

P&A Surface Casing Check

| | | | | |
|---|--------------------|----------------|-----------------|-----------|
| Date | 3/25/2021 | | | |
| Operator | Newell Energy | | | |
| Well Name | Arwood 1 | | API | 061-06742 |
| Location | S3WNE 28 20S49W 6 | | | |
| Elevations: GL, TD-MD/TVD, PBTD-MD/TVD (ft) | 4231 | 5171 | | |
| Permit Formation | MRRW | | | |
| Operator-Existing Surface Casing Depth (ft) | 504 | | | |
| Fox Hills Protection Area 5% Rule (ft) | 5171 | times .05 + 50 | 0.05 | 308.55 |
| Production within | 1 | mile(s), | | |
| Deepest Water Well w/in 1 mile, WW GL (ft) | | | Number of Wells | |
| Deepest Water Well w/in 2 miles, WW GL (ft) | | | Number of Wells | |
| Deepest Water Well w/in 4 miles, WW GL (ft) | 110 | 4333 | Number of Wells | 40 |
| Deepest Water Well to consider, WW GL (ft) | 110 | 4333 | | |
| Deepest Water Depth corrected for elevation, WW depth + (Local GL - WW GL) + 50' (ft) | 110 | -102 | 50 | 58 |
| Base of Fox Hills - SB5 (ft) | NA | | | |
| Base of Fox Hills - Cheyenne Basin (ft) | NA | | | |
| Base of Fox Hills - Log , GL (ft) | NA | | API | |
| Base of Fox Hills - Offset Log corrected for elevation, FH depth + (Local GL - Log GL) + 50' | NA | 4231 | 50 | #VALUE! |
| Upper Pierre base - Log, GL (ft) | | | API | |
| Base of Upper Pierre - Offset Log corrected for elevation, UP depth + (Local GL - Log GL) + 50' | 0 | 4231 | 50 | 4281 |
| Operator Proposed/Existing Surface Casing Depth (ft) | 504 | | | 504 |
| Minimum Surface Casing Depth (ft) | | | | 0 |
| Increase Permit Surface Casing Depth | from | | to | |
| Provide Remedial Cement | squeeze | | | |
| | shoe | | | |
| Aq Det Tool - | Log Picks | | | |
| DWR Dkta-Cynn Aq Det Tool w/ GR=4231 | 061-06742 | | | |
| Surface Elevation (ft) Depth (ft) | Surface Depth (ft) | | | |
| Top of Dakota 3516 715 | (ft) | | | |
| Base of Dakota 3345 886 | Top of Dakota | | | |
| Top of Cheyenne 3299 932 | 800 | | | |
| Base of Cheyenne 3210 1021 | Base of Dakota | | | |

Oil and Gas Wells within Map Selection

| API County | API Sequence | Location ID | Status | Well | Operator` | Qtr | Qtr | Section | Township | Range | Meridian | Lat | Long | Formation Information Sidetrack | Formation | Top | Bottom | TD | Formation Status |
|------------|--------------|-------------|--------|------|---------------|-----------------------|------|---------|----------|-------|----------|-----------|-------------|------------------------------------|-----------|------|--------|------|------------------|
| | 61 | 6311 | 384505 | DA | GRIMSLEY *1 | TEXAS OIL & GAS CORP | NWSW | 21 | 20S | 49W | 6 | 38.301232 | -102.910958 | | | | | | |
| | 61 | 6314 | 384505 | DA | GRIMSLEY *1-X | TEXAS OIL & GAS CORP | NWSW | 21 | 20S | 49W | 6 | 38.301122 | -102.910958 | | | | | | |
| | 61 | 6633 | 384781 | PA | POZ 1-28 *1 | KENNEC TRUSTEE* FRANK | SWSE | 28 | 20S | 49W | 6 | 38.283122 | -102.901707 | 0 | MRRW | 4975 | 4980 | 5170 | AB |
| | 61 | 6655 | 384802 | DA | POZ 1-33 *1 | KENNEC TRUSTEE* FRANK | NENE | 33 | 20S | 49W | 6 | 38.279052 | -102.898387 | | | | | | |
| | 61 | 6689 | 384829 | PA | POZ 2-28 *2 | KENNEC TRUSTEE* FRANK | NWSE | 28 | 20S | 49W | 6 | 38.287012 | -102.90152 | 0 | MRRW | 5048 | 5062 | 5232 | AB |
| | 61 | 6706 | 384843 | PA | POZ 2-33 *3 | KENNEC TRUSTEE* FRANK | NWNE | 33 | 20S | 49W | 6 | 38.280199 | -102.901884 | 0 | MRRW | 5056 | 5066 | 5618 | AB |
| | 61 | 6742 | 324880 | SI | ARWOOD *1 | NEWELL ENERGY LTD | SWNE | 28 | 20S | 49W | 6 | 38.28972 | -102.90249 | 0 | MRRW | 4970 | 4994 | 5171 | SI |
| | 61 | 6806 | 324909 | PA | P.O.Z. *3-28 | NEWELL ENERGY LTD | NWSE | 28 | 20S | 49W | 6 | 38.28711 | -102.90155 | 0 | MRRW | 4972 | 4986 | 5192 | AB |

