

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy Minerals and Natural Resources

Form C-101
Revised July 18, 2013

Oil Conservation Division
1220 South St. Francis Dr. **ARTESIA DISTRICT**

Santa Fe, NM 87505

JUN 28 2018

☐ AMENDED REPORT

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUG/ABANDON OR ADD A ZONE

| | | |
|---|--------------------------------|---------------------------------------|
| 1. Operator Name and Address Solaris Water Midstream, LLC 701 Tradewinds Blvd., Suite C, Midland, TX 79706 | | 2. OGRID Number 371643 |
| | | 3. API Number 30-015- 45072 |
| 4. Property Code 321624 (TBD) | 5. Property Name Mobley SWD | 6. Well No. 1 |

7. Surface Location
(To be verified by field survey)

| UL - Lot | Section | Township | Range | Lot Idn | Feet from | N/S Line | Feet From | E/W Line | County |
|----------|---------|----------|-------|---------|-----------|----------|-----------|----------|--------|
| C | 19 | 23S | 30E | | 225 | FNL | 2460 | FWL | EDDY |

8. Proposed Bottom Hole Location
(To be verified by field survey)

| UL - Lot | Section | Township | Range | Lot Idn | Feet from | N/S Line | Feet From | E/W Line | County |
|----------|---------|----------|-------|---------|-----------|----------|-----------|----------|--------|
| C | 19 | 23S | 30E | | 225 | FNL | 2460 | FWL | EDDY |

9. Pool Information

| | |
|-------------------------------------|--------------------|
| Pool Name SWD; Devonian-Silurian | Pool Code 97869 |
|-------------------------------------|--------------------|

Additional Well Information

| | | | | |
|-------------------------------|---|--|---------------------------|-------------------------------------|
| 11. Work Type N | 12. Well Type SWD | 13. Cable/Rotary R | 14. Lease Type P | 15. Ground Level Elevation 3065' |
| 16. Multiple No | 17. Proposed Depth 16,500' | 18. Formation Fusselman | 19. Contractor Latshaw | 20. Spud Date 7/15/2018 |
| Depth to Ground water 103' | Distance from nearest fresh water well 3400' | Distance to nearest surface water n/a | | |

☒ We will be using a closed-loop system in lieu of lined pits

21. Proposed Casing and Cement Program


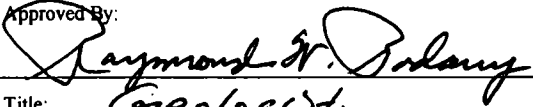
| Type | Hole Size | Casing Size | Casing Weight/ft | Setting Depth | Sacks of Cement | Estimated TOC |
|--------------|-----------|-------------|------------------|-----------------|-----------------|---------------|
| Surface | 26.5" | 20.0" | 94.0 lb/ft | 400' | 690 | SURFACE |
| Intermediate | 17.5" | 13.375" | 68.0 lb/ft | 3310' | 1910 | SURFACE |
| Production | 12.25" | 9.875" | 62.8 lb/ft | 10,900' | 1800 | SURFACE |
| Liner | 8.5 | 7.625" | 39.0 lb/ft | 10,600'-15,160' | 430 | TOL |
| Openhole | 6.5 | -- | -- | 15,160'-16,500' | | |

Casing/Cement Program: Additional Comments

| |
|--|
| |
|--|

22. Proposed Blowout Prevention Program

| Type | Working Pressure | Test Pressure | Manufacturer |
|-------------------------------|------------------|---------------|-----------------------|
| Double Hydraulic/Blinds, Pipe | 10000 (10M) | 10000 | Shaffer or Equivalent |

| | | | |
|---|---------------------|--|--|
| 23. I hereby certify that the information given above is true and complete to the best of my knowledge and belief. I further certify that I have complied with 19.15.14.9 (A) NMAC <input type="checkbox"/> and/or 19.15.14.9 (B) NMAC <input type="checkbox"/> , if applicable. Signature:  | | OIL CONSERVATION DIVISION Approved By:  Title: Geologist Approved Date: 7-2-18 Expiration Date: 7-2-20 | |
| Printed name: Ben Stone | | | |
| Title: Agent for Solaris Water Midstream, LLC | | | |
| E-mail Address: ben@sosconsulting.us | | | |
| Date: 5/01/2018 6/28/2018 | Phone: 903-488-9850 | Conditions of Approval Attached APPROVED C-108 | |

