

HUGHES DRILLING REPORT

Well No. #20
 Farm Brown
 SURFACE CASING
 Size 7"
 Feet 21.10
 Circulated 7 sx cement

PERMANENT CSG.
 Size 2 7/8" 8rd EUE
 Feet 557' Bolt at 553'
 sections nipple at 505'
 T. D. at Completion 568'

OPERATOR John Hennick

Contractor HUGHES DRILLING CO.

| STRATA THICKNESS | FORMATION DRILLED | T.D. |
|------------------|-------------------|------|
| 4 | Soil | 4 |
| 18 | Clay | 22 |
| 19 | Lime | 41 |
| 26 | Shale | 67 |
| 5 | Lime | 72 |
| 42 | Shale | 114 |
| 14 | Lime | 128 |
| 10 | Shale | 138 |
| 30' | Lime | 168 |
| 9 | Shale | 174 |
| 30' | Lime | 196 |
| 5 | Shale | 201 |
| 5 | Lime | 206 |
| 4 | Shale | 210 |
| 5 | Lime | 215 |
| 12 | Shale | 341 |
| 2 | Red Bed | 343 |
| 4 | Shale | 347 |
| 3 | Lime | 350 |
| 3 | Shale | 353 |
| 7 | oil sand | 360 |
| 11 | Shale | 371 |
| 18 | Lime | 389 |
| 41 | Shale | 430 |
| 6 | Lime | 436 |
| 13 | Shale | 449 |
| 2 | Lime | 451 |
| 17 | Shale | 468 |
| 6 | Lime | 474 |
| 7 | Shale | 481 |
| 2 | Red Bed | 483 |
| 4 | Shale | 487 |
| 2 | Lime | 489 |
| 2 | Shale | 491 |
| 2 | Lime | 493 |
| 6 | Shale | 499 |
| 4 | Lime | 503 |
| 6 | Shale | 509 |
| 9 | oil sand | 518 |
| 50 | Shale | 568 |
| | T.D. | |

| DATE | DRILLED | | REMARKS - TYPE WORK - BILLING REF. | PIPE TALLY |
|------------|---------|-----|------------------------------------|--------------|
| | FROM | TO | | |
| 6/25/13 | 0 | 4 | Soil | ① 21.5-21.5 |
| 21 | 4 | 22 | Clay | ② 22.5-44.0 |
| 6/26/13 | 22 | 41 | Lime | ③ 22.5-66.5 |
| 5 5/8" PVC | 41 | 67 | Shale (slate 53-54) | ④ 22.5-89.0 |
| | 67 | 72 | Lime | ⑤ 22.5-111.5 |
| | 72 | 114 | Shale | ⑥ 22.5-134.0 |
| | 114 | 128 | Lime | ⑦ 22.5-156.5 |
| | 128 | 138 | Shale | ⑧ 22.5-179.0 |
| 30' | 138 | 165 | Lime | ⑨ 22.5-201.5 |
| | 165 | 174 | Shale (slate 173-174) | ⑩ 22.5-224.0 |
| 20' | 174 | 196 | Lime | ⑪ 22.5-246.5 |
| | 196 | 201 | Shale (slate 200-201) | ⑫ 22.5-269.0 |
| | 201 | 206 | Lime | ⑬ 22.5-291.5 |
| | 206 | 210 | Shale | ⑭ 22.5-314.0 |
| "Hertha" | 210 | 215 | Lime | ⑮ 22.5-336.5 |
| | 215 | 341 | Shale (slate 215-216) (sd) | 254-259) |
| | 341 | 343 | Red Bed | ⑯ 22.5-359.0 |
| | 343 | 347 | Shale | ⑰ 22.5-381.5 |
| | 347 | 350 | Lime (oil odor) | ⑱ 22.5-404.0 |
| | 350 | 353 | Shale | ⑲ 22.5-426.5 |
| "Paw" | 353 | 360 | oil sand (remarks pg. 3) | ⑳ 22.5-449.0 |
| | 360 | 371 | Shale | ㉑ 22.5-471.5 |
| | 371 | 389 | Lime | ㉒ 22.5-494.0 |
| | 389 | 430 | Shale | ㉓ 22.5-516.5 |
| | 430 | 436 | Lime | ㉔ 22.5-539.0 |
| | 436 | 449 | Shale | ㉕ 22.5-561.5 |
| | 449 | 451 | Lime | |

HUGHES DRILLING REPORT

Well No. #20 SURFACE CASING PERMANENT CSG.
 Farm Brown Size..... Size 2 7/8" 8rd EUE
 Feet..... Feet 557' Bolt at 553'
 Circulated _____ sx cement

OPERATOR John Herrick T. D. at Completion 568'
 Contractor HUGHES DRILLING CO.

| STRATA THICKNESS | FORMATION DRILLED | T.D. |
|------------------|-------------------|------|
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| DATE | DRILLED | | REMARKS - TYPE WORK - BILLING REF. | PIPE TALLY |
|---------|---------|-----|------------------------------------|------------|
| | FROM | TO | | |
| | 451 | 468 | Shale (Slate 451-452) | |
| | 468 | 474 | Lime | |
| | 474 | 481 | Shale | |
| | 481 | 483 | Red Bed | |
| | 483 | 487 | Shale | |
| | 487 | 489 | Lime | |
| | 489 | 491 | Shale | |
| | 491 | 493 | Lime | |
| | 493 | 499 | Shale (Slate 493-494) | |
| | 499 | 503 | Lime | |
| | 503 | 509 | Shale | |
| 6-26-13 | 509 | 518 | oil sand (remarks pg. 57) | |
| | 518 | 508 | Shale | |
| | | | T.D. | |
| | | | 557' of 2 7/8" 8rd EUE | |
| | | | used 3 centralizers | |
| | | | Bolt at 553' | |
| | | | seating nipple at 505' | |