| Water Wells within Map Selection | | | | | | | 110 | 85 | 106 ft |
|----------------------------------|-------------------|------------------------------------|---------|---------|----------|--------|----------|----------|--------------------------|
| Receipt | Permit | Water Well | Quarter | Section | Township | Range | 40 wells | | 4 mile |
| | | | | | | | Depth | Top Perf | Aquifer |
| | 9087939 33789- | NEGLEY, EDWIN | SENE | 10 | 20.0 S | 49.0 W | 65 | | ALL UNNAMED AQUIFERS |
| | 9088015 43127- | FRAZEE BROS | NWNW | 11 | 20.0 S | 49.0 W | | | ALL UNNAMED AQUIFERS |
| | 9087711 441-RN | ABRAMS, HARRY D. | SWNW | 13 | 20.0 S | 49.0 W | 38 | 26 | 38 ALL UNNAMED AQUIFERS |
| | 9087711 441-RN | ABRAMS, MARCIA J. | SWNW | 13 | 20.0 S | 49.0 W | 38 | 26 | 38 ALL UNNAMED AQUIFERS |
| | 9087712 442-RN | ABRAMS, HARRY D. | SWNW | 13 | 20.0 S | 49.0 W | 40 | | ALL UNNAMED AQUIFERS |
| | 9087712 442-RN | ABRAMS, MARCIA J. | SWNW | 13 | 20.0 S | 49.0 W | 40 | | ALL UNNAMED AQUIFERS |
| | 9087713 443-RN | ABRAMS, HARRY D. | SWNW | 13 | 20.0 S | 49.0 W | 38 | 26 | 38 ALL UNNAMED AQUIFERS |
| | 9087713 443-RN | ABRAMS, MARCIA J. | SWNW | 13 | 20.0 S | 49.0 W | 38 | 26 | 38 ALL UNNAMED AQUIFERS |
| | 3626629 | H L ABRAMS LAND & CATTLE INC | SWSW | 13 | 20.0 S | 49.0 W | | | ALL UNNAMED AQUIFERS |
| | 9087710 440-RN | ABRAMS, HARRY D. | SENE | 14 | 20.0 S | 49.0 W | 38 | 26 | 38 ALL UNNAMED AQUIFERS |
| | 9087710 440-RN | ABRAMS, MARCIA J. | SENE | 14 | 20.0 S | 49.0 W | 38 | 26 | 38 ALL UNNAMED AQUIFERS |
| 0362217A | 175019- | H L ABRAMS LAND & CATTLE INC | SENE | 14 | 20.0 S | 49.0 W | 80 | | ALL UNNAMED AQUIFERS |
| 0362217B | 175019--A | ABRAMS, HARRY D. | SENE | 14 | 20.0 S | 49.0 W | 50 | 30 | 50 ALL UNNAMED AQUIFERS |
| 0362217B | 175019--A | ABRAMS, MARCIA J. | SENE | 14 | 20.0 S | 49.0 W | 50 | 30 | 50 ALL UNNAMED AQUIFERS |
| | 21822 21822-MH | H L LAND & CATTLE | SENE | 14 | 20.0 S | 49.0 W | | | ALL UNNAMED AQUIFERS |
| | 9088139 85405- | ROSE, DONALD E | NWNW | 19 | 20.0 S | 49.0 W | 110 | | ALL UNNAMED AQUIFERS |
| | 9087938 33624- | BURNS JESSE & ROBERTA | SENE | 20 | 20.0 S | 49.0 W | | | ALL UNNAMED AQUIFERS |
| | 902763 33623- | BURNS, JESSE | SENW | 22 | 20.0 S | 49.0 W | | | ALL UNNAMED AQUIFERS |
| | 28802 28802-MH | WILSON, ELLIS | SESE | 22 | 20.0 S | 49.0 W | | | ALL UNNAMED AQUIFERS |
| | 9088131 83567- | ZENOBIA & PIERCY | SESW | 28 | 20.0 S | 49.0 W | 36 | | ALL UNNAMED AQUIFERS |
| | 18885 18885-MH | WILCOX BILL PEARSON DRLG | SESW | 28 | 20.0 S | 49.0 W | | | ALL UNNAMED AQUIFERS |
| | 3680566 217981--A | ONEAL, CARROLL D. | SWNE | 30 | 20.0 S | 49.0 W | | | |
