      |
| 4460<br>4510                    | G       | 60  | Shale     |                              |   | med gy to med dk gy  |      |
|                                 |         | 40  | Siltstone |                              |   |  |      |

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| INTERVAL       | QUALITY | %  | ROCK NAME   | COLOR                                 |   | REMARKS<br>SEDIMENTARY STRUCTURES, DIAGENESIS,<br>ENVIRONMENT, FRACTURES, ETC. | PORA |
|----------------|---------|----|-------------|---------------------------------------|---|--|------|
|                |         |    |             | <input type="checkbox"/> WET          | <input checked="" type="checkbox"/> DRY |  |      |
| 4510<br>- 4530 | 6       | 75 | Shale       | med gy to med dk gy                   |   |  |      |
|                |         | 25 | Siltstone   | med gy tr pyrite                      |   |  |      |
| 4530<br>- 4570 | 6       | 60 | Shale       | med gy to med dk gy                   |   | micromicaceous   |      |
|                |         | 40 | Siltstone   | med gy                                |   |  |      |
| 4570<br>- 4590 | 6       | 35 | Shale       | med gy to med dk gy                   |   |  |      |
|                |         | 65 | Siltstone   | med gy tr pyrite                      |   | essentially quartzose  |      |
| 4590<br>- 4610 | 6       | 50 | Shale       | med gy to med dk gy                   |   |  |      |
|                |         | 50 | Siltstone   | med gy                                |   |  |      |
| 4610<br>- 4620 | 6       | 65 | Siltstone   | med gy                                |   |  |      |
|                |         | 35 | Shale       | med gy to med dk gy                   |   |  |      |
| 4620<br>- 4630 | 6       | 60 | Shale       | As above                              |   |  |      |
|                |         | 40 | Siltstone   | some v. fine sand<br>med gy to gy brn |   |  |      |
| 4630<br>- 4670 | 6       | 60 | Siltstone   | med gy to gy brn                      |   | some v. fine sand  |      |
|                |         | 40 | Shale       | med gy to med dk gy                   |   |  |      |
|                |         |    | 4630 - 4640 | tr coal                               |   |  |      |
| 4670<br>- 4680 | 6       | 70 | Siltstone   | med gy                                |   | some v. fine sand<br>tr green glauconite                                       |      |
|                |         | 30 | Shale       | med gy to med dk gy                   |   | tr pyrite  |      |

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| INTERVAL     | QUALITY | %  | ROCK NAME              | COLOR                                 |   | REMARKS<br>SEDIMENTARY STRUCTURES, DIAGENESIS,<br>ENVIRONMENT, FRACTURES, ETC.                  | POR.<br>TYPE |
|--------------|---------|----|------------------------|---------------------------------------|---|---|--------------|
|              |         |    |                        | <input type="checkbox"/> WET          | <input checked="" type="checkbox"/> DRY |   |              |
| 4680<br>4700 | G       | 40 | Siltstone              | med gy                                | tr pyrite                               | some v fine sandstone<br>tr glauconite  |              |
|              |         | 50 | Shale                  | med gy to med dk gy                   |   | micromicaceous  |              |
| 4700<br>4730 | G       | 65 | Siltstone              | med gy                                | tr pyrite                               | some very fine sandstone<br>tr glauconite, thin carbonaceous or<br>coaly surfaces in siltstone. |              |
|              |         | 35 | Shale                  | med gy to med dk gy                   |   | micromicaceous<br>carbonaceous plant? fragments in<br>shale                                     |              |
| 4730<br>4760 | G       | 60 | Shale                  | med gy to med dk gy                   |   |   |              |
|              |         | 40 | Siltstone              | med gy                                |   | As above  |              |
| 4760<br>4780 | G       | 50 | Shale                  | med gy to med dk gy                   |   |   |              |
|              |         | 50 | Siltstone              | med gy                                | tr pyrite                               |   |              |
| 4780<br>4790 | G       | 60 | 4780-4790<br>Siltstone | sl argillaceous siltstone<br>in color | brownish grey                           | ~60% of siltstone in this interval  |              |
|              |         | 40 | Shale                  | med gy to med dk gy                   |   | 60% brownish grey - sl argillaceous<br>tr pyrite v some very fine sandstone                     |              |
| 4790<br>4800 | G       | 60 | Siltstone              | med gy                                |   |   |              |
|              |         | 40 | Shale                  | med gy to dk gy                       |   |   |              |
| 4800<br>4830 | F       | 50 | Siltstone              | med gy                                | tr pyrite                               |   |              |
|              |         | 50 | Shale                  | med gy to med dk gy                   |   |   |              |
| 4830<br>4920 | F       | 40 | Shale                  | med gy to med dk gy                   |   | tr pyrite   |              |
|              |         | 60 | Siltstone              | med gy                                | tr pyrite                               |   |              |
| 4920<br>4960 | F       | 50 | Shale                  | med gy to med dk gy                   |   | globular pyrite   |              |
|              |         | 50 | Siltstone              | med gy                                |   |   |              |
| 4960<br>5000 | F       | 60 | Siltstone              | med gy to brownish gy                 |   | sl argillaceous in part<br>some v fine sand, tr pyrite  |              |
|              |         | 40 | Shale                  | med gy to med dk gy                   |   | pyrite globules   |              |

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| INTERVAL     | QUALITY | %  | ROCK NAME | COLOR                        |   | REMARKS<br>SEDIMENTARY STRUCTURES, DIAGENESIS,<br>ENVIRONMENT, FRACTURES, ETC. | TYPE |
|--------------|---------|----|-----------|------------------------------|---|--|------|
|              |         |    |           | <input type="checkbox"/> WET | <input checked="" type="checkbox"/> DRY |  |      |
| 5000<br>5000 | G       | 70 | Siltstone | med gy                       |   | tr pyrite  |      |
|              |         | 30 | shale     | med gy to med dk gy          |   | globular pyrite<br>micromicaceous  |      |
| 5040<br>5050 | G       | 50 | Siltstone | med gy                       |   | tr pyrite  |      |
|              |         | 50 | shale     | med gy to med dk gy          |   | micromicaceous   |      |
| 5050<br>5100 | G       | 70 | Siltstone | med gy                       |   |  |      |
|              |         | 30 | shale     | med gy to med dk gy          |   |  |      |
| 5100<br>5130 | G       | 60 | Siltstone | med gy                       |   | tr pyrite  |      |
|              |         | 40 | shale     | med gy to med dk gy          |   |  |      |
| 5130<br>5200 | G       | 50 | Siltstone | med gy                       |   | tr glauconite 5140-5150  |      |
|              |         | 50 | shale     | med gy to med dk gy          |   |  |      |
| 5200<br>5320 | G       | 60 | shale     | med gy to med dk gy          |   | pyrite globules  |      |
|              |         | 40 | Siltstone | med gy                       |   | tr pyrite  |      |
| 5320<br>5340 | G       | 40 | shale     | med gy to med dk gy          |   | pyrite globules<br>micromicaceous  |      |
|              |         | 50 | Siltstone | med gy                       |   |  |      |
| 5340<br>5350 | G       | 60 | shale     | med gy to med dk gy          |   |  |      |
|              |         | 40 | Siltstone | med gy                       |   |  |      |
| 5350<br>5400 | G       | 70 | shale     | med gy to med dk gy          |   | micromicaceous   |      |
|              |         | 30 | Siltstone | med gy                       |   | tr pyrite  |      |
| 5400<br>5410 | G       | 60 | shale     | med gy to med dk gy          |   |  |      |
|              |         | 40 | Siltstone | med gy                       |   |  |      |

| INTERVAL     | QUALITY % | ROCK NAME | COLOR                        |   | REMARKS<br>SEDIMENTARY STRUCTURES, DIAGENESIS,<br>ENVIRONMENT, FRACTURES, ETC. | PORC<br>TYPE |
|--------------|-----------|-----------|------------------------------|---|--|--------------|
|              |           |           | <input type="checkbox"/> WET | <input checked="" type="checkbox"/> DRY |  |              |
| 5410<br>5430 | 6 70      | Shale     | med gy to med dk gy          |   |  |              |
|              | 30        | Siltstone | med gy                       |   |  |              |
| 5430<br>5480 | 6 60      | Shale     | med gy to med dk gy          |   | tr pyrite, micromicaceous  |              |
|              | 40        | Siltstone | med gy                       |   | tr pyrite  |              |
| 5480<br>5490 | 6 70      | Shale     | med gy to med dk gy          |   |  |              |
|              | 30        | Siltstone | med gy                       |   | tr pyrite<br>sl argillaceous in part   |              |
| 5490<br>5500 | 6 60      | Shale     | med gy to dk gy              |   |  |              |
|              | 40        | Siltstone | med gy                       |   | tr pyrite, sl argillaceous in part   |              |

| INTERVAL | QUALITY | ROCK NAME               | WET<br>COLOR<br>DRY | REMARKS<br>SEDIMENTARY STRUCTURES, DIAGENESIS,<br>ENVIRONMENT, FRACTURES, ETC.   |
|----------|---------|-------------------------|---------------------|--|
| 5560-30  | G 70    | shale                   | med. dark grey      | small part dark grey<br>micromicaceous   |
|          |         | 30 siltstone, brownish  | med grey            | N.B. colour notation is the same as that used by previous author but actually there is a slight change towards a darker shade of grey starting at approximately 5570-80. At this point the siltstone is slightly argillaceous whereas above the siltstones are clean<br>traces of pyrite |
| 5530-40  | G 60    | shale as above          |                     |  |
|          |         | 40 siltstone as above   | also                | some clean light grey siltstone  |
| 5570-50  | G 60    | shale as above          | med dark grey       | small part dark grey<br>all of shale is more micromicaceous than   |
|          |         | 40 siltst. slightly arg | med grey            | med dk grey sh   |
| 5550-70  | G 70    | shale as above          |                     |  |
|          |         | 30 siltstone as above   |                     |  |
| 5570-60  | G 70    | shale                   | dark grey           | predominantly; small part med dark grey<br>at 5600 there is very little med dark grey left and the cutting become flatter with subangular edges  |
|          |         | 30 siltstone as above   |                     |  |
| 5600-90  | G 80    | shale as above          |                     |  |
|          |         | 20 siltstone as above   |                     |  |
| 5690-50  | G 70    | shale as above          |                     |  |
|          |         | 30 siltstone as above   |                     |  |
| 5600-80  | G 60    | shale as above          |                     |  |
|          |         | 20 siltstone as above   |                     |  |

| INTERVAL      | QUALITY | %  | ROCK NAME               | COLOR                        |   | REMARKS<br>SEDIMENTARY STRUCTURES, DIAGENESIS,<br>ENVIRONMENT, FRACTURES, ETC.                                    | POR |
|---------------|---------|----|-------------------------|------------------------------|---|---|-----|
|               |         |    |                         | <input type="checkbox"/> WET | <input checked="" type="checkbox"/> DRY                                     |   |     |
| 5680-         | G       | 10 | shale                   | med                          | gray to med dark gray   |   |     |
|               |         | 40 | siltstone               | light                        | gray to med light gray, clean   |   |     |
| 5700-<br>20   | G       | 70 | shale                   | med                          | dark gray   |   |     |
|               |         | 30 | siltstone slightly arg  | med                          | gray  |   |     |
| 5720-30       | G       | 60 | shale as above          |                              |   |   |     |
|               |         | 40 | siltstone as above      |                              |   |   |     |
| 5730-50       | G       | 70 | shale                   | med                          | dark gray to dark gray, micromicaceous                                      |   |     |
|               |         | 30 | siltstone               | med                          | gray and med. brownish gray, trace of fine, frosted, rounded very fine sand |   |     |
| 5750-60       | G       | 80 | shale                   | dark                         | gray, micromicaceous, chips generally flat with subangular edges            |   |     |
|               |         | 20 | siltstone, slightly arg | med                          | brownish gray   |   |     |
| 5760-70       | G       | 60 | shale as above          |                              |   |   |     |
|               |         | 40 | siltstone as above      |                              |   |   |     |
| 5770-<br>5200 | G       | 80 | shale as above          |                              |   |   |     |
|               |         | 20 | siltstone as above      |                              |   |   |     |
| 5800-30       | G       | 60 | shale as above          |                              | trace of pyrite   |   |     |
|               |         | 40 | siltstone as above      |                              |   |   |     |
| 5820-20       | G       | 90 | shale                   | med                          | dark gray micromicaceous  |   |     |
|               |         | 10 | siltstone               | med                          | light gray  |   |     |
| 5840-70       | G       | 70 | shale                   | med                          | dark gray   |   |     |
|               |         | 30 | siltstone slightly arg  | med.                         | brownish gray   |   |     |
| 5870-<br>5900 | G       | 90 | shale                   | med                          | dark gray to dark gray  |   |     |
|               |         | 10 | siltstone               | med                          | light gray  | Note: white siliceous material coming in at this depth is host rock to the mica used as last circulation material |     |

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| INTERVAL   | QUALITY %  | ROCK NAME      | WET / DRY |     | REMARKS   | POR TYPE |
|--|------------|----------------|-----------|-----|---|----------|
|  |            |                | WET       | DRY |   |          |
| 5900-510   | P 100      | shale          | dark grey |     | cuttings somewhat more irregular jagged<br>lost circulation material added at 5680. Samples<br>taken from mud ditch contain large amount of coarset<br>and lost circulation material. By far the<br>greater part of samples is as immediately above   |          |
| 5940-50  | F 100      | shale as above |           |     |   |          |
| 5950-<br>6150  | F 100<br>F | shale          | dark grey |     | Top of Canol is somewhat indistinct<br>because of poor samples but 5950 is definitely<br>in the Canol shale is darker than that of Imperial,<br>cuttings generally more irregular jagged<br>and blocky. Some indication of slickensiding<br>Trace of fine pyrite, <sup>possibly throughout</sup> or<br>laminae of very fine and fine quartz associated<br>with pitch black material (pyrolitic?)<br>A small amount of the chert; also some<br>pyrite nests. |          |
| <p>NB some of the samples in the Canol e.g. 6100-30<br/>contain "new" material; brownish grey dirty<br/>looking, argillaceous very fine sandstone.<br/>This type of sandstone occurs in the lowermost<br/>200' of Martin House. It is assumed that<br/>the sand in this well comes in here because<br/>of sampling techniques.</p> |            |                |           |     |   |          |

| INTERVAL  | QUALITY | %   | ROCK NAME                                   | COLOR                        |   | REMARKS<br>SEDIMENTARY STRUCTURES, DIAGENESIS,<br>ENVIRONMENT, FRACTURES, ETC.   | PORC |
|-----------|---------|-----|---|------------------------------|---|--|------|
|           |         |     |   | <input type="checkbox"/> WET | <input checked="" type="checkbox"/> DRY |  |      |
| 6150-80   | F       | 70  | limestone micritic<br>skeletal very arg     | brownish grey                |   | skeletal grains include <i>Ostracods</i> ,<br>shell fragments ( <i>Brach</i> )   |      |
|           |         | 30  | limestone micritic<br>skeletal dense arg    | buff                         |   | Top of Stone 6152  |      |
| 6180-6300 | P       | 50  | limestone micritic<br>argillaceous          | buff                         |   | less than 10% skeletal grains  |      |
|           |         | 50  | shale calcareous                            | yellow grey                  |   | Some scattered <i>Bimoid</i> columns   |      |
| 6300-50   | F       | 90  | limestone micritic<br>skeletal argillaceous | buff                         |   | to pale brown  |      |
|           |         | 10  | limestone micritic<br>dense                 | buff                         |   | and pale brown; part of this may be coarse<br>skeletal such as dense stromatopora fragments  |      |
| 6350-63   | F       | 100 | limestone micritic                          | buff                         |   | to pale brown; mostly dense, some chips are<br>micritic skeletal some are also argillaceous<br>some recognizable <i>Ostracods</i> and <i>Brach</i><br>fragments; most skeletal grains indeterminate<br>light colours predominant |      |
| 6360-66   | P       | 50  | limestone micritic<br>shaly                 | buff                         |   | Indications of algal spherules   |      |
|           |         | 50  | limestone micritic<br>dense                 | pale yellow brown            |   | of some algal spherules and traces<br>of indet. skeletal grains  |      |
| 6370-65   | P       |     | micrites as above                           |                              |   | but samples contain abundant cavities  |      |
| 6400-54   | F       | 100 | limestone micritic                          | pale brown, some buff        |   | some brownish grey<br>all dense; brownish grey micrite is slightly argillaceous<br>a few algal spherules, traces of indet. skeletal grains   |      |
| 6450-6480 | F       | 100 | shale slightly calc                         | light olive grey             |   |  |      |

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| INTERVAL   | QUALITY | %    | ROCK NAME                | WET              |     | REMARKS   | POR |
|--|---------|------|--------------------------|------------------|-----|---|-----|
|  |         |      |                          | COLOR            | DRY |   |     |
| SEDIMENTARY STRUCTURES; DIAGENESIS, ENVIRONMENT, FRACTURES, ETC. |         |      |                          |                  |     |   |     |
| TYPE   |         |      |                          |                  |     |   |     |
| 6480-90  | G       | 90   | limestone micritic       | buff             |     | to pale brown. Predominantly pale brown small part brownish grey and argillaceous all down  |     |
|  |         | 10   | shale, slightly calc     | light olive grey |     | as above  |     |
| 6490-6500  | P       |      | coral skeleton sample    |                  |     | Considerable hole trouble, repeatedly bridged at 5800. Dump old mud and mix new mud sample composition assumed as above   |     |
| 6500-  |         | 6535 | core # 1                 |                  |     | recovery 35/35  |     |
| 6500-18  | G       | 100  | limestone, micritic      | brn              |     | must grey under microscope, medium dark grey macroscopically some vague bedding structures, locally 1-2 stringers of calcareous shale 2% skeletal grains: Brachs, Crus, Astreae trace of fine pyrite particularly in argillaceous bedding bands Top six inches of core still contain a few stringers of light olive shale such as separates them limestone from Bear Rock limestone |     |
| 6518-D   |         | 100  | limestone, arg; micritic | brownish grey    |     | Very few fossils or fossil fragments. A few thin calcite veins some 1/4 inch dark grey shale beds, otherwise massive  |     |
| 6522-35  |         | 100  | limestone, micritic      | pale brown       |     | Some colour mottling through clay content but total arg. material negligible fossil debris 2% mostly recrystallized; some patches of white calcite. Within five feet numerous very small olive calcite patches but total cement less than 5%  |     |



| INTERVAL  | QUALITY | %   | ROCK NAME                                  | WET<br>COLOR<br>DRY  | REMARKS<br>SEDIMENTARY STRUCTURES, DIAGENESIS,<br>ENVIRONMENT, FRACTURES, ETC.   |
|-----------|---------|-----|--|--|--|
| 6535-6570 | G       | 100 | limestone, micritic                        | buff and pale yellow brown in small part, mostly pale brown. dense. a few small patches of clear calcite |  |
| 6570-80   | G       | 100 | limestone, micritic                        | pale yellow brown  | average colour a shade lighter than above; texture and composition unchanged   |
| 6580-6600 | G       | 100 | limestone, micritic                        | pale brown, darker again   | same texture and composition. minor amount of buff micrite; a few small patches of clear calcite   |
| 6600-6630 | G       | 100 | limestone, micritic                        | buff 50%, pale brown 50%   |  |
| 6630-40   |         |     | No sample                                  |  | bore hole casing badly @ ± 5800 on round trip for new bit. 60 hrs required to clear trouble. Missed one sample. next sample still very poor and full of casing |
| 6640-50   | P       | 100 | limestone, micritic                        | pale brown 90% buff 10%  |  |
| 6650-60   | G       | 100 | limestone, micritic<br>trace of pitted ls. | pale brown to brownish grey 90% buff 10%   | dense; a few small patches of clear calcite cement   |
| 6660-80   | G       | 100 | limestone, micritic                        | pale brown and pale yellow brown 80% buff 20%  | dense as above   |
| 6680-90   | P       | 100 | limestone as above                         |  | samples again collected in ditch resulting in some poor samples  |
| 6690-170  | P       | 100 | limestone, micritic                        | pale yellow brown and pale brown 70% buff 30%  |  |
| 6710-30   | G       | 100 | limestone, micritic                        | pale brown and brownish grey 90% buff 10%  | dense; trace of clear cement in irregular patches; trace of pitted ls.   |

| DEPTH        | QUALITY | ROCK NAME        | WET/DRY                                 |                              | REMARKS<br>SEDIMENTARY STRUCTURES, DIAGENESIS,<br>ENVIRONMENT, FRACTURES, ETC.  | POROSITY |   | STAIN   |      | COMPONENT                                   | %   |
|--------------|---------|------------------|---|------------------------------|---|----------|---|---------|------|---|-----|
|              |         |                  | <input checked="" type="checkbox"/> WET | <input type="checkbox"/> DRY |   | TYPE     | % | NET FT. | TYPE |   |     |
| 6230<br>6230 | 10      | Limestone        | buff                                    |                              | light yellow brn to brown grey<br>irregular patches calcite cement, tr. pyrite<br>tr. of scattered dol crystals<br>a few fractures <sup>filled in part of which</sup> filled with white calcite, trace of stylolites<br>appear to be bituminous<br>some of darker colored micrite<br>appears to be v. st. argillaceous<br>tr. pellet limestone, pellets vague |          |   |         |      | Micrite                                     | 100 |
| 6210-6220    |         |                  |   |                              | tr. brachiopod or ostracod shells - shells replaced by calcite  |          |   |         |      |   |     |
| 6230<br>6250 | F 100   | Micrite          | buff                                    |                              | brown grey <del>buff</del><br>v. st. argillaceous, patches clear calcite cement<br>some black bitumen - stylolitic<br>tr. dol crystals<br>tr. brachiopod or ostracod shells   |          |   |         |      | Micrite<br>argillaceous                     | 100 |
| 6250<br>6260 | 100     | Micrite          | buff to brownish grey                   |                              | variably dolomitic, some thin shelled brachs replaced by calcite, bituminous stylolites<br>clear calcite cement in patches, tight   |          |   |         |      | Micrite<br>dol<br>stal                      | 50  |
| 6260<br>6270 | 6       | Micrite          | buff to pale brown                      |                              | dense<br>tr. of clear calcite cement<br>stylolites.   |          |   |         |      | Micrite                                     | 100 |
| 6270<br>6280 | 90      | Micrite          | buff to pale brown                      |                              | with some brownish grey, variably dolomitic<br>with some patches of calcite cement<br>Several chips with abundant brachiopod & ostracod shells, traces of stylolites<br>tr. pyrite  |          |   |         |      | Micrite<br>dol<br>calcite<br>stal<br>pyrite | 70  |
|              | 10      | Pellet limestone | buff to brownish grey                   |                              | dolomitic in which dol appears to have preferentially replaced calcite cement   |          |   |         |      | pellets<br>dol                              |     |

| DEPTH        | QUALITY | ROCK NAME | COLOR                                   |                              | REMARKS<br>SEDIMENTARY STRUCTURES, DIAGENESIS,<br>ENVIRONMENT, FRACTURES, ETC.   | POROSITY |    |        | STAIN |      | COMPONENT      | .01 |
|--------------|---------|-----------|---|------------------------------|--|----------|----|--------|-------|------|----------------|-----|
|              |         |           | <input checked="" type="checkbox"/> WET | <input type="checkbox"/> DRY |  | TYPE     | %  | NET F. | TYPE  | AMT. |                |     |
| 7080<br>7090 | C 100   | Micrite   | pale yellowish brown                    |                              | buff with some br<br>dense tr clear<br>calcite cement in irregular<br>patches, traces of<br>stylolites - bituminous<br>trace of scattered del. Vls<br>of occasional brach or<br>ostracod shell<br><del>tr pellet limestone</del> | clay     | 50 | 7      |       |      | micrite<br>del | 100 |
| 7090<br>7050 | C 100   | Micrite   | buff to brownish grey                   |                              | As above<br>del. lenticular  | -        | -  | -      |       |      | micrite<br>del | 80  |
| 7050<br>7060 | C 100   | Micrite   | buff to brownish grey                   |                              | delaminated, patches<br>calcite cement, bituminous<br>tr pellet limestone  | -        | -  | -      |       |      | micrite<br>del | 90  |
| 7060<br>7070 | C 100   | Micrite   | As above                                |                              | but less<br>delaminated  | -        | -  | -      |       |      | micrite<br>del | 90  |
| 7070<br>7080 | C 100   | Micrite   | buff to brownish grey                   |                              | dense<br>tr white tr stylolites &<br>clear calcite cement<br>lt grey dolomite<br>replacement, subbed to<br>chert, tight  | -        | -  | -      |       |      | micrite<br>del | 90  |
| 7080<br>7070 | C 100   | Micrite   | brown                                   |                              | as above<br>tr pellet limestone with calcite cement<br>replaced by dolomite  | -        | -  | -      |       |      | micrite<br>del | 80  |
| 7070<br>7120 | C 100   | Micrite   | buff to brownish grey                   |                              | as above<br>stylolites<br>occasional brach or ostracod<br>shell  | -        | -  | -      |       |      | micrite<br>del | 80  |
| 7120<br>7130 | C 100   | Micrite   | buff to yellowish brown                 |                              | stylolite, traces of<br>clear calcite cement<br>tr dolomite replacement  | -        | -  | -      |       |      | micrite<br>del | 80  |
| 7130<br>7140 | C 100   | Micrite   | buff to brownish grey                   |                              | delaminated, tr ostracod<br>shell  | -        | -  | -      |       |      | micrite<br>del | 80  |



| DEPTH | QUALITY | ROCK NAME | COLOR                                   |   | REMARKS<br>SEDIMENTARY STRUCTURES, DIAGENESIS,<br>ENVIRONMENT, FRACTURES, ETC. | POROSITY |   | STAIN |      | COMPONENT       | %   |
|-------|---------|-----------|---|---|--|----------|---|-------|------|-----------------|-----|
|       |         |           | <input checked="" type="checkbox"/> WET | <input type="checkbox"/> DRY  |  | TYPE     | % | TYPE  | AMT. |                 |     |
| 7310  | 4       | Micrite   | buff to pale brown                      | druse   | scattered patches calcite cement<br>faces of stylolites                        |          |   |       |      | Micrite         | 100 |
| 7320  |         |           |   |   |  |          |   |       |      |                 |     |
|       | 50      | Dolomite  | med dk grey                             | with some brownish grey<br>tint, mainly anhedral to<br>subhedral but some of coarse<br>crystalline appears to be anhedral |  |          |   |       |      | Dol             | 90  |
| 7320  | 70      | Dolomite  | buff to brownish grey                   |   |  |          |   |       |      | dol             | 90  |
| 7330  |         |           |   |   | anhedral to euhedral,<br>tr pyrite   |          |   |       |      |                 |     |
|       | 20      | Micrite   | buff to pale brown                      | stylolitic<br>patches of calcite cement   |  |          |   |       |      | micrite         | 100 |
|       | 10      | Shale     | med dk gy to blue grey                  |   | pyritic, appears<br>to form thin interbeds<br>in micrite of dol                |          |   |       |      | shale<br>pyrite | 100 |
| 7330  | 85      | Dolomite  | brownish grey                           | euhedral<br>to anhedral   |  |          |   |       |      | dol             | 100 |
| 7340  |         |           |   |   |  |          |   |       |      |                 |     |
|       | 10      | Micrite   | buff to pale brown                      |   |  |          |   |       |      | micrite         | 100 |
|       | 5       | Shale     | med dk gy                               |   |  |          |   |       |      | shale           | 100 |
| 7340  | 70      | Micrite   | buff to pale brown                      |   | variably dolomite, trace<br>of stylolites                                      |          |   |       |      | micrite<br>dol  | 90  |
| 7350  |         |           |   |   |  |          |   |       |      |                 |     |
|       | 30      | Dol       | brownish grey                           |   | anhedral to anhedral   |          |   |       |      | Dol             |     |
|       | tr      | shale     | med dk gy                               |   | forms interbeds<br>in micrite  |          |   |       |      |                 |     |
| 7350  | 60      | Dol       | buff to brownish grey                   |   | anhedral to anhedral, tr of pyrite   |          |   |       |      | dol             |     |
| 7350  |         |           |   |   |  |          |   |       |      |                 |     |
|       | tr      | Micrite   | buff to brownish grey                   |   | patches of calcite, variably<br>dol  |          |   |       |      | micrite<br>dol  | 100 |
|       | tr      | Shale     | med dk gy                               |   | interbeds in micrite   |          |   |       |      | shale           | 100 |

| DEPTH        | LITHO | ROCK NAME | COLOR         |     | REMARKS<br>SEDIMENTARY STRUCTURES, DIAGENESIS,<br>ENVIRONMENT, FRACTURES, ETC.  | POROSITY |   |        | STAIN |      | COMPONENT | %                              |         |
|--------------|-------|-----------|---------------|-----|---|----------|---|--------|-------|------|-----------|--------------------------------|---------|
|              |       |           | WET           | DRY |   | TYPE     | % | NET F. | TYPE  | AMT. |           |                                |         |
| 7360<br>7370 | 6700  | Dolomite  | brownish gray |     | with some finely crystalline med dk gy euhedral in small part mainly euhedral   |          |   |        |       |      |           | Dolomite                       | 01      |
|              | 30    | Micrite   | buff          |     | to brownish grey variably dolomitic<br>some of dolomite is quite argillaceous or apparently has been for some time - darker colored dol.  |          |   |        |       |      |           | Micrite dol                    | 20      |
| 7370<br>7380 | 6800  | Dolomite  | buff          |     | to pale brown with a trace of med dk gy trace of pyrite mainly euhedral with some euhedral  |          |   |        |       |      |           | Dol                            |         |
|              | 20    | Micrite   | buff          |     | to pale brown variably dol, euhedral xls, traces of stylolites  |          |   |        |       |      |           | Micrite dol                    | 90      |
| 7380<br>7390 | 6900  | Dolomite  | brownish gray |     | to med dk gy appears to be argillaceous bituminous, traces of stylolites euhedral to <sup>minor</sup> euhedral  |          |   |        |       |      |           | dol<br>argillaceous micrite    | 10<br>5 |
| 7390<br>7400 | 6100  | Dolomite  | buff          |     | to brownish grey to med dk gy tr micrite, mainly euhedral but may be <sup>argillaceous</sup> <del>argillaceous</del> <sup>in part</sup> euhedral bituminous in part a few patches of calcite cement |          |   |        |       |      |           | dol<br>micrite<br>argillaceous | 5<br>5  |
| 7400<br>7410 | 6200  | Dolomite  | buff          |     | to brownish grey patches calcite cement, mainly euhedral but some euhedral argillaceous in part   |          |   |        |       |      |           | dol<br>argillaceous            | 5       |
|              | 45    | Micrite   | buff          |     | to pale brown trace of <sup>bituminous</sup> stylolites, dol in part - euhedral patches of calcite cement   |          |   |        |       |      |           | micrite<br>dol                 | 90      |



Section 3. Engineering Summary

(a) Drill Stem Tests - none run

(b) Casing Record

Ran 13 joints 13 3/8" 54.5# J55 STC Range 2  
8 thread Stewart & Lloyd's new casing landed at 415'.  
Cemented with 325 sacks cement plus 3.5% CaCl<sub>2</sub>.

Ran 28 joints 903.01' 9 5/8" N80 40# casing landed  
at 900'. Cemented with 275 sacks cement plus 3.5% CaCl<sub>2</sub>.



(c) Bit Record

| <u>Bit #</u> | <u>Size</u> | <u>Type</u> | <u>Conventional<br/>or Jet</u> | <u>Hrs. on<br/>Bottom</u> | <u>Footage<br/>Drilled</u> | <u>Depth<br/>Pulled</u> | <u>Remarks</u> |
|--------------|-------------|-------------|--------------------------------|---------------------------|----------------------------|-------------------------|----------------|
| 1A           | 12 1/4      | DT          | Conventional                   | 3 1/2                     | 80                         | 80                      |                |
| 1A           | 12 1/4      | DT          | "                              | 6 3/4                     | 79                         | 159                     | plus rat hole  |
| 1A           | 12 1/2      | DT          | "                              | 18 1/2                    | 260                        | 419                     |                |
| 2A           | 17 1/2      | SEC         | "                              | 21 3/4                    |                            |                         |                |
| 3A           | 12 1/4      | YS1         | "                              | 15 1/4                    | 188                        | 607                     | Reamed 415'    |
| 4A           | 12 1/4      | K2P         | "                              | 11                        | 119                        | 726                     |                |
| 5A           | 12 1/4      | M4N         | "                              | 8 1/4                     | 42                         | 768                     |                |
| 6A           | 12 1/4      | M4N         | "                              | 6 1/4                     | 24                         | 792                     |                |
| 7A           | 12 1/4      | YS1R        | "                              | 16 1/4                    | 108                        | 900                     |                |
| 1            | 7 7/8       | DT2G        | "                              | 2 1/4                     | 37                         | 937                     |                |
| 2            | 7 7/8       | DT2G        | "                              | 4 3/4                     | 131                        | 1068                    |                |
| 3            | 7 7/8       | DT2G        | "                              | 12                        | 437                        | 1505                    |                |
| 4            | 7 7/8       | DT2G        | "                              | 15                        | 300                        | 1805                    |                |
| 5            | 7 7/8       | S6          | "                              | 12 1/4                    | 249                        | 2054                    |                |
| 6            | 7 7/8       | OSC1G       | "                              | 18 3/4                    | 431                        | 2485                    |                |
| 7            | 7 7/8       | YT1A        | "                              | 15 1/2                    | 301                        | 2786                    |                |
| 8            | 7 7/8       | OSC1G       | "                              | 17 3/4                    | 262                        | 3048                    |                |
| 9            | 7 7/8       | YT1A        | "                              | 10 1/2                    | 129                        | 3177                    |                |
| 10           | 7 7/8       | M4L         | "                              | 12                        | 184                        | 3361                    |                |
| 11           | 7 7/8       | M4N         | "                              | 21 1/4                    | 389                        | 3750                    | Reamed 44'     |
| 12           | 7 7/8       | M4N         | "                              | 14 3/4                    | 250                        | 4000                    |                |
| 13           | 7 7/8       | S6          | "                              | 12 1/4                    | 190                        | 4190                    |                |
| 14           | 7 7/8       | M4N         | "                              | 20 1/2                    | 288                        | 4478                    |                |
| 15           | 7 7/8       | M4N         | "                              | 25 3/4                    | 323                        | 4801                    |                |
| 16           | 7 7/8       | M4N         | "                              | 18                        | 201                        | 5002                    |                |
| 17           | 7 7/8       | M4N         | "                              | 25                        | 310                        | 5312                    |                |
| 18           | 7 7/8       | M4N         | "                              | 26                        | 298                        | 5610                    |                |
| 19           | 7 7/8       | M4N         | "                              | 21 3/4                    | 232                        | 5842                    |                |
| 20           | 7 7/8       | M4N         | "                              | 15 3/4                    | 211                        | 6053                    |                |
| 21           | 7 7/8       | M4L         | "                              | 6                         | 60                         | 6113                    |                |
| 22           | 7 7/8       | YHG         | "                              | 8 1/2                     | 72                         | 6185                    |                |
| 23           | 7 7/8       | YM          | "                              | 19 3/4                    | 180                        | 6365                    | Reamed 60'     |
| 24           | 7 7/8       | M4N         | "                              | 14 3/4                    | 124                        | 6489                    | Reamed 50'     |
| 25           | 7 7/8       | M4N         | "                              | 1 1/4                     | 11                         | 6500                    | Reamed 100'    |
| ore bit #1   | 7 13/16     | Boyles      | Diamond                        | 5 1/4                     | 35                         | 6535                    | Rec. 35'       |
| 26           | 7 7/8       | M4N         | Conventional                   | 12 1/2                    | 107                        | 6642                    | Reamed 35'     |
| 27           | 7 7/8       | M4L         | "                              | -                         | -                          | 6642                    | Reamed 624'    |
| 28           | 7 7/8       | M4L         | "                              | 11 3/4                    | 92                         | 6734                    |                |
| 29           | 7 7/8       | YH          | "                              | 19                        | 130                        | 6864                    |                |
| 30           | 7 7/8       | YH          | "                              | 18                        | 126                        | 6990                    |                |
| 31           | 7 7/8       | YH          | "                              | 18 1/2                    | 130                        | 7120                    |                |
| 32           | 7 7/8       | YH          | "                              | 19 1/2                    | 126                        | 7246                    |                |
| 33           | 7 7/8       | YH          | "                              | 10 3/4                    | 82                         | 7328                    |                |
| 34           | 7 7/8       | YH          | "                              | 22                        | 172                        | 7500                    | FTD            |

(d) Mud Record

Gel 363,500#  
Peltex 8,350#  
Caustic 6,125#  
CMC 875#  
Soda Ash 1000#  
Micatex 9,200#  
Fibretex 107 sacks  
Sawdust 176 sacks  
Gellex 850#  
Acrasol 1 1/2 gals.  
Quick Vis 1/2 gal.  
Barium Sulphate 15,000#

(e) Deviation Record

| Totes at 60' | 1/3° off |
|--------------|----------|
| 159          | 1/4      |
| 247          | 1/4      |
| 350          | 1/4      |
| 452          | 1/8      |
| 560          | 1/2      |
| 663          | 1        |
| 726          | 1 1/2    |
| 750          | 1 1/2    |
| 788          | 1        |
| 879          | 1 1/2    |
| 900          | 1 3/4    |
| 937          | 1 3/4    |
| 1050         | 1 1/2    |
| 1500         | 1 3/4    |
| 1790         | 2        |
| 2485         | 3        |
| 2786         | 2 3/4    |
| 3008         | 2 3/4    |
| 3150         | 3        |
| 3361         | 3        |
| 3750         | 4        |
| 4000         | 4 1/4    |
| 4190         | 4 1/2    |
| 4801         | 4 1/8    |
| 5002         | 4        |
| 5312         | 3 3/4    |
| 5600         | MR       |
| 5610         | 4        |
| 5842         | 4 1/2    |
| 6053         | 4        |
| 6113         | 3 3/4    |
| 6185         | 3 7/8    |
| 6489         | 3 1/16   |
| 6500         | MR       |
| 6642         | 2        |
| 6734         | 1 1/2    |
| 6864         | 1 1/2    |
| 6990         | 1 1/2    |
| 7235         | 1 1/4    |

(f) Abandonment Plugs

March 8/67 Plug #1 7500-7400 with 50 sacks  
March 8/67 Plug #2 950-850 with 65 sacks + 2% CaCl<sub>2</sub>  
displaced with 11 bbls. of water and felt at 830'

Cut casing off 3' below ground level and dropped 10 sack plug.  
Welded plate

(g) Lost Circulation Zones

Lost circulation was encountered at the following depths:

1493  
1712  
3180  
3261  
3375  
3710  
3884  
4190  
4220  
4735  
5530 while conditioning hole  
5995  
6642

Considerable hole trouble was encountered around 5800' - 60 hours  
drilling time was lost due to severe caving and bridging.

(h) Report of Blowouts

No blowouts were encountered.

Section 4. Logs

| <u>Date</u> | <u>Type</u>     | <u>From</u> | <u>To</u> |
|-------------|-----------------|-------------|-----------|
| March 6/67  | IE              | 899         | 7499      |
| March 7/67  | BHC SGRC        | 898         | 7498      |
| March 7/67  | MC              | 5710        | 7499      |
| March 8/67  | Velocity-Survey | 898         | 7498      |

Section 5. Analysis

- (a) Core Analysis - none run
- (b) Water Analysis - none run
- (c) Gas Analysis - none run
- (d) Oil Analysis - none run

Section 6. Completion Summary

- (a) Tubing Record - none run
- (b) Perforation Record - not perforated
- (c) Cementation Record - for abandonment plugs - see Sec.3. (f)
- (d) Acidization and Fracturing Record - none
- (e) Back Pressure and Production Tests - none run