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1625 N. French Dr., Hobbs, NM 88240
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1301 W. Grand Avenue, Artesia, NM 88210
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State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised October 12, 2005
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

| | | |
|--|---|---|
| ¹ API Number 30-015-45072 | ² Pool Code 97869 | ³ Pool Name SWD; Devonian - Silurian |
| ⁴ Property Code 321624 | ⁵ Property Name Mobley SWD | |
| ⁷ OGRID No. 371643 | ⁸ Operator Name Solaris Water Midstream, LLC | ⁶ Well Number 1 |
| | | ⁹ Elevation 3065 feet |

¹⁰ Surface Location

| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|--------|
| C | 19 | 23-S | 30-E | | 225 | North | 2460 | West | Eddy |

¹¹ Bottom Hole Location If Different From Surface

| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|--------------------------------------|---------|--------------------------------------|-------|---|---------------|-------------------------|---------------|----------------|--------|
| | | | | | | | | | |
| ¹² Dedicated Acres n/a | | ¹³ Joint or Infill n/a | | ¹⁴ Consolidation Code n/a | | ¹⁵ Order No. | | | |

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

| | | |
|-------------------|---|--|
| ¹⁶ | ¹⁷ OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. Signature: <u>Benjamin E. Stone</u> Date: <u>5/01/2018</u> Printed Name: Benjamin E. Stone SOS Consulting, LLC; agent for: Solaris Water Midstream, LLC | |
| | ¹⁸ SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. Date of Survey: <u>6/23/2015</u> Signature and Seal of Professional Surveyor: Ronald Eidson | |
| | NM Cert. No. 3239 Certificate Number | |
| | | |

32.297112
-103.921690
Assume NAD 83

Solaris Water Midstream, LLC

Mobley Ranch SWD Well No. 1

225' FNL & 2460' FWL

Section 19, Twp 23-S, Rng 30-E

Eddy County, New Mexico

Well Program - New Drill

Objective: Drill new well for commercial salt water disposal into the Devonian, Silurian and Fusselman (mudlogging and e-logging to determine final depths) per SWD-(pending).

1. Geologic Information - Devonian Formation

The Devonian, Silurian and Fusselman all consist of carbonates including light colored dolomite and chert intervals interspersed with some tight limestone intervals. Several thick sections of porous dolomite capable of taking water are present within the subject formations in the area. Depth control data was inferred from deep wells to the north, south and east. If the base of Devonian and top of Silurian and/or Ordovician rocks come in as expected the well will only be drilled deep enough for adequate logging rathole.

Estimated Formation Tops:

| | |
|----------------|-------|
| B/Salt | 3210 |
| Delaware Lime | 3339 |
| Cherry Canyon | 4160 |
| Bone Spring | 7072 |
| Wolfcamp | 10373 |
| Strawn | 12288 |
| Atoka | 12512 |
| Morrow | 13136 |
| Woodford Shale | 15000 |
| Devonian | 15135 |
| Fusselman | 15615 |
| TD Ordovician* | 16500 |
| Ellenburger | 19000 |

*Please see narrative portion of drilling/pipe specs for TD options.

2. Drilling Procedure

- a. MIRU drilling rig and associated equipment. Set up H₂S wind direction indicators; brief all personnel on Emergency Evacuation Routes.
- b. All contractors conduct safety meeting prior to current task. All equipment inspected daily. Repair / replace as required.
- c. Well spud operations commence.
- d. Mud logger monitoring returns; cuttings & waste hauled to specified facility. (Sundance, Lea County)
- e. After surface casing set/drilled; if H₂S levels >20ppm detected, implement H₂S Plan accordingly. (e.g., cease operations, shut in well, employ H₂S safety trailer & personnel safety devices, install flare line, etc. - refer to plan.)
- f. Spills contained & cleaned up immediately. Repair or otherwise correct the situation within 48 hours before resuming operations. Notify OCD within 24 hours. Remediation started ASAP if

Well Program - New Drill (cont.)

required. Operator shall comply with 19.15.29 NMAC and 19.15.30 NMAC, as appropriate.

- g. Sundry forms filed as needed - casing, cement, etc. - operations continue to completion.

3. Casing program - Casing designed as follows:

| STRING | HOLE SZ | DEPTH | CSG SZ | COND | WT/GRD | CLLPS/BRS | TNSN |
|--------------|-----------|-----------------|---------|------|----------------------|--------------------------|------|
| | | | | | | (Minimum Safety Factors) | |
| Surface | 26.5" | 0-400' | 20.0" | New | 94.0 lb. J/K-55 ST&C | 1.125/1.1 | 1.8 |
| Intermediate | 17.5" | 0-3310' | 13.375" | New | 68.0 lb. HCL-80 BT&C | 1.125/1.1 | 1.8 |
| 2nd Inter | 12.25" | 0-10,900' | 9.875" | New | 62.8 lb. Q-125 LT&C | 1.125/1.1 | 1.8 |
| Prod/ Liner* | 8.5" | 10,900'-15,160' | 7.625" | New | 39.0 lb. P-110 FJ | 1.125/1.1 | 1.8 |
| Openhole* | 6.5" hole | 15,160'-16,500' | OH | n/a | n/a | n/a | n/a |

Notes:

- ✓ On both Intermediate casing strings, the cement will be designed to circulate to surface. Both strings will have cement bond logs run (radial, CET or equivalent) to surface.
- ✓ While running all casing strings, the pipe will be kept a minimum of 1/3 full at all times to avoid approaching the collapse pressure of casing.
- ✓ * Based on mudlogging and e-logs, 7.0" casing shoe is expected to be set at 15,160'. TD is expected to be 16,500' as determined by logging and suitable porosity has been exposed. Sundry notice will document such events and a C-105 completion report filed within 60 days.

4. Cementing Program:

Surface – LEAD Slurry: 500 sacks of Class C containing 4% gel + 2% CaCl₂ + .4 pps defoamer + .125 pps cello flake + 3 pps Koal Seal. Weight 13.7 ppg, yield 1.68 ft³/sack; TAIL Slurry: 190 sacks of Class C Neet containing 2% CaCl₂. Weight 14.8 ppg, yield 1.34 ft³/sack; 100% excess, circulate to surface.

1st Intermediate – LEAD Slurry: 1,400 sacks of Class C containing 4% gel + .4 pps defoamer + .125 pps cello flake + 5% NaCl. Weight 13.2 ppg, yield 1.83 ft³/sack; TAIL Slurry: 510 sacks of Class C Neet. Weight 14.8 ppg, yield 1.32 ft³/sack; 50% excess, circulate to surface.

2nd Intermediate – Stage 1 LEAD Slurry: 1,100 sacks of 50/50 POZ containing 10% gel + .4 pps defoamer + .125 pps cello flake + 1 pps Koal Seal + 5% NaCl. Weight 11.9 ppg, yield 2.473 ft³/sack; TAIL Slurry: 400 sacks of Class H containing 2% retarder + .2 pps defoamer. Weight 15.6 ppg, yield 1.18 ft³/sack; 25% excess. DV TOOL ~5800'; Stage 2 LEAD Slurry: 700 sacks of 50/50 POZ containing 10% gel + .4 pps defoamer + .125 pps cello flake + 1 pps Koal Seal + 5% NaCl. Weight 11.9 ppg, yield 2.473 ft³/sack; TAIL Slurry: 200 sacks of Class H containing 2% retarder + .2 pps defoamer. Weight 15.6 ppg, yield 1.18 ft³/sack; 35% excess. circulate to surface.

Prod Liner – Slurry: 430 sacks of 50/50 POZ Class H containing .3% retarder + .7% fluid loss additive + .2% dispersant + .4 pps defoamer + .1% Anti-Settling agent. Weight 15.2 ppg, yield 1.32 ft³/sack. 35% excess; TOC calculated @ Top of liner 10,600'.

Well Program - New Drill (cont.)

5. Pressure Control - BOP diagram is attached to this application. All BOP and related equipment shall comply with well control requirements as described NMOCD Rules and Regulations and API RP 53,

Section 17. Minimum working pressure of the BOP and related equipment required for the drilling shall be 5000 psi. The NMOCD Hobbs district office shall be notified a minimum of 4 hours in advance for a representative to witness BOP pressure tests. The test shall be performed by an independent service company utilizing a test plug (no cup or J-packer). The results of the test shall be recorded on a calibrated test chart submitted to the OCD district office. Test shall be conducted at:

- a. Installation;
- b. after equipment or configuration changes;
- c. at 30 days from any previous test, and;
- d. anytime operations warrant, such as well conditions

6. Mud Program & Monitoring - Mud will be balanced for all operations as follows:

| DEPTH | MUD TYPE | WEIGHT | FV | PV | YP | FL | Ph |
|-----------------|---------------|----------|-------|----|----|----|----------|
| 0-400' | FW Spud Mud | 8.5-9.2 | 70-40 | 20 | 12 | NC | 10.0 |
| 400'-3310' | Brine Water | 9.8-10.2 | 28-32 | NC | NC | NC | 10.0 |
| 3310'-10,900' | FW/Gel | 8.7-9.0 | 28-32 | NC | NC | NC | 9.5-10.5 |
| 10,900'-15,160' | XCD Brine Mud | 11.0- | 45-48 | 20 | 10 | <5 | 9.5-10.5 |
| 15,160'-16,500' | FW Mud | 8.4-8.6 | 28-30 | NC | NC | NC | 9.5-10.5 |

Mud and all cuttings monitored w/ cuttings recovered for disposal. Returns shall be visually and electronically monitored. In the event of H₂S, mud shall be adjusted appropriately by weight and H₂S scavengers.

7. Auxiliary Well Control and Monitoring – Hydraulic remote BOP operation, mudlogging to monitor returns.

8. H₂S Safety - This well and related facilities are not expected to have H₂S releases. However, there may be H₂S in the area. There are no private residences or public facilities in the area but a contingency plan has been developed. Solaris Water Midstream, LLC will have a company representative available to personnel throughout all operations. If H₂S levels greater than 10ppm are detected or suspected, the H₂S Contingency Plan will be implemented at the appropriate level.

H₂S Safety - There is a low risk of H₂S in this area. The operator will comply with the provisions of NMAC 19.15.11 and BLM Onshore Oil and Gas Order #6.

- a) Monitoring - all personnel will wear monitoring devices.
- b) Warning Sign - a highly visible H₂S warning sign will be placed for obvious viewing at the vehicular entrance point onto location.
- c) Wind Detection - two (2) wind direction socks will be placed on location.
- d) Communications - will be via cellular phones and/or radios located within reach of the driller, the rig floor and safety trailer when applicable.
- e) Alarms - will be located at the rig floor, circulating pump / reverse unit area and the flareline and will be set for visual (red flashing light) at 15 ppm and visual and audible (115 decibel siren) at 20 ppm.

Well Program - New Drill (cont.)

- f) Mud program - If H₂S levels require, proper mud weight, safe drilling practices and H₂S scavengers will minimize potential hazards.
- g) Metallurgy - all tubulars, pressure control equipment, flowlines, valves, manifolds and related equipment will be rated for H₂S service if required.

The Solaris Water Midstream, LLC H₂S Contingency Plan will be implemented if levels greater than 10ppm H₂S are detected.

9. Logging, Coring and Testing – Solaris Water Midstream, LLC expects to run;

- a. Mud logging through the interval will ensure the target interval remains Devonian and Silurian.
- b. CBL (Radial, CET or equivalent) on both intermediate casing strings.
- c. Standard porosity log suite from TD to approximately 12,000'.
- d. No corings or drill tests will be conducted. (The well may potentially be step rate tested in the future if additional injection pressures are required.)

10. Potential Hazards - No abnormal pressures or temperatures are expected.

No loss of circulation is expected to occur with the exception of drilling into the target disposal zone. All personnel will be familiar with the safe operation of the equipment being used to drill this well.

The maximum anticipated bottom-hole pressure is 9000 psi and the maximum anticipated bottom-hole temperature is 200° F.

11. Waste Management - All drill cuttings and other wastes associated with and drilling operations will be transported to the Lea County Sundance facility (or alternate), permitted by the Environmental Bureau of the New Mexico Oil Conservation Division.

12. Anticipated Start Date - Upon approval of all permits for SWD, operations would begin within 30 days. Completion of the well operations will take six to seven weeks. Installation of the tank battery, berms, plumbing and other and associated equipment would be occurring during the same interval. In any event, it is not expected for the construction phase of the project to last more than 60 days, depending on availability of contractors and equipment. At the time of this submittal, and subject to the availability of the drilling contractor, the anticipated start date is:

June 15, 2018.

13. Configure for Salt Water Disposal – Subsequent to SWD permit approval from OCD and prior to commencing any work, an NOI sundry(ies) will be submitted to configure the well for SWD and will detail the completion workover including all work otherwise described above, any change to the procedure noted herein and to perform mechanical integrity pressure test per BLM and OCD test procedures. (Notify NMOCD 24 hours prior.) The casing/tubing annulus will be monitored for communication with injection fluid or loss of casing integrity. Anticipated daily maximum volume is 30,000 bpd and average of 20,000 bpd at a maximum surface injection pressure of 3032 psi (0.2 psi/ft to uppermost injection interval, i.e., casing shoe). If satisfactory disposals rates cannot be achieved at default pressure of .2 psi/ft, Solaris Water Midstream, LLC will conduct a step-rate test and apply for an injection pressure increase 50 psi below parting pressure.

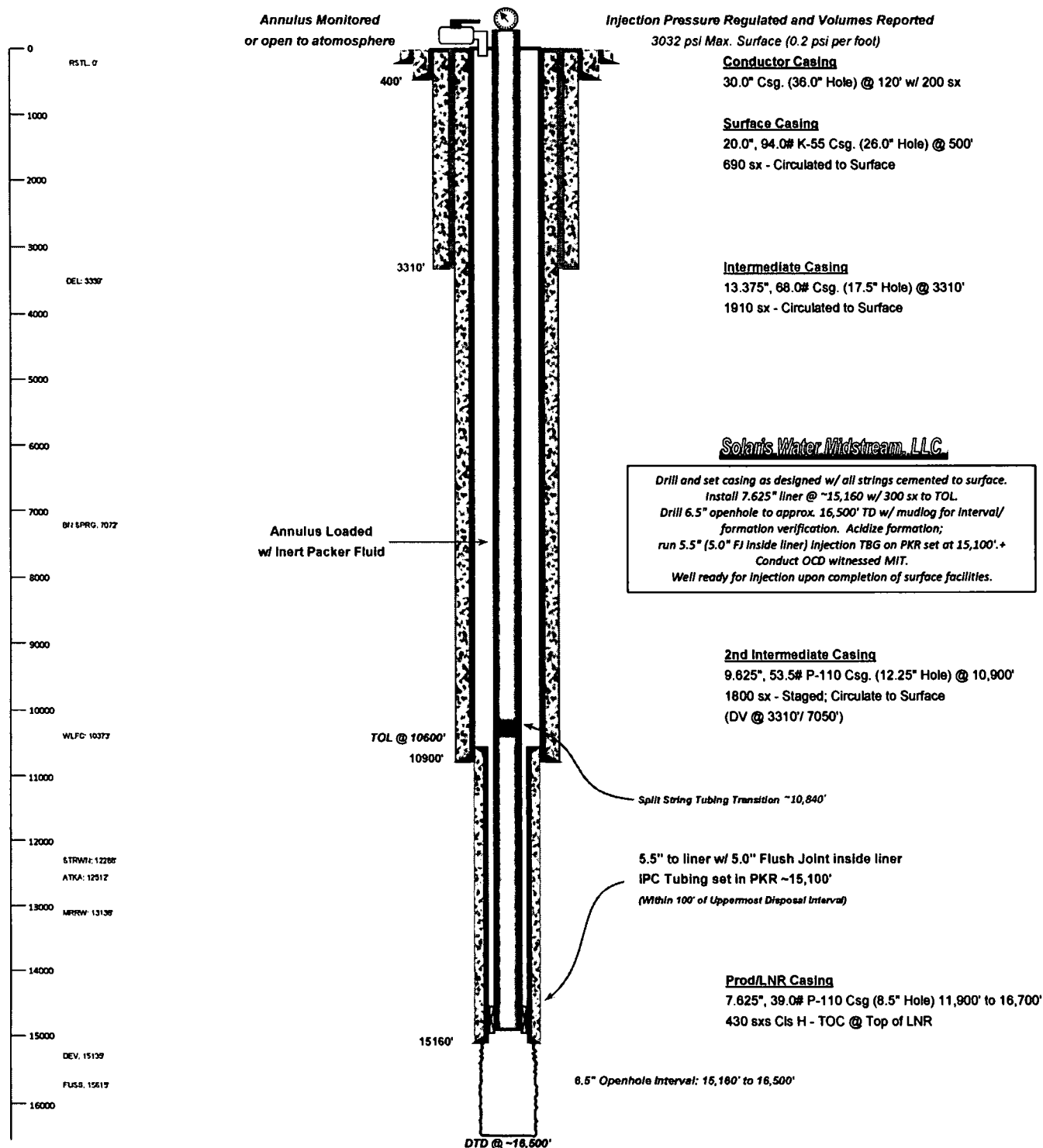


WELL SCHEMATIC - PROPOSED Mobley Ranch SWD Well No.1

API 30-015-xxxxx
225' FNL & 2460' FWL, SEC. 19-T23S-R30E
EDDY COUNTY, NEW MEXICO

SWD; Devonian-Silurian (97869)

Spud Date: 12/01/2017
SWD Config Dt: 1/01/2018



Solaris Water Midstream, LLC

Drill and set casing as designed w/ all strings cemented to surface.
Install 7.625" liner @ ~15,160 w/ 300 sx to TOL.
Drill 6.5" openhole to approx. 16,500' TD w/ mudlog for interval/
formation verification. Acidize formation;
run 5.5" (5.0" FI inside liner) Injection TBG on PKR set at 15,100'.+
Conduct OCD witnessed MIT.

2nd Intermediate Casing

9.625", 53.5# P-110 Csg. (12.25" Hole) @ 10,900'
1800 sx - Staged; Circulate to Surface
(DV @ 3310' / 7050')



Drawn by: Ben Stone, 10/20/2017

Mobley Ranch SWD No.1 - Area of Review / 2 Miles

(Attachment to NMOCD Form C-108 - Item V)