| | 3680566 217981--A | ONEAL, BARBARA A. | SWNE | 30 | 20.0 S | 49.0 W | | | |
| 0445818B | 217981- | ONEAL CARROLL D & BARBARA A | SWNE | 30 | 20.0 S | 49.0 W | 100 | | ALL UNNAMED AQUIFERS |
| | 9088181 103652- | O NEAL CARROLL D & BARBARA A | SWNW | 30 | 20.0 S | 49.0 W | 100 | | ALL UNNAMED AQUIFERS |
| | 9088009 41936- | NETHERTON, DENNIS | SWNW | 30 | 20.0 S | 49.0 W | 106 | 84 | 106 ALL UNNAMED AQUIFERS |
| 0445818C | 217982- | ONEAL CARROLL D & BARBARA A | SWNW | 30 | 20.0 S | 49.0 W | 108 | | ALL UNNAMED AQUIFERS |
| 0445818A | 217980- | ONEAL CARROLL D & BARBARA A | NWNE | 31 | 20.0 S | 49.0 W | 95 | | ALL UNNAMED AQUIFERS |
| | 268449 145924- | WILCOX, LEROY | NENW | 34 | 20.0 S | 49.0 W | | | CHEYENNE |
| | 9088197 128550- | STATE BOARD OF LAND COMMISSIONERS | SENE | 34 | 20.0 S | 49.0 W | 40 | | ALL UNNAMED AQUIFERS |
| | 13626 151709- | STATE BOARD OF LAND COMMISSIONERS | SENE | 34 | 20.0 S | 49.0 W | 57 | 47 | 57 ALL UNNAMED AQUIFERS |
| | 903390 39376- | PROWERS COUNTY GRAZING ASSOCIATION | SESE | 35 | 20.0 S | 49.0 W | | | ALL UNNAMED AQUIFERS |
| | 9087953 34543- | FRAZEE, CLYDE | SESW | 13 | 20.0 S | 50.0 W | | | ALL UNNAMED AQUIFERS |
| | 9088128 81633- | O NEAL CARROLL D & BARBARA A | NENE | 24 | 20.0 S | 50.0 W | 88 | | ALL UNNAMED AQUIFERS |
| | 323008 160528- | O,NEAL CARROLL D & BARBARA A | NENW | 24 | 20.0 S | 50.0 W | 91 | 75 | 91 ALL UNNAMED AQUIFERS |
| | 9088003 41207- | O NEAL CARROLL D & BARBARA A | SENE | 25 | 20.0 S | 50.0 W | 105 | 85 | 105 QUATERNARY ALLUVIUM |
| | 9088005 41209- | ROSE WILLIAM & SON | SENE | 25 | 20.0 S | 50.0 W | | | ALL UNNAMED AQUIFERS |
| | 12851 12851-TH | STATE BOARD OF LAND COMMISSIONERS | SWNE | 36 | 20.0 S | 50.0 W | | | ALL UNNAMED AQUIFERS |
| | 9073978 32192- | STATE BOARD OF LAND COMMISSIONERS | NENW | 11 | 21.0 S | 49.0 W | | | ALL UNNAMED AQUIFERS |
| | 9073521 3871- | STATE BOARD OF LAND COMMISSIONERS | SWSW | 2 | 21.0 S | 49.0 W | | | ALL UNNAMED AQUIFERS |



COLORADO
Division of Water Resources
Department of Natural Resources

Bedrock Aquifer Determination Evaluation Tool

Dakota/Cheyenne - Aquifer Determination Tool

Applicant: Newell - 061-06742-00 ARWOOD 1

Receipt Number:

Location: SW 1/4 of NE 1/4 of Sec. 28, T.20S, R.49W. (2211 NSL, 2197 ESL)

Evaluated By:

Ground Surface Elevation: 4231

Warning! The depth intervals estimated in this area may vary from actual conditions due to lack of data and/or structural complexity.

| Surface | Elevation (ft) | Depth To (ft) |
|------------------|----------------|---------------|
| Top of Dakota | 3516 | 715 |
| Base of Dakota | 3345 | 886 |
| Top of Cheyenne | 3299 | 932 |
| Base of Cheyenne | 3210 | 1021 |