

**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**  
**Oil Conservation Division**  
**1220 South St. Francis Dr.**  
**Santa Fe, NM 87505**

Form C-101  
Revised July 18, 2013

**NM OIL CONSERVATION**

ARTESIA DISTRICT RECOMMENDED REPORT

**MAY 13 2015**

**RECEIVED**

**APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE**

<sup>1</sup> Operator Name and Address <b>Ray Westall Operating, Inc.</b> <b>P.O. Box 4, Loco Hills, NM 88255</b>		<sup>2</sup> OGRID Number <b>119305</b>
		<sup>3</sup> API Number <b>30-015-28960</b>
<sup>4</sup> Property Code <del>TBD</del> <b>314812</b>	<sup>5</sup> Property Name <b>Sand Tank 32 State SWD</b>	<sup>6</sup> Well No. <b>1</b>

**<sup>7</sup> Surface Location**

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
<b>N</b>	<b>32</b>	<b>17 S</b>	<b>30 E</b>		<b>660'</b>	<b>South</b>	<b>1980'</b>	<b>West</b>	<b>Eddy</b>

**<sup>8</sup> Proposed Bottom Hole Location**

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County

**<sup>9</sup> Pool Information**

<sup>10</sup> Pool Name <b>SWD; Wolfcamp-Penn</b>	<sup>11</sup> Pool Code <b>96138</b>
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**Additional Well Information**

<sup>12</sup> Work Type <b>E</b>	<sup>13</sup> Well Type <b>S</b>	<sup>14</sup> Cable/Rotary <b>R</b>	<sup>15</sup> Lease Type <b>S</b>	<sup>16</sup> Ground Level Elevation <b>3555'</b>
<sup>17</sup> Multiple <b>N</b>	<sup>18</sup> Proposed Depth <b>9980' PBDT</b>	<sup>19</sup> Formation <b>Canyon (Penn)</b>	<sup>20</sup> Contractor <b>TBD</b>	<sup>21</sup> Spud Date <b>5/15/2015</b>
<sup>22</sup> Depth to Ground water <b>~80'</b>	<sup>23</sup> Distance from nearest fresh water well <b>&gt;1 mile</b>	<sup>24</sup> Distance to nearest surface water <b>n/a</b>		

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

**<sup>25</sup> Proposed Casing and Cement Program**

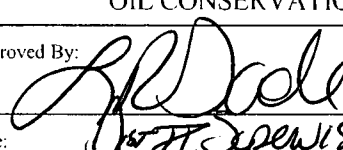
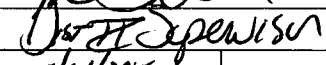
Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
<b>Surface</b>	<b>14.75"</b>	<b>11.75"</b>	<b>48.0#</b>	<b>666'</b>	<b>350 'C'</b>	<b>Circ. to Surf.</b>
<b>Intermediate</b>	<b>11.0"</b>	<b>8.625"</b>	<b>32.0#</b>	<b>4006'</b>	<b>1350 'C'</b>	<b>Circ. to Surf.</b>
<b>Production *</b>	<b>7.875"</b>	<b>5.5"</b>	<b>17.0#</b>	<b>11506' / PBDT 9980'</b>	<b>1550 'H'</b>	<b>4725'</b>

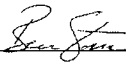
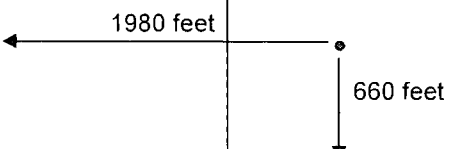
**Casing/Cement Program: Additional Comments**

\*Drill out plugs to apprx. 10,000' (Set CIBP @ 10,010' w/ 30' cement cap.)

**<sup>26</sup> Proposed Blowout Prevention Program**

Type	Working Pressure	Test Pressure	Manufacturer
<b>Hydraulic or Man./ Dbl. Blind Ram</b>	<b>3000 psi</b>	<b>5000 psi</b>	<b>Shaffer/ Hydriil or equivalent</b>

<sup>27</sup> 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:		<b>OIL CONSERVATION DIVISION</b>	
Printed name: <b>Ben Stone</b>		Approved By: 	
Title: <b>Agent for Ray Westall Operating, Inc.</b>		Title: 	
E-mail Address: <b>ben@sosconsulting.us</b>		Approved Date: <b>5/14/2015</b> Expiration Date:	
Date: <b>5/13/2014</b>	Phone: <b>903-481</b>	Conditions of Approval Attached	

16				
				<div style="text-align: right;">17 <b>OPERATOR CERTIFICATION</b></div> <p><i>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.</i></p> <div style="display: flex; justify-content: space-between; align-items: flex-end;"> <div style="text-align: center;">               Signature           </div> <div style="text-align: center;"> <u>5/13/2015</u>              Date           </div> </div> <div style="border-top: 1px solid black; padding-top: 5px;"> <b>Benjamin E. Stone</b>  <small>Printed Name</small> </div> <p><b>SOS Consulting, LLC; agent for: Ray Westall Operating, Inc.</b></p>
				<div style="text-align: right;">18 <b>SURVEYOR CERTIFICATION</b></div> <p><i>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.</i></p> <div style="border-top: 1px solid black; padding-top: 5px;"> <b>March 28, 1996</b>  <small>Date of Survey</small> </div> <p>Signature and Seal of Professional Surveyor:   <b>Earl Foote</b></p> <div style="border-top: 1px solid black; padding-top: 5px;"> <b>NM Cert. No.8278</b>  <small>Certificate Number</small> </div>
				

**Ray Westall Operating, Inc.  
Sand Tank State SWD Well No.1  
Section 32, Twp 17-S, Rng 30-E  
Eddy County, New Mexico**

**Well Re-entry Program**

***Objective: Re-enter the existing wellbore by drilling out plugs, clean out to new PBTD of 9980', perforate, acidize and run new tubulars to configure for salt water disposal.***

**1. Geologic Information** - The Wolfcamp is a light gray-brown fine to medium crystalline fossiliferous limestone with inter-crystalline vugular porosity interbedded with gray shale. Additional porosity can be found when the well bore encounters detrital carbonates which were shed off shelf and foreslope areas and transported down the Wolfcamp paleoslope.

The Canyon Formation (Upper Penn) similar to the Wolfcamp is a gray micritic (fine grained) fossiliferous limestone with vugular porosity. The reservoirs in this area are usually limited in size with up dip porosity loss due to shelf margin carbonate build up.

The combined zones offer good porosity in the proposed injection interval located from 8300' to 9930' with very good porosity interspersed throughout the overall interval.

The Wolfcamp is overlain by the Abo then Yeso and Glorieta then upwards to San Andres and Grayburg above. The [Penn] Cisco and Canyon is underlain by Strawn and then the Atoka.

Fresh water in the area is generally available from the Santa Rosa formation. State Engineer's records show one water well in Section 20, T17S, 30E (6 miles distant) with a depth to water of 80 feet. Generally, depth to water in this area of Eddy County is 150 to 200 feet.

**Formation Tops**

Rustler	286
Queen	2362
San Andres	3235
Bone Spring	4616
Wolfcamp	8300
Strawn	10380
Atoka	10583

**2. Completion Procedure**

- a) MIRU WSU, reverse unit and associated equipment. Install B.O.P. RIH with bit and collars to drill out plugs.
- b) D/O & C/O plugs to apprx. 10,000'. Set CIBP @ 10,010' w/ 30' cmt.
- c) Perforate selected intervals - max top: 8300'; max bottom: 9930'.
- d) Acidize w/ ~2500 gals HCl per 1000'. Swab and/or circulate hole clean.
- e) RIH with nickel plated 5.5" or equiv. VFE retrievable packer or equivalent on 2.875" IPC or equiv. tubing w/ PKR @ 8205'+, pump clean fresh water containing corrosion inhibitor, biocide and oxygen scavenger down annulus, set packer. Prepare to run MIT test and notify OCD to witness 24 hours in advance.
- f) Build injection facility and start water disposal. Per SWