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GEOLOGICAL LOG OF KELLY CROSS NO. 1 DRILL HOLE P.E.I.

Drilling Co.: Boyles Bros., (Quebec) Ltd.

Location: Road allowance in the village of Kelly Cross, Queens Co.,

Prince Edward Island, (Exact location plotted on Survey Plan)

Lat. $46^{\circ}15'52''$; Long. $63^{\circ}26'45''$. Village of Kelly Cross, 1/4 mile west of Charlottetown, P.E.I.

Elevation: 171' (mean sea level.) Total Depth: 1513'

Result: Drilled to establish the Permo-Pennsylvanian contact by spore identification. Projected depth was 2400'. The well was abandoned at 1513 feet due to rods sticking.

Spudded: March 4th, 1964. Abandoned April 10th, 1964.

Rig Type: D.D. 1 $\frac{1}{2}$ " core.

Samples examined by: R.D. Howie

Core hole drilled by the Geological Survey.

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| 0'-50' | Nil | |
| 50'-60' | 919" | 9" sandstone, (10R6/2), medium to fine-grained, angular fragments mica and gypsum |
| | | 1 $\frac{1}{2}$ " sandstone, (10R6/2), medium-grained, angular fragments mica and gypsum |
| | | 1 $\frac{1}{2}$ " sandstone, (10R6/2), very fine to fine-grained, angular and rough rounded quartz micaeccus, some gypsum |
| | | 2 $\frac{1}{2}$ " sandstone, (10R6/2), fine to medium-grained, angular fragments, some mica and gypsum |
| | | 2" sandstone (5R6/1, dark), fine to medium-grained, angular fragments, mica and gypsum |
| | | 3" sandstone (2.5R6/4), very fine-grained, silty, gypsum. Horizontal partings due to high concentration of mica |

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| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| | | 1 1/2" sandstone (near 10R6/2), fine to medium-grained, angular fragments, mica and gypsum |
| | | 5 1/2" sandstone (near 10R6/2), fine to medium-grained, angular fragments, silty with a few claystone streaks (2.5R6/4) |
| | | 1" claystone (2.5R6/4) |
| | | 9" sandstone (10R6/3), fine-grained, angular fragments, silty, gypsum and mica |
| | | 6" sandstone (near 10R6/3), very fine-grained, micaceous |
| | | 5" sandstone (10R6/3 and 5Y6/1 dark), very fine-grained, micaceous, some colour banding - Dip 0° to 3° |
| | | 5" sandstone (10R6/3), very fine-grained |
| 60°-70° | 9 1/2" | 4" claystone (2.5R6/4) |
| | | 1" sandstone (10R6/3), fine to very fine with some claystone streaks, a few very coarse grained fragments, mica, gypsum. Dip 0° |
| | | 6" sandstone (10R6/3), fine to medium-grained with a few very coarse fragments, angular fragments, gypsum and some mica. A few horizontal claystone fragments |
| | | 10" sandstone (10R6/3), very fine to fine-grained, angular fragments, mica and gypsum. A few near horizontal claystone streaks (2.5R6/4) |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| | | 1½" sandstone (10R6/2), medium-grained, angular fragments, some with crystal faces. Quite hard, probably due siliceous cement |
| | | 1 1/2" sandstone (10R6/3), very fine-grained, angular fragments, gypsum and mica |
| | 8 5" | 8 5" sandstone (10R6/3), fine-grained, angular fragments, gypsum, mica |
| | | 3½" sandstone (10R6/3), medium-grained, quite hard probably due to siliceous cement. A few near horizontal streaks or partings of claystone (2.5XR4/4) |
| | | 1 1/2" sandstone (10R6/3), fine-grained, angular fragments, gypsum and mica |
| 702-30' | 9' 11" | 3 1/2" sandstone (10R6/3), fine-grained, quite micaceous with parting a few degrees from the horizontal |
| | | 1 1/2" sandstone (10R6/3), fine to medium-grained, angular fragments with a few crystal faces, gypsum and mica |
| | | 1 1/2" sandstone (10R6/3), fine-grained with a few medium-grained fragments, gypsum and mica |
| | 6" | 6" sand shale breccia; sandstone (10R5/2), very fine to fine-grained with a few medium-grained fragments. Claystone (10R5/3), fragments near horizontal. A 1" to 1 1/2" section of the breccia at the base (near 3X7/2) |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| | | 10" sandstone (10R6/3), fine-grained, angular fragments, mica and gypsum. A few near horizontal claystone fragments (10R6/3) |
| | | 2" sandstone (10R6/3), fine-grained, angular fragments, some fairly well rounded medium-grained fragments, ^{some} gypsum mica. A few claystone streaks (10R5/3) |
| | | 3 ¹ 9" sandstone (10R6/3), fine-grained with a few medium-grained fragments, angular fragments, some gypsum and mica |
| | | 1" sand shale breccia; sandstone (10R5/2), medium-grained, quite hard probably due to siliceous cement, some silica and gypsum. Claystone (10R5/3), fragments up to $\frac{1}{2}$ " thick, suggested dip of beds 0° to 3° |
| 80°-90° | 10" | 2 ¹ 6" sand shale breccia; sandstone (10R5/2), fine to coarse-grained, angular to rough rounded, a few crystal faces, gypsum and a few mica flakes. A few quartz pebbles. Claystone dark (10R5/3), suggested dip of beds 0° to 3° |
| | | 1 ¹ 1" sandstone (10R5/3), fine to medium-grained angular fragments, crystal faces, a little gypsum and mica |
| | | 4" sandstone (10R5/3), fine-grained angular fragments, a little gypsum |
| | | 2" sandstone (5T7/1), a few siltstone streaks, (10R5/3). Color banding horizontal |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| | | 2½" sandstone very fine-grained, to claystone (between 10R5/3 and 10R'/3), some mica |
| | | 1½" sandstone, very fine-grained to claystone (5Y7/1) |
| | | 7½" sandstone, very fine-grained to claystone (10R4/3), considerable mica. Slight color banding. Dip 0° to 3° |
| | | 2½" sandstone (10R5/3), very fine-grained, quite micaceous |
| | | 4" sandstone, mottled (5Y7/1) and 10R5/3), very fine to fine-grained, considerable mica. A few 1/8" claystone bands. Bedding. Dip 0° to 3° |
| | | 1½" sandstone (10R5/3), very fine-grained, micaceous |
| | | 3½" claystone to very fine-grained sandstone (2.5YR5/4). Bedding indicates. Dip 0° to 3° |
| 90°-100° | 9:10" | 5½" claystone to very fine sandstone (2.5YR5/4) ½" claystone to very fine-grained sandstone (near 5Y7/1) |
| | | 2" sandstone (near 5Y7/1), fine-grained angular fragments, mica and gypsum |
| | | 9½" sandstone (10R5/2), fine-grained angular to rough rounded, a little mica and an occasional fragment of gypsum. A few claystone streaks (2.5YR5/4) |

| Section Drilled | Recovery | Lithology |
|-----------------|---------------------------------|--|
| 100'-110' | 9 ¹ / ₂ " | 1 ¹ / ₂ " sandstone (10R5/2), fine to medium-grained, angular to rough rounded, a little gypsum and a few mica flakes 5" sand shale breccia; sandstone (10R5/2), fine to medium-grained, angular to rough rounded, a little gypsum and a few mica flakes. Claystone (10R5/3), fragments and streaks near horizontal |
| | 7 ¹ / ₂ " | 7 ¹ / ₂ " sandstone (10R5/2), fine to medium-grained, angular to rough rounded, a little mica and a few mica flakes |
| | 2" | 2" sandstone (10R5/2), fine to medium-grained. Claystone (10R5/3). Bedding nearly horizontal |
| 110'-120' | 7 ¹ / ₂ " | 1 ¹ / ₂ " sandstone (10R5/3), fine to medium-grained, rough rounded fragments, some mica and gypsum. A few near horizontal streaks of claystone (10R5/3) 10" plug - no core 1 ¹ / ₂ " sandstone (10R5/3), fine to medium-grained, some near horizontal streaks and fragments of claystone (10R5/3) |
| | 3" | 3" claystone (10R5/3), angular band or large fragment, with some greenish grey sandstone (5Y7/1), fine to medium-grained, mica |
| | 1 ¹ / ₂ " | 1 ¹ / ₂ " sandstone (10R5/3), fine to medium-grained, angular to rough rounded, a little gypsum and mica. A few claystone fragments (10R5/3). |

| Section Drilled | Recovery | Iithology |
|-----------------|-------------------|--|
| | | 1 ¹ 9" sandstone (10R5/3), very fine to fine-grained, a little mica and a few specks of gypsum. |
| | | 2 ¹ 4" plug - no core. |
| | | 1 ¹ 1" sandstone (10R5/3), very fine-grained, micaceous a few specks of mica gypsum |
| 120°-130° | 6 ¹ 7" | 2" sandstone (10R5/3), very fine-grained, mica and a few specks of gypsum. |
| | | 1 ¹ 8" plug - no core. |
| | | 2" sandstone (10R5/3), very fine-grained, roughly rounded fragments, mica and gypsum |
| | | 1 ⁰ " plug - no core. |
| | | 1 ¹ 5" sandstone (10R6/3), very fine-grained, angular to rough rounded mica and gypsum, slight color banding. Dip 0° to 4° |
| | | 1 ¹ " plug - no core |
| | | 4 ¹ 1" sandstone (10R6/3), very fine to fine-grained, rough rounded, color banding suggests dips from 0° to 20°. A few $\frac{1}{2}$ " thick near horizontal horizons (10R6/4). |
| 130°-140° | 6 ¹ 1" | 3 ¹ 9" sandstone (10R5/3), very fine to fine-grained with a few medium-grained fragments, rough rounded, mica and gypsum. |
| | | 1" claystone to very fine-grained sandstone (10R5/3). |
| | | 2" sand shale breccia; sandstone (10R5/3), fine-grained angular fragments, gypsum and mica, claystone (10R5/3). |

| Section Drilled | Recovery | Lithology |
|-----------------|-------------------|---|
| | | 2 ¹ 1" sandstone (10R5/2), fine to medium-grained, angular fragments, gypsum and some mica. An occasional horizontal to near horizontal streak of claystone (10R5/3). |
| | | 5" sandstone (10R5/2), fine to medium-grained with numerous horizontal streaks of claystone (10R5/3). |
| | | 5" claystone (10R5/3), with a few horizontal to near horizontal streaks of sandstone (10R5/2). |
| | | 3 ¹ 1" plug - no core |
| 140°-150° | 4 ¹ 4" | 10" plug - no core |
| | | 2 ¹ 2" interbedded sandstone and claystone; sandstone (10R5/2) medium to fine-grained, angular with some crystal faces, a little gypsum and mica. Claystone (10R5/3). Bedding 0° to 8° |
| | | 9" claystone (10R5/3) |
| | | 1" sandstone (516/2), fine to medium-grained with a few coarse-grained fragments, a few crystal faces, gypsum and mica. |
| | | 1 ¹ 5" sandstone (10R5/2), fine to medium-grained with a few crystal faces, gypsum and an occasional mica flake. A few small streaks or fragments of claystone (10R5/3). |
| | | 4" plug - no core |
| | | 5" sand shale breccia; sandstone (10R5/2), fine to medium-grained, angular with a few crystal faces, gypsum claystone (10R5/3). A few well rounded quartzite pebbles up $\frac{1}{2}$ " diameter |

Each question mark indicates a point where no information was available or where the question was not answered.

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| | | 1.5" sandstone (10R5/2), fine to medium-grained angular fragments, gypsum and mica |
| 150'-160' | 6.11" | 2" quartzite pebbles, up to 25 mm in diameter, quite well rounded low sphericosity |
| | | 7" sandstone (10R5/2), medium-grained, angular with crystal faces, gypsum and a few flakes of mica |
| | | 2" sandstone (10R5/2), medium-grained with quartzite pebbles up 21 mm in diameter, quite well rounded |
| | | 3" semistone (10R5/2), medium-grained, angular with some crystal faces, gypsum and a little mica |
| | | 11" conglomerate; sandstone (5R3/2), fine-grained, considerable mica; quartzite pebbles, up to 30 mm diameter, quite well rounded |
| | | 4" sandstone (5R7/2), fine to very fine-grained, gypsum and considerable mica |
| | | 4.6" claystone (2.5R7/4), with a few greenish gray (5R7/1), blotches or streaks |
| 160'-170' | 0" | No core |
| 170'-180' | 9.16" | 6.5" claystone to very fine-grained sandstone (2.5R7/4) |
| | | 1.1" claystone (2.5R7/4) |
| 180'-190' | 9.84" | 6" plug - no core |
| | | 1.5" claystone (2.5R7/4) |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| | | 8" claystone to very fine sandstone ($2.5\text{YR}/4$), graded and interbedded, near horizontal bedding. |
| 190°-200° | 0" | No core |
| 200°-210° | 9'7" | 5'2" claystone, very fine-grained sandstone and gradations from claystone to sandstone, ($2.5\text{YR}/4$) a few blotches and streaks ($5\text{Y6}/2$). 2 $\frac{1}{2}$ " sandstone (near $2.5\text{YR}/4$), very fine-grained, silty, mica and gypsum. 1 $\frac{1}{2}$ " sandstone (near $5\text{YR}5/3$), very fine-grained, micaceous 8 $\frac{1}{2}$ " sandstone (between $10\text{R}5/3$ and $10\text{R}4/3$), very fine-grained, mica, gypsum 2" sandstone (near $10\text{R}6/2$), fine to very fine-grained. 1" claystone (light $10\text{R}3/3$) 1 $\frac{1}{2}$ " sandstone (near $10\text{R}5/3$), fine to very fine-grained, angular with some crystal faces, gypsum and mica 1 $\frac{1}{2}$ " sandstone (near $5\text{Y6}/2$), very fine-grained, angular with some crystal faces, mica gypsum. 3" claystone rubble ($10\text{R}4/4$). |
| 210°-220° | 9'8" | 4'11" mudstone (near $2.5\text{ YR}/4$), sand grains fine to medium-grained. 4'9" sandstone ($10\text{R}5/3$ to $10\text{R}5/4$), fine to very fine-grained, mica and gypsum, a few claystone fragments. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| 220'-230' | 8'10" | 1" plug - no core 2'8" sandstone (near 2.5YR ^{1/4}) very fine to fine-grained, mica and some gypsum. 3" sand shale breccia; sandstone (10R ^{6/3}), fine-grained, claystone (10R ^{5/4}). 4" sandstone (10R ^{6/3}), fine-grained, mica and gypsum. 3½" claystone (10R ^{5/4}). 4'3½" sandstone (10R ^{5/3}), very fine to fine-grained, mica and some gypsum; a few near horizontal fragments and occasional streaks of claystone (10R ^{5/4}). |
| 230'-240' | 9'2" | 3'10" sandstone (10R ^{5/3}) fine to very fine-grained with a few medium grained fragments, angular with a few crystal faces, gypsum and some mica. An occasional near horizontal claystone fragment or streak (2.5YR ^{4/4}). 1" sand shale breccia; sandstone (10R ^{5/3}) fine to very fine-grained with a few medium-grained fragments, angular with a few crystal faces, gypsum and some mica. Claystone (2.5YR ^{4/4}). 1'3" claystone (2.5YR ^{4/4}), with angular sandstone bands (10R ^{5/3} and 5Y ^{7/1}), very fine-grained. 1'5" sandstone (10R ^{5/2}), fine to medium-grained, angular with crystal faces, mica and gypsum. A few claystone fragments (2.5YR ^{4/4}). |

| Section Drilled | Recovery | Lithology |
|-----------------|-------------------|---|
| | | 8" plug - no core |
| | | 2 ¹ 3" sandstone (10R5/2), fine-grained, angular with crystal faces, mica and gypsum. A few streaks and small fragments of claystone (2.5YR4/4). |
| | | 1" sandstone (10R5/2), fine-grained, with a few horizontal claystone fragments (2.5YR4/4). |
| | | 2" sandstone (10R5/2), fine-grained, gypsum and mica |
| | | 1" sandstone (10R5/2), fine-grained, gypsum and mica. A few near horizontal claystone fragments (2.5YR4/4). |
| 240'-250' | 9 ¹ 5" | 6" sandstone (10R5/2); fine to medium-grained angular fragments, a few crystal faces. A few claystone fragments (2.5YR4/4). |
| | | 7" plug - no core |
| | | 5" sandstone (10R5/2), fine to medium-grained |
| | | 2 ¹ 6" sandstone (10R5/2), fine to medium-grained with about 30% near horizontal claystone fragments (2.5YR4/4). This sample approaches a sand shale breccia. |
| | | 3 ¹ 2" sandstone (10R5/2), very fine to fine-grained, rounded to angular fragments, mica and some gypsum. A few thin near horizontal streaks of hematite. |
| | | 2 ¹ 10" sandstone (10R5/2) fine to medium-grained, angular fragments with some crystal faces, gypsum and some mica. A few streaks and fragments of siltstone (2.5YR4/4). |

Standardized and converted to metric units by application of constant factors to obtain the state shown.

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| 250'-260' | 4' 5" | 1' 8" sandstone (10R5/2), medium to fine-grained, angular with some crystal faces, gypsum and some mica 6" sandstone (10R5/2), fine to very fine-grained, angular fragments with some crystal faces, gypsum and some mica. A few near horizontal claystone fragments (near 10R4/3). 2' 3" mudstone (near 10R4/4). |
| 260'-270' | 9' 10" | 6' 6" sandstone (near 10R4/4), very fine-grained, angular fragments with some crystal faces, gypsum and mica. Dip 0° to 12° 1' 8" claystone and very fine sandstone interbedded and gradational. (^a mudstone), (near 2.5R3/4), mica and some gypsum 1' 8" sandstone (10R5/2), very fine to fine-grained, angular fragments with some crystal faces, gypsum and a few mica flakes |
| 270'-275' | 4' 8" | 1' sandstone (10R5/3), fine to very fine-grained, gypsum and a little mica. 3" claystone (10R5/4). 2" sandstone (near 10R5/3), fine-grained, micas; near horizontal claystone band or frequent (near 10R5/4), with a $\frac{1}{2}$ " greenish grey band (5R7/1). 2' 9" claystone (10R1/3 light); a few greenish grey blotches (5R7/1), irregular, organic bands; and very fine-grained miscellaneous nodules |

| Section Drilled | Recovery | Lithology |
|-----------------|---------------------|--|
| | | 6" mudstone (10R5/3), with a few greenish grey blotches (5T7/1) |
| 275'-235' | 9'10" | 3'11" sandstone (10R5/3), very fine-grained, slightly to fairly calcareous, horizontal bedding |
| | | 2" sandstone (near 10R5/3), coarse to medium-grained with a few fine-grained fragments, roughly rounded, numerous claystone fragments (10R5/2). Horizontal bedding |
| | 1'10" | 1'10" sandstone (near 10R5/3), fine to very fine-grained, micaceous, slightly calcareous |
| | 1 $\frac{1}{2}$ " | 1 $\frac{1}{2}$ " sandstone (10R5/3), medium to fine-grained, a little mica |
| | 1'5 $\frac{1}{2}$ " | 1'5 $\frac{1}{2}$ " sandstone (between 10R5/3 and 10R4/3), very fine to fine-grained, a few mica flakes |
| | 5 $\frac{1}{2}$ " | 5 $\frac{1}{2}$ " sandstone (near 10R4/4), fine to medium-grained, angular fragments with a few crystal faces, very micaceous |
| | 4" | 4" claystone (10R5/3), horizontal bedding with interbeds and fractures filled with sandstones (near 10R4/4), fine to medium-grained |
| | 3 $\frac{1}{2}$ " | 3 $\frac{1}{2}$ " sandstone (near 10R5/4), medium to fine-grained |
| | 2 $\frac{1}{2}$ " | 2 $\frac{1}{2}$ " sand shale breccia; sandstone (near 10R5/4), medium to fine-grained, claystone fragments (10R5/3). |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| | | 8" sandstone (near 10R5/4), medium to very fine-grained. |
| | | 4½" sandstone (10R5/4), fine to very fine-grained with a few few horizontal streaks of claystone (10R5/3). |
| 285'-295' | 9'10" | 6" sandstone (10R5/3), medium to fine-grained, rough rounded to angular with some crystal faces. A few fine-grained gypsum fragments 2" sand shale breccia; sandstone (10R5/3), near 5YR7/2 and 5Y7/1), claystone (10R5/3). 6" sandstone (5YR7/2), coarse-grained with some finer fractions, well rounded to angular with a few crystal faces. A few siltstone fragments (5Y7/1). |
| | | 3'10" claystone (10R5/3 to 10R5/4). 2" mudstone (10R5/3). |
| | | 2½" sandstone (between 5Y7/1 and 5Y6/1), medium to very fine-grained angular fragments with some crystal faces, very slightly calcareous. 2" claystone to mudstone (10R5/3). 1" sandstone (5Y7/1), fine-grained with a few medium-grained fragments. 2" mudstone (near 10R4/3). 1" sandstone (5Y7/1), fine-grained with a few siltstone fragments (5Y7/1). Horizontal bedding. 4" mudstone (between 10R5/3 and 10R4/3), horizontal bedding. |

| Section Drilled | Recovery | Lithology |
|------------------------------------|-------------------|---|
| | | 6" sandstone (near 5Y7/1), medium to fine-grained, fairly well rounded |
| | | 2 ⁸ 10" mudstone (10R5/3 to 10R4/4), a few irregular greenish grey blotches or streaks (near 5Y7/1). |
| | | 7" claystone to mudstone (near 10R5/3), micaeous, some calcareous horizons |
| 295 ¹ -305 ⁰ | 5 ⁸ 5" | 2 ⁸ no core |
| | | 1 ³ 2" mudstone (10R5/3). |
| | | ½" mudstone (near 5Y7/1). Dip 15° |
| | | 1 ⁸ claystone to mudstone (between 10R5/3 and 10R4/3). |
| | | 4 ¹ 2" sandstone (10R5/3), fine to very fine-grained angular fragments with some crystal faces |
| | | 2 ⁴ 2" claystone to mudstone (between 10R5/3 and 10R4/3). |
| | | ½" mudstone to very fine-grained silty sandstone (near 5Y7/2). |
| | | 3 ¹ 8" sandstone (10R5/3), very fine-grained angular fragments, some mica |
| | | 3" mudstone (10R5/3). |
| | | 1 ⁸ 10" sandstone (10R5/3), fine to very fine-grained angular fragments, a few flakes of mica and a little gypsum. |
| | | 1 ⁸ 8" no core |
| | | 4" sandstone (10R5/3), very fine to fine-grained angular fragments, a little gypsum. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| 305'-315' | 3' 11" | 4" no core 2" sandstone (10R5/2 to 10R5/3), fine-grained angular fragments, some mica, slightly calcareous 1' 10" no core 12½" mudstone (between 10R5/3 and 10R4/3) ½" mudstone (5Y7/1), irregular streak 11" sandstone (between 10R5/3 and 10R4/3), fine-grained angular fragments, slight color banding, micaceous partings, a few specks of gypsum. 3" claystone to mudstone (10R5/3), with a few irregular sandstone streaks . 1' 8" sandstone (10R5/3), fine-grained angular fragments with some crystal faces, some claystone fragments (near 10R4/4). Dip of fragments 0° to 15° |
| 315'-345' | 10" | 2' 6½" sandstone (10R4/2), fine to very fine-grained angular fragments with a few crystal faces, a little mica and gypsum, slight color banding indicates horizontal bedding . ½" sandstone (near 5Y7/2), fine-grained angular fragments with a few crystal faces, a little mica and a few specks of gypsum 9½" mudstone to claystone (near 2.5Y7/4) . ½" mudstone to very silty sandstone (5Y7/2), fine to very fine-grained with some crystal faces, a little mica, slight color banding. Dip 0° to 7° |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| | | 5' 11" sandstone (10R5/3), fine to very fine-grained angular fragments with a few crystal faces, gypsum and some mica, a few claystone streaks (10R5/3). Dip 0° to 3°. |
| | | 8" sand-shale breccia; sandstone (10R5/3), fine to very fine; claystone (10R5/3). Dip 0° to 3° |
| 345'-356' | 989" | 11" sandstone (between 10R5/3 and 10R4/3), and some (10YR7/2), medium to very fine-grained angular fragments with some crystal faces some mica . |
| | | 5" mudstone (10R5/4), and some sandstone (10R5/3), medium to very fine-grained. Bedding 0° to 3° |
| | | 1" claystone to mudstone (10R5/3), massive with a few greenish grey blotches (near 5T7/1) . |
| | | 1 1/4" claystone to mudstone (10R5/3), numerous near horizontal calcareous streaks and lenses |
| | | 2 1/2" claystone to mudstone (between 10R4/3 and 10R4/4), massive . |
| | | 1" very calcareous claystone to very silty limestone (10R5/3), horizontal bedding . |
| | | 1 1/2" mudstone (near 10R5/3), with numerous greenish grey horizontal streaks and blotches (near 10YR7/1), micaceous . |
| | | 2" claystone to mudstone (near 10R5/3), massive . |

| Section Drilled | Recovery | Lithology |
|-----------------|-------------------|--|
| 356'-366' | 9" | 3" claystone (10R5/3), rubbly 4" sandstone (5Y7/1), very fine-grained 9" mudstone to very fine-grained sandstone (2.5YR5/4 to 10R5/3), micaceous 8" mudstone to very fine-grained sandstone (10R5/3), with some greenish grey (5Y7/1), near horizontal blotches and streaks 10" sandstone (between 10R5/4 and 10R4/4), very fine-grained angular fragments 2 ¹ /8" sandstone (10R5/4), fine to very fine- grained with some medium-grained fragments, angular to rough rounded. Bedding 0° to 3° 6" sandstone, mottled (10R4/3) and near 5Y7/1), fine to very fine-grained, angular to rough rounded 11" claystone (10R4/3), horizontal bedding 3 ¹ / ₂ " claystone (between 2.5YR5/6 and 2.5YR4/6), rubbly. 1 ¹ /8" sandstone (5Y7/1), medium to very fine-grained, angular to rough rounded. 1 ¹ /8" sandstone (near 2.5YR4/6), medium to fine- grained roughly rounded fragments, a few mica flakes. |
| 366'-376' | 8 ¹ 1" | 2 ¹ 5" sandstone (2.5YR4/6), fine to very fine- grained with some medium-grained fragments, rough rounded to angular. 11" mudstone (2.5YR5/4), bedding near horizontal. |

| Section Drilled | Recovery | Lithology |
|------------------------------------|-------------------|--|
| | | 2 ¹⁰ " sandstone (between 2.5YR 1/4 and 2.5YR 1/4), medium to fine-grained with some very fine-grained fragments, rough rounded to angular some siltstone fragments (10R 1/3). Dip of fragments 0° to 10° . |
| | | 1 ¹⁰ " - no core . |
| | | 1 ¹¹ " sandstone (between 10R 5/4 and 10R 1/4), fine to very fine-grained with a few coarser fragments, angular to rough rounded, a few gypsum flakes . |
| 376 ¹ -386 ¹ | 7 ¹¹ " | 3 ¹⁴ " sandstone (between 10R 5/4 and 10R 1/4), and a few greenish grey (5Y 7/1), streaks and blotches, fine to very fine-grained with a few medium-grained fragments, angular to fairly well rounded. A few fragments of gypsum and a few flakes of mica . |
| | | 2 ² " sandstone (near 10R 1/4), fine to very fine-grained, angular to rough rounded, with a few well rounded medium to coarse-grained fragments, some gypsum and a little mica . |
| | | 2 ⁵ " sandstone (near 10R 5/3), fine to very fine-grained angular to rough rounded fragments, a few gypsum fragments and a few flakes of mica . |
| 386 ¹ -396 ¹ | 9" | 1" sandstone (10R 5/3), medium to fine-grained roughly rounded fragments, some gypsum and a few mica flakes . |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| | | 3" sandstone (10R5/2), medium to fine-grained with a few coarse-grained fragments, roughly rounded with a few coarse-grained well rounded fragments, numerous gypsum fragments |
| | | 1" sandstone (10R5/2), medium to fine-grained, angular fragments with a few crystal faces, some gypsum. Numerous claystone fragments (10R4/3). Horizontal bedding |
| | | 6" sandstone (10R5/2), medium to fine-grained angular to rough rounded fragments. Numerous gypsum fragments. A $\frac{1}{2}$ " carbonaceous band with 10° dip |
| | | 8" carbonaceous sand shale breccia; sandstone (10R5/2), medium to fine-grained angular to rounded fragments, with some coarse-grained well rounded fragments. Some gypsum and a few mica flakes. Claystone (10R4/3). |
| | | 5" 7" sandstone (10R5/2) with a few greenish grey (5Y7/1) horizontal streaks fine to very fine-grained with a few medium-grained fragments, angular to rough rounded. Some mica and gypsum |
| | | 1" no core |
| 3961-4061 | 918" | 1" 4" sandstone (10R5/2 to 10R5/3), medium to fine-grained roughly rounded fragments gypsum and some mica, dip 12°. A few claystone fragments (10R4/3). |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| | | 3' sandstone (10R5/3), fine-grained with a few medium-grained fragments, roughly rounded, some gypsum and mica. Dip 0° to 12°. A few claystone fragments (10R4/3). A few slightly calcareous horizons |
| | | 1'6" sandstone (10R5/3), fine-grained rough rounded to angular fragments, some gypsum and mica, calcareous. Scattered claystone fragments (10R4/4). Dip 0° to 5° |
| | | 2'1" sandstone (10R5/3), medium to very fine-grained angular to roughly rounded fragments, some mica and gypsum. A three inch band of this core is calcareous |
| | | 5" calcareous sand shale breccia; sandstone (near 10R4/2), medium-grained angular to rough rounded fragments with a few crystal faces. Claystone (10R5/3). |
| | | 1'2" sandstone (between 10R5/2 and 10R5/3), fine to very fine-grained rough rounded fragments. Mica and some gypsum |
| | | 2" calcareous sand shale breccia; sandstone (10R5/2 to 10R5/3), a few greenish grey blotches (5Y7/1), medium to very fine-grained roughly rounded fragments, gypsum and some mica. Claystone (10R4/3). |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| 406'-416' | 7 1/4" | 1 1/2" calcareous sand shale breccia; sandstone (10R5/2 to 10R5/3), medium to very fine-grained roughly rounded to angular fragments, gypsum and some mica. Claystone (10R5/3). Dip 0° to 6° |
| | | 7" sandstone (10R5/3), fine to very fine-grained with some medium-grained fragments; roughly rounded to angular, mica and gypsum a few streaks of siltstones (10R5/3). Dip 8° |
| | | 1" sandstone (10R5/3), and siltstone (10R5/3), interbedded sandstone, fine with some medium-grained fragments, rough rounded and angular with a few crystal faces, very slightly calcareous |
| | | 1 1/2" siltstone (10R5/3). |
| | | 2 1/2" sandstone (10R5/3), fine to very fine-grained roughly rounded fragments and a few angular fragments, gypsum and a little mica |
| | | 2" plug - no core |
| | | 3" claystone (near 10R5/4), with a very irregular 1" lense or band of sandstone (10R5/3), fine-grained angular to roughly rounded fragments, some gypsum, a little calcareous |
| | | 6 1/2" sandstone (10R5/3), fine-grained with some medium-grained fragments, angular to rough rounded, gypsum and a little mica. Contact with overlying shale - a local unconformity |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| | | 9" plug - no core |
| | | 10" sandstone (10R5/3), fine grained with some medium-grained fragments, roughly rounded and angular with a few crystal faces, gypsum and a few mica flakes, calcareous; some claystone fragments (10R5/3). |
| | | 5" sandstone (10R5/2), medium-grained with some fine-grained fragments, angular to sub-angular with numerous crystal faces, gypsum and a few mica flakes. |
| | | 5½" sandstone (10R5/2), medium-grained with some fine-grained fragments, angular to sub-angular with numerous crystal faces, numerous fragments and streaks of claystone (10R5/3). |
| | | Dip 0° to 8° |
| | | 3" sandstone (10R5/2), fine to medium-grained angular to sub-angular fragments with a few crystal faces, gypsum and a few mica flakes. Slight color banding suggests dips to 14°. Probably a crossbed. |
| | | 1½" sandstone (10R5/3), silty, fine-grained with some medium-grained fragments, rough rounded to angular, mica and gypsum |
| | | 2½" sandstone (10R5/2) fine to medium-grained angular to rough rounded fragments, gypsum and a few mica flakes. A fragment of claystone (10R5/4), with a dip of 8° |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| 416'-426' | 519" | 12" sandstone (1035/2) medium to fine-grained angular to rough rounded, grayish and a few dark red streaks with a few flakes of mica. A 1" section with a little staining and a dip of 13° |
| | | 11" sand shale breccia; sandstone (1035/2), a few greenish grey horizons (517/1), medium-grained angular to rough rounded fragments with some crystal faces feldspar and a little mica, none calcareous to calcareous. |
| | | Claystone (1035/3) |
| | | 4" plug - no core |
| | | 3'10" claystone (1035/3), very massive |
| 426'-436' | 8'5" | 1'5" claystone (1035/3) massive 2'2" claystone to mudstone (1035/3), massive, slight color banding indicate dips up to 10° 2'5" sandstone, mottled red (1035/2), and greenish grey (near 517/2), very fine to fine-grained angular to rough rounded fragments, grayish and a little mica, calcareous. A few claystone streaks with a 6° dip. 5'10" sandstone (1035/2), silty, very fine with some fine-grained fragments, angular to rough rounded with a few crystal faces, massive, grayish, quite micaceous. |
| 436'-446' | 9'9" | 4'34" sandstone (1035/2), silty, fine-grained angular to rough rounded fragments, considerable mica, massive. A few streaks of claystone (1035/3), dip 0° to 2° |

| Section Drillcc | Recovery | Lithology |
|------------------------------------|---------------------------------|---|
| | | 1 ¹ / ₂ " calcareous sand shale breccia; sandstone (10R5/2), and a little (5T7/2) medium to fine-grained rough rounded to angular fragments, gypsum and a little mica, claystone (10R5/4 to 10R5/3). |
| | | 8 ¹ / ₂ " sandstone (10R5/2), very fine-grained angular to rough rounded fragments, gypsum and mica, a few streaks or blotches of claystone (10R5/4). |
| | | 3 ¹ / ₄ " sandstone (10R5/2) medium to fine-grained rough rounded to angular fragments with a few crystal faces, gypsum and a little mica. Some horizons are quite silty. |
| 446 ¹ -456 ¹ | 9 ¹ / ₂ " | 9 ¹ / ₂ " sandstone (10R5/2) massive fine to medium-grained angular to rough rounded fragments, gypsum and mica |
| 456 ¹ -466 ¹ | 9 ¹ / ₂ " | 1 ¹ / ₂ " sandstone (10R5/2) massive, fine-grained angular to rough rounded fragments, gypsum and some mica. |
| | | 1 ¹ / ₂ " calcareous sand shale breccia; sandstone (10R5/2), fine to very fine-grained with some medium-grained fragments rough rounded to angular, gypsum and some mica, claystone (10R5/3 to 10R5/4). |
| | | 3 ¹ / ₂ " sandstone (10R5/3) fine to very fine-grained angular to sub-angular fragments, considerable gypsum and some mica. |

| Section Drilled | Recovery | Lithology |
|------------------------------------|---------------------------------|--|
| | | 2 ¹ / ₄ " sandstone (10R5/2), fine to medium-grained angular to sub-angular fragments, considerable gypsum and a few mica flakes |
| | | 1 ¹ / ₆ " sandstone (10R5/2), silty, very fine-grained with a few medium-grained fragments, angular to rough rounded, gypsum and mica, calcareous |
| 466 ¹ -476 ¹ | 8 ¹ / ₇ " | 1 ¹ / ₂ " sandstone (10R5/2), with a few greenish grey blotches (5Y7/1), fine to very fine-grained angular to rough rounded fragments, gypsum and mica, calcareous. Numerous claystone streaks and claystone to mudstone fragments (10R5/4). |
| | | 5" sandstone (near 10R6/2) fine to medium-grained angular to rough rounded fragments, gypsum and mica |
| | | 1 ¹ / ₃ " sandstone (10R5/2), with a few greenish grey blotches (5Y7/2), medium-grained angular to rough rounded fragments with a few crystal faces, gypsum and a little mica, a little calcareous; some streaks and irregular blotches of claystone (10R5/3), with dips up to 19° |
| | | 2 ¹ / ₈ " calcareous sand shale breccia; sandstone (10R5/2), medium-grained angular to rough rounded fragments, gypsum and some mica, claystone (10R5/3), near horizontal |
| | | 1 ¹ / ₃ " sandstone (near 10R5/2), fine-grained angular to rough rounded fragments with some crystal faces, gypsum and a little mica, slightly to none calcareous, some near horizontal streaks and irregular claystone fragments (10R5/3), |

| Section Drilled | Recovery | Lithology |
|-----------------|--------------------|---|
| | | 1 ¹ /2" plug - no core |
| | | 1 ¹ /10" sandstone (between 10R5/2 and 10R5/2), fine to medium-grained angular to rough rounded fragments with a few crystal faces. Slight color banding and a few streaks of claystone (10R5/3) indicate near horizontal bedding. |
| 476'-486' | 9 ¹ /9" | 5" sandstone (10R5/2), massive, fine-grained angular to rough rounded fragments, gypsum and a few mica flakes |
| | | 4" sandstone (10R5/2), fine-grained angular to rough rounded, gypsum and mica, a little calcareous, a few irregular claystone fragments (10R5/3). |
| | | 1 ¹ /3" sandstone (10R5/2), fine-grained angular to rough rounded fragments, gypsum and mica. A few near horizontal claystone fragments or bands (10R5/3). |
| | | 1 ¹ /5" sandstone (10R5/2), fine-grained angular to rough rounded fragments, calcareous with some claystone (10R5/3), bands or fragments. Bedding 0° to 3°, sample approaches a sand shale breccia. |
| | | 12" claystone (10R5/3), with sandstone interbeds (10R5/3), fine-grained angular to rough rounded fragments, gypsum and mica. |
| | 9" | sandstone (10R5/3), massive, fine-grained with some medium-grained fragments, angular to rough rounded, gypsum and a few mica flakes |

| Section Drilled | Recovery | Lithology |
|-----------------|---------------------|---|
| 486'-496' | 918" | 1 ¹ /6" sandstone (10R5/2), very silty, medium and fine-grained angular to roughly rounded fragments, a little gypsum and mica, numerous streaks and thin irregular beds or fragments of claystone (10R5/3). 8 ¹ /2" sandstone (10R5/2), massive, fine to very fine-grained angular to rough rounded fragments, gypsum and mica. A few horizontal horizons very high in mica. |
| 496'-506' | 9 ¹ /10" | 1" sandstone (between 10R5/2 and 10R5/3), very fine to fine-grained with some medium-grained fragments, angular to rough rounded gypsum and mica, slightly calcareous to calcareous. Partings in areas high in mica indicates dips up to 13°. 8 ¹ /2" sandstone (10R5/2 to 10R5/3), massive, very fine to fine-grained with a few medium-grained fragments, angular to rough rounded with a few crystal faces, gypsum and some mica. 1" claystone (10R5/3). Dip 13°. |
| | | 1 ¹ /1" composed of 7 ¹ /2" sandstone, 1 ¹ /2" calcareous sandstone and 4" sandstone; (10R5/2), fine-grained angular to rough rounded fragments, gypsum and some mica. |
| | | 1" claystone to siltstone (10R5/3) micaceous 3 ¹ /5" sandstone (10R5/2) fine-grained with some medium-grained fragments, angular to rough rounded, gypsum and some mica. |

| Section Drilled | Recovery | Lithology |
|------------------------------------|----------|---|
| | | 1 ¹ / ₂ " sandstone (1025/2), very fine-grained angular to rough rounded fragments, gypsum and some mica, calcareous |
| | | 10" sandstone (between 1025/2 and 1024/2), very fine to medium-grained angular to rough rounded fragments with a few crystal faces, gypsum, high in mica, mica partings indicates a 12° dip |
| | | 1 ¹ / ₂ " sandstone (near 1025/2), very fine to medium-grained angular to rough rounded fragments with a few crystal faces gypsum, high in mica, mica partings indicate a 14° dip . |
| 506 ¹ -516 ¹ | 10" | 4" sandstone (near 1025/3) fine-grained with some medium-grained fragments, angular to rough rounded, slight color banding, high in mica, partings indicate dips to 9° 4" claystone bed or lens (1025/3) . |
| | | 9" sandstone (near 1025/3), fine and very fine-grained angular fragments, gypsum, very micaceous, some claystone fragments (between 1025/3 and 1024/3) . |
| | | 1 ¹ / ₂ " claystone (1025/3), with some sandstone (5Y7/2), fine-grained angular to rough rounded, gypsum and some mica . |
| | | 1 ¹ / ₂ " sandstone (between 1025/2 and 1025/2), very fine to fine-grained with a few medium-grained fragments, angular to rough rounded, gypsum and some mica . |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| | | 7" calcareous sandstone (10R5/2), very fine to fine-grained with some medium-grained fragments, angular to rough rounded, gypsum and a little mica. Numerous claystone fragments (between 10R5/3 and 10R4/3), |
| | | 5" mudstone to claystone (near 10R5/3), with interbeds of mudstone that are usually calcareous. Irregular color banding near horizontal. |
| | | 9" mudstone (between 10R5/3 to 10R4/3), massive to blocky |
| | | 4" sandstone (5T7/2), very fine to fine-grained angular to rough rounded, gypsum and some mica |
| | | 3" sandstone (near 10R5/3), very fine to fine-grained angular to rough rounded fragments, gypsum and some mica |
| 516'-526' | 9'10" | 10" sandstone (10R5/3 to 10R4/3), a few irregular greenish grey streaks and blotches (5T7/1), fine-grained with some mudstone |
| | | 2'1" sandstone (10R5/3 to 10R4/3) massive, fine to very fine-grained angular to rough rounded fragments, gypsum, quite micaceous |
| | | 4" sandstone (10R5/3 to 10R4/3), very fine-grained gradational to a mudstone, slightly calcareous. A few streaks of claystone (5T7/2). Dip up to 13° |
| | | 1'2" sandstone (10R5/3) very fine to fine-grained angular to rough rounded fragments, gypsum and a little mica |

| Section Drilled | Recovery | Lithology |
|-----------------|-------------------|---|
| | | 1 ¹ / ₂ " sandstone (10R5/3) massive, very fine to fine-grained angular to rough rounded fragments some mica, some quite calcareous bands. Dip 0° to 3° . |
| | | 1" sandstone (5Y7/2) fine to very fine-grained angular to rough rounded, gypsum, very micaceous . |
| | | 6" claystone to very fine-grained sandstone (near 10R4/3), calcareous . |
| | | 1 ¹ / ₂ " siltstone to very fine-grained sandstone (near 5Y7/2), calcareous, color banding, dip 0° to 3° . |
| | | 7 ¹ / ₂ " siltstone to very fine-grained sandstone (10R5/3) calcareous . |
| | | 2" siltstone to very fine-grained sandstone (near 5Y7/2), micaceous, color banding, dip 0° to 3° . |
| | | 2 ¹ 1 ¹ " claystone to siltstone (near 10R5/3), massive to blocky . |
| 5261-5361 | 9 ¹ 4" | 4" siltstone to claystone (10R4/3) , 11 ¹ / ₂ " sandstone (10R5/3) mottled with irregular greenish grey streaks (5Y7/2), fine to medium-grained angular to rough rounded fragments . |
| | | 8" sandstone (10R5/3) fine to medium-grained angular to rough rounded fragments, gypsum . |
| | | 2" siltstone to claystone (10R5/3) a little mic |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| | | 3' 8" sandstone (between 10R5/3 and 10R4/3), massive fine-grained with some medium-grained fragments, angular to rough rounded, gypsum and mica, some quite micaceous horizons |
| | | 3" siltstone and fine to very fine-grained sandstone (10R5/3), angular to rough rounded fragments, very micaceous with partings at 10 |
| | | 5" sandstone (10R5/3), very fine to fine-grained rough rounded to angular fragments, gypsum, very micaceous, dip 10°. |
| | | 3½" sandstone (10R5/3) with a few irregular greenish grey streaks (5Y7/2), fine to medium-grained angular to rough rounded fragments, a few irregular streaks of claystone to siltstone (10R5/3). Dip 4° . |
| 536°-546° | 9 1/2" | 2" sandstone (10R5/2), very fine to fine-grained angular to rough rounded fragments, gypsum and some mica. Dip 0° . |
| | | 4" sandstone (10R5/2), very fine to fine-grained angular to rough rounded fragments, gypsum, very micaceous, micaceous partings up to 9° . |
| | | 4½" sandstone (10R5/2), fine-grained with a few medium-grained fragments, angular to rough rounded, gypsum, quite micaceous. Numerous streaks and irregular bands of siltstone (10R5/2 to 10R4/3) . |
| | | 1½" calcareous sand shale breccia; sandstone very fine-grained (10R5/2), siltstone to claystone (near 10Y7/3) . |

| Section Drilled | Recovery | Lithology |
|--------------------------------------|---------------------------------|--|
| | | 3" sandstone (between 5Y7/1 and 5Y7/2), fine to very fine-grained angular to rough rounded fragments, gypsum and considerable mica, calcareous . |
| | | 5 $\frac{1}{2}$ " sandstone (10R5/3 to 10R4/3), very fine-grained to siltstone, calcareous. Irregular color banding suggests a 3° dip . |
| | | 5 $\frac{1}{2}$ 7 $\frac{1}{2}$ " siltstone to claystone (10R4/3), some a little calcareous, massive to blocky . |
| 546 $\frac{1}{2}$ -556 $\frac{1}{2}$ | 9 $\frac{1}{2}$ 7 $\frac{1}{2}$ | 5 $\frac{1}{2}$ 6" siltstone (between 10R5/3 and 10R4/3), generally quite massive, some horizons a little calcareous . |
| | | 1 $\frac{1}{4}$ " siltstone to very fine-grained sandstone (near 10R5/2), numerous greenish gray horizons (5Y7/2), calcareous |
| | | 5" siltstone (10R5/3) micaceous, some horizons slightly calcareous, ⁵⁴¹⁶⁴⁷ slight color banding, dip 0° to 3° |
| | | 2" siltstone to very fine-grained sandstone (5Y7/2) quite micaceous |
| | | 10" siltstone to very fine-grained sandstone (10R5/3), micaceous with slight color banding. Dip 0° to 3°. |
| | | 1." siltstone to very fine-grained sandstone (5Y7/2) high in mica |
| | | 1 $\frac{1}{2}$ 3" siltstone to very fine-grained sandstone (10R5/3), micaceous, slightly calcareous to calcareous, dip 0° to 3°. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| 556'-566' | 813" | 7" siltstone to very fine-grained sandstone (10R5/3), micaceous and a little calcareous, slight color banding and cross-bedding, dip 0° to 3° |
| | | 4" siltstone to very fine sandstone, irregular band (5Y7/2), |
| | | 1" siltstone (10R5/3) |
| | | 2" siltstone to very fine-grained sandstone (5Y7/2), dip 3° |
| | | 17½" siltstone to very fine-grained sandstone composed of (9½" near [10R5/2]; ½" irregular greenish gray blotch [5Y7/2]; 2" near [10R5/2]; 1" irregular greenish gray blotch [5Y7/2]; and 5" near [10R5/2]) |
| | | 3½" sandstone (10R5/3) massive very fine to fine-grained angular to rough rounded fragments, gypsum and mica. |
| | | 7½" sandstone (10R5/3), very fine to fine-grained angular to rough rounded fragments, gypsum and mica, slight color banding suggests dips to 16°. |
| | | 12½" sandstone (10R5/3), very fine to medium-grained angular to rough rounded fragments, gypsum and mica, slightly calcareous to calcareous, thin streaks of siltstone (10R5/3 to 10R4/3), dips up to 14°. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| | | 10 $\frac{1}{2}$ " plug - no core |
| | | 6" sandstone (10R5/3), and claystone (10R4/3), interbedded, trending to a breccia, some calcareous horizons |
| | | 18" sandstone (10R5/2) massive, very fine to fine grained angular to rough rounded fragments with a few crystal faces, gypsum and mica |
| 566'-576' | 9'10" | 3 $\frac{1}{4}$ " sandstone (between 10R5/2 $\frac{1}{2}$ and 10R4/2) fine to medium-grained angular to rough rounded fragments, gypsum and mica |
| | | 9" sandstone (10R5/2), fine to medium-grained angular to rough rounded fragments, gypsum and mica, calcareous; a few fragments and thin interbeds of claystone (10R5/3), dip 0° to 3°. |
| | | 2 $\frac{1}{2}$ " sandstone (10R5/2) fine to medium-grained angular to rough rounded fragments, gypsum and mica; a few claystone fragments (10R5/3). |
| | | 10" calcareous sand shale breccia; sandstone (10R5/2), fine to medium-grained, claystone (10R5/3), horizontal bedding. |
| | | 6" sandstone (10R5/2) very fine-grained angular to rough rounded fragments, gypsum and mica; claystone to siltstone (10R5/3), thin, laminated bedding. |
| | | 6" claystone to siltstone (2.5' $\frac{1}{4}$ /4) |

| Section Drilled | Recovery | Lithology |
|--------------------------------------|---------------------|--|
| | | 6 $\frac{1}{2}$ " sandstone (10R5/2), fine to medium-grained angular to rough rounded fragments with some crystal faces, gypsum and mica; claystone 2.5YR4/4, interbeds or fragments, transitioning to a breccia, some calcareous horizons |
| | | 2 $\frac{1}{2}$ 3" sandstone (10R5/2 to 10R4/2), massive, very fine to fine-grained angular to rough rounded fragments, gypsum and considerable mica |
| | | 11" sandstone (10R4/2), fine to medium-grained angular to rough rounded fragments, gypsum and mica, calcareous. Thin interbeds or laminate claystone (10R5/3). |
| 576 $\frac{1}{2}$ -586 $\frac{1}{2}$ | 9 $\frac{1}{2}$ 11" | 5" sandstone (10R5/2), fine-grained angular to rough rounded fragments, gypsum and mica, some calcareous horizons. Includes small claystone fragment (10R5/3). |
| | | 1 $\frac{1}{2}$ 1" calcareous sand shale breccia, sandstone (10R5/2), fine to medium-grained angular to rough rounded, gypsum and mica, claystone (10R5/3). A few greenish grey blotches (5Y7/3) |
| | | 1 $\frac{1}{4}$ " sandstone (10R5/2) fine-grained with a fine medium-grained fragments, angular to rough rounded, gypsum and mica, most of the section is calcareous. |
| | | $\frac{1}{2}$ " calcareous sand shale breccia, sandstone and claystone (5Y7/2) |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| | | 3½" calcareous sand shale breccia; sandstone (10R5/2), fine-grained, siltstone (10R5/3). |
| | | 5½" siltstone to very fine-grained sandstone (10R5/3), micaceous. |
| | | 2" sandstone (5Y7/2), fine to medium-grained angular to rough rounded fragments, gypsum and mica, a little calcareous, horizontal bedding. |
| | | 1" sandstone (10R5/2), massive, medium-grained angular to rough rounded fragments, gypsum and mica; a few streaks of claystone (10R5/3) slightly calcareous, near horizontal bedding |
| | | 3½" sandstone (10R5/2), fine-grained angular to rough rounded fragments, considerable mica, some gypsum |
| 586-596 | 917" | 3½" sandstone (10R5/2), fine to medium-grained gypsum and a little mica; scattered streaks and fragments of claystone (10R5/3). |
| | | 6" sandstones (10R5/2), fine to medium-grained with numerous small fragments or laminated beds of claystone (10R5/3). |
| | | 1½" calcareous sand shale breccia; sandstone (10R5/2), fine-grained, claystone to siltstone (10R5/3). Some greenish grey blotches (near 5Y7/2). |
| | | 4" sandstone (10R5/2), massive fine-grained angular to rough rounded fragments; gypsum and mica, a few claystone fragments (10R5/3) |

| Section Drilled | Recovery | Lithology |
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| 596'-606' | 919" | 213" sandstone (10R5/2) massive, fine-grained angular to rough rounded fragments, gypsum and mica . 2" calcareous sand shale breccia; claystone (10R5/3), some sandstone (10R5/2) or Y7/1), very fine-grained 8" claystone to siltstone (10R5/3). 2" sandstone (near 5Y7/1) fine to medium-grained angular to rough rounded fragments, numerous claystone fragments (5Y7/1) . 418" sandstone (near 10R5/2) massive, fine-grained angular to rough rounded fragments, gypsum and some mica . |
| 606'-616' | 917" | 318" sandstone (between 10R5/3 and 10R5/4) , very fine to fine-grained angular to rough rounded fragments, mica and gypsum, slight color banding indicate dips to 12° . 5" sandstone (10R5/4) fine to medium-grained angular to rough rounded fragments, gypsum and mica, bedding 0° to 12° . 7" sandstone (10R5/3) very fine to coarse-grained fragments, gypsum and some mica, calcareous . 10" sandstone (10R5/3) very fine to fine-grained angular to rough rounded fragments, mica and gypsum, a little calcareous, slight color banding and mica partings horizontal . |

Section Drilled Recovery

Lithology

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| | | 1 ¹ /5" sandstone (10R5/2), very fine to fine-grained angular to rough rounded fragments, gypsum and considerable mica with horizontal partings |
| | | 4" siltstone to very fine-grained sandstone (10R5/2), gypsum and considerable mica, calcareous, color banding suggests dips to 6° |
| | | 6" siltstone to very fine-grained sandstone (10R5/2), some gypsum, very micaceous with partings and color banding horizontal |
| | | 1" siltstone to very fine-grained sandstone (near 5T7/1), calcareous |
| | | 3" claystone to siltstone (near 10R5/3), some micaceous partings. |
| | | 1 ¹ /6" siltstone to very fine-grained sandstone (10R5/3), with numerous micaceous horizons or partings. Dip 0° to 3°. A few greenish grey streaks and blotches (near 5T7/1). One 1/4" streak has a 12° dip. |
| 616'-626' | 10" | 1 ¹ /8" siltstone to very fine-grained silty sandstone (10R5/3), micaceous slight color banding 0° to 3° dip, some horizons slightly calcareous. A few irregular greenish grey blotches and streaks (near 5T7/1), 8 ¹ /4" sandstone (10R5/2), massive, very fine to fine with some medium-grained fragments, rough rounded to angular; gypsum and considerable mica. A few siltstone fragments (10R5/3). |

| Section Drilled | Recovery | Lithology |
|------------------------------------|-----------------|---|
| 626 ^t -636 ^t | 10 ^t | 4 ^t 1" sandstone (10R5/2 to 10R5/3), massive, fine to medium-grained with some fine-grained fragments, angular to rough rounded, gypsum, quite micaceous. 1 ^t calcareous sand shale breccia; sandstone (10R5/2), fine to very fine-grained with a few medium-grained fragments, angular to rough rounded, gypsum and some mica. Dip 0° to 3°. Siltstone (10R5/3). 1 ^t 9" sandstone (10R5/2) very fine to fine-grained angular to rough rounded fragments, very micaceous. 1 ^t 7 ¹ / ₂ " silty sandstone, thinly interbedded sandstone and siltstone, and some sand shale breccia; sandstone (10R5/2) and a few greenish grey streaks (5F7/1), very fine to fine-grained angular to rough rounded fragments, gypsum and mica. Claystone to siltstone (10R5/3). Bedding 0° to 3°. 1 ^t 6 ¹ / ₂ " sandstone (10R5/2), and some thin horizontal beds or streaks (10R4/2) fine to very fine grained angular to rough rounded fragments, gypsum and mica with some very micaceous horizons. |
| 636 ^t -646 ^t | 10 ^t | 5 ^t 3" sandstone (10R5/2), massive fine to very fine-grained angular to rough rounded fragments, gypsum and some mica. |

| Section Drilled | Recovery | Lithology |
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| | | 2 $\frac{1}{2}$ " sandstone (10R5/2), massive, fine to very fine-grained angular to rough rounded fragments, gypsum and some mica, slightly calcareous to calcareous |
| | | 5" sandstone (10R5/2), very fine to fine-grained with a few medium-grained fragments, angular to rough rounded, gypsum and mica |
| | | 6 $\frac{1}{2}$ " sandstone (10R5/2), very fine to fine rough rounded to angular fragments, gypsum and mica, calcareous |
| | | 1 $\frac{1}{2}$ to 10" sandstone (near 10R5/3), very fine to fine angular to rough rounded fragments, gypsum, quite micaceous, color banding 0° to 3° |
| | | 2" calcareous sand shale breccia; sandstone (10R5/2), very fine-grained, micaceous to very micaceous with horizontal partings, siltstone (10R5/4). A few greenish gray streaks (5Y7/1). |
| | | 1 $\frac{1}{2}$ " sandstone (near 10R5/2), fine to very fine-grained angular to rough rounded fragments micaceous with some very micaceous horizontal partings |
| 6468-6562 | 10" | 4 $\frac{1}{4}$ " sandstone (near 10R5/2), very fine to fine-grained with a few medium-grained fragments, angular to rough rounded with a few crystal faces, gypsum and mica, bedding 0° to 3° |
| | | 1 $\frac{1}{2}$ " claystone to siltstones (10R5/3). Dip 0° to 3°. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| | | 3 ¹ / ₂ " sandstone (1025/2), very fine to fine with a few medium-grained fragments, angular to rough rounded, fairly micaceous with partings up to 3", some gypsum . |
| | | 7" calcareous sand shale breccia, sandstone (near 1025/2) very fine to medium-grained fragments, claystone to siltstone (1025/3) . |
| | | 7" sand shale breccia as above but not calcareous |
| | | 11 ¹ / ₂ " sandstone (1025/2), fine to medium-grained rough rounded to angular fragments, gypsum and some mica . |
| 6561-6661 | 10" | 4 ¹ / ₂ " sandstone (1025/2), massive, very fine to fine-grained with some medium-grained fragments, angular to rough rounded, gypsum and considerable mica. Occasional claystone and siltstone (1025/3). Dip 0° to 3° |
| | | 1" sandstone (1025/2), fine to medium-grained angular to rough rounded fragments, gypsum and considerable mica, numerous claystone to siltstone fragments (1025/3), tending to a sand shale breccia. Dip 0° to 3° |
| | | 4 ¹ / ₂ " sandstone (1025/2), fine-grained with some medium-grained fragments, angular to rough rounded with some crystal faces, gypsum and mica . |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| 666'-676' | 10" | 5" sandstone (10R5/2), massive, fine to medium-grained angular to rough rounded fragments with a few crystal faces. Slight color banding indicates a near horizontal dip |
| | 6" | 6" sandstone (10R5/2), fine to medium angular to rough rounded fragments with some crystal faces, gypsum and mica, numerous fragments and streaks of claystone (10R5/3), some are calcareous. Dip 3° |
| | 2*3" | 2*3" silty sandstone to calcareous sand shale breccia; sandstone (10R5/2), very fine to fine-grained with a few medium-grained fragments, angular to rough rounded, gypsum and mica, siltstone (10R4/3). Three greenish grey horizons (near 577/1) . |
| | 2*3" | 2*3" sandstone (10R5/2), very fine to fine-grained with a few medium-grained fragments, angular to rough rounded with a few crystal faces, mica and gypsum . |
| 676'-686' | 9*9" | 1" sandstone (10R5/2), very fine to fine-grained with some medium-grained fragments, angular to rough rounded, gypsum and mica |
| | 1" | 1" sandstone (10R5/2), very fine to fine-grained with some medium-grained fragments, angular to rough rounded, gypsum and mica. Claystone to siltstone (10R4/3). Dip 4° |
| | 2" | 2" sandstone (10R5/2) fine-grained angular to rough rounded with some crystal faces, gypsum and some mica |
| | 1&1/2" | 1&1/2" claystone to siltstone (10R4/3), some sandstone (10R5/2) . |

Section Drilled Recovery

Lithology

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| | | 4" sandstone (10R5/2), very fine to fine-grained angular to rough rounded fragments, gypsum and mica |
| | | 1½" sand shale breccia; sandstone (10R5/2), very fine to fine angular to roughly rounded fragments, gypsum and mica, siltstone (10R4/3) |
| | | 2½" sandstone (10R5/2), very fine to fine-grained angular to rough rounded fragments, gypsum and mica, numerous claystone to siltstone fragments (10R4/3). Horizontal bedding |
| | | 2½" sandstone (10R5/2), very fine to fine-grained with some medium-grained fragments, angular to rough rounded, gypsum and mica. Numerous darker horizontal streaks (10R4/2) |
| | | 4½" sandstone (10R5/2), massive fine-grained with some very fine and coarse-grained fragments angular to rough rounded with some faces, gypsum and mica |
| 6861-6961 | 9111" | 4½" sandstone (10R5/2) massive, fine to medium-grained angular to rough rounded fragments with some crystal faces, gypsum and mica . 6" sandstone (10R5/2) fine to medium-grained angular to rough rounded fragments, gypsum and mica, calcareous with some claystone to siltstone fragments (10R4/4) . 5" sandstone (10R5/2) fine-grained angular to rough rounded fragments, very micaceous with horizontal partings |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| | | 4" sand shale breccia; sandstone (10R5/2), fine-grained angular to rough rounded fragments, gypsum and mica, claystone (10R5/3). |
| | | 7" sandstone (10R5/2) massive fine to medium-grained angular to rough rounded with some crystal faces, gypsum and mica. |
| | | 4" sandstone (10R5/2) fine to medium-grained angular to rough rounded fragments with a few crystal faces gypsum and mica, calcareous. Dip 8° . |
| | | 2" calcareous sand shale breccia; sandstone (10R5/2), fine to medium-grained, siltstone (10R5/3). |
| | | 8½" sandstone (10R5/2 and 10R4/2) fine-grained angular to rough rounded fragments with a few crystal faces, gypsum and a few mica flakes. Color banding indicates dips to 13°. |
| | | 1½" fine-grained sandstone to siltstone or very silty sandstone (near 10R5/3), a few greenish grey streaks and blotches (near 5Y7/1). |
| | | 4" calcareous sand shale breccia; sandstone (10R5/3), very fine-grained to a silty sandstone with some claystone fragments, numerous greenish grey streaks and blotches (5Y7/1). About 2" of this core is highly crossbedded. |

| Section Drilled | Recovery | Lithology |
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| | | 4½" sandstone (10R5/3), very silty and very fine-grained with some mica. |
| | | ½" sandstone (near 5Y7/1) very fine to fine-grained, gypsum, very micaceous. |
| 696'-706' | 10" | 16" sandstone (10R5/3), with a few greenish grey blotches and streaks (5Y7/1), silty and very fine-grained, considerable mica, some horizons a little calcareous. 5" calcareous sand shale breccia, sandstone (10R5/2), with a few greenish grey streaks and blotches (5Y7/1), very fine-grained, claystone (10R4/3). |
| | | 5" sandstone (10R5/2) massive, fine to medium-grained angular to rough rounded fragments, gypsum and mica |
| | | 10" calcareous sand shale breccia; sandstone (10R5/2) and some 5Y7/1), fine-grained, siltstone (10R4/3). |
| | | 1½" sandstone (10R5/2) very fine-grained and silty, micaceous, some gypsum. |
| | | 5" sandstone (10R5/2) massive, fine-grained with a fine-medium-grained fragments, angular to rough rounded, gypsum and mica |
| 706'-716' | 9½" | 1½" sandstone (10R5/2) massive, fine-grained angular to rough rounded fragments, gypsum and mica |

| Section Drilled | Recovery | Lithology |
|-----------------|------------------------------------|--|
| | 2" | calcareous sand shale breccia; sandstone, (10B5/2), fine to medium-grained angular to rough rounded fragments, gypsum and mica, claystone to siltstone (10B6/2, 10B5/3 and 10B4/3) |
| | 1 ¹ /7" | sandstone (near 10B5/2 and 10B4/2), very fine to fine-grained angular to rough rounded fragments, gypsum and mica, color banding indicate dips up to 9°. |
| | 2" | sandstone (near 5T7/1), fine to very fine-grained angular to rough rounded fragments, gypsum and considerable mica |
| | 4" | siltstone (5T7/1) . |
| | 2 ¹ /2" | siltstone (10B5/3) massive . |
| | 1 ¹ /4 ¹ /2" | siltstone to claystone (10B4/1), massive some calcareous horizons . |
| | 6" | sandstone (near 10B4/3), fine to medium-grained angular to rough rounded fragments, calcareous and very silty . |
| | 1 ¹ /2" | sandstone (near 5T7/1), medium-grained angular to rough rounded fragments, gypsum and mica . |
| | 1 ¹ /4" | siltstone (near 10B4/3). Horizontal bedding |
| | 1" | sandstone (near 5T7/1), very fine-grained angular to rough rounded fragments, gypsum and mica . |
| | 2 ³ /4" | sandstone (10B5/2 to 10B4/2), massive, very fine to fine-grained angular to rough rounded fragments, gypsum and mica, color banding indicates dips to 21° . |

| Section Drilled | Recovery | Lithology |
|-----------------|-----------------|--|
| 716*-726* | 10 ^t | 2" sandstone (10R6/2 to 10R5/2), very fine to fine-grained angular to rough rounded fragments, gypsum and mica . 6 $\frac{1}{2}$ " sandstone (near 5Y7/1), very fine to fine-grained angular to rough rounded fragments, gypsum and mica . 1 $\frac{1}{2}$ " very fine-grained sandstone and siltstone interbedded (5Y7/1 and 10R4/3), calcareous. 2" siltstone (10R4/3), massive . 9 $\frac{1}{4}$ siltstone to very fine-grained sandstone (near 5Y3 $\frac{1}{4}$ /4 to 10R3/3), massive, horizontal bedding calcareous . |
| 726*-736* | 10 ^t | 7 $\frac{1}{2}$ " claystone to siltstone (near 10R $\frac{1}{4}$ /3), massive . 3 $\frac{1}{2}$ " sandstone (5Y7/1), fine to very fine-grained angular to rough rounded fragments, gypsum and mica, calcareous . 3 $\frac{1}{4}$ $\frac{1}{2}$ " claystone to siltstone (10R $\frac{1}{4}$ /3 to 2.5YR $\frac{1}{4}$ /4), massive, slight color banding suggests horizontal bedding 1 $\frac{1}{2}$ " siltstone (5Y7/1), some mica, horizontal bedding . 8" siltstone to very fine-grained sandstone (between 10R5/2 and 10R4/2), quite micaceous . 6" sandstone (near 4 $\frac{1}{2}$ 10R $\frac{1}{4}$ /2), very fine to fine-grained angular to rough rounded fragments, gypsum, quite micaceous . |

| Section Drilled | Recovery | Lithology |
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| | | 4 ¹ / ₂ " sandstone (1025/2), massive fine to medium-grained angular to rough rounded fragments, gypsum, considerable micx with horizontal partings . |
| 736 ^t -746 ^t | 10 ^t | 3 ¹ / ₂ " sandstone (1025/2) massive fine to medium-grained angular to rough rounded fragments with some crystal faces, gypsum and mica, a fine claystone fragments (1025/3). 1 ¹ / ₂ " sandstone (1025/2), fine to medium-grained, gypsum and mica, dip 10°. 10 ¹ / ₂ " sandstone (near 1025/2) massive very fine to fine-grained angular to roughly rounded fragments, gypsum and mica |
| | | 9" sand shale breccia; sandstone (1025/2), fine to medium-grained angular to rough rounded fragments with a few crystal faces, gypsum and mica, claystone to siltstone (1024/3), dip 0° to 3° . |
| | | 2 ¹ / ₂ " sandstone (1025/2), fine to medium-grained angular to rough rounded fragments with a few crystal faces, gypsum and mica |
| | | 5" sandstone (1025/2), fine to medium-grained angular to rough rounded fragments, gypsum and mica, calcareous, some claystone (1024/3), dip 10°. |
| | | 1" sandstone (1025/2), fine-grained angular to rough rounded with a few crystal faces, gypsum, very micaceous, dip 12° . |

| Section Drilled | Recovery | Lithology |
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| | 3" | sandstone (10R5/2), fine to medium-grained angular to rough rounded, gypsum and mica, calcareous . |
| | 1'6" | calcareous sand shale breccia, sandstone (10R5/2), fine to medium-grained angular to rough rounded fragments, gypsum, quite micaceous claystone to siltstone (10R4/3) , dip 0° to 3° . |
| 7461-7561 | 10' | 2'1" sandstone (10R5/2), very fine to fine-grained, silty and very micaceous with partings to 12° . 2" sandstone (5Y7/1), fine to medium-grained angular to rough rounded fragments, calcareous, gypsum and mica . 7'10 $\frac{1}{2}$ " claystone and siltstone (between 10R4/3 and 10R5/3), massive . |
| 7561-7661 | 9'11" | 11" claystone (near 10R5/3) . 1'5" claystone to siltstone (10R4/3) . 9" sandstone (5Y7/1), medium-grained angular to rough rounded fragments, very silty, considerable and some mica . 10" sandstone (10R5/2), fine-grained angular to rough rounded fragments, very silty, some gypsum, very micaceous . 6" sandstone (10R5/2, 10R4/2 and 10R4/3), massive fine to medium-grained angular to rough rounded fragments, with some crystal faces, some gypsum and mica, a few irregular greenish grey blotches at the top of the section . |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| 766'-776' | 6'11" | 2'6" sandstone (10R1/2 to 10R4/3), massive very fine to medium-grained with a few coarse-grained fragments, angular to rough rounded, gypsum and mica, slight color banding indicates dips up to 12° . |
| | | 11½" sandstone, as described in the above sample, calcareous with some siltstone interbeds (near 10R4/3) . |
| | | 4'10" sandstone (10R5/2 to 10R7/3), fine-grained angular to rough rounded, gypsum and mica slight color banding. Horizontal bedding . |
| | | 7" sandstone (10R5/2 to 10R4/2) fine-grained angular to rough rounded fragments, gypsum and mica, a few fragments of siltstone (10R4/3), slight color banding indicates dips from 0° to 20° . |
| 776'-786' | 10" | 1" sandstone (10R5/2 to 10R7/2) massive, fine to medium-grained angular to rough rounded, gypsum and mica, color banding indicates dips to 15° . |
| | | 1'1½" sandstone (10R4/2), fine to medium-grained angular to rough rounded, some a little calcareous, gypsum and mica, a few siltstone fragments (10R5/2) . |
| | | 3'8½" sandstone (near 10R7/2) massive, fine-grained with a few medium-grained fragments, angular to rough rounded with crystal faces, gypsum and mica, some slight color banding dip 0° to 3° . |

Section Drilled Recovery

Lithology

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| | | 8 $\frac{1}{2}$ " calcareous sand shale breccia; sandstone (10R5/2), fine to medium with a few coarse-grained fragments, angular to rough rounded, gypsum and mica. Siltstone (10R4/3), orientation of fragments suggests horizontal bedding . |
| | | 3 $\frac{1}{2}$ " siltstone (between 10R5/2 and 10R4/2), massive, fine to medium-grained with some coarse-grained fragments, angular to rough rounded with some crystal faces, gypsum and mica . |
| 7861-7961 | 9 $\frac{1}{2}$ " | 1 $\frac{1}{2}$ " sandstone (10R5/2) massive, fine to medium-grained angular to rough rounded fragments, quite micaceous, gypsum. A few fragments of siltstone . |
| | | 7" calcareous sand shale breccia; sandstone (10R5/2), fine to medium-grained, with a few coarse-grained fragments, angular to rough rounded, gypsum, mica, siltstone (10R4/3) . |
| | | 10" sandstone (10R5/2), massive, fine-grained with a few medium-grained fragments, angular to rough rounded, gypsum and mica . |
| | | 1 $\frac{1}{2}$ " calcareous sand shale breccia, sandstone (10R5/2), fine to medium-grained with some coarse-grained fragments, angular to rough rounded, gypsum and mica. Siltstone (10R4/2) |

Section Drilled Recovery

Lithology

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| | | 1 ⁷ / ₈ " sandstone (1035/2), massive, fine to medium-grained angular to rough rounded fragments. |
| | | 1 ¹ / ₂ " siltstone (1035/3). |
| | | 1 ⁴ " sandstone (1035/2), very fine-grained with a few medium-grained fragments, calcareous, very silty with a few siltstone streaks and thin bands (1035/2). |
| | | 1 ¹¹ / ₁₆ " sandstone (1035/2), fine-grained and some medium-grained fragments, angular to rough rounded, gypsum, some quite micaceous horizons; some silty horizons with claystone fragments (1035/2), calcareous |
| 7961-3061 | 8" | 3 ¹ / ₈ " sandstone (1035/2) massive, fine-grained with a few medium-grained fragments, angular to rough rounded, gypsum and mica. Color banding indicates bedding horizontal to 3°. |
| | | 1 ¹ / ₂ " claystone (1034/3). |
| | | 3 ¹ / ₂ " calcareous sand shale breccia, sandstone, (1034/2), fine-grained angular to rough rounded fragments with some crystal faces, a little gypsum and mica, claystone to siltstone (1034/3). |
| | 5" | 5" sandstone (1035/3 to 1034/3), fine to very fine-grained angular to rough rounded fragments, considerable gypsum and mica. Mica partings indicate dips to 3°. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| | | 4" sandstone (between 1025/2 and 1027/3), very fine to fine-grained angular to rough rounded fragments, gypsum and mica, calcareous. |
| | | 2.5" sandstone (1025/2 and near 1024/1), very fine-grained angular to rough rounded fragments with some crystal faces, gypsum and mica, dip 0° to 10°. |
| | | 2.5" calcareous sandstone and siltstone (527/1), sandstone, very fine-grained angular to rough rounded, gypsum and mica. Horizontal bedding. |
| | | 6" siltstone (near 2.527.4/4), calcareous |
| 605-8168 | 10" | 2.6" siltstone (2.527.4/4), massive, some horizons a little calcareous |
| | | 4" sandstone, very fine-grained to siltstone (near 527/1), some irregular streaks and patches (near 1025/2), considerable mica |
| | | 1.1" sandstone, very fine-grained to siltstone (near 1025/3), mica and gypsum |
| | | 3.5" sandstone very fine-grained to siltstone (near 1024/3), a few streaks (527/1), calcareous |
| | | 3.4" sandstone (1025/3), and a few streaks (527/1), very fine to fine-grained angular to rough rounded fragments, gypsum and considerable mica. |
| | | 1.5" sandstone (1025/2), calcareous, fine-grained with a few medium-grained fragments, angular to rough rounded with crystal faces, gypsum and mica. |

| Section Drilled | Recovery | Lithology |
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| | | 2 ¹ / ₂ " sandstone (10R5/2 and 10C4/2), fine to very fine-grained angular to rough rounded, considerable mica with partings, some color banding, dips up to 10°. |
| 816 ¹ -826 ¹ | 10 ¹ | 6 ¹ / ₂ " sandstone (10R5/2 and some 10C4/2), very fine to fine-grained angular to rough rounded fragments, gypsum and considerable mica, some horizons a little calcareous, generally massive although some color banding indicates dips to 12°. 3 ¹ / ₂ " calcareous sand shale breccia; sandstone (10R5/2), very fine to fine-grained with a few medium-grained fragments, angular to rough rounded fragments, gypsum and mica. Siltstone (10R5/3), and a few streaks of (5V7/1). |
| 826 ¹ -836 ¹ | 9 ¹ / ₂ " | 1 ¹ / ₂ " sandstone (10R5/3), very fine to fine-grained with some medium to coarse-grained fragments, angular to rough rounded, gypsum and mica, calcareous, some siltstones (10R5/4), and some streaks and blotches (5V7/1). Color banding indicates bedding up to 20° 8 ¹ / ₂ " sandstone (10R5/2), very silty, very fine to fine-grained with some medium to coarse-grained fragments, angular to rough rounded, gypsum and mica. Siltstone (10R5/5), |

Section Drilled Recovery

Lithology

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| | | 1 ¹ / ₂ " sandstone (10R5/2), massive, very fine to fine-grained angular to rough rounded fragments, gypsum and mica. |
| | | 6 ¹ / ₂ " sandstone (10R5/2), massive, fine to medium-grained with a few coarse fragments, angular to rough rounded with a few crystal faces, gypsum and mica. An occasional fragment of siltstone (10R5/3), and a few well-rounded quartzite pebbles up to 12 mm in diameter. Some of this section is slightly calcareous. |
| 836 ¹ -S46 ¹ | 9 ¹ 11 ₂ " | 4 ¹ 8 ₂ " sandstone (10R6/2 to 10R4/1), massive, fine to medium-grained with some coarse-grained fragments, angular to rough rounded with some crystal faces, gypsum and mica, some a little calcareous. |
| | | 4 ¹ 7" calcareous sandstone with siltstone partings trending to a breccia. Sandstone (10R6/2 to 10R5/2), medium-grained angular to rough rounded fragments with some crystal faces, gypsum and mica. Siltstone (10R5/3). |
| | | 8" sandstone (10R5/2 dark), fine to medium-grained angular to rough rounded, gypsum and some mica. A greenish grey streak (5R7/1), with an 18° dip. |

| Section Drilled | Recovery | Lithology |
|-----------------|---------------------|--|
| 846'-356' | 9'10" | 1'5" sandstone (10R5/2 dark), fine to medium-grained angular to rough rounded with some crystal faces, gypsum and mica, generally, a little calcareous, crossbedding, dips vary from 0° to 30° . |
| | 7" | 7" calcareous sand shale breccia; sandstone (10R5/2), fine to medium-grained with a few coarse-grained fragments, angular to rough rounded with some crystal faces, gypsum and mica. Claystone to siltstone (10R5/3 to 10R4/3) . |
| | 1'3 $\frac{1}{2}$ " | 1'3 $\frac{1}{2}$ " sandstone (10R5/1 to 10R5/2), very fine to fine-grained with some medium-grained fragments, angular to rough rounded, mica and gypsum, some a little calcareous. A few siltstone fragments (10R4/3) . |
| | 8 $\frac{1}{2}$ " | claystone to siltstone (near 10R5/3), massive with a few greenish grey streaks and blotches (5R7/1) . |
| | 9" | 9" sandstone (near 10R5/2), massive, fine-grained angular to rough rounded, gypsum and mica . |
| | 3 $\frac{1}{2}$ " | 3 $\frac{1}{2}$ " claystone to siltstone (10R5/3), some greenish grey blotches (5R7/1) . |
| | 3" | 3" sandstone (between 10R5/2 and 10R4/2), very fine to fine-grained angular to rough rounded fragments, gypsum and mica . |
| | 1" | 1" claystone to siltstone (10R5/3) . |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| | | 4½" sandstone (10R5/2), very fine to fine-grained angular to rough rounded fragments, gypsum and mica with scattered siltstone fragments . |
| | | 2½" sandstone (10R5/2 to 10R3/1), very fine to medium-grained angular to rough rounded fragments, gypsum and mica . |
| | | 1½" sandstone, very fine to siltstone (10R5/2 to 10R4/3), massive with some mica, a few irregular greenish grey blotches and streaks (5Y7/1) . |
| 8561-S661 | 10" | 10½" siltstone (10R4/3), some mica 2½" siltstone (10R4/3 and 5Y7/1). 1½" sandstone (10R5/2 to 10R4/2), very fine-grained angular to rough rounded, horizontal bedding 5" sandstone (10R5/1 and 10R5/2), calcareous fine to medium-grained with a few coarse-grained fragments 1½" claystone (near 10R4/3), massive 8½" siltstone to very fine-grained sandstone (10R5/2), and some (5Y7/1), as blotches and horizontal bands . 4" sandstone (5Y7/1), fine to very fine-grained angular to rough rounded fragments, gypsum and mica . |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| | | 4 ¹ / ₂ " sandstone (1035/2 to 1037/2), massive, fine to very fine-grained angular to rough rounded fragments, gypsum and mica . |
| 8661-8761 | 10" | 2 ¹ / ₂ " sandstone (1035/2), massive, fine-grained angular to rough rounded, gypsum and mica . |
| | | 2 ¹ / ₂ " silty calcareous sandstone to calcareous sand shale breccia; sandstone (1035/2), fine-grained angular to rough rounded, gypsum and mica, siltstone (1034/3) . |
| | | 1 ¹ / ₂ " sandstone (1035/2 to 1034/2), fine-grained angular to rough rounded, gypsum and mica . |
| | | 5" sandstone (1035/2 to 1034/2), fine-grained angular to rough rounded, gypsum and mica, a little calcareous . |
| | | 7" sand shale breccia; sandstone (1035/2), fine-grained with a few medium-grained fragments, angular to rough rounded, gypsum and mica, siltstone (1034/3) . |
| | | 3 ¹ / ₂ " sandstone (1035/2), fine-grained with a few medium-grained fragments, angular to rough rounded, gypsum and mica . |
| | | 1 ¹ / ₂ " sandstone (between 1035/2 and 1034/2), calcareous, fine-grained angular to rough rounded, gypsum and mica. Dips up to 12°. |

| Section Drilled | Recovery | Geology |
|-----------------|----------|---|
| | | 7" calcareous sand shale breccia; sandstone (1025/2), fine to medium-grained angular to rough rounded fragments, gypsum and mica siltstone (1024/3). |
| | | 9" sandstone (1024/2 light), massive, very fine to fine-grained angular to rough rounded fragments, gypsum and mica. |
| 876'-986' | 9' 5" | 12 1/2" sandstone (between 1025/2 and 1024/2), massive, very fine to fine-grained with some medium-grained fragments, angular to rough rounded, gypsum and mica. The lower half inch of this section is calcareous. |
| | | 11 1/2" sandstone (between 1025/2 and 1024/2), very fine to fine-grained with a few medium-grained fragments, angular to rough rounded, gypsum and mica. Horizontal bedding. |
| | | 2 1/2" sandstone (near 1025/2), very calcareous, very fine to fine-grained angular to rough rounded fragments, gypsum and mica. |
| | | 1" calcareous sand shale breccia; sandstone (1025/2 and 1025/1), fine-grained, claystone to siltstone. |
| | | 6' 7" claystone to siltstone (1024/3), massive with a few horizons indicating horizontal bedding. |

| Section Drilled | Recovery | Lithology |
|--------------------------------------|-----------------------------------|--|
| | | 6 $\frac{1}{2}$ " siltstone to very fine-grained sandstone (10R4/3 and 5Y7/1), very irregular near horizontal bedding, laminated to thin bedded |
| 886 $\frac{1}{2}$ -896 $\frac{1}{2}$ | 10 $\frac{1}{2}$ | 7 $\frac{1}{2}$ " sandstone (2.5YR4/4 and 5Y7/1), very fine- grained with interbedded siltstones (10R4/3 and some 5Y7/1), section is calcareous 3 $\frac{1}{2}$ " claystone to siltstone (10R5/3 to 10R4/3), massive, horizontal fracture, some a little calcareous. |
| 896 $\frac{1}{2}$ -906 $\frac{1}{2}$ | 9 $\frac{1}{2}$ 7 $\frac{1}{2}$ | 2 $\frac{1}{2}$ 3 $\frac{1}{2}$ " sandstone (10R5/2), very fine-grained, siltstone (near 10R4/3), horizontal bedding 7 $\frac{1}{4}$ " claystone to siltstone (10R5/3 to 10R4/3), massive, some a little calcareous. Dip 0° to 3°. |
| 906 $\frac{1}{2}$ -916 $\frac{1}{2}$ | 9 $\frac{1}{2}$ 10 $\frac{1}{2}$ | 4 $\frac{1}{2}$ 7 $\frac{1}{2}$ " siltstone (near 10R4/3), and some fine- grained sandstone (10R5/2), section is rubby with some calcareous horizons 3 $\frac{1}{2}$ " sandstone (5Y7/1), very fine-grained, micaceous 6 $\frac{1}{2}$ " siltstone to very fine-grained sandstone (10R5/2 to 10R4/2), micaceous 4 $\frac{1}{2}$ 6 $\frac{1}{2}$ " sandstone (10R5/2 to 10R4/3), massive and micaceous, fine-grained, a few horizontal streaks (5Y7/1). |
| 916 $\frac{1}{2}$ -926 $\frac{1}{2}$ | 9 $\frac{1}{2}$ 3 $\frac{1}{2}$ " | 9 $\frac{1}{2}$ 3 $\frac{1}{2}$ " sandstone (10R4/2 to 10R4/3 and some 10R5/1), fine-grained angular to rough rounded fragments, gypsum and silica, a few calcareous horizons. |

Section Drilled Recovery

Lithology

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| 926'-936' | 10' | 10' sandstone (near 10R1/3), massive, fine-grained with some medium-grained fragments, gypsum and mica, some horizons a little calcareous. Dip 0° to 8°. |
| 936'-946' | 10' | 2' 9" sandstone (10R6/1 and 10R5/2), fine-grained with some medium-grained fragments, gypsum and mica. 3" calcareous sand shale breccia; sandstone (10R6/1), fine-grained angular to rough rounded fragments with some crystal faces, gypsum and mica, claystone to siltstone (10R5/3). 4' 2" sandstone (10R5/3), massive, fine-grained with some medium-grained fragments, gypsum and mica. A few fragments of claystone to siltstone (10R5/3), 2" calcareous sand shale breccia; sandstone (10R5/2), fine-grained with some medium-grained fragments, angular to rough rounded, gypsum and mica. Claystone to siltstone (10R5/3). 1' 2" sandstone (10R5/2), massive, fine-grained angular to rough rounded fragments with some crystal faces, gypsum and mica 7" calcareous sand shale breccia, sandstone (10R5/2), fine-grained angular to rough rounded fragments, gypsum and mica. Claystone to siltstone (10R5/3). |

Section Drilled Recovery Lithology

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| | | 11" sandstone (1025/2 to 1026/2) fine-grained with some medium-grained fragments, gypsum and mica. Dip 12°. |
| 9461-9561 | 10" | 217" sandstone (near 1026/3), fine-grained with some medium-grained fragments, angular to rough rounded with some crystal faces, gypsum and mica. Some calcareous horizons dips up to 4°. 5" calcareous sand shale breccia; sandstone fine-grained with some medium-grained fragments, angular to rough rounded with some crystal faces, gypsum and mica. Claystone to siltstone (1026/3). |
| | 7" | 7" sandstone (1025/2 dark), fine-grained with some medium-grained fragments, angular to rough rounded, with some crystal faces, gypsum and mica. |
| | 4" | 4" calcareous sand shale breccia; sandstone fine-grained with some medium-grained fragments, angular to rough rounded with some crystal faces, gypsum and mica. Claystone to siltstone (1026/3), |
| | 131" | 131" sandstone (between 1025/1 and 1025/2), massive, fine-grained with some medium- grained fragments, angular to rough rounded with some crystal faces, gypsum and mica, calcareous. |

Section Drilled Recovery

Lithology

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| | | 2" calcareous sand shale breccia; sandstone (1035/2), fine to medium-grained angular to rough rounded faces, gypsum and mica. Claystone to siltstone (1034/2 and 1034/3). |
| | | 3" sandstone (between 1035/2 and 1034/1), fine-grained with some medium-grained fragments, angular to rough rounded with some crystal faces, gypsum and mica, a little calcareous. |
| | | 3" calcareous sand shale breccia; sandstone (1035/2), fine-grained with some medium-grained fragments, angular to rough rounded with a few crystal faces, gypsum and mica. Claystone to siltstone (1034/3). |
| | | 1'11" sandstone (1035/2), very fine to fine-grained, mica and gypsum. |
| | | 1'9" calcareous sand shale breccia; sandstone (1035/2), fine to medium-grained angular to rough rounded with a few crystal faces, gypsum and mica. Claystone to siltstone (1034/3), some streaks and blotches (5Y7/1). |
| | | 8" sandstone (1035/2), massive, fine-grained, angular to rough rounded fragments with a few crystal faces, gypsum and mica. |
| 9561-9661 | 8" | 3'11" sandstone (near 1035/2), very fine to fine-grained with a few medium-grained fragments, angular to rough rounded, gypsum and mica, most of the section is calcareous. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| | | 8" sandstone (10R5/2), calcareous fine-grained with some medium-grained fragments, angular to rough rounded with some crystal faces, gypsum and mica, thin siltstone laminae (10R5/3). Dip 20°. |
| | | 2" siltstone (near 10R4/3), with a few small greenish grey blotches (near 5Y7/1), rubbly material. |
| | | 2" sandstone (5Y7/1), very fine-grained, trending to a very micaceous siltstone, a little calcareous horizontal bedding |
| | | 1 ¹ 3" siltstone (near 2.5YR4/2), massive. |
| 966'-976' | 9'10" | 3 ¹ 8 ¹ 2" claystone to siltstone (between 10R4/3 and 2.5YR4/2), massive, horizontal bedding 1" siltstone (5Y7/1), horizontal bedding 3 ¹ 9 ¹ 2" siltstone (2.5YR4/2), massive, a few horizontal bands up to $\frac{1}{2}$ " thick (5Y7/1), calcareous. |
| | | 9" sandstone (2.5YR4/2), very fine to fine-grained angular to rough rounded with a few crystal faces, gypsum and mica |
| | | 1 ¹ 6" claystone to siltstone (near 10R5/3), massive and rubbly |
| 976'-986' | 9'11" | 1 ¹ 3" siltstone (10R5/2), micaceous 2" siltstone (5Y7/1), micaceous, horizontal bedding 4 ¹ 2" siltstone (10R5/2), micaceous with a small greenish grey blotch (5Y7/1). |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| | | 4'3" sandstone (between 10R5/2 and 10R5/3), very fine to fine grained angular to rough rounded fragments, micaceous, horizontal partings. A few irregular fragments and streaks of siltstone (10R5/3). |
| | | 5'1" sandstone, (between 10R5/2 and 10R4/2), massive, very fine to fine grained angular to rough rounded fragments with some crystal facies, gypsum and mica. |
| 986' - 996' | 9'11" | 3'3" sandstone (between 10R5/2 and 10R4/2), massive, fine grained angular to rough rounded fragments with a few crystal facies, gypsum and mica, very slightly calcareous. |
| | | 6" sandstone (10R5/2), fine grained angular to rough rounded, gypsum and considerable mica thinly bedded with some siltstone (10R5/3), calcareous, Dip 13°. |
| | | 4 $\frac{1}{2}$ " calcareous and shale breccia, (10R5/3), siltstone and minor sandstone, very fine to fine grained, angular to rough rounded fragments. |
| | | 1'4" siltstone (near 10R5/3), massive ½" siltstone, (5Y7/1), dip 0° to 3° |
| | | 3'2" sandstone (between 10R5/2 and 10R4/2), very fine to fine grained angular to rough rounded fragments with some crystal facies gypsum, mica partings at 7°. A few ½" greenish grey streaks (5Y7/1), Dip 0° to 6° |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| | | 9" siltstone (between 1035/2 and 2.5 M 4/2). |
| | | 6" sandstone (1035/2), massive fine grained with some coarse grained fragments, angular to rough rounded with some crystal faces, gypsum and mica. |
| 996' - 1006' | 10" | 1½" sandstone (between 1035/2 and 1034/2) fine grained with some medium grained fragments, angular to rough rounded with faces, some crystal faces, gypsum and mica |
| | | 5" sand shale breccia, sandstone (1035/2 to 1034/2), fine grained with some medium grained fragments, angular to rough faces, rounded with a few crystal faces, gypsum and mica, a few greenish gray streaks (5y7/1). Siltstone (2.5y4/4). |
| | | 1¼" sandstone, (between 1035/2 and 1034/2), massive, very fine to fine grained angular to rough rounded fragments. An occasional fragment and streak of siltstone (2.5y4/4), indicates a dip up to 14° |
| | | 3½" carbonate (1035/2), massive, fine grained with some medium grained fragments, some slightly calcareous horizons. A few streaks or small fragments of siltstone (1035/3). |
| 1006'-1016' | 9'10" | 2¼" sandstone (1035/2 to 1034/2), very fine to fine grained angular to rough rounded fragments with some crystal faces, gypsum and mica, Dip 0° to 18° . |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| | | 2" calcareous sand shale breccia; sandstone (10R5/2 to 10R4/2), very fine to fine grained angular to rough rounded fragments with some crystal facies, gypsum and mica, siltstone, (10R5/3) Dip 11°. |
| | | 3'6" sandstone (near 10R5/2), very fine to fine grained with a few medium grained fragments, angular to rough rounded with a few crystal facies, gypsum and mica. Numerous fragments and thin horizons of siltstone (10R5/3), Dip 12°, some slightly calcareous to calcareous horizons. |
| | | 1'2" sandstone, (between 10R5/2 and 10R4/3), fine grained with some medium grained fragments, angular to rough rounded with a few crystal facies, gypsum, a little calcareous, some horizons quite micaceous |
| | | 2 $\frac{1}{2}$ " sandstone, (10R5/2) fine to medium grained angular to rough rounded fragments, gypsum and mica, calcareous |
| | | 2 $\frac{1}{2}$ " sandstone, (10R5/2 to 10R4/2) fine grained with a few medium grained fragments angular to rough rounded, gypsum and mica |
| | | 1'3" sandstone (10R5/2), fine grained with some medium grained fragments, angular to rough rounded, gypsum and mica, calcareous |
| | | 11" sandstone (between 10R5/2 to 10R4/2), massive fine grained angular to rough rounded with some crystal facies, gypsum and mica. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| | | 1" sandstone (10R5/2), fine grained angular to rough rounded fragments, calcareous and high in mica, with partings, at 15°. Some claystone (10R4/3). |
| 1010' - 1026' | 9'10" | 4" sandstone, (10R5/2), fine grained angular to rough rounded, calcareous and very micaceous with claystone partings (10R4/3), Dip 15°. |
| | | 5'7" sandstone (10R5/1 to 10R5/2), very fine to fine grained, angular to rough rounded, with a few crystal facies, gypsum micaceous partings. Dip 0° to 3°. |
| | | 10½" sandstone, (10R5/2), very fine to fine grained angular to rough rounded fragments, slightly calcareous to calcareous, gypsum and mica, horizontal bedding. |
| | | 1½" sandstone (5Y7/1), very fine to fine grained angular to rough rounded fragments, a little calcareous, gypsum and mica. |
| | | 2'11" claystone to siltstone (10R5/2), and some greenish grey blotches (5Y7/1), massive, a few irregular horizons of very silty limestone. |
| 1026 - 1036 | 10' | 10' claystone to siltstone (10R5/3 to 10R4/3), massive with horizontal fractures, non calcareous to calcareous. Much of the core is rubble. |
| 1036 - 1046' | 9'5" | 6'6½" claystone to siltstone (10R5/3 and 10R4/3), massive with horizontal fractures some horizons are a little calcareous. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| | | About half of the section is rubble. |
| 1046' - 1056' | 9'5" | 2 ¹ / ₂ " siltstone to very fine grained sandstone (near 5Y7/1), quite micaceous with horizontal bedding. |
| | | 2'8" sandstone (10R5/2 to 10R4/1), massive, very fine to fine grained angular to rough rounded fragments, gypsum and mica, some a little calcareous. |
| 1056' - 1066' | 9'11" | 2' sandstone (10R5/2), massive, very fine to fine grained angular to rough rounded fragments, gypsum and mica. 2" claystone to siltstone (10R5/3). 7" sandstone (10R5/2), fine grained angular to rough rounded, slightly calcareous to calcareous, gypsum and mica. 6'8" sandstone (10R5/2), massive, very fine to fine grained angular to rough rounded fragments, gypsum, some bedding planes are quite micaceous, Dip 0° to 8°. |
| | | 2'3" sandstone (10R5/2), massive, very fine grained with some fine grained fragments, angular to rough rounded, gypsum and considerable mica. 3'11" sandstone with siltstone fragments grading into a calcareous sand shale breccia, sandstone (10R5/2), very fine to fine grained, angular to rough rounded fragments with some crystal facies, gypsum and mica, claystone to siltstone 10R5/3. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| | | 2'7" sandstone, (between 10R5/1 and 10R5/2), very fine grained with some medium grained fragments, angular to rough rounded with a few crystal facies, gypsum and mica. |
| | | 1'2" sandstone (10R5/2), fine grained, gypsum, some very micaceous partings, a few calcareous horizons, siltstone (10R5/3 to 10R4/3). |
| 1066'-1076' | 8'1" | 1'3" sandstone (10R5/2), fine grained with a few medium grained fragments, angular to rough rounded, gypsum, pyrite micaceous a few fragments of siltstone (10R4/3). 2" calcareous sand shale breccia; sandstone (10R5/2), fine grained angular to rough rounded fragments, gypsum and mica. Siltstone between (10R5/3 and 10R4/3). |
| | | 6" sandstone (10R5/2), fine grained angular to rough rounded fragments, gypsum, quite micaceous. Dip 0° to 3° |
| | | 1'9" sandstone (10R5/2), fine grained, angular to rough rounded fragments, gypsum, quite micaceous & calcareous with horizontal bedding. |
| | | 4" sandstone (10R5/2), fine grained with an occasional medium grained fragment, angular to rough rounded fragments, gypsum and mica. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| | | 2 ¹ / ₂ " sandstone (10R5/2), fine grained with numerous medium grained fragments, angular to rough rounded with some crystal facies, gypsum and considerable mica, calcareous. |
| | | Numerous siltstone fragments (10R4/2) |
| | | Dip 0° to 9°. |
| | | 6 ¹ / ₂ " calcareous sand shale breccia; sandstone (10R5/2) fine to medium grained angular to rough rounded fragments, with a few crystal facies, gypsum and mica, siltstone (10R4/3). |
| | | 1 ¹ / ₂ " sandstone (10R5/2), fine to medium grained angular to rough rounded fragments with a few crystal facies, gypsum and considerable mica, calcareous; numerous streaks and thin bands of siltstone (10R4/2). |
| | | Dip 12° |
| 1076' - 1086' | 9'11" | 1'3" calcareous sand shale breccia, sandstone (10R5/1 to 10R5/2 with a little 5Y7/1), fine to medium grained angular to rough rounded fragments, gypsum and mica. |
| | | Siltstone (10R4/4). Dip 0° to 3° |
| | | 8'8" crystalline siltstone, (between 10R5/3 and 10R4/3), massive with horizontal fractures. |
| 1086' - 1096' | 9'10" | 6'3" claystone to siltstone (10R4/3), massive with horizontal fractures. |
| | | 3'7" claystone to siltstone to very fine grained sandstone (10R5/3 to 10R4/3), and a few blotches and streaks (5Y7/1), Dip 0° to 3° |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| 1096' - 1106' | 10' | <p>15$\frac{1}{4}$" claystone to siltstone (10R4/3), massive 1$\frac{1}{4}$" sandstone, very fine grained to siltstone (near 5Y7/1), considerable mica, Dip 0° to 3° 2" siltstone (10R4/2).</p> <p>$\frac{1}{2}$" sandstone, very fine grained to siltstone (near 5Y7/1), considerable mica</p> <p>2" sandstone (10R5/1), very fine grained, interbedded and gradational into siltstone (10R5/2). Dip 0° to 3°</p> <p>1" sandstone (5Y7/1), very fine to fine grained angular to rough rounded fragments, gypsum and mica, a little calcareous, horizontal bedding.</p> <p>1'10" claystone to siltstone (between 10R5/2 and 10R4/2), massive with a horizontal fracture.</p> <p>1'4" sandstone (between 10R5/1 and 10R5/2), with a couple of $\frac{1}{2}$ inch horizontal bands (5Y7/1), very fine to fine grained angular to rough rounded fragments, gypsum and mica, a little calcareous .</p> <p>3'2" claystone to siltstone (10R5/3 to 10R4/3), with a couple of horizontal to near horizontal bands (5Y7/1), a few slightly calcareous horizons.</p> |
| 1106' - 1116' | 6'1" | 1'6" sandstone very fine grained to silt- stone (10R5/2), massive, a few small greenish grey streaks (5Y7/1). |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| | | 2" claystone to siltstone (near 10R4/3). |
| | | 4" sandstone (5Y7/1), very fine grained near horizontal micaceous band. |
| | | 5½" sandstone (10R5/2), massive, very fine to fine grained angular to rough rounded fragments, gypsum and mica. |
| | | 1'8¾" sandstone (10R5/2), massive, very fine to fine grained angular to rough rounded fragments, gypsum and mica with a very micaceous horizon. |
| | | 5½" siltstone, (between 10R5/2 and 10R4/2), massive |
| | | ½" sandstone (near 5Y7/1), very fine grained, very micaceous horizons Dip 0° to 3° |
| | | 1'9" sandstone (between 10R5/1 and 10R5/2), massive, fine grained with some medium grained fragments, angular to rough rounded fragments with some crystal facies, gypsum and mica, a few claystone fragments (10R5/2) |
| 1116' - 1126' | 10" | 1' sandstone (10R5/2), massive, fine to medium grained angular to rough rounded fragments with a few crystal facies, gypsum, numerous very micaceous horizons, some horizons are slightly calcareous. |
| | | 5" calcareous sand shale breccia; sandstone (near 10R5/1), fine to medium grained angular to rough rounded fragments with a few crystal facies, gypsum and mica. |
| | | Siltstone, (10R5/3). |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| | | 8'7" sandstone, (10R5/2), massive fine to medium grained angular to rough rounded fragments with a few crystal facies, gypsum and mica. |
| 1126 - 1136 | 10' | 7" sandstone (10R5/2), massive, fine to medium grained angular to rough rounded, fragments with a few crystal facies, gypsum & mica |
| | | 3'8 $\frac{1}{2}$ " calcareous sand shale breccia; sandstone, (10R5/2), fine to medium grained angular to rough rounded with a few crystal facies, gypsum and mica. siltstone (10R5/3), horizontal bedding. |
| | | 4" sandstone (10R5/2), massive, fine grained with a few medium grained fragments, angular to rough rounded fragments, gypsum and mica |
| | | 5'4 $\frac{1}{2}$ " sandstone (between 10R5/2 and 10R4/2), massive fine to medium grained angular to rough rounded fragments with some crystal facies, gypsum and mica |
| 1136' - 1146' | 9'9" | 11" calcareous sand shale breccia; sandstone, (10R5/1 to 10R5/2), fine to medium grained with a few coarse grained fragments, angular to rough rounded, gypsum and mica. Siltstone (10R5/3). |
| | | 2" sandstone (10R5/2), massive, fine grained with a few medium grained fragments angular to rough rounded with a few crystal facies, gypsum and mica. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| | | 4" calcareous sand shale breccia; sandstone (10R5/2), fine grained with some coarser fragments, angular to rough rounded, gypsum and mica; siltstone (10R5/2). |
| | | 7" sandstone (between 10R5/1 and 10R5/2), massive, fine grained angular to rough rounded fragments, gypsum and mica. |
| | | 1'6" calcareous sand shale breccia; sandstone, (10R6/1, 10R5/2), medium grained angular to rough rounded fragments, gypsum and mica; siltstone (10R5/4 and 10R4/4). |
| | | 3'10" claystone to siltstone (10R4/3), massive |
| | | 3" siltstone (5Y7/1), massive with horizontal bedding. |
| | | 4" siltstone (between 10R5/2 and 10R4/2), massive |
| 1146' - 1156' | 10" | 3' ^{1/2} _{1/2} " claystone to siltstone (10R4/3) massive |
| | | 1" sandstone (mottled 5Y7/1 and 10R4/3), very fine grained. |
| | | 2'3 ¹ / ₂ " sandstone (10R5/2 to 10R4/3), very fine grained, gradational to siltstone, micaceous, a few greenish grey blotches and horizons (5Y7/1). |
| | | 4'1 ¹ / ₂ " siltstone (10R4/3), with greenish grey horizons (near 5Y7/1), $\frac{1}{2}$ " to 2" thick. |
| | | $\frac{1}{2}$ " sandstone, very fine grained to siltstone (5Y7/1), micaceous with horizontal bedding. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| | | 6" sandstone (between 10R5/2 and 10R4/2), very fine and fine grained angular to rough rounded fragments, gypsum and mica. |
| 1156 - 1166 | 9'11" | 1 $\frac{1}{2}$ " sandstone fine to very fine grained gradational to a siltstone (10R5/2, 10R4/2 and a few streaks of 5Y7/1), highly cross-bedded with a local unconformity. 7" sandstone (10R5/2 to 10R4/2), very silty, fine grained with a few medium grained fragments, angular to rough rounded with a few crystal facies considerable gypsum and mica. |
| | | 10" sandstone (between 10R5/2 and 10R4/2 with some 10R6/1), fine to medium grained with considerable gypsum and mica, calcareous 2 $\frac{1}{2}$ " sandstone (near 5Y7/1), fine grained angular to rough rounded fragments, considerable gypsum and mica, some silty horizons 1'9" claystone to siltstone (near 10R4/3), massive with horizontal partings. |
| 1166 - 1176 | 9'11" | 1'10" claystone to siltstone, (10R5/2), massive with horizontal fracture or partings. 6" claystone to siltstone, (10R5/2 to 10R5/3), calcareous 7" claystone to siltstone (2.5R4/4) massive 8 $\frac{1}{2}$ " claystone to siltstone (2.5R4/4), massive, calcareous 1" claystone to siltstone (near 5Y7/1). |

| Section Drilled | Recovery | Lithology |
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| | | band varies in width from 1" to 2½", calcareous. |
| | | 1'9½" claystone to siltstone (2.5R4/4), massive, calcareous. |
| | | 10" claystone to siltstone (2.5R4/4), massive. |
| | | 3½" claystone to siltstone (2.5R4/4), with some very silty limestone nodules (10R6/1). |
| | | 1'8½" claystone to siltstone (between 2.5R4/4 and 10R4/4), with a few silty limestone nodules (10R6/1). |
| | | 3½" claystone to siltstone (10R4/4), with a few silty limestone nodules (10R6/1). |
| | | 1'3½" claystone (10R4/4), massive. |
| 1176' - 1186' | 10" | 2½" claystone (10R5/4), massive with a few silty limestone nodules. |
| | | 1'11½" siltstone to very fine grained sandstone (10M4/2), massive with a few silty limestone nodules, mica. |
| | | 3" siltstone to very fine grained sandstone (near 5Y7/1), mica. |
| | | 5'9" claystone to siltstone (10R4/3), massive, horizontal partings. |
| 1186' - 1196' | 9½" | 6" claystone (near 10R5/3), massive with horizontal partings. |
| | | 6" claystone (between 10R5/2 and 10R5/3), calcareous. |
| | | 3'2" claystone (10R5/3), massive with horizontal partings, a few silty limestone nodules. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| | | 10" claystone to siltstone (between 10R5/3 and 10R4/3). |
| | | 2'11" claystone (10R5/3), massive with horizontal partings. |
| | | 6" claystone to siltstone (10R4/4), massive with horizontal partings. |
| | | 1'4" claystone (10R4/4), massive with horizontal partings. |
| 1196' - 1206' | 9'8" | 6" claystone to siltstone (10R4/3), massive with a few silty limestone nodules. |
| | | 3'8" claystone (between 10R5/3 and 10R4/3 and some 5Y7/1 blotches), quite broken to rubbly. |
| 1206' - 1216' | 10" | 5'2" claystone to siltstone (10R5/3 to 10R4/2 and 10R4/3), massive, a few greenish grey blotches and streaks (near 5Y7/1). 10" siltstone to very fine grained sandstone, (10R5/2 to 10R4/2), massive quite micaceous, some greenish grey blotches and streaks (near 5Y7/1), colour banding horizontal to 3° |
| | | 4" sandstone (10R5/2), massive very fine to fine grained angular to rough rounded fragments, gypsum and mica, horizontal bedding. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| 1216' - 1226' | 10' | 10' sandstone (10R5/2 to 10R4/2), massive very fine to fine grained with some medium grained fragments, angular to rough rounded with some crystal facies, mica and considerable gypsum, some horizons a little calcareous. Dip 0° to 3° |
| 1226' - 1236' | 10' | 6' 6" (10R5/2 to 10R4/2), massive, fine grained with some medium grained fragments, angular to rough rounded with a few crystal facies, mica and considerable gypsum, horizontal bedding. 3" sandstone between (10R5/2 and 10R4), fine grained angular to rough rounded with a few crystal facies, gypsum and mica, calcareous, a few siltstone fragments (10R5/2 dark) |
| | | 5" sandstone (between 10R5/2 and 10R4/2), fine grained angular to rough rounded fragments, gypsum and mica . |
| | | 5" calcareous sand shale breccia; sandstone (between 10R5/2 and 10R4/2), fine grained angular to rough rounded fragments gypsum and mica, claystone (10R4/2), and a $\frac{1}{2}''$ (5Y7/1). |
| | | 8" claystone (near 10R4/3), massive, horizontal partings. |
| | | 5" claystone to siltstone (between 10R4/2 and 10R4/3), massive, a little calcareous. |
| | | 1' 4" claystone (near 10R5/3), massive |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| 1236' - 1246' | 10" | 2" claystone (10R4/3) massive. 8" claystone to siltstone (10R4/2 light) $1\frac{1}{2}$ " claystone to siltstone (near 5Y7/1) horizontal bedding 1 $\frac{1}{8}$ " siltstone to very fine grained sand- stone (10R5/2) massive, with very micaceous partings $4\frac{1}{2}$ " siltstone to very fine grained sand- stone (near 10R5/2) calcareous, with a few fragments of siltstone, partings or bedding surfaces very micaceous 7" siltstone to very fine grained sandstone (10R5/2) very micaceous bedding surface, Dip 0° to 3° 4 $\frac{1}{2}$ " sandstone (10R5/2) massive, very fine to fine grained angular to rough rounded with a few crystal facies, gypsum and mica. |
| 1246' - 1256' | 9'11" | 6" sandstone (10R5/2) very fine grained angular to rough rounded fragments, gypsum and mica. The lower $1\frac{1}{2}$ " of this section is calcareous. 7" sandstone (10R5/2) very fine to fine grained angular to rough rounded fragments, gypsum and mica, some of the bedding surfaces are quite micaceous. 1 $\frac{1}{2}$ " sandstone (10R5/2) fine to medium grained angular to rough rounded fragments, mica and gypsum, a little calcareous. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| | | 9 ¹ / ₂ " siltstone to very fine grained sandstone (between 10R5/2 and 10R4/2) massive, micaceous. |
| | | 11" calcareous sand shale breccia; sandstone (10R5/2) very fine to fine grained angular to rough rounded fragments, claystone to siltstone (10R4/3) |
| | | 9" sandstone (10R5/2) with a few 1" near horizontal bands (5Y7/1) very fine to medium grained angular to rough rounded fragments, gypsum and mica. Numerous streaks of claystone or siltstone |
| | | 7 ¹ / ₂ " sandstone (10R5/2) very fine grained to a siltstone, bedding surfaces very micaceous |
| | | 1 ¹ 9" calcareous sand shale breccia, sandstone (10R5/2 to 10R4/2) very fine to medium grained angular to rough rounded fragments; claystone (10R4/3) and some irregular streaks and blotches (near 5Y7/1) |
| | | 2 ¹ 7" sandstone (10R5/2) massive, very fine to fine grained angular to rough rounded fragments with a few crystal foci; slight colour banding indicates dips from 0° to 4° a few slightly calcareous horizons |
| 1256-1266 | 9'11" | 2 ¹ 11" sandstone (10R5/2) very fine to fine grained angular to rough rounded fragments, gypsum and mica; a few streaks or thin beds of siltstone (10R4/1 and 10R4/2) a few slightly calcareous horizons, Dip 0° to 3° |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| | | 9 $\frac{1}{2}$ " calcareous sand shale breccia; sandstone, (10R5/2) very fine to medium grained angular to rough rounded fragments, siltstone (10R4/3) |
| | | 4" sandstone (10R5/2) very fine to fine grained angular to rough rounded fragments, gypsum, very micaceous, horizontal bedding |
| | | 1'6" calcareous sand shale breccia; sandstone (10R6/1 to 10R5/2) fine to medium grained, angular to rough rounded fragments, gypsum and mica, siltstone (10R5/2) |
| | | 8 $\frac{1}{2}$ " sandstone (10R5/2) very fine grained to a siltstone. Dip 0° to 3° |
| | | 1'4" siltstone to very fine grained sandstone (10R5/2) and some mottled areas (5Y7/1) micaceous, slightly calcareous to calcareous. |
| | | 2'4" sandstone (10R5/2) silty very fine to fine grained angular to rough rounded fragments, gypsum, considerable mica, a few calcareous horizons with siltstone fragments (10R5/2), some of the core section is rubble. |
| 1266' - 1276' | 10' | 4'7 $\frac{1}{2}$ " sandstone (between 10R5/2 and 10R4/2) silty, very fine to fine grained angular to rough rounded fragments, gypsum, some of the bedding surfaces are very micaceous, a little calcareous Dip 0° to 14° in cross beds |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| | | 1'8" calcareous sand shale breccia, very fine grained sandstone to siltstone (between 10R5/2 and 10R4/2 with some 5Y7/1 blotches), claystone (10R5/2) |
| 1276' - 1286' | 7'9" | 3'8 $\frac{1}{2}$ " sandstone (between 10R5/2 and 10R4/2) massive, very fine to fine grained angular to rough rounded fragments, horizontal bedding. (10R5/1) |
| 1286' - 1296' | 10' | 2'4 $\frac{1}{2}$ " sandstone (10R5/2 and 10R5/2 to 10R4/1) silty very fine to fine grained angular to rough rounded fragments with some crystal facies, gypsum and mica, slightly calcareous, Dip 0° to 3° 2" claystone to siltstone (10R5/3) micaceous 3 $\frac{1}{2}$ " sandstone (near 10R4/2) silty, very fine to fine grained angular to rough rounded fragments, gypsum and mica 2" sandstone (near 5Y7/1) very fine to fine grained angular to rough rounded fragments, gypsum and mica, calcareous, Dip 8° 4'4" claystone to siltstone (10R4/3) massive, horizontal partings 5'9" claystone (10R4/3) massive, horizontal fracture or parting. 1 $\frac{1}{2}$ " sandstone (near 5Y7/1) very fine to fine grained angular to rough rounded fragments, gypsum and mica, horizontal bedding. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| | | 4 1/2" sandstone (between 1035/2 and 10.4/2) massive, very fine to fine grained angular to rough rounded with a few crystal facies, gypsum and mica |
| 1296' - 1306' | 10' | 10' sandstone (1034/1 to 1034/2) very fine to fine grained fragments with a few medium grained fragments, gypsum, mica. Dip 0° to 60°, the slightly darker streaks are due to higher concentrations of hematite. |
| 1306' - 1316' | 9 1/8" | 1" sandstone (1034/2) fine grained with a few medium grained fragments, angular to rough rounded with numerous crystal facies, gypsum and mica, a little calcareous 5 1/2" calcareous sand shale breccia; sandstone (1035/2) fine to medium grained angular to rough rounded fragments, gypsum and mica; siltstone (1035/4) 7" sandstone (1035/2 dark) fine grained with some medium grained fragments, angular to rough rounded with some crystal facies, gypsum and mica 3 1/2" claystone (1035/3), mud 7 1/4" sandstone (near 1034/2) massive fine grained with some medium grained fragments angular to rough rounded with a few crystal facies, gypsum and mica, some horizons slightly calcareous |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| 1316' - 1326 | 8'8" | 1'7 $\frac{1}{2}$ " sandstone (10R5/2) massive, fine to medium grained angular to rough rounded fragments with some crystal facies, gypsum and mica, a little calcareous |
| | | 1'10 $\frac{1}{2}$ " calcareous sand, shale breccia; sandstone (10R5/2) fine grained with some medium grained fragments, angular to rough rounded; claystone to siltstone (10R5/3 to 10R4/3). A 1" horizontal section (5Y7/1) |
| | | 9" claystone (10R4/3) massive |
| | | 3" calcareous sand shale breccia; mottled (10R4/3 and 5Y7/1), sandstone, very fine to fine grained, angular to rough rounded fragments, gypsum and mica, claystone. |
| | | 2" sandstone (near 5Y7/1) very fine to fine grained angular to rough rounded fragments, gypsum and quite micaceous. |
| | | $\frac{1}{2}$ " siltstone to very fine grained sandstone (10R5/2), horizontal bedding. |
| | | 1" siltstone very fine grained sandstone, (near 5Y7/1) horizontal bedding. |
| | | 15 $\frac{1}{2}$ " sandstone very fine grained to siltstone (between 10R5/2 and 10R4/2) massive, micaceous. |
| | | 1" calcareous sand shale breccia (10R5/3) sandstone, very fine grained siltstone, calcareous. |
| | | 2" siltstone, (near 10R5/3) massive, micaceous. |
| | | 1'4" claystone (10R5/3) massive, with a few very silty limestone nodules. |

| Section Drilled | Recovery | Lithology |
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| 1326' - 1336' | 9'11" | 1'8 $\frac{1}{2}$ " claystone to siltstone (10R4/3) massive 1 $\frac{1}{2}$ " siltstone (near 5Y7/1), horizontal bedding 3" siltstone (10R4/3) massive, horizontal bedding. $\frac{1}{2}$ " siltstone (near 5Y7/1) massive, horizontal bedding. 4" siltstone (10R4/3) massive, horizontal bedding 1" siltstone (near 5Y7/1), Dip 0° to 3° 2 $\frac{1}{2}$ " siltstone to very fine grained sand- stone (near 10R5/2) massive, and quite micaceous with a few horizontal bands of (5Y7/1) some horizons a little calcareous. 1" siltstone to very fine grained sandstone (near 5Y7/1) 1'8 $\frac{1}{2}$ " siltstone to claystone (10R4/3) micaceous with a $\frac{1}{4}$ " inch horizontal streak (5Y7/1) 1" siltstone (near 5Y7/1) horizontal bedding 1 $\frac{1}{2}$ " siltstone (10R5/2) with 3" siltstone (10R5/2) laminae/micaceous partings dip 3° 1'11" siltstone to very fine grained sand- stone, (10R5/3), massive and micaceous with horizontal bedding. 2 $\frac{1}{2}$ " siltstone to mudstone 10R5/3 horizontal bedding 10" sandstone (10R5/2) massive, very fine to fine grained angular to rough rounded |

| Section Drilled | Recovery | Lithology |
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| 1336' - 1346' | 10' | fragments with a few crystal facies, gypsum and mica. |
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| | | 7" sandstone (10R5/2) massive, very fine to fine grained angular to rough rounded fragments with some crystal facies, gypsum and mica, horizontal dip. |
| | | 4" claystone (10R5/3) and a few limestone nodules (5R5/1) |
| | | 3' 1" sandstone (10R5/2) massive, very fine to fine grained angular to rough rounded with some crystal facies, silty with gypsum and quite micaceous. |
| | | 1' 6" sandstone (10R5/2) massive fine grained angular to rough rounded with some crystal facies, calcareous |
| | | 1' sandstone (10R5/2) very fine to fine grained angular to rough rounded fragments with some crystal facies, gypsum and mica, some fragments of siltstone. |
| | | b 9" calcareous sand shale grading; sandstone (10R5/2) fine to medium grained with a few coarse grained fragments, angular to rough rounded; gypsum and mica, siltstone (10R4/3) |
| | | e 6" sandstone (between 10R5/2 and 10R4/2) very fine to fine grained angular to rough rounded fragments with a few crystal facies |

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| | | 9" sandstone (between 10R5/1 and 10R5/2) massive, fine to medium grained angular to rough rounded fragments with some crystal facies, gypsum and considerable mica, calcareous, a few fragments of siltstone (10R5/2) |
| | | 1'6" calcareous sand shale breccia; silt- stone (10R4/3) and some sandstone (between 10R6/1 and 10R5/1) very fine to fine grained angular to rough rounded fragments, gypsum, <u>micaeous</u> <u>quite</u> |
| 1346' 1356' | 9'12" | 1'6" calcareous sand shale breccia; sand- stone (10R5/2) fine grained angular to rough rounded fragments with a few crystal facies, siltstone (10R4/3) |
| | 2" | 2'10½" sandstone (10R5/2) massive, very fine to fine grained angular to rough rounded fragments with some crystal facies, gypsum and mica, some horizons a little calcareous, a few fragments of siltstone (10R5/2) |
| | | 6" claytton to siltstone (10R4/3) mud with a very silty limestone nodules. |
| | 1'2" | 1'2" sandstone (10R5/2) very fine to fine grained with a few medium grained fragments, angular to rough rounded with a few crystal facies, gypsum and mica, slightly calcareous a few fragments of siltstone (10R5/2) |

| Section Drilled | Recovery | Lithology |
|-----------------|---------------------|---|
| | | 2 ¹ / ₂ " sandstone and siltstone (near 5Y7/1) sandstone fine grained to very fine grained, a little calcareous. |
| | | 1" claystone to siltstone breccia (10R5/3) with some fine to very fine grained sandstone and some very silty limestone nodules (10R6/2) |
| | | 2 ¹ /10" siltstone to claystone (between 10R5/3 and 10R4/3). The upper 4" of this section is a little calcareous. |
| 1356' - 1365' | 10" | 1 ¹ /5" claystone (near 10R4/4) massive 8" sandstone (10R5/2) massive with some mottled areas (near 5Y7/1) fine to medium grained angular to rough rounded fragments gypsum numerous shale partings (10R4/3) gradational to a breccia in the lower part of the section. |
| | | 3" claystone to siltstone (10R5/3) massive, a little mica, horizontal partings. |
| | | 4 ¹ /11" sandstone (10R5/2) massive, fine grained with some very fine and coarse grained fragments, silty gypsum, micaceous to very micaceous with partings, some horizons are a little calcareous. |
| 1366' - 1376' | 9 ¹ /10" | 2 ¹ /10" sandstone (10R5/2) massive fine grained angular to rough rounded fragments with some crystal facies, gypsum and mica, some horizons a little calcareous. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| | | 5" calcareous shale breccia (between 10R4/2 and 10R4/3) A little sandstone, fine grained, some greenish grey mottling (near 5Y7/1) |
| | | 5" sandstone (10R5/2 to 10R6/1) massive, very fine grained angular to rough rounded fragments, gypsum and mica. |
| | | 2" sandstone (near 5Y7/1) very fine grained to a siltstone, micaceous, a little calcareous. |
| | | 6" claystone to siltstone (10R4/3) massive, horizontal partings. |
| 1376' - 1386' | 9' 11" | 2" claystone (10R5/3) massive. |
| | | 9" claystone to siltstone (near 10R4/2) massive, a few streaks and irregular bands (near 5Y7/1) |
| | | 1½" siltstone (5Y7/1), horizontal band. |
| | | 6' 1½" siltstone to very fine grained sandstone (10R5/2) massive, horizontal bedding; sandstone is very fine grained with angular to rough rounded fragments, gypsum and mica |
| | | 6" sandstone (10R5/2 gradational to 5Y7/1) massive fine grained angular to rough rounded fragments with some crystal faces, gypsum and considerable mica, horizontal bedding. |
| | | 5" claystone (10R4/3) massive, with a few calcite nodules, horizontal partings. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| 1386' - 1396' | 10" | 10" claystone to siltstone (near 10R4/3) massive, with a few silty limestone nodules (between 10R6/1 and 10R5/2) the section varies from none calcareous to calcareous. |
| 1396' - 1406' | 7'11" | 3'1" claystone to siltstone (10R4/3) massive with a few silty limestone nodules (between 10R6/1 and 10R5/2) 1½" siltstone (near 5Y7/1) horizontal band. 1' claystone to siltstone (near 2.5YR4/2) massive, trace of mica ½" siltstone (near 5Y7/1) horizontal band. 1'8" siltstone (10R4/3) massive, some slightly calcareous 2' claystone, siltstone and gradations, (10R5/3 to 10R4/3) massive, cross bedding with local unconformities, Dip 0°, a few very silty limestone nodules. |
| 1406' - 1416' | 10" | 10" claystone, siltstone and gradations (10R4/3) massive, horizontal bedding, a few silty limestone nodules (10R6/2 to 10R5/2) |
| 1416' - 1426' | 9'8" | 6'3" claystone to siltstone (between 2.5YR 5/4 and 2.5YR 4/4 and 10R4/3) massive with a few silty limestone nodules Dip 0° to 3° 1½" siltstone (near 5Y7/1) considerable mica. 1'7" siltstone (10R4/2, near 5Y7/1 and near 5YR5/2), horizontal bedding. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| | | 7" siltstone (near 10R5/2) massive, none calcareous to slightly calcareous with some silty limestone nodules. |
| | | 9½" claystone to siltstone (10R4/3) massive to rubbly, some calcareous horizons. |
| | | 4" siltstone to very fine grained silty sandstone (between 10R5/3 to 10R4/3) with a few medium grained fragments, angular to rough rounded, gypsum and mica, some horizons a little calcareous. |
| 1426' - 1436' | 7'3" | 1½" sandstone (10R5/2) fine to medium grained angular to rounded fragments, silty, gypsum and mica. 2'5" claystone (10R4/3) 2½" sandstone (10R5/2) fine grained angular to rough rounded fragments, gypsum, very silty and very micaceous. 4" claystone to siltstone (10R4/3) massive. 1'4" sandstone (10R5/2) silty, very fine to fine grained with a few medium grained fragments, angular to rough rounded, gypsum and mica. 1'10" sandstone (10R5/2) massive, fine to medium grained angular to rough rounded fragments with some crystal faces, gypsum and mica, a little calcareous. |

| Section Drilled | Recovery | Lithology |
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| 1436' - 1446' | 10' | 6' 2" sandstone, (between 10R5/2 and 10R4/2) massive, fine to medium grained angular to rough rounded fragments with crystal facies, gypsum, quite micaceous, and some horizons are quite silty. Dip 0° to 3°. The upper 10" of this section is fairly calcareous. 3' 10" sandstone (10R5/2) massive and silty, very fine to fine grained with a few medium grained fragments, angular to rough rounded gypsum, very micaceous with partings, Dip 0° to 3° |
| 1446' - 1456' | 10' | sandstone (between 10R5/1 and 10R5/2) massive, fine to medium grained angular to rough rounded fragments with some crystal facies, gypsum, sand very micaceous. horizon, horizontal bedding, a few streaks and/or occasional fragment of siltstone, some horizons are a little calcareous. |
| 1456' - 1466' | 9' 11" | 7' sandstone (10R6/1 to 10R5/2 and between 10R5/1 and 10R4/2) massive, fine grained angular to rough rounded fragments with a few crystal facies, gypsum and considerable mica. About half of the section is a little calcareous. 1 1/2" claystone (10R4/2) 8" sandstone with a few streaks and fragments of siltstone, sandstone (10R5/2 to 10R/2), fine grained with a few medium |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| | | grained fragments, gypsum and mica, calcareous, siltstone (10R ₄ /2) |
| 1465' - 1476' | 10' | 2' 1 $\frac{1}{2}$ " calcareous sand shale breccia; sand- stone (between 10R6/1, 10R5/1 and 10R5/2) fine to medium grained angular to rough rounded fragments with a few crystal facies, gypsum and mica, siltstone (10R ₄ /3). 9 $\frac{1}{2}$ " 2' 9" sandstone (between 10R6/1, 10R5/1 and 10R ₄ /2) massive, fine grained angular to rough rounded fragments with numerous crystal facies, gypsum and mica, a few fragments of siltstone and a few streaks of claytone. Dip 0° to 3°, about half the section is a little calcareous. |
| 1476' - 1486' | 10' | 4' 5" calcareous sand shale breccia; sandstone (10R6/1 and some 5Y7/1) fine to medium grained angular to rough rounded fragments with a few crystal facies, gypsum and considerable mica, siltstone (10R5/2 to 10R 4/3) 2' 10" sandstone (between 10R5/2 and 10R ₄ /2) massive very fine to finely grained angular to rough rounded fragments with a few crystal facies, gypsum, mica and some silt- stone, ^{and} a little calcareous, /some hematite. 4' sandstone (between 10R6/1, 10R5/1, and 10R5/2) massive, fine grained with a few medium grained fragments, angular to rough rounded with a few crystal facies, gypsum, |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| | | 2 ¹ / ₂ " sandstone (between 10R5/1 and 10R5/2). massive and silty, very fine to fine grained angular to rough rounded fragments, gypsum and mica. The lower 7" of this section is calcareous. |
| | | 10" sandstone (10R5/1 to 10R5/2) massive and silty, very fine to fine grained angular to rough rounded fragments, gypsum and mica. |
| | | 3" sandstone yellow (10R5/2 and near 5Y7/1) massive, fine to very fine grained angular to rough rounded fragments, gypsum and mica. |
| | | 1 ¹ / ₂ " claystone to siltstone (10R5/2 to 10R4/2) massive |
| | | 1 ¹ / ₂ " siltstone to very fine grained sandstone with a few fine grained fragments (5Y7/1 to 10R6/1 dark) |
| | | 2 ¹ / ₂ " sandstone (10R5/2) massive silty, very fine grained, gypsum and mica. |
| 1506' - 1513' | 6' 6" | 3 ¹ / ₂ " sandstone (10R5/2 to 10R4/2), and a few streaks of (5Y7/1) silty, very fine grained angular to rough rounded fragments with some crystal facies, gypsum and mica, some horizons are slightly calcareous, Dip 0° to 3° |
| | | 1 ¹ / ₂ " sandstone, fine grained grading to a siltstone (5Y7/1), angular to rough rounded fragments with a few crystal facies, gypsum and considerable mica. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| | | 1' 8 $\frac{1}{2}$ " claystone to siltstone (10M ₄ /3 to 10M ₄ /2) massive |
| | | 1' 11" siltstone, mottled (10M ₄ /2 to near 5Y ₇ /1) massive, mica, a few thin silty streaks of limestone. |

End of hole

P.E.I.

Geological Log of Crown Point #1 NO 1 DRILL HOLE 1

| | |
|-----------------------------|--|
| <u>Drilling Co.:</u> | Federal Dept. of Public Works - winter works D.D. Hole #4, Prince Edward Island. |
| <u>Location:</u> | Property of Alton S. Kelman, lot 49 Queens Co. (Exact location plotted on Survey Plan.) Lat. $46^{\circ}11'2''$ Crown Point Road 3100 feet South Long. $63^{\circ}01'24''$ 1/2 Miles Alexander Pownal Road, 7 miles South East of Charlottetown. |
| <u>Elevation:</u> | 12.49' (Mean sea level) <u>Total Depth: 611'</u> |
| <u>Result:</u> | Drilled to obtain a stratigraphic section with a proposed depth of from 1500' to 2000'. Hole abandoned at 611' when bit and casing became stuck in the hole. |
| <u>Spoiled:</u> | Feb. 28th/62 <u>Abandoned:</u> March 20th/62 |
| <u>Rig Type:</u> | D.D. 1 1/2" Core |
| <u>Samples examined by:</u> | R.D. Howie — <i>Cav hole bored by 1 1/2" Geologic Driller</i> |

| Section Drilled | Recovery | Lithology |
|--|----------|---|
| Note: The Core was logged wet at the drill site. The Coded Colours after Munsell (1954 edition) were obtained from the dry core. | | |
| 0'-15' | NIL. | Soft red mud. |
| 15'-19' | 2'9" | 2'9" claystone, bright-red (10R5/4) |
| 19'-30' | 9" | 9" claystone to siltstone, red (10R5/4) 4" claystone to siltstone, greenish (5Y7/1) gray-and-bright-red (10R5/4) 7'11" claystone to siltstone, bright red, (near 10R5/4) |
| 30'-50' | 18' | 7'4" claystone, bright-red (10R5/4) 6" claystone to siltstone, mottled green (near 5Y7/1), and red. (10R5/4) 1'7" Sandstone, medium grained, grading to siltstone, red-to-brownish-red— (10R5/2), micaceous. 2'8" Sandstone, fine to medium grained, red-with-a-slight-brownish-cast, (10R5/2) micaceous. 4" clacaceous sand shale breccia, sand is white with a slight reddish cast, bright-red shale fragment (10R5/4). 10" Sandstone, red-with-a-slight-brownish cast (10R5/2), a few darker red bands with a 10° dip, medium grained. 1'7" Sandstone, red-with-a-slight-brownish cast (10R5/2), medium to fine grained, micaceous. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| | | 6" Sandstone, red-with-a-brownish-cast to reddish-brown (near 10R5/2) dip about 22°, medium to fairly coarse grained, some slightly paler claystone fragments. |
| | | 2'1" Sandstone, interbedded reddish brown (10R5/2) and reddish grey bands dipping at about 10° to 15°. The reddish grey colour appears on the cored surface only and is due to the calcareous content of the rock at that horizon. The sandstone is medium grained. |
| | | 7" Sandstone, pale-grey-with-a-slight reddish-cast (10R5/1) calcareous. Dip about 20°. |
| 50'-60' | 8'4" | 7" Sandstone, pale-grey-with-a-slight reddish-cast (10R5/2), medium grained, calcareous. A few bright-red shale fragments. (10R5/1) (10R5/2) 3'9" Sandstone, reddish-brown, fine grained, micaceous, cleavage along mica faces is about 22° or near horizontal to horizontal. 1' Sandstone, reddish-brown (10R5/2) (10R5/1) medium grained, calcareous, some red and mottled red and green shale. This section (10R5/1) of core could be called a calcareous sand shale breccia. 7" Sandstone, reddish-brown (10R5/2) medium grained. 1'3" Sandstone, reddish-brown (10R5/2), (cored surface is white with a pale reddish brown cast) due to the high calcareous content of the core) fine to medium grained, a few pale-greenish grey shale fragments. Dip about 17° 8" Sandstone reddish-brown (10R5/2) medium to fine grained. 6" Calcareous sand shale breccia. (10R5/1) Sandstone light-reddish brown, medium to fine grained, calcareous. Shale bright-red. (10R5/1) |
| 60'-70' | 10' | 8" Sandstone, reddish-brown (10R5/2) fine grained, micaceous. 1½" Sand shale breccia, sandstone, reddish brown, fine grained shale, bright red. (10R5/1) 5'1" Sandstone, reddish-brown (10R5/2) fine grained. 3" shale to siltstone, red-to-reddish brown (10R5/2) 3'4" Sandstone, reddish-brown (10R5/2) fine grained. 6½" Sandstone, reddish-brown, (10R5/2) medium to fine grained with thin red (10R5/4) shale beds and streaks! Dip about 12°. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| 70'-80' | 8'4" | <p>1" Sandstone, reddish-brown (10R5/2) fine grained, a few red shale streaks and fragments. (10R5/4)</p> <p>1'7" Sandstone light-reddish-brown (10R6/1) grading down section to fairly dark reddish grey.</p> <p>3$\frac{1}{2}$" Siltstone reddish-brown (10R5/2) and a little greenish-grey. A slickonsided core face at about 30°.</p> <p>7" Sandstone, brownish-red (10R6/2) and some yellowish brown colour banding about horizontal. Medium to fairly coarse grained. (10R5/2)</p> <p>2" Sandstone, reddish brown to fairly dark-reddish grey (10R6/2). Medium to (10R5/4) fine grained. A few red shale fragments up to $\frac{1}{2}"$ diameter.</p> <p>1'4$\frac{1}{2}$" Sandstone, pale-reddish-grey (10R6/1); light-yellowish-brown (5YR6/3) medium to fine grained, calcareous. A few small (10R5/4) shale fragments red and red with a slight brownish or purplish cast.</p> <p>1'9" Sandstone, reddish-brown to brownish red (10R6/1), yellowish-brown 5YR6/3, red (10R5/3) and greenish to yellowish (5Y7/1) grey. Medium to fine grained.</p> <p>Note: A 1" band of purplish or reddish brown sandstone with black plant remains from between the 76' and 77' horizon. Sample analized did not yield any spores.</p> <p>(new 10R5/2)</p> <p>3" Sandstone, purplish-brown to reddish brown (5YR6/3) medium to fine grained.</p> <p>1" Sandstone, greenish-grey (5Y7/1) medium to fine grained. Green band dips at about 35°. ^{The greenish grey band has a dip}</p> <p>1'2" Shale to claystone, brownish-red (2.5YR5/2)</p> |
| 80'-90' | 7' | <p>4" Siltstone to claystone, brownish red (2.5YR5/2).</p> <p>3" Siltstone, pale-greenish-grey (5Y7/1) Dip at about 23°.</p> <p>7" Claystone, reddish-brown (10R5/3).</p> <p>2$\frac{1}{2}$" Claystone to siltstone, pale-greenish grey (5Y7/1) Dip 10° to 15°.</p> <p>7" Claystone, reddish-brown (10R5/3).</p> <p>2" Claystone to very fine sandstone, pale-greenish-grey (5Y7/1).</p> <p>1" Siltstone, reddish-brown (10R5/3).</p> <p>2" Sandstone, light-greenish-grey (5Y7/1) fine to very fine grained.</p> <p>2'8" Siltstone to fine grained sandstone, reddish-brown (10R5/2). (5Y7/1)</p> <p>10" Sandstone, pale-reddish-grey-to-reddish brown (10R5/2) a few greenish-grey streaks and blotches. Medium to fine grained, calcareous. Dip about 60°.</p> <p>2$\frac{1}{2}$" Claystone to fine grained sandstone, reddish-brown (2.5YR5/2).</p> |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| 90'-100' | 10' | <p>6'8" Sandstone, reddish-brown (10R5/2) fine to medium grained. Micaceous. 1'4" Calcareous sand shale breccia. Sandstone, reddish-brown and pale (near 10R6/1) reddish-grey depending on the lime content, a little greenish-grey. Medium to fine grained. Shale (reddish-brown) (near 10R5/2) 1' sandstone, reddish-brown (10R5/2) medium to fairly coarse grained, micaceous and a little calcareous. A few scattered red shale fragments (near 10R4/3). 1' Sandstone, reddish-brown, (10R5/2) medium grained, micaceous. Numerous reddish-brown shale fragments and beds (near 10R5/2) up to 3/4" thick</p> |
| 100'-110' | 9'3" | <p>1'1" sandstone, reddish-brown (10R6/3) and some reddish-grey interbeds (10R5/2). Medium to fairly coarse grained, micaceous, calcareous horizons. Some reddish brown shale fragments and lenses (near 10R5/2) 2" claystone, red (10R4/3) 3" Sandstone, reddish-brown (10R6/3). Some thin red shale beds and fragments (10R4/3) dip up to 7° 1' Siltstone to claystone, red (10R4/3) 2" Sandstone, greenish-grey, medium to fine grained (5Y7/1) 6'2" Sandstone, reddish-brown (10R5/2) medium grained. 5" Sandstone, pale reddish-brown, (near 10R5/2) medium grained, calcareous cement. 10" Sandstone, reddish-grey (near 10R5/2) (near 10R6/2) medium grained calcareous, streaks and thin beds of reddish-brown shale. Dip about 15°. If the bedding was slightly more disturbed it would be a calcareous sand shale breccia. 4'11" Sandstone, reddish-brown (10R6/2) massive and micaceous with a lighter reddish grey zone (near 10R5/2) that is a little calcareous, fine grained.</p> |
| 110'-120' | 10' | <p>6'1" sandstone, reddish-brown (10R5/2) fine grained, micaceous. 5" Sandstone, light-reddish-brown to reddish grey (between 10R6/2 and 10R5/2) Medium to fine grained, micaceous, a little calcareous. Beds dip from 100- 15° 2'10" Sandstone, reddish-brown, (10R5/2) fine grained. 4" Sandstone light-reddish-brown to reddish-grey (10R6/2), medium to fine grained, calcareous 4" Calcareous sand shale breccia. Sandstone, reddish-grey, fine grained.</p> |

(near 10R6/2)

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| | | (10R6/2) |
| | | Shale, reddish-brown with a $\frac{1}{2}$ " greenish-grey band, dip 8° to 10° (5Y7/1) |
| 120'-130' | 8'5" | <p>1' Sandstone, reddish-brown (10R6/2 and 10R5/2) fine grained. Micaceous.</p> <p>1'1" Calcareous sand shale breccia sandstone, pale-reddish-grey and greenish grey, shale, red. (10R6/2 and 5Y7/1)</p> <p>2' Claystone to siltstone, red (10R4/3) a little slickensides.</p> <p>3" sandstone, mottled reddish-brown and reddish-grey (10R6/2 to 10R5/2) medium to fine grained, calcareous.</p> <p>4" Sandstone, pale-greenish-grey, (5Y7/1) fine grained, very micaceous</p> <p>3' Sandstone, reddish-brown (10R5/2) fine grained, very micaceous. White mica partings up to 15° from the horizontal</p> <p>2" claystone to siltstone, red (10R4/3)</p> <p>2" calcareous sand shale breccia; sandstone, pale-reddish-grey, medium grained. Red-shale fragments (10R4/3).</p> <p>3" Sandstone yellowish-or-greenish-grey (Between 5Y7/2 and 5Y6/2), fine grained. Some greenish-grey shale fragments (5Y7/1)</p> <p>2" Sandstone, pale-reddish-brown (10R6/1) fine grained, micaceous.</p> |
| | | (10R6/2 light.) |
| 130'-140' | 8'2" | <p>2'3" claystone, red (2.5YR4/3)</p> <p>3") light-greenish-grey (5Y7/1), bedding about horizontal.</p> <p>3" Claystone, red (2.5YR4/3) very irregular contact with greenish grey beds (5Y7/1)</p> <p>1'2" Claystone, pale-greenish-grey (5Y7/1) horizontal band.</p> <p>2'2" claystone, red (2.5YR4/3)</p> <p>1'1" claystone light-greenish-grey (5Y7/1)</p> <p>3'2" claystone, red (2.5YR4/3)</p> <p>1'2" claystone to siltstone, light-red (2.5YR4/3), calcareous.</p> <p>4'8" claystone to siltstone and very fine grained sandstone, red-with-a-very slight-brownish-cast (10R5/3 and 10R5/4)</p> |
| 140'-150' | 10' | <p>5'4" claystone to siltstone and very fine grained sandstone, red-to-reddish brown-with-a-slight-yellowish-cast (7.5YR6/4, 2.5YR5/2 and 2.5YR4/2)</p> <p>2' siltstone to very fine grained sandstone, red-and-reddish-grey (7.5YR6/4, 5YR6/3) some greenish-grey (5Y7/1) with an average dip of from 10° to 15°</p> <p>2'8" siltstone to very fine grained sandstone with red-and-yellowish-red + 2.5YR4/3, clay fragments. The core is mottled red,-reddish-grey,-and-greenish-grey, Calcareous.</p> <p>(7.5YR6/4, 5YR6/3 and 5Y7/1)</p> |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| 150'-160' | 10' | (7.5 yr old and near 10R6/2) 1'2" Siltstone, mottled red, pale red with bands of light-green-and-green. (near 5Y1/1) The pale red areas are a little calcareous. (near 7R6/2) (5YR6/3) |
| | | 1'1" Calcareous sand shale breccia. Sandstone, reddish-grey, fine to medium grained, some red shale, very silty (1.5YR6/4). limestone fragments up to $\frac{1}{2}$ " diameter. 8" Sandstone, pale-green-to-green (near 5Y7/1) very fine grained, quite micaceous dips up to 20°. 1'6" calcareous sand, shale, silty (near 10R4/2) limestone breccia. Sandstone, pale-red; fragments and or thin lenses of red (1.5YR6/4), shale. Limestone, pale-reddish-grey, silty, fragments up to 2" in diameter. (NEAR 10R6/2) |
| | | 4" Sandstone, green-to-very-light-greenish grey (near 5Y7/1) fine grained, micaceous. Colour band at about 25°. 1'8" Claystone to siltstone, red-to-reddish-brown with a slight brownish cast (2.5YR4/2). Blotches and streaks of green siltstone to very fine sandstone up to 1" in diameter (dip up to 57° - appears to be pen-contemporaneous bedding). 3'7" Sandstone, red-to-brownish-red (10R5/2) fine grained, white mica, dip about 8°. |
| 160'-169' | 6'2" | 2'1" Sandstone reddish-brown (10R5/2) fine grained, very micaceous - dip about 20°. 3" Sandstone to claystone, reddish-brown (10R5/2) micaceous. 2" Sandstone, pale-red-to-reddish-grey on-the-cored-surface (10R5/2) fine to medium grained, calcareous. 5" Sandstone, reddish-grey-to-grey-on-cored-surface (10R5/2) fine grained, calcareous. Dip about 25°. (NEAR 10R6/2) |
| | | 3" Calcareous sand, limestone breccia. Sandstone, pale-red, fine to medium grained. Silty limestone, buff to pale brownish grey. Fragments up to 1" x $\frac{1}{2}$ ". 1'4" Sandstone, reddish-brown (10R5/2) and and green (near 5Y7/1). A few siltstone to shale bands up to $\frac{1}{2}$ " thick, dark-red, quite micaceous. (near 2.5YR4/3) |
| | | 1'8" claystone, red (2.5YR4/3.) |
| 169'-175' | 4'10" | 1'10" Claystone to siltstone, red (2.5YR4/3 and 2.5YR4/2). Dip 12°. |
| 175'-185' | 10' | 3'2" Claystone to siltstone, red (2.5YR4/3 and 2.5YR4/2). A few green blotches and streaks. Considerable (near 5Y7/1) mica especially in the green claystone to siltstone. Dip 12°. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| | | |
| | | 1'4" Sandstone, reddish-brown (10R6/3). Fine grained. A few small fragments of red shale. Dip up to 30°. |
| (near 2.5 RY/3) | | 3'2" Sandstone reddish-brown (10R5/2). Medium to fairly coarse grained, small shale or claystone fragments in matrix. Micaceous. |
| (10 R5/2) | | 11" Sand shale breccia (10R4/3). (near 2.5 RY/3) Sandstone, reddish-brown, medium to fine grained; shale/red. A few greenish grey reduced blotches on the breccia. (RY/3) 1' Sandstone, reddish-brown (10R5/2) medium to fairly fine grained. Micaceous. 5" fine grained sandstone to claystone, reddish-brown (10R4/3 and 10R5/2) |
| 185-195' | 9" | 1' Sandstone, reddish-brown (10R6/3) fine grained, some white mica. 4½" Sandstone reddish grey on core surface (10R5/2) fine grained, calcareous. Some red shale fragments. Dip about 15°. 2'1½" sandstone, reddish-brown (10R5/2) fairly fine grained, considerable white mica. 1' claystone to siltstone, red (10R4/3 and 10R5/3), slickensides at 32°. 3" Claystone to siltstone, red-and-some reddish-brown. (10R4/3). 5" Sandstone, reddish-brown (10R4/3) medium to fine grained. High in mica. Some red shale as small fragments or as thin lenses. |
| (near 10 RY/3) | | 2' Sandstone to very siliceous limestone; cored surface is pale reddish grey to pale grey. The interior of core is brownish grey (10R5/1 to 10R5/2) 1'10" Sandstone, reddish-brown (10R5/3) fine grained with a few irregular reddish brown sandstone bands, fine grained. Dip about 10°. |
| (near 10 R5/2) | | |
| 195'-205' | 8'7" | 5'2" Sandstone, reddish-brown (10R5/2) fine grained. 6" Sandstone, reddish-brown-and-light reddish-brown (10R5/2), medium to fine grained, colour banding 8° to 10° from horizontal calcareous. 2'11" Sandstone, reddish-brown (10R5/2) medium to fine grained. |
| 205'-215' | 9'11" | 1½" Sandstone, red-with-a-slight-brownish cast (10R5/2) medium grained. 5" Calcareous sand shale breccia (Between 10R5/1 and 10R5/2). White sand, fine to medium grained. A few red shale fragments. |
| | | (near 10 RY/3) |

| Section Drilled | Recovery | Lithology |
|-----------------|-------------------|--|
| | | <p>2'6" Sandstone, red-with-a-slight brownish cast (10R5/2) fine grained, micaceous.</p> <p>7" Sandstone, red-to-reddish-grey (10R5/2), fine grained,</p> <p>1$\frac{1}{2}$" Siltstone red (10R4/3) fine grained.</p> <p>1$\frac{5}{8}$" Sandstone, red-with-a-brownish-cast (10R5/2) fine grained. Dip 5°.</p> <p>1" Sandstone, red-with-a-slight-brownish cast (10R5/2), fine to medium grained.</p> <p>9" Calcareous sand shale breccia, sand almost white on cored surface with a slight reddish cast (10R5/2), fine to medium grained. Some shale red (10R4/3) up to 1" x $\frac{1}{2}$".</p> <p>6" Sandstone, red-with-a-slight-brownish cast (10R5/2) fine grained.</p> <p>4" Sandstone red-with-a-slight-brownish cast (10R5/2) and pale red to white - calcareous on the vertical section of core.</p> <p>2" Sandstone, red-with-a-slight-brownish cast (10R5/2), fine to medium grained.</p> <p>2$\frac{1}{2}$" shale to siltstone, red-to-light-red (2.5YR4/2) with a 1/16" light-green-streak ^(near) (10R4/3)</p> <p>3$\frac{1}{2}$" Sandstone, red-with-a-brownish-cast (10R5/2), medium grained.</p> <p>2" Siltstone to claystone, red (2.5YR4/2) sandstone, red-with-a-slight-brownish cast (10R5/2) medium grained, micaceous.</p> <p>4" Sandstone, pale red and pale grey on cored surface - (10R5/2) medium grained, calcareous, very micaceous with mica partings at 10°.</p> |
| 215'-225' | 10" | <p>8" Sandstone, red-with-a-slight-brownish cast (10R5/3), fine grained.</p> <p>2" Sandstone, light red on cored surface. Colour on fresh surface (10R5/3) fine grained, calcareous.</p> <p>8$\frac{1}{2}$" Sandstone, red-with-a-slight-brownish cast (10R5/2 and 10R5/3) fine grained and very micaceous. Mica partings at 12°.</p> <p>1/8" shale, red (10R4/3), horizontal bedding.</p> <p>8$\frac{7}{8}$" Sandstone, with-a-slight-brownish cast (10R5/2) fine grained. A few streaks and small fragments of red shale ^(10R4/3)</p> |
| 225'-235' | 9 $\frac{1}{2}$ " | <p>1$\frac{1}{2}$" Sandstone, red-with-a-slight-brownish cast (5YR5/3), fine grained.</p> <p>2$\frac{1}{2}$" Calcareous sandstone with thin shale streaks and fragments.</p> <p>Sandstone, fairly-dark-reddish-grey (5YR5/2), medium to fine grained, a little micaceous. A few red shale fragments. Dip about 12°.</p> <p>(10R4/3)</p> |

| Section Drilled | Recovery | Lithology |
|-----------------|-------------------|---|
| | | <p>5$\frac{1}{2}$" Sandstone, red with a slight brownish cast (5YR5/3), fine grained, micaceous. (10R4/3 and 5YR5/3)</p> <p>1" claystone, mottled red and green</p> <p>3" Sandstone, red with a slight brownish cast (10R5/2) medium grained.</p> <p>2" claystone, fairly light red (10R4/3) with a 1/16" green streak dipping at 10°, ^{green} (5YR5/3)</p> <p>3$\frac{1}{8}$" Sandstone, red with a slight brownish cast (10R5/2) fine grained, a few thin red shale beds or streaks 1/8" to 1" thick, (10R4/3)</p> <p>2$\frac{1}{2}$" Sandstone, light reddish-grey, (10R5/1 to 10R5/2) fine grained, calcareous.</p> <p>8" Sandstone, red with a slight brownish cast (5YR5/3) fine grained.</p> <p>1" Sandstone, fairly light brownish red or reddish-grey (5YR5/3), fine grained, calcareous.</p> <p>4$\frac{1}{2}$" Sandstone, red with a slight brownish cast (5YR5/3) fine grained.</p> <p>9$\frac{1}{2}$" Sandstone, red with a slight brownish cast (5YR5/2) pale reddish grey on cored surface, fine to medium grained, micaceous and calcareous.</p> <p>8" Sandstone, red with a slight brownish cast (5YR5/2), fine grained.</p> <p>3" Calcareous sand shale breccia</p> <p>1$\frac{1}{3}$" sandstone, reddish-brown, (near 5YR5/2) medium to fine grained, dip 5°.</p> |
| 235'-245' | 10" | <p>3$\frac{1}{4}$" Sandstone, reddish-brown, grading to red with a slight brownish cast (10YR5/3 to 10R5/2) fine grained.</p> <p>1$\frac{3}{2}$" Sandstone, red with a slight brownish cast, (10R5/2), fine grained</p> <p>3" Sandstone, reddish-grey, (10R5/2) fine grained, calcareous.</p> <p>5$\frac{1}{2}$" Sandstone, red with a slight brownish cast (10R5/2) fine grained, micaceous.</p> |
| 245'-255' | 8 $\frac{1}{7}$ " | <p>1$\frac{8}{7}$" Sandstone, red with a slight brownish cast (10R5/2), fine to medium grained micaceous. Dip about 12°.</p> <p>7" Sandstone, red to reddish-grey with a slight brownish cast (Between 10R6/2 and 10R5/2). Fine grained with some medium grained fragments, calcareous.</p> <p>4$\frac{1}{2}$" sandstone shale breccia, sandstone, reddish-grey - fine to medium grained, shale rock (10R5/3)</p> <p>2$\frac{1}{1}$" Sandstone, red with a slight brownish cast (10R5/2) fine to medium grained. Dip 12°.</p> <p>4$\frac{1}{2}$" calcareous sand with shale breccia.</p> |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| | | Sandstone, reddish-grey (10R5/2) fine to medium grained. Shale red-(2.5YR4/2) 2'5" Calcareous sandstone shale breccia sandstone, pale-reddish-grey (10R5/1 to 10R5/2), fine grained, shale, red. (2.5YR5/2) 1'1" Sandstone, red-with-a-slight brownish-cast (10R5/2), fine to medium grained. |
| 255'-265' | 10" | 2 $\frac{1}{2}$ " Sandstone, red-with-a-slight brownish-cast (10R5/2) fine to medium grained. 2" shale, red-(2.5YR4/2) 4" Sandstone, red-with-a-slight-brownish cast (10R6/2) fine grained <i>a little friable</i> 1" shale red and sandstone red-with-a slight-brownish-cast (10R6/2), fine grained. (A shale breccia) 8'10" Sandstone, red-with-a-slight brownish-cast (10R6/2) fine graind, micaceous. Dip 8°. 5" Sandstone, reddish-grey. (Between 10R5/1 and 10R5/2) fine grained calcareous. 1" Sandstone, red-with-a-slight-brownish cast (10R6/2) fine grained. |
| 265-275 | 7'6" | 7'6" sandstone, red-with-a-slight-brownish cast (10R6/2) fine grained. Dip about 8°. |
| 275'-284' | 7'9" | 2'2 $\frac{1}{2}$ " Sandstone, red-with-a-slight brownish-cast (10R6/2) fine grained. A few small red shale fragments. (10R4/3). 2" Sandstone, reddish-grey (10R6/2) fine grained, some slightly calcareous dip 9°. 4" Sandstone, red-with-a-slight-brownish cast-(10R6/2) fine grained. 2'1 $\frac{1}{2}$ " Sand shale breccia. Sandstone reddish-grey-to-pale-red (10R4/3) fine grained. Shale red-(10R4/3). The breccia is high in shale. 1" Sandstone, greenish-grey (near 5Y7/1) fine grained, considerable mica. 1'4" sandstone, with small shale fragments, red-with-a-slight-brownish-cast, (near 10R5/2) sandstone is fine grained but the small fragments of shale in the sandstone give the rock a medium to fairly coarse grained texture. 2" sandstone, red-with-a-brownish cast-and-reddish-grey. (10R5/2). Fine to medium grained. A few fragnents of red shale (10R4/3) 4" Sandstone, red-to-reddish-grey (5YR5/2) fine to medium grained. A little calcareous. Dip 6°. 4" Calcareous sand shale breccia, sandstone, red-to-pale-reddish-grey (near 10R5/2) medium grained. Shale rock (10R5/2). The breccia has a few green spots- 8" claystone, red (10R5/4) (near 5Y7/1) |

Drilled

| Section Cored | Recovery | Lithology |
|---------------|----------|---|
| 284'-294' | 9'6" | 3" Claystone, red (10R5/4) 2" Claystone, greenish-grey (5Y7/1) 3'6" claystone, red (10R5/4) 1" Claystone, greenish-grey (5Y7/1) band is very irregular - varying from 1" to $\frac{1}{2}$ ". 2'6" Claystone to siltstone, red-with a slight brownish-cast (10R5/3) 9" Siltstone to medium grained sandstone, red-with-a-slight-brownish-cast (10R5/2) 2". Sandstone, core is pale grey with a slight reddish cast. Fresh surface is red with a slight brownish cast (10R5/2) fine grained, very calcareous. A few irregular blotches of very silty lime- stone, grey-with-a-slight-reddish-cast. 2" sandstone, red with a slight brownish cast (10R5/2) fine grained, micaceous. 10" Sandstone, pale-reddish-grey-to grey-with-a-slight-brownish-cast (10R5/1) to 10R5/2), medium grained. A few irregular fractures filled with calcite or limestone. 1'1" sandstone, red-to-reddish-brown. (10R5/2) medium grained. |
| (near 10R5/1) | | |
| 294'-302' | 6'11" | 6'3" sandstone reddish-brown (10R5/2) medium grained. An occasional small red shale fragment (10R5/1) 3" Sandstone, reddish-grey-on-cored surface, red-to-reddish-brown-of-fresh surface... (10R5/2) fine grained, calcareous, micaceous. Dip 13°. 1" Sandstone, reddish-brown, (10R5/2) fine grained. 4" Sandstone, reddish-brown (10R5/2), medium to fine grained, calcareous. Dip 12°. |
| 302'-312' | 9" | 3'7" Sandstone, reddish-brown (10R5/2) fine grained, micaceous. 1'3" Sandstone, reddish-brown, (10R5/2) fine grained with interbeds of red-shale (10R5/3) to claystone. A few greenish grey sandstone streaks cf/to $\frac{1}{2}$ " thick, fine grained. Dip about 11°. 5" claystone, red-(10R4/3), with a few bands of sandstone, reddish-brown (10R5/2), fine grained. 3'9" sandstone, reddish-brown (10R5/2) fine grained, white mica. |
| 312'-322' | 10" | 5" Sandstone, reddish-brown (10R5/2) medium to fine grained. 3" Sandstone, reddish-grey (10R5/2) medium to fine grained, calcareous. A few red shale fragments (10R5/2) 11" Sandstone, reddish-brown, (10R5/2) medium to fine grained. Occasional small red shale fragments (10R5/2). |

Drilled

| Section Cored | Recovery | Lithology |
|---------------|------------|--|
| | | 1'7" Calcareous sand shale breccia. Sandstone, light reddish-brown to pale grey with a slight reddish cast on cored surface. Fresh surface light reddish-brown (10R5/1) a little calcareous. Some shale fragments, light red to red, (10R4/3). The lighter-colored red fragments tend to be a little calcareous. |
| | | 4'10" Sandstone, reddish-brown (10R5/2) with some light reddish grey horizons <i>calcareous</i> that are calcareous. Medium grained. |
| | | 1'8 $\frac{1}{2}$ " Calcareous sand shale breccia. Sandstone, reddish-brown (10R5/2) on cored surface colour bands from reddish brown to pale red and grey with a slight reddish cast depending on the calcareous material in the core. Medium grained. Shale pale-red (10R5/3) and red fragments and irregular bands. |
| | | 3 $\frac{1}{2}$ " Interbedded very fine grained sandstone to siltstone, pale-red-and-reddish brown, (10R4/3), with a few greenish grey blotches (5Y7/1 dark). |
| 322'-331' | 8'8" | 4'5" Sandstone, reddish-brown and red (10R6/3), fine grained, thinly interbedded with red siltstone. A few pale-greenish grey blotches. Dip about 10°. The slightly pale beds are calcareous. |
| | (2.5YR4/3) | 1'1" Siltstone to claystone, red (2.5YR4/3) with red and green (5Y7/1) calcareous blotches. |
| | (5Y7/1) | (2.5YR4/3) 8 $\frac{1}{2}$ " Sandstone, pale-greenish grey (5Y7/1) and a little reddish grey, fine grained. Red shale interbeds, dip about 18°, calcareous. |
| | (2.5YR4/3) | 2" Claystone, red (2.5YR4/3). |
| | | 2 $\frac{1}{2}$ " Sandstone, pale-reddish grey, (2.5YR4/2) fine to medium grained. |
| | | 2'1" Sandstone to siltstone, red (2.5YR4/3). |
| 331'-341' | 8'4" | 6'1" Claystone, fairly dark red (2.5YR5/3) |
| | | 10" Claystone to siltstone, fairly dark red (10R4/3). |
| | | 7" Siltstone to very fine grained sandstone, fairly-dark-red-with-a-slight-brownish cast (near 10R5/3) and green motteling (near 5Y7/1 dark). |
| | | 10" Siltstone, fairly-dark-red-with-a-slight brownish cast (2.5YR4/2) a few mica flakes. |
| 341'-352' | 10'3" | 5'7" Siltstone to very fine grained sandstone fairly-dark-red-with-a-slight brownish cast (10R5/3), quite micaceous, some slightly calcareous. |

Drilled.

| Section Cored | Recovery | Lithology |
|---------------|---------------|---|
| | | 2" Siltstone, pale reddish grey on cored surface. Fresh surface (10R5/2) quite calcareous, quite micaceous - cleavage face 20° dip. |
| | | 4'6" Siltstone to fine grained sandstone, fairly dark red-with-a-slight brownish cast (10R5/3), quite micaceous. |
| 352'-362' | 9'9" | 6'10" Siltstone to fine grained sandstone, fairly-dark-red-with-a-slight-brownish cast (10R5/2) very micaceous with dips from 0° to 10°. 1'2" Siltstone to very fine grained sandstone, fairly-dark-red-with-a-slight-brownish-cast (10R5/2), very micaceous, some calcareous pale reddish streaks and blotches. 2 $\frac{1}{2}$ " Sandstone, pale-reddish-grey-on cored-surface-fresh-surface (10R5/2) fine grained, calcareous. |
| | | 1'6 $\frac{1}{2}$ " Sandstone, fairly-dark-red-with-a-slight-brownish-cast (10R5/3) very fine to fine grained, quite micaceous. |
| 362'-372' | 10' | 8" Sandstone, fairly-dark-red-with-a-slight-brownish-cast (10R5/2) fine to very fine grained, very micaceous parting with dips 0°-2°. 1" Sandstone, pale-reddish-grey-on cored-surface-fresh-surface (10R5/2) fine grained, micaceous, calcareous. 9'3" Sandstone, red-with-a-brownish cast to reddish-brown (10R5/2-10R5/3) gradation in colour due to mica. Fine grained. Slight colour banding indicates a dip of about 10°. |
| 372'-382' | 10' | 1'1" Sandstone, red-with-a-brownish-cast to reddish-brown (10R6/2) very fine to fine grained, very micaceous. 6'9" Sandstone, fairly-dark-reddish-brown-to-fairly-dark-reddish-grey (10R6/2) some dark reddish-grey bands of sandstone up to 1/16" thick, high in mica, and black specks which could be mica or plant remains that has been replaced by hematite. Dip 15°. 7" Calcareous sand shale breccia, sandstone, reddish-grey, (10R6/2 and 10R5/2) fine grained. Shale-pale-red-to-red. (10R6/2-10R5/3) 8" Calcareous sand shale breccia, sandstone, fairly-light-reddish-grey (10R6/2) fine grained. Shale, red (10R5/3) 11" Sandstone, grey-with-a-reddish-cast (10R6/1) very fine to fine grained, quite micaceous, lightly calcareous, bedding horizontal. |
| | (10R6/2 Dark) | |

Drilled

| Section Cored | Recovery | Lithology |
|---------------|----------|---|
| 382'-392' | 9'7" | 10" Sandstone, fairly dark reddish-grey, (10R6/1) very fine grained, micaceous 7" siltstone to claystone, fairly dark red with a brownish-cast (near 2.5YR5/2) 2 $\frac{1}{2}$ " limestone, mottled reddish-grey (Between 10R5/2 and 10R4/2) and greenish grey (5Y7/1), silty. 5" claystone, pale-greenish-grey (near 5Y7/1) and light-red (2.5YR5/2), very calcareous. 2 $\frac{1}{2}$ " Claystone, red (between 10R5/3 and 10R4/3). 1 $\frac{1}{2}$ " Claystone, mottled red (near 10R5/3) and green (5Y7/1). 6" Claystone, red (10R4/3). $\frac{1}{2}$ " Silty limestone to very calcareous siltstone, pale-reddish-grey on-cored surface, on fresh surface (near 10R4/3) |
| 392'-402' | 9'7" | 3 $\frac{1}{2}$ " Claystone, red-with-some-light red-calcareous-horizons (10R5/3 to 10R4/3). Some calcareous horizons. |
| 402'-413' | 10' | 6'1" claystone red, (10R5/3 to 10R4/4). A few thin pale red streaks and blotches of silty limestone. 1 $\frac{1}{2}$ " claystone, green (5Y7/1). 1" claystone red (10R5/3). 2 3/4" Claystone, mottled green (5Y7/1) and red (10R5/3). 3 $\frac{1}{2}$ " claystone, red (10R5/4) a few pale red silty limestone fragments and streaks. Colour banding near horizontal. |
| 413'-424' | 10' | 2" claystone, red (10R5/4). 7" Claystone, dark grey and grey, mottled, calcareous. 2 $\frac{1}{2}$ " Claystone, red (10R4/3). 2" Claystone to very silty limestone, mottled red (10R4/3) to pale grey and greenish grey (5Y7/1). 4'10 $\frac{1}{2}$ " Claystone, red (10R5/3) with slight colour banding near horizontal. |
| 424'-434' | 10' | 1'6" Claystone, red (10R5/3) 3" Claystone, greenish-grey (5Y7/1) 2 $\frac{1}{2}$ " Claystone, red-(10R5/3) 4" Claystone, red-to-light reddish grey (2.5YR5/2), Calcareous. 3 $\frac{1}{2}$ " Claystone, red-to-fairly-dark red-(2.5YR4/3). Bedding near horizontal 1'5" Claystone with interbedding of red (10R5/2) to fairly dark-red (near 10R5/3) and greenish-grey (5Y7/1). |

drilled.

| Section-Cored | Recovery | Lithology |
|---------------|----------|---|
| | | <i>434'-444'</i> |
| 434'-444' | 9'5" | A few greenish grey bands are slightly calcareous. Bedding near horizontal to horizontal. 6" Claystone, red (10R5/4). |
| | | 9" Claystone, red (10R5/4) with a few green blotches (5Y7/1). 2" Claystone, greenish grey (5Y7/1) slight colourbanding near horizontal. 1'9" Claystone, red (10R5/3) 2 $\frac{1}{2}$ " Claystone to siltstone, light grey with a slight greenish cast, (5Y7/1) micaceous. 8 $\frac{1}{2}$ " Siltstone to very fine grained sandstone, light-reddish-grey on Cored surface-fresh-surface (near 10R5/3), calcareous. 1 $\frac{1}{2}$ " Claystone to siltstone, red (10R5/4) to fairly light reddish grey with horizontal green streaks (5Y7/1) up to $\frac{1}{2}$ " thick, some of the lighter reddish grey horizons are calcareous. 1" claystone, red (10R4/3) 1" siltstone greenish-grey (near 5Y7/1) slightly calcareous. 1'1" siltstone to very fine grained sandstone red (10R5/3) to fairly-light reddish grey on cored surface, calcareous. 1" Siltstone to very silty limestone, pale-greenish-grey (near 5Y7/1) 2'6" Claystone, red (near 10R5/3) with a few greenish-grey streaks. (5Y7/1), (10R5/3) |
| 444'-452' | 7'6" | 1'10" siltstone, red and fairly light reddish grey (10R5/3). The light reddish grey is calcareous with near horizontal bedding. Some slump structure. 4 $\frac{1}{2}$ " Calcareous siltstone to very silty limestone light-to-pale-reddish grey (near 10R5/3). A few greenish grey blotches (5Y7/1). Highly cross bedded. 5'3 $\frac{1}{2}$ " Claystone to siltstone, red (10R5/4) to fairly-light-reddish-grey. Some pale-greenish-grey beds (5Y7/1) and and 1/8" to $\frac{1}{2}$ " thick. Horizontal bedding, slightly calcareous. |
| 452'-459' | 6'4" | 8" Claystone, red (10R5/4) Calcareous. 5'6" Siltstone red to fairly-dark red (2.5R5/2) or purplish-grey, with interbeds and streaks of greenish-grey claystone (near 5Y7/1). Dip of color bands 15° to 20°. |

NOTE: Box containing core from 460' to 485' was tipped and placed back in approximate sequence.

Drilled

| Section Cored | Recovery | Lithology |
|---------------|----------|---|
| 459'-470' | 10' | <p>8" claystone, light-purple-cr.-brownish red (2.5YR5/2)</p> <p>1'6" Siltstone to very fine grained sandstone, fairly-dark-red (near 10R4/3) some surfaces quite micaceous. Cross bedding 0° to 80°.</p> <p>10" Sandstone to siltstone, fairly-dark-red (10R5/2) fine grained. Considerable mica on cleavage surfaces. Bedding appears to be horizontal.</p> <p>6" Calcareous sand shale breccia. Sandstone, white-to-pale-red on cored surface. Fresh surface (10R5/2). A few small greenish-grey streaks and blotches (5Y7/1). A few red shale fragments (10R5/3).</p> <p>11" Sandstone, fairly-light red on cored surface fresh surface (10R5/2) fine grained, some horizons are very calcareous. An occasional red shale fragment (10R5/3).</p> <p>10½" Calcareous sand shale breccia, sandstone, white-to-pale-red on cored surface, fresh surface reddish-brown (10R5/2) and some pale-greenish grey (5Y7/1) fine grained. A few red shale fragments and thin beds (2.5YR4/3 and 10R5/3).</p> <p>1'2" Siltstone to claystone, fairly dark reddish brown (10R4/3). Micaceous partings, some horizons are a little calcareous.</p> <p>3" Siltstone, light-greenish-grey. (5Y7/1)</p> <p>2'1½" Siltstone to very fine grained sandstone, fairly-dark-red (10R4/3), micaceous. Bedding 0° to 80°.</p> <p>1" Siltstone to very fine grained sandstone, pale-red-to-grey with a slight-reddish-cast-on-cored-surface. Fresh surface fairly-dark-red (10R4/3), micaceous.</p> <p>1'1" Very fine grained sandstone to siltstone, fairly-dark-red (10R4/3).</p> |
| 470'-480' | 10' | <p>8'4" Fine grained sandstone to siltstone, fairly-dark-red (10R5/4 and 10R4/3). Some lighter reddish-bands on cored-surface are a little calcareous. Micaceous partings.</p> <p>1'8" Claystone fairly-dark-red (10R5/3) with some green blotches and streaks (5Y7/1).</p> |
| 480'-490' | 9'9" | <p>1'6" Claystone to siltstone, fairly-dark-red (between 10R5/2 and 10R4/2) with some greenish-grey blotches (near 5Y7/1) and beds from 1/16" to 1½" thick. Bedding near horizontal.</p> |

Drilled.

| Section Cored | Recovery | Lithology |
|---------------|----------|---|
| | | 3'1" Siltstone, fairly-dark-red (between 10R5/3 and 10R4/4) fine grained. 5'2" Siltstone, red (between 10R5/3 and 10R4/4) with a few light reddish grey calcareous bands. |
| 490'-500' | 9'8" | 3'9" Claystone red (between 10R5/3 and 10R4/4). 2 $\frac{1}{2}$ " Claystone to siltstone greenish-grey (near 5Y7/1 dark). (5Y7/1) 1 $\frac{1}{2}$ " Claystone to siltstone, mottled green and fairly-dark-red (2.5YR4/2). 1'5" Siltstone, fairly-dark-red (near 10R5/2) with a slight greenish-cast, a few thin green streaks 1/16" thick, (5Y7/1) Color banding or bedding near horizontal. 4'2" Sandstone, fairly-dark-red-with a brownish-cast (10R5/2), very fine to fine grained, very micaceous partings. A few dark-red shale fragments. (2.5YR4/2) |
| 500'-510' | 8'11" | 3" Sandstone, fairly-light-reddish-grey on cored surface reddish-brown on fresh surface (10R5/2), fine grained. 3'4" Sandstone, reddish-brown (10R5/2) very fine to fine grained. 9" Sandstone, light reddish grey on cored surface and reddish brown on fresh surface. (10R5/2), fine grained, calcareous. Some red shale fragments (10R5/3). 1'7" Sandstone, reddish-brown (10R5/2) fine grained, very micaceous. 11" Sand shale breccia. Sandstone, reddish-brown-to-pale-reddish-grey on cored surface and reddish-brown on fresh surface (10R5/2) fine grained, a little calcareous. Some red shale fragments (10R4/3). 4 $\frac{1}{2}$ " Sandstone, light-green (5Y7/1), fine to medium grained, slightly calcareous, very micaceous. 1'8 $\frac{1}{2}$ " Claystone, red (10R4/3). |
| 510'-520' | 9'4" | 1'5 $\frac{1}{2}$ " Claystone red (from 10R5/3 to 10R5/2 and 10R4/3). 2" Claystone, green (near 5Y7/1 dark) 2" Siltstone to fine grained sandstone fairly-dark-red-with-a-brownish-cast, (near 2.5YR4/2) quite micaceous. 5'10" Sandstone, reddish-brown (between 10R6/2 and 10R5/2) fine to medium grained. |
| 520'-530' | 8'9" | 1'3" Sandstone, reddish-brown, (between 10R6/2 and 10R5/2) medium grained. 1" Claystone to siltstone, reddish-brown (10R4/3) to dark-red, high-in-hematite or-manganese. (2.5YR4/2) |

| Section Cored* | Recovery | Lithology |
|----------------|----------|---|
| | | 2'11" Sandstone, reddish-brown, light to fairly dark (10R5/2). Fine to medium grained. A 3" horizon near the base of the section contains some red shale fragments (2.5YR4/3 and 10R5/3) |
| | | 2'7" Sandstone, reddish-brown (10R5/2), fine grained, micaceous. |
| | | 6 $\frac{1}{2}$ " Sandstone pale-reddish-grey-on-cored surface, darker reddish-grey on fresh surface (near 5YR5/2) fine grained, calcareous, very micaceous. |
| | | 4" Sandstone, reddish-brown (10R5/2) fine grained. |
| | | 1" Sandstone, pale-reddish-grey-on cored surface, darker on fresh surface (10R5/2) fine grained, calcareous, a little micaceous. |
| | | 11 $\frac{1}{2}$ " Sandstone reddish-brown (near 10R5/2) fine grained. |
| 530'-540' | 9'9" | 1'4 $\frac{1}{2}$ " Sandstone, reddish-brown (10R5/2) fine grained. |
| | | 3" Sandstone, pale-reddish-grey-on cored surface and darker grey on fresh surface (near 10R5/2), grey calcareous streaks, fine to medium grained. |
| | | 1'7" Sandstone reddish-brown (near 10R5/2) very fine to fine grained, bedding near horizontal. |
| | | 2'9 $\frac{1}{2}$ " Sandstone, mainly pale-reddish grey (near 7.5YR5/4) with some gradations to reddish-brown (between 10R5/2 and 10R5/1), fine grained, calcareous. |
| | | 1'5" Sandstone, reddish-brown, (between 10R6/2 and 10R5/2) fine grained quite micaceous. |
| | (sy/1) | 2" Sandstone, reddish-brown (10R5/2) with some green motteling, fine grained. A few red shale fragments (10R5/3). |
| | (sy/1) | 2" Claystone, fairly-dark-red (10R5/3 to 10R4/3) and sandstone, fairly-dark-red (10R5/2) with a few green streaks, fine grained. |
| | (sy/1) | 2" Sandstone, reddish-brown (10R5/2) with some lightly lighter colour banding a few degrees from the horizontal, fine grained. A few fragments of red shale. |
| 540'-550' | 10' | 5'1" Sandstone, reddish-brown (10R5/2) fine grained with very micaceous partings. |
| | | 4 $\frac{1}{2}$ " Claystone, reddish-brown (10R5/3) |
| | | 1'3" Sandstone, reddish-brown (10R5/2 trending to 10R4/2), fine grained. |
| | | 1'6" Sandstone, light-reddish-grey-on cored surface, darker on fresh surface, (near 2.5YR5/2) fine grained with some medium grained fragments, slightly calcareous. A few red shale fragments (10R5/2 to 10R4/3). |

Drilled

| Section Cored | Recovery | Lithology |
|---------------|----------|--|
| | | 7" Sandstone reddish-grey (10R6/1 to 10R6/2). A few horizontal green streaks (near 5Y7/1) fine grained micaceous. 11" Sandstone, light-reddish-grey-with reddish-grey-bands-on-cored surface; a little darker on fresh surface. (10R6/1) fine grained, calcareous. A few thin mud shale streaks and fragments (near 2.5YR4/2). 3½" Sandstone, reddish-brown, (10R5/2 to 10R4/3) fine grained. |
| 550'-560' | 9'3" | 2'7" Sandstone, pale-reddish-brown (10R5/2 and 10R4/3), fine to medium grained. 1" Claystone, (10R5/3) a fragment or lens. 2'11 3/4" Sandstone, brownish-red (near 10R4/3 grading to 10R5/2) fine to medium grained. 1" sandstone greenish-grey (near 5Y7/1) fine to medium grained. 1'5" Calcareous sand shale breccia sandstone, light-reddish-grey-on-cored surface, a darker on fresh surface. (10R5/2 to 10R4/3) a little greenish(5Y7/1) grey, fine to medium grained, some calcareous, a little mica. Shale to very silty limestone, red-to-reddish grey. (10R4/3 and 10R5/3) a few fractures filled with calcite. 1'2" sand clay breccia. Clay or claystone, pale-greenish-grey (near 5Y7/1) very soft some eroded out of core. Clay reddish grey (10R4/3 and 10R5/3). Some reddish clay shale. Sandstone reddish-brown, (10R5/2 to 10R5/3) fairly dark-reddish-grey-and-purplish red. Some of the purple stain is probably due to manganese and hematite. <i>(10R6/1)</i> - 11" Sandstone, reddish-brown, (10R5/2) and some dark-purplish-red (manganese stain) fine grained, calcareous. |
| 560'-570' | 9'2" | 7" Sandstone, reddish-brown (10R6/2) fine to medium grained, bedding near horizontal. Numerous fragments of red shale (10R5/3). 2'7" Sandstone, reddish brown with specks of red mud in the matrix (10R6/2 to 10R5/2) fine grained with an occasional medium grained fragment, micaceous. A few red shale fragments (near 10R4/3). 4" Sand shale breccia, a little calcareous sandstone, reddish-grey (10R6/2) fine grained with a few medium grained fragments. A lot of red shale as specks or fragments (near 10R4/4). <i>Considerable</i> |

Cored-Section *drilled*

Recovery

Lithology

- 9 $\frac{1}{2}$ " Sandstone, purplish-red (10R6/1 to 10R6/2) fine grained, considerable mica.
1 $\frac{1}{2}$ " Sand shale breccia. Sandstone, light-purplish-red (10R6/1). Red shale (10R5/3).
2" Sandstone purplish-red (10R6/1) fine to medium grained.
1" Sand shale breccia, sandstone, light purplish-red (10R6/1) red shale (near 10R5/3).
7" Sandstone, purplish-red-to-purplish grey (10R6/1) fine grained, micaceous.
2" Sand shale breccia, red shale (10R5/3) sandstone, purplish-grey (10R6/1) fine grained.
7" Sandstone, light reddish brown on cored surface, darker on fresh surface (10R5/2) fine grained.
3" Sandstone, reddish-brown-to-purplish red (10R5/2 to 10R6/2). A 1/8" greenish grey band (5Y7/1) with a near horizontal dip, fine to medium grained, micaceous.
Considerable red shale (10R4/3)
3" shale, red (10R4/3) broken or brecciated in core.
3/4" sandstone, green (5Y7/1 dark) fine to medium grained.
2 $\frac{1}{4}$ " Sandstone, purplish-red (between 10R5/2 and 10R6/2) fine grained micaceous.

570'-580'

9 $\frac{1}{4}$ "

light

dark

red

9" Sandstone and claystone, interbedded purplish-red (Between 10R5/3 and 10R4/3). The sandstone is fine grained.

6 $\frac{1}{2}$ " Sandstone, purplish-red-to-light purplish-red (10R6/2) a $\frac{1}{4}$ " green bed *band* (near 5Y7/1) at a dip of 14°. Fine grained. Some red shale fragments (10R5/3).
2 $\frac{1}{4}$ " Claystone to siltstone, *green* (between 10R5/2 and 10R4/2) with a few green blotches (near 5Y7/1).

2 $\frac{1}{2}$ " Sandstone, purplish-red, (between 5YR6/2 and 5YR5/3) fine grained.

$\frac{1}{2}$ " Shale, fairly-dark-red-to-dark-red with a slight purplish-cast (near 10R5/2).

2" sandstone, purplish-red (between 10R6/2 and 10R5/2) fine grained.

1" Claystone to siltstone, fairly-dark red with a purplish-cast (2.5YR4/2).

1 $\frac{1}{2}$ " Sandstone, purplish red (10R6/1) very fine to fine grained, micaceous. (5Y7/1)

8 $\frac{1}{2}$ " Sandstone, *green* very fine to fine grained micaceous. Dip about 15°.

3" Claystone, purplish-red, (10R5/2)

7" Claystone, red (10R4/3).

drilled

| Cored Section | Recovery | Lithology |
|---------------|--------------------------|--|
| 580'-586' | 5'6" | 5'6" Claystone to siltstone, red (10R4/3 to 10R5/3). |
| 586'-590' | 3'2" (5y 7/1) | 3'2" Claystone, red (10R4/3) with a few greenish grey streaks and blotches. Some of the greenish grey streaks are slightly calcareous. |
| 590'-601' | 10'10" (5y 7/1 light) | 8'8" Claystone, red (10R4/4) with a few light-green spots and blotches that are a little calcareous. 7" Claystone, red (10R5/3) with some very silty limestone to very limey siltstone or fine grained sandstone. A few small calcite streaks. 1'4" Claystone, red-trending-to-dark red (between 10R5/3 and 10R5/2). Some lighter reddish grey horizons on the cored surface that are very <i>(5y 7/1)</i> blotches calcareous. A few small green spots. 3" Claystone, red (10R5/3) some paler reddish grey silty limestone fragments <i>(near 10R6/1)</i> |
| 601'-611' | 10'1" | 1'4" Claystone red (10R5/3 to 10R4/3). 3" Siltstone red (10R5/2). 3'6" Claystone, red (10R5/3 to 10R4/3). 5' Claystone red-to-dark red (10R5/3 <i>(5y 7/1)</i> to 10R4/3). A few small greenish-grey spots and streaks that are a little calcareous. |

End of hole. CORE

32

Geological Log of Wellington Station No. 2 Drill Hole P.D.L.

Drilling Co.: Federal Dept. of Public Works - winter works D.P. Hole No. 1,
Prince Edward Island.

Location: Property of Donat Arsenault, lot 16, Wellington Station, Prince Co.

About 154 feet south of Imperial Wellington Station No. 1

(Exact location plotted on survey plan). Lat. $46^{\circ}26'10''$,
Long. $64^{\circ}01'25''$. Village of Wellington, 11 miles
west of Summerside (P.E.I.).

Elevation: 41 Total Depth: 364' (Core recovery to 358').

Result: Drilled to obtain spore information.

Spudded: February 3rd, 1962. Abandoned: February 22nd, 1962.

Hig Type: D.D. Core 2 1/8" to 107 feet, 1 1/8" to bottom of hole.

Samples examined by: R.D. Bowie. *Core hole drilled by the Geological Survey.*

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| 0'-10' | Nil | |
| 10'-107' | 6" | Calcareous sand shale breccia. Sandstone (5x7/1). Breccia, (10x5/3). |
| 107'-157' | 4" | Siltstone with some very fine grained sandstone fragments. (Between 10x5/2 and 10x5/3). |
| 157'-257' | 7 1/8" | 3 1/8" Sandstone, (between 10x5/2 and 10x5/3) very fine grained. |
| | | 3" Calcareous sand shale breccia; sandstone (10x5/2) very fine grained. Breccia (10x4/2, 10x5/3 and 10x4/3). |
| | | 3 1/8" Sandstone (10x5/2) very fine grained, silty. A few greenish, grey streaks (5x6/2). |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| 26°-27°2" | 3" | Claystone to siltstone (1035/3), massive to rubbly. |
| 29°2"-35° | 3°3" | Siltstone to claystone (1035/2 to 1034/3). |
| 35°-43° | 10" | 5°3" Siltstone (near 1034/3), a few irregular lighter coloured calcareous blotches (1035/2). |
| | | 4°9" Claystone (near 1034/3) rubbly. |
| 48°-51°6" | 2°1" | Siltstone (2.5y34/2), horizontal bedding. |
| 51°6"-53° | 1°4" | Claystone to siltstone (1034/3) rubbly. |
| 53°-54° | 10" | Claystone (1034/3) rubbly. |
| 54°-56°6" | 2°6" | Sandstone (1035/2), very fine grained, horizontal bedding, mic. |
| 56°3"-53° | 1°3" | 6" Sandstone (1035/2) very fine grained, horizontal bedding. |
| | | 4" Sandstone (5y6/1 to 5y7/1) very fine grained. |
| | | 5" Claystone to siltstone (1034/3). |
| 58°-67° | 7°3" | 4" Sandstone (1035/2) very fine to fine grained with horizontal bedding. |
| | | 1°4" Siltstone (1034/3) with a few greenish grey blotches (5y6/1). Horizontal bedding. |
| | | 2" Sandstone (1035/2) very fine to fine grained angular quartz fragments, a few breccia fragments (5y6/1). Horizontal bedding. |
| | | 1°2" Sandstone, (between 1035/1 and 1035/2) fine grained, calcareous. |

| Section Drilled | Recovery | Lithology |
|-------------------------------------|---------------------------------|--|
| | | 2 ¹ / ₂ " Sandstone (10 ¹ / ₂ /2) very fine to fine grained, silty, horizontal bedding. |
| 67 ¹ -76 ¹ | 9 ¹ / ₂ " | 7 ¹ / ₂ " Siltstone to very silty sandstone (10 ¹ / ₂ /2), very fine grained with some fine to medium grained fragments. Horizontal bedding. 2 ¹ " Sandstone (10 ¹ / ₂ /2 and 5 ¹ / ₂ /1) fine grained calcareous. |
| | | 1 ¹ / ₄ " Calcareous sand shale breccia. Sandstone, (5 ¹ / ₂ /1 and 10 ¹ / ₂ /2) very fine to fine grained. Breccia (10 ¹ / ₂ /2, 10 ¹ / ₂ /2, 10 ¹ / ₂ /3 and 5 ¹ / ₂ /4). |
| 76 ¹ -77 ¹ 6" | 1 ¹ / ₂ " | Calcareous sand shale breccia, sandstone (10 ¹ / ₂ /2 and 5 ¹ / ₂ /1) very fine to fine grained. Breccia (10 ¹ / ₂ /2, 10 ¹ / ₂ /2, 10 ¹ / ₂ /3 and 5 ¹ / ₂ /4). The upper 4" of this section is a claystone breccia in a claystone matrix. |
| 77 ¹ 6"-84 ¹ | 6" | 6" Calcareous sand shale breccia. Sandstone fine grained (near 5 ¹ / ₂ /1). Breccia (10 ¹ / ₂ /2, 10 ¹ / ₂ /3 and 10 ¹ / ₂ /2). 1 ¹ / ₂ " Claystone to siltstone (10 ¹ / ₂ /3). 4 ¹ / ₂ " Claystone to siltstone (10 ¹ / ₂ /3) with a few calcareous nodules (10 ¹ / ₂ /2) and a few greenish grey blotches 5 ¹ / ₂ /1. Rubby. |
| 84 ¹ -94 ¹ | 8" | 7 ¹ / ₂ " Claystone to siltstone rubble (2.5 yd ¹ / ₄) a few small green blotches (5 ¹ / ₂ /1). 2 ¹ " Claystone (10 ¹ / ₂ /3) horizontal bedding. 1 ¹ " Sandstone (10 ¹ / ₂ /3) very fine grained, friable, calcareous. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| 94'-97' | 2'11" | 2'3" Claystone (10%3) horizontal partings. 6" Claystone to siltstone (10%3). |
| 97'-107' | 10" | 8" Claystone with a little siltstone (10%3). Horizontal cleavage. 2" Sandstone (10%5/2), very fine grained, silty, a few greenish grey blotches (5y6/1), micaceous. Horizontal near horizontal bedding. size of Core reduced from 2 1/8" to 1". |
| 107'-112' | 1'6" | Claystone and siltstone to very fine grained sandstone (10%4/3). |
| 112'-118' | 4'5" | 1'2" Siltstone to very fine grained silty sandstone (10%5/2) with a few greenish grey bands up to 3" thick (between 5y7/1 and 5y6/1). 2'9" Sand shale breccia; Sandstone very fine to medium grained (10%6/2) micaceous. Breccia, (10%5/2 to 10%4/2), micaceous, some horizons quite calcareous. 6" Sandstone (between 10%6/2 and 10%5/2) fine to medium grained fragments. |
| 118'-126' | 6'6" | 1'6" Sandstone (10%5/2) fine grained with some medium grained fragments. A few claystone fragments (10%5/3). 10" Calcareous sand shale breccia. Sandstone (10%5/2) fine to medium grained. Breccia (10%5/4 and 10%4/3). 9" Sandstone (10%4/2) fine to medium grained. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| | | 6" Calcareous sand shale breccia. Sandstone (10R5/2) fine to medium grained. Breccia (10R5/4 and 10R4/3). |
| | | 2'7" Sandstone (10R4/2) fine and medium grained, massive. |
| | | 4" Calcareous sand shale breccia. Sandstone (10R5/2) fine to medium grained. Breccia (10R5/4 and 10R4/3). |
| 126'-137' | 10'6" | 2" Calcareous sand shale breccia. Sandstone (10R5/2) fine to medium grained. Breccia (10R5/4). |
| | | 11" Sandstone (10R4/2) fine with some medium grained fragments, silty with a few fragments of breccia (10R5/3). |
| | | 1" Calcareous sand shale breccia sandstone (10R4/2) fine with some medium grained fragments. Breccia (10R5/3). |
| | | 5" Sandstone (10R5/2) fine grained, silty. An occasional breccia fragment (10R4/3). |
| | | 2" calcareous sand shale breccia. Sandstone (10R5/2) fine grained. Breccia (10R4/3). |
| | | 1'7" Sandstone (between 10R5/2 and 10R4/2) fine grained, with an occasional claystone fragment (10R4/3). |
| | | 3'3" Sandstone (10R5/2) fine grained, micaceous. Numerous claystone fragments (10R4/3) trending to a breccia. |
| | | 3'3" Sandstone (10R5/2) fine grained, Dips 0° to 13°. |
| | | 1" Siltstone (10R5/2). |
| | | 2" Calcareous sand shale breccia. Sandstone, |

| Section Drilled | Recovery | Lithology |
|---------------------------------------|-------------------|---|
| | | (10R5/2) fine to medium grained. Breccia (10R5/3). |
| 137 ¹ -147 ¹ | 9 ¹ 7" | 7" Claystone to siltstone (10R5/3). 1" Siltstone to very fine grained silty sandstone (10R5/2). 1 ¹ 5 ¹ " Siltstone to very fine grained silty sandstone (between 10R5/1 and 10R5/2), micaceous. ½" Sandstone (5y7/1) very fine grained. 1 ¹ 0 ¹ " Sandstone (10R5/2) very fine to fine grained. 4" Siltstone (5y7/1). 3 ¹ 3 ¹ " Siltstone (10R5/2) with a few greenish grey horizons (5y7/1). 1 ¹ 2 ¹ " Claystone to siltstone (10R5/3) a few greenish grey horizons (5y7/1). |
| 147 ¹ -157 ¹ | 7 ¹ 9" | 6 ¹ 7" Claystone (near 10R5/3). 2" Siltstone mottled (10R5/2 and 5y7/1) . calcareous. 11" Claystone (10R5/3). 1" Siltstone, mottled (10R5/3 and 5y7/1) |
| 157 ¹ -157 ¹ 6" | 9 ¹ 9" | 6" Siltstone (10R5/2). 1 ¹ 0 ¹ " Claystone (10R5/2). 4" Siltstone (5y7/1) very micaceous. 1 ¹ 9 ¹ " Sandstone (10R5/3) very fine grained. 10" Claystone (near 10R5/3). 1 ¹ 10 ¹ " Sandstone (10R5/3) very fine grained to a siltstone. Quite micaceous with some greenish grey blotches (5y7/1). 2 ¹ 5 ¹ " Sandstone (10R5/2) fine grained, massive. |

| Section Drilled | Recovery | Lithology |
|-----------------|--------------------|--|
| | | 3" Claystone (1035/2). |
| 167'6"-178' | 9 ¹ /3" | 1 ¹ /2" Sandstone (1035/2) very fine to fine grained micaceous. |
| | | 2" Sand shale breccia, a little calcareous. |
| | | Sandstone (1035/2) very fine to fine grained, Breccia (1034/3); horizontal bedding. |
| | | 10" Siltstone to very fine grained silty sandstone (1035/2), Micaceous. |
| | | 2 ¹ 10" Sand shale breccia: sandstone (1035/2), siltstone (1036/2). |
| | | 1" Sandstone (1034/2) very fine grained. |
| | | 1" Sandstone (5y7/l) very fine grained Micaceous. |
| | | 2 ¹ 3" Sandstone (1035/2) fine grained and very silty, micaceous. |
| 178"-189" | 10 ¹ 4" | 2 ¹ 3" Sandstone (1034/2) very fine to fine grained. |
| | | 1" Claystone (1035/3). |
| | | 10" Sandstone (1034/2) very fine to fine grained with a few fragments of claystone (1035/3). Micaceous. |
| | | 1" Claystone (1035/3). |
| | | 4" Sandstone (1034/2) fine grained. |
| | | 3 ¹ 4" Sand shale breccia, a little calcareous sandstone (1035/3) fine grained. Breccia (1034/3). |
| | | 1" Sandstone (1035/2) fine grained, micaceous. |
| | | 1" Siltstone (5y6/l) micaceous. |
| | | 8" Shale breccia and claystone matrix (1034/3) a little sandstone (1035/3). |

| Section Drilled | Recovery | Lithology |
|------------------------------------|----------|--|
| | | 1'11" Claystone to siltstone (1025/3) horizontal partings. |
| | | 2" Claystone (1025/3). |
| 189 ¹ -199 ¹ | 879" | 2'6" Claystone to siltstone (1025/2). 1'6" Claystone (1025/2). 1'1" Claystone (between 1025/2 and 1024/2) ½" Siltstone (5y6/1) micaceous. 7" Siltstone (1025/2). ½" Siltstone (5y6/1). 4" Claystone to siltstone (1024/3). 1" Siltstone (5y6/1) micaceous. 9" Siltstone, mottled (1024/3 and 5y6/1). 1'6" Sandstone, very fine to fine grained (1025/2) micaceous. |
| 199 ¹ -207 ¹ | 8" | 3'11" Sandstone (1025/2) very fine to fine grained. Micaceous. 5" Sandstone (near 5y6/1 with a slight pinkish cast) fine grained, micaceous. 6" Sand shale breccia sandstone (1025/1). very fine grained. Breccia (1024/2, 1024/3). 1'5" Calcareous shale breccia (1025/3, 1024/2). 1'4" Siltstone (1025/2) 6" Claystone (1025/2). |
| 207 ¹ -217 ¹ | 10" | 1'6" Siltstone to claystone (1025/3). ½" Claystone (1025/4). 9" Siltstone (1025/3). ½" Claystone (1025/4). 3'6" Claystone to siltstone (1025/3) finely. 3'11" Claystone to siltstone (1025/3). 3" Siltstone (1025/3). |

| Section Drilled | Recovery | Lithology |
|------------------------------------|----------------------------------|--|
| 217 ¹ -227 ¹ | 7 ¹ / ₄ " | 1 ¹ /7" Claystone to siltstone (between 102 ⁵ /2 and 102 ⁵ /3). 5 ¹ / ₂ " Claystone (102 ⁵ /3) horizontal bedding, some of the section is quite rubby. |
| 227 ¹ -239 ¹ | 10 ¹ / ₃ " | 1 ¹ /1" Claystone to siltstone (between 102 ⁵ /3 and 102 ⁴ /3). 1" Claystone to siltstone (102 ⁴ /3) with a few greenish grey blotches (5y ¹ /1). 6 ¹ / ₂ " Claystone to siltstone (near 102 ⁵ /3) with a few blotches of pale pink (near 102 ⁶ /1) with a slight greenish cast. 2 ¹ / ₆ " Siltstone (102 ⁴ /3) with a few calcareous blotches (near 102 ⁶ /1). 5" Siltstone (102 ⁴ /3). |
| 239 ¹ -250 ¹ | 10 ¹ / ₅ " | Claystone to siltstone (102 ⁴ /3) with a few calcareous blotches (5y ⁶ /1) section is rubby to massive. |
| 250 ¹ -260 ¹ | 8" | Claystone (between 102 ⁵ /3 and 102 ⁴ /3) massive to rubby. |
| 260 ¹ -272 ¹ | 8" | 5 ¹ / ₆ " Claystone (102 ⁴ /3 and 102 ⁴ /4) very rubby. 2 ¹ / ₆ " Claystone to siltstone (102 ⁴ /3) with a few greenish grey blotches (5y ⁶ /1). |
| 272 ¹ -275 ¹ | 2 ¹ / ₇ " | Claystone to siltstone (102 ⁵ /2 to 102 ⁴ /3) some of the section is rubby. |
| 275 ¹ -277 ¹ | 2 ¹ / ₁₁ " | Claystone (102 ⁵ /3) rubby. |
| 277 ¹ -294 ¹ | 13 ¹ / ₂ " | 1 ¹ / ₄ " Siltstone (102 ⁵ /2). 3" Siltstone (near 5y ⁶ /1) with a pinkish cast. 2" Siltstone (102 ⁵ /2). |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| | | 1" Siltstone (5y6/1). |
| | | 4" Siltstone to very fine grained sandstone (10R5/2) very micaceous. |
| | | 4" Siltstone (10R5/2) with a 1/3" greenish grey band (5y6/1). |
| | | 8" Siltstone (10R5/2) quite micaceous |
| | | 6" Siltstone (10R5/2) micaceous. A 1" greenish grey (5y6/1) band with a 10° dip. |
| | | 4 1/4" Siltstone (10R5/2) micaceous and massive with a few greenish grey streaks (5y6/1) and a few claystone horizons (10R4/3). |
| | | 2 1/2" Siltstone to very fine silty sandstone (10R5/2) and interbeds of siltstone and sandstone. The sandstone is a little micaceous |
| 294 1/2-304 1/2 | 8" | 1 1/8" Sandstone (10R4/3) very fine to fine grained, silty and micaceous. Horizontal to near horizontal partings. |
| | | 1 1/4" Sandstone, banded red (10R5/2) and greenish grey (near 5y6/1), fine grained with some medium grained fragments. A few claystone fragments (10R4/3) or beds. |
| | | Dip 11° to horizontal. |
| | | 1 1/2" Claystone to siltstone (10R5/2 to 10R4/3). |
| | | 3 1/3" Claystone (10R5/2 to 10R4/3) claystone with numerous very silty limestone nodules (5y6/1). |
| 304 1/2-314 1/2 | 7 11/16" | 7 13/16" Claystone to siltstone (10R5/2 to 10R4/3) rubbly with some greenish grey blotches (near 5y6/1). |
| | | 2" Siltstone (near 5y6/1) a little calcareous. |

| Section Drilled | Recovery | Lithology |
|------------------------------------|----------|---|
| | | 6" Siltstone (1034/3) rubbly. |
| 314 ¹ -324 ¹ | 7" | Claystone to siltstone (1034/3) rubbly, with some greenish grey spots and blotches (5y6/1) many of which are calcareous. |
| 324 ¹ -334 ¹ | 816" | 1 ¹⁹ " Claystone (1034/3) with a few greenish grey (5y6/1) blotch or band. 6 ¹⁹ " Claystone and some siltstone (1034/3) and calcareous nodules to very silty limestone (near 1035/2). |
| 334 ¹ -344 ¹ | 614" | 4 ¹¹ " Claystone to siltstone (1035/2 to 1034/3) some horizons are calcareous. 1 ¹⁶ " Siltstone (1035/2) calcareous with a few very silty limestone nodules (1035/1 and 1036/1). 5" Siltstone (1035/2) micaceous, a few calcareous blotches. 4" Siltstone to claystone (1035/3). |
| 344 ¹ -354 ¹ | 10" | 5 ¹² " Siltstone (between 1035/2 and 1034/3) some calcareous horizons with a few very silty limestone nodules or streaks (1036/2). 7" Sandstone (near 1034/3) very fine grained and silty with dips to 12°. 1" Siltstone (between 1035/2 and 1034/3) slightly calcareous with a few very silty limestone nodules (1036/2). 1" Siltstone (between 1035/2 and 1034/3). Slight colour banding indicates dips from 0° to 20°. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| | | 1' Siltstone (between 1033/2 and 1034/3) calcareous with numerous very silty limestone lenses and nodules (1033/2). |
| | | 1 1/3" Siltstone to claystone (between 1035/2 and 1034/3) some horizons are a little calcareous. |
| 354-359' | 59 | Siltstone to claystone (between 1035/2 and 1034/3) A few very silty limestone bands or nodules (1035/2). A few fractures are filled with calcite. |

Hole drilled to 364 feet but last 5 feet of Core was not recovered. End of Core recovery 359 feet.

GEOLOGICAL LOG OF FRENCH RIVER NO. 1 DRILL HOLE

Drilling Co.: Federal Dept. of Public Works - winter works D.D.

Hole No. 2, Prince Edward Island.

Location: Property of Arthur Campbell, French River, Lot 20 Queens Co., 45' north of old dug water well where BATHYRHYNCHUS FORMOSUS LEEDY was discovered in 1845 (Exact location plotted on Survey Plan) Lat. $46^{\circ}30'30''$; Long. $63^{\circ}30'34''$. Village of French River,
15 miles west of Summerside P.E.I.

Elevation: 90.53 (mean sea level). Total Depth: 200'

Result: Drilled to obtain a stratigraphic section and possible fossil fragments.

Spudded: Feb. 15th/62. Completed: March 5th/62

Rig Type: D.D. 2 1/8" and 1 1/4" core.

Samples examined by: R.D. Howie

core hole drilled by the Geological Survey

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| 0-13' | Nil | (Although there was no core recovered the driller gave the following report on the overburden). Bright red mud with pebbles 1 1/2" x 1" x 1/2". |
| 18'-26.1' | 8' 3" | 8' 3" sandstone, red (10R5/2), fine grained with some medium grained fragments, angular to rough rounded. Numerous gypsum fragments and some very fine grained mica. Dip 0° to 6° |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| 26.1'-36.1' | 9' | 5" sandstone, wch, (10R5/2) fine grained with some medium grained fragments, gypsum and some very fine mica fragments. |
| | | 9" sandstone, red, (between 10R6/2 and 10R5/2) pale red on cored surface, fine grained with some medium grained fragments, numerous fractures filled with claystone (10R5/3). Dip 0° to 3°. |
| | | 3' sandstone, fairly-dark-red (10R5/3), very fine to fine grained; a few thin calcareous sand shale (10R5/3) breccia horizons with a 7° dip. DIP E. |
| | | 1' calcareous sand, shale breccia; sandstone (10R5/2 to 10R5/3), fine grained, claystone fragments DIP E. (10R5/3), Bedding appears to be a few degrees from horizontal. |
| | | 1' sandstone, fairly-dark-red (10R5/3), fine grained, angular to rough rounded, gypsum and a little mica, a few claystone partings and occasional fragments. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| | | 2' calcareous sand shale breccia; sandstone, light red to red (10R6/2 to 10R5/2) fine grained with a few medium grained fragments, gypsum and mica; claystone (10R5/3). Dip 5°. |
| | | 10" sandstone, fairly dark red (10R5/3), fine grained with a few medium grained fragments, gypsum, mica. Some mica has been altered to a green chlorite thus altering the colour of the sediment from a red to a greenish grey (5T7/1). |
| 36.1'-46.1' | 10' | 6" sandstone red, (10R5/2) fine grained with a few medium grained fragments, angular to rough rounded quartz, a few crystal faces, some gypsum and a little mica. |
| | | 9" sandstone, light to fairly dark red (10R6/2 to 10R5/3) fine grained with few medium grained fragments, angular to rough rounded quartz with a few crystal faces. Tabular siltstone (10M5/3 to 10M4/14), fragments or lenses up to 1½" thick with finer fragments. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| | | 219" sandstone, fairly dark red (10R5/3), fine grained with a few medium grained fragments, some mica, a little chlorite and hematite. An occasional siltstone fragment (10R5/3 to 10R4/3), with a horizontal to near horizontal attitude. Dip 0° to E. |
| | | 10" calcareous sand shale breccia; sandstone, reddish grey (10R6/2), with a $\frac{1}{4}$ " greenish grey band (5Y7/2), fine grained claystones and siltstone (10R5/3 and 10R5/4). |
| | | 5'2" sandstones, red to fairly dark red (10R5/2 to 10R5/3), fine grained with a few medium grained fragments, angular to rough rounded quartz with a few crystal faces, some mica, gypsum and a little hematite. Occasion to numerous claystone and siltstone fragments (10R5/4 and 10R4/3). Fragments have a horizontal to near horizontal attitude. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| 46.1-55.5 | 9 1/2" | 2" sandstone, red to fairly dark red, (10R5/2 to 10R5/3) fine grained with a few medium grained fragments, some mica. Claystone (10R5/3) fragments or thin beds. |
| | | 4" sandstone red to fairly dark red (10R5/2 to 10R5/3) fine grained with a few medium grained fragments. |
| | | 3" claystone (10R5/3) fragment or thin bed. |
| | | 3" sandstone, fairly-dark red (10R5/2 to 10R5/3) fine grained, angular to rough rounded, some gypsum and mica. |
| | | 2" siltstone (10M4/3), fragment or thin bed. |
| | | 2" sandstone, red, (10R5/2) fine grained, angular to rough rounded quartz with a few crystal faces, gypsum and mica. A few streaks or thin siltstone fragments (10R5/3). |
| | | 3" sandstone, light red to red, (10R6/2 to 10R5/2) fine grained, angular to rough rounded quartz with a few crystal faces, poorly cemented, slightly to a little micaceous. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| | | 1" sandstone, light reddish-grey (10R6/2) fine grained, a little calcareous. Numerous siltstone (10R5/3 to 10R4/3) fragments or thin beds. |
| | | 1" sandstone and siltstone, pale greenish-grey (5Y7/1). Sandstone fine grained. Dip 0°. |
| | | 4" claystone to siltstone, fairly dark-red (10R5/3 and 10R4/3). |
| 55.5-59.8 | 4'7" | 1'2" siltstone to very fine grained sandstone, fairly dark-red. (2.5YR4/4), some a little calcareous. |
| | | 2" siltstone, light greenish-grey (5Y7/1), horizontal band. |
| | | 3" claystone to siltstone, dark-red (10R4/3 to 10R4/4). A $\frac{1}{2}$ " horizontal greenish-grey band of siltstone (5Y7/1). |
| | | 4 $\frac{1}{2}$ " siltstone to very fine sandstone, red (2.5YR5/4) massive. |
| | | 3" siltstone, very irregular greenish grey blotch (5Y7/1), a little calcareous. |
| | | 10" siltstone to very fine sandstone, fairly-dark-red (10R5/3 to 10R4/3). |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| | | 1" siltstone, very irregular greenish grey blotch (5Y7/1) a little calcareous. |
| | | 11" siltstone to very fine sandstone, fairly dolomized (10R5/3), with a few very silty limestone fragments. |
| | | 1" siltstone, greenish grey blotch (5Y7/1). |
| | | 4" siltstone, fairly dark-red, (10R5/3). |
| | | 2" siltstone, mottled red (10R5/3), and greenish grey (5Y7/1), some mica, a little calcareous. |
| | | 3" siltstone, light and fairly dark-red (10R6/3 to 10R5/3), quite micaceous. |
| 59.61-63.31 | 81" | 1'6" claystone to siltstone, fairly dark-red (10R5/3). |
| | | 1" siltstone, greenish-grey (5Y7/1), mica, a little calcareous. The greenish grey colour is probably due to the decomposition of some of the mica to chlorite. |
| | | 1'9" claystone, -fairly-dolomized (10R5/3). |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| | | $\frac{1}{2}$ " siltstone, greenish grey (5Y7/1), a little calcareous. |
| | | 1'2 $\frac{1}{2}$ " claystone, fairly dark red (10R5/3) horizontal cleavage. |
| | | 2" siltstone, greenish-grey (5Y7/1) a little calcareous. |
| | | 5" siltstone mottled, fairly dark red (10R5/2 to 10R5/3) and greenish grey (5Y7/1), a little calcareous. |
| | | 1'6" claystone, fairly dark red (10R5/3). |
| | | 1" siltstone, mottled, fairly dark red (10R5/3) and greenish-grey (5Y7/1), a little calcareous. |
| | | 11" siltstone, fairly dark red (2.5YR5/4). |
| | | 1" siltstone, mottled, fairly dark red (2.5YR5/4) and greenish-grey (5Y7/1), a little calcareous. |
| | | 4" claystone, fairly dark red (10R5/3) slight colour banding indicates horizontal bedding |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| 63.31-74.61 | 6'1" | 2' siltstone and claystone, finely darkened (10R4/3) with some greenish-grey blotches and streaks (5Y7/1) up to 1½" thick. Colour banding horizontal. |
| | | 2'4" siltstone and mudstone, finely dark-brownish-red (10R4/3 and 2.5YR5/4) micaceous, massive. |
| | | 4" siltstone, greenish-grey (5Y7/1). Horizontal colour banding, some slightly calcareous. |
| | | 1'5" siltstone to fine grained silty sandstone, fairly darkened (10R5/3 and 10R4/3) angular to rough rounded quartz, considerable gypsum. |
| 74.61-78.61 | 4" | 4' siltstone to sandstone, mid (10R5/2), quartz sand fragments, angular to rough rounded with a few crystal faces, massive, gypsum and some mica. |
| 78.61-83.51 | 9'5" | 4'4" sandstone, slightly darkened (10R5/3) with numerous pale reddish grey blotches on cored surface (10R6/1) up to ½" in diameter; fine to medium grained, angular to rough rounded massive pale reddish grey areas are calcareous. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| | | 2 ¹ / ₄ " sandstone, fairly dark red. (10R5/3) fine grained, angular to rough rounded, silty, gypsum and mica, massive some calcareous. |
| | | 2' sandstone, red (10R5/2) with greenish grey blotches (5T7/1), fine grained angular to rough rounded, gypsum and a little mica, some siltstone fragments (10R5/2). |
| | | 3" siltstone mottled, red (10R5/2 and 10R5/3). |
| | | 6" sandstone, light red streaked (10R6/2 to 10R5/2), very fine to fine grained, angular to rough rounded, a few crystal faces, slightly calcareous; a few claystone streaks (10R5/2 and 10R5/3). |
| 88.51-94.51 | 6" | 7 ¹ / ₂ " sandstone, blotchy red (10R5/2 and 10R4/2) fine grained, angular to rough rounded, numerous crystal faces, gypsum, and some hematite, massive. The blotchy nature of the section is due to the calcareous nature of sediment. The lighter red areas are calcareous. |
| | | 1' calcareous sand shale breccias sandstone (10R5/2) fine grained, gypsum and mica. Claystone (10R4/3). |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| | | 2 $\frac{1}{2}$ " sandstone, red (10R5/2) fine grained, angular to rough rounded, numerous crystal faces on the quartz grains, gypsum, hematite and mica. The section has a slight blotchy appearance due to the slightly calcareous nature of some areas. |
| | | 6" calcareous sand shale breccia, sandstone, light reddish (10R6/2 to 10R5/2) medium grained, angular to rough rounded, a few crystal faces. Claystone to siltstone (10R5/3 to 10R4/3). Bedding appears to be horizontal. |
| | | 2" mudstone, reddish fairly indurated (10R5/2 to 10R4/3). |
| | | 1 $\frac{1}{4}$ " sandstone, pinkish (10R6/2), fine grained, angular to rough rounded, numerous crystal faces, calcareous, gypsum, mica and some hematite. |
| | | 1 $\frac{1}{2}$ " sandstone, yellowish reddish (10R6/2 to 10R5/2) slight colour banding, horizontal, fine grained, angular to rough rounded, some crystal faces, gypsum a little mica and hematite. A few thin siltstone streaks 1/16" in fragments (10R5/3). |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| | | 1" sandstone, greenish-grey (5Y7/1) fine grained, angular to rough rounded, a few crystal faces, horizontal band, a little calcareous. |
| | | 8" siltstone to mudstone, fairly dark-red (10R5/3 and 10R4/3) massive, calcareous. |
| 94.51-93.71 | 315" | 6" siltstone to very fine sandstone, mottled, red (10R5/3 to 10R4/3) and greenish-grey (5Y7/1). |
| | | 9" siltstone to very fine sandstone, fairly dark-red (10R5/3 to 10R4/3), a little calcareous with a few very calcareous nodules. |
| | | 4" siltstone, mottled, red (10R5/3) and greenish-grey (5Y7/1). |
| | | 1'10" siltstones, fairly dark-red (10R5/3 and 10R4/3), some colour banding, massive, quite micaceous, some quite calcareous nodules. |
| 93.71-1071 | 7'10" | 5½" siltstone, red (10R4/3). ½" siltstone to very fine sandstone, greenish-grey (5Y7/1), horizontal to near horizontal band. D ₁ /e ₁ C ₂ |
| | | 1" siltstone, red (10R4/3). |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| | | 2" siltstone, greenish grey (5Y7/1). 10° to 20°. |
| | | Horizontal-to near horizontal band. |
| 107'-117' | 9'11" | 3' siltstone to very fine sandstone, fairly-dark-red (10R5/3) angular to rough rounded quartz fragments, gypsum and mica. Some horizons are quite rich in hematite. Slight colour banding indicated dips to 10°, probably due to cross bedding. |
| | | 4' 2 $\frac{1}{2}$ " sandstone, fairly dark red (10R5/3 to 10R4/3) with some dark grey to black streaks due to concentrations of hematite, fine grained, angular to rough rounded, a few crystal faces, gypsum and a little mica. Massive. |
| | | 5' 6" sandstone, relatively fairly-dark-red (10R5/2 to 10R5/3), fine grained, angular to rough rounded, a little gypsum and mica. A few calcareous blotches or streaks that are pale red on cored surface. Massive. A few colour bands suggest dips from 4° to 11°. Possibly cross beds. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| | | 4'5" calcareous sand shale breccia. Sandstone, pale reddish (10R6/1 to 10R6/2 and 10R5/2). A 1" greenish-gray band (5Y7/1) suggests a dip of 12°. Claystone and siltstone to very silty limestone, fairly darkened (10R5/2, 10R5/3 and 10R4/3). Orientation of claystone and siltstone suggests a dip of not greater than 12°. |
| 117'-127' | 8'2" | 1'2" calcareous sand shale breccia; sandstone, pale reddish (10R6/1) fine to medium grained. Siltstone and very silty limestone (10R5/2, 10R5/3 and 10R4/3). |
| | | 11" siltstone, fairly darkened (10R5/3) a few very fine grained sand fragments, massive, slightly calcareous. |
| | | 3" sandstone, red (10R5/2) very fine grained, festoon bedding, calcareous. |
| | | 1'2" siltstone, fairly darkened (10R5/3). Massive. |
| | | 2" mudstone to very fine sandstone mottled greenish-gray (5Y7/1) red (10R5/2) considerable mica. Dip 12°. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| | | 2 $\frac{1}{2}$ " mudstone to very fine sandstone, fairly-darkened (near 10R5/3), a little mica. |
| | | 1" mudstone, mottled, greenish-gray (10R5/2) and red (10R5/3). |
| | | 1'2" mudstone, red (between 10R5/3 and 10R4/3). |
| | | ½" mudstone, greenish-gray (5Y7/1) irregular blatches. |
| | | 2" mudstone, fairly-darkened (between 10R5/3 and 10R4/3). |
| | | 2" sandstone, fairly-darkened (10R5/3), very fine to fine with a few medium grained fragments, angular to rough rounded a few crystal faces, gypsum and mica. |
| | | 2'8" sandstone, fairly-darkened (10R5/3) chattermarks from drill make some cored surfaces appear polished, fine grained with some medium grained fragments, angular to rough rounded, a few crystal faces, massive; gypsum and mica. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| 127-136 | 91' | 9' sandstone, fairly-dark-red (10R5/3) light colour banding indicates a 10° Dip, fine with some medium grained fragments, angular to rough rounded, a few crystal faces, massive; gypsum and some mica. |
| 136'-146' | 10' | 6' ll" sandstone, red-to-fairly-dark-red (10R5/2 and 10R5/3) fine grained, angular to rough rounded a few crystal faces, gypsum and some mica, massive with slight colour banding Dip 11°. |
| | | 7" sandstone, red (10R5/2), a few greenish-grey streaks or small blotches (5Y7/1), fine grained, calcareous slight colour banding Dip 7°. |
| | | 1' sandstone, light-red-to-red (10R6/2 to 10R5/2) very fine to fine grained, some horizons calcareous, gypsum and considerable mica in partings. |
| | | 5" sandstone, red (10R5/2) fine grained angular to rough rounded with a few crystal faces, gypsum, mica, calcareous. |
| | | 2" sandstone, red (10R5/2) fine grained. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| | | 5" sandstone yellowish-brown (10YR5/4) fine grained, gypsum and mica. |
| | | 6" sandstone, red (10R5/2), fine grained, angular to rough rounded, a few crystal faces, gypsum and mica. |
| 146'-156' | 10" | 2' sandstone, fairly dark reddish (10R5/3) very fine to fine grained, angular to rough rounded, consider- able mica, massive, slight colour banding. Dip 8°. |
| | | 3' calcareous sand shale breccia; sandstone, light reddish-red (10R6/2 to 10R5/2) very fine to fine grained, claystone to siltstone (10R5/2 to 10R4/3), very silty limestone (between 10R6/2 and 10R5/2). A few greenish-grey blotches (5Y7/1). |
| | | 3" siltstone, red (10R5/2 and 10R5/3) a little mica. |
| | | 9" calcareous sand shale breccia sandstone light reddish-red (10R6/2 to 10R5/2) very fine to fine grained. Siltstone, red (10R5/2). A few greenish grey streaks (5Y7/1). |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| | | 4' sandstone, red-to fairly dark red (10R5/2, 10R5/3 and 10R4/3) fine grained with some medium grained fragments, a few greenish gray blotches (5Y7/1) a little gypsum and mica, some a little calcareous, colour banding indicates dip almost horizontal. |
| 156'-166' | 919" | 2' sandstone, red (10R5/2), silty areas (10R4/3), very fine to fine grained, some gypsum and a little mica massive. On the cored surface in some horizons the sandstone is very pale red. These areas are a little calcareous. |
| | 5'7" | sandstone, fairly-dark-red (10R5/3, 10R4/3 and 5YR5/3) colour banding, very fine to fine grained, angular to rough rounded, gypsum and a little mica, massive. Dip 0° to 3°. |
| | 9" | sandstone red (10R5/2) silty areas (10R5/3) fine grained with a few medium grained fragments, gypsum and mica, a little calcareous. A few streaks of siltstone (10R5/3). Dip 0° to 10°. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|--|
| | | 1'5" sandstone, red to fairly dark red (10R5/2 to 10R5/3), fine grained, angular to rough rounded, a few crystal faces, gypsum and a little mica, Dip 0° to 5°. |
| 166'-176' | 9'6" | 3'2" sandstone, red to fairly dark red (10R5/2 to 10R5/3) some colours bonding fine grained with a few medium grained fragments, angular to rough rounded, a few crystal faces gypsum and a little mica. Dip 3° to 8°. |
| | | 2'8" calcareous sand shale breccia; sandstone, red (10R5/2), very fine to fine grained with a few medium and coarse grained fragments. Siltstone to very silty limestone (10R5/3 and 10R6/2). A few greenish grey blotches (5T7/1). |
| | | 3'8" sandstone, red (10R5/2) very fine to fine grained with a few medium grained fragments. Angular to rough rounded, gypsum and mica, Dip 0° to 3°. |
| 176'-186' | 9' | 2'5" sandstone, red (between 10R5/2 and 10R5/3). Medium grained, very calcareous. Some thin siltstone fragments, fairly indistinct (10R5/2 to 10R4/3). Some greenish grey blotches (5T7/1). |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| | | 3" sandstone, red (10R5/2) very fine to fine grained, angular to rough rounded, a few crystal faces, gypsum and mica. |
| | | 3" siltstone, pale red-brown (10R6/2 to 10R5/2) very fine to fine grained, calcareous. |
| | | 1 1/2" sandstone, red-to-fairly-dark red (10R5/2 to 10R5/3) fine grained with a few medium grained fragments, angular to rough rounded, gypsum and a few fragents of mica, massive. Dip 0°. |
| | | 4 1/11" sandstone, red-to-fairly-dark red (10R5/2 to 10R5/3) fine and medium grained fragments, angular to rough rounded with a few crystal faces, gypsum and a few mica fragments. An occasional fragment of red siltstone (10R4/3). |
| 186'-195' | 9" | 2 1/5" sandstone, rel-to-fairly-dark red (10R5/2 to 10R5/3) fine and medium grained with a few coarse grained fragments, angular to rough rounded, gypsum. |

| Section Drilled | Recovery | Lithology |
|-----------------|----------|---|
| | | 4" sandstone, pale-red (10R6/1) fine to medium grained, angular to rough rounded, a few crystal faces. A few small fragments of fairly-darkened shale (10R5/3). |
| | | 8" calcareous sand shale breccia; sandstone pale-red (10R6/1) fine to medium grained. A few siltstone fragments (10R5/3). |
| | | 9" sandstone, fairly-darkened (10R4/2) medium grained with a few coarser grained fragments, angular to rough rounded with a few crystal faces, gypsum and mica. |
| | | 6" calcareous sand shale breccia; sandstone, pale-reddish-grey (10R5/1) medium grained. Siltstone fairly-darkened (10R4/3) small fragments. |
| | | 3" sand shale breccia; sandstone and siltstone greenish-grey (5Y7/1) sandstone medium to fine grained. |
| | | 3" siltstone to mudstone, red (2.5M4/4) some slightly calcareous. |
| 195'-200' | 2'4" | 2'4" siltstone, fairly-darkened (10R5/3, 10M4/4) mica, some horizons a little calcareous. |

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Detailed Stratigraphy of

Core Holes from

Prince Edward Island

On File in Ottawa

Introduction

The earliest record of Geological investigations on Prince Edward Island were made by Abraham Gesner from 1844-46. He traversed most of the island by sea, studying the topographic features, examining the bedrock, noting the drift, and collecting rock, mineral, fossil and soil samples. In 1871, J.W. Dawson and B.J. Harrington, listed, described and compared the island fossils with those of Nova Scotia and New Brunswick. The possibility that the underlying beds might contain extensions of the Nova Scotia and Cape Breton coalfields had been considered from a very early date. However, it was realized that only a very limited rock section could be examined without drilling. Abraham Gesner recognized the value of drilling as early as 1845, but was hampered by insufficient funds.

From 1903-1909, five cable tool holes were drilled for coal as a result of a geological report by R.W. Ells in 1902. The locations of these and other wells are recorded by Howie and Cumming 1963; and Howie 1966. The general lithology of some of these wells is noted by Barss, Macquibard and Howie (1963).

The Permo-Carboniferous red beds of Prince Edward Island consist of a series of weakly cemented claystones, siltstones, mudstones, sandstones, calcareous sand-shale breccias and minor conglomerates. All rocks are ^{of} terrestrial origin, bonded by a ferruginous cement. Surface exposures and drill cores indicate rapid facies changes and abundant cross bedding. The strata are flat lying to gently undulating with an average dip of 6°. In many horizons the true attitude of the beds is masked by foreset beds and crossbeds with dips ranging up to 18°. The virtual absence of fossils, the lack of continuity and good marker horizons makes the stratigraphic and structural interpretation very difficult.

In order to obtain additional information on the subsurface geology of Prince Edward Island, a series of core holes was drilled by the Geological Survey of Canada from 1962 to 1964. Detailed logs of four of these wells are contained in this report. The fifth well is in the Appendix to Bull. 145 (Frankel, 1966). A brief description of the various rock types noted in the core and observed in the field is as follows:

Calcareous sand-shale breccias - An interformational conglomerate composed of angular to roughly rounded claystone, siltstone, sandstone and mudstone fragments in a calcareous sand or sand clay matrix. These unsorted to poorly sorted fragments vary in size from fine grained to angular tabular pieces up to three inches in diameter. In most of the breccias the sand matrix is usually lighter in colour than the claystone, siltstone, mudstone and sandstone fragments, due to thin carbonate content. The sandstones become lighter in colour as the carbonate content increases, and may be as light as 7.5y R7 - 8/0-2 (Prest, 1964). In many instances field observations indicate the breccias were derived from the underlying strata. Occasionally the breccia contains angular to roughly rounded pebbles of acidic lava, porphyry and quartzite up to half inch in diameter (Prest 1964). Most vertebrate fossils found on the island have been obtained from clay gall conglomerates (Langston Jr., 1963) or breccia, which occur repeatedly through the section.

Claystone - indurated clay size particles.

Siltstone - an indurated sediment with most of the particles ranging in size between a claystone and very fine sandstone.

Mudstone - an indurated silt-clay mixture with minor amounts of sand.

Sandstone - indurated sand size particles composed of angular to sub-angular quartz grains, many of which display overgrowths and crystal faces. Feldspar, gypsum and minor amounts of mica, chlorite and magnetite are also present.

Grain sizes are after Wentworth (1922) edition. The coded colours after Munsell (1954) edition, were obtained from dry core.

Acknowledgments

The writer is indebted to A.H. Graves and members of the Boring Group, Public Works Department; Personnel of the Department of Industry and Natural Resources, and in particular B. Graham Rogers, who provided useful services without which the drilling project could not have been completed.



L A W R E N C E T. S.

WELLINGTON STATION #2.

FRENCH RIVER #1.

GEOLOGICAL SURVEY

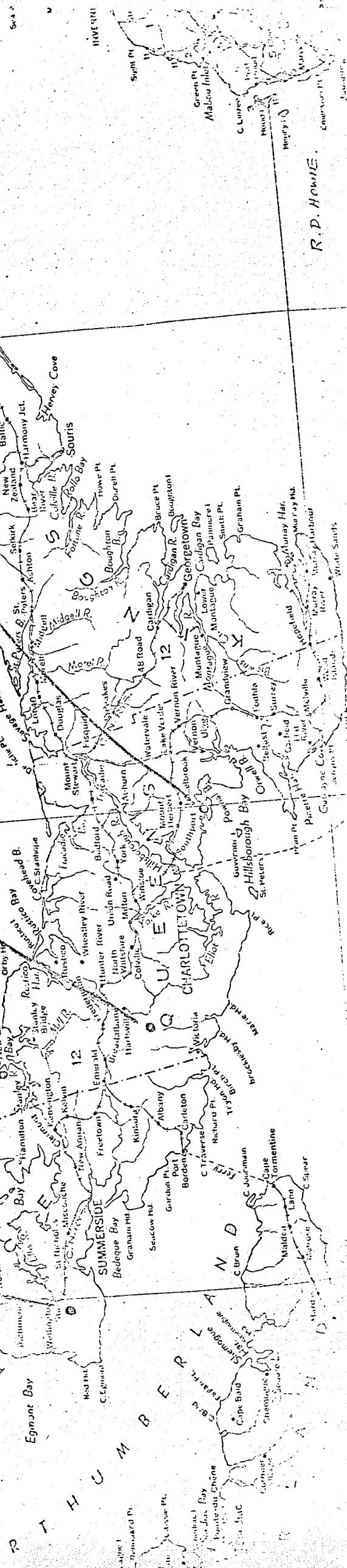
CORE HOLES.

PRINCE ISLAND

KELLY CROSS #1.

CROWN POINT #1.

EAST PL.



R. D. HOWE.

Geologist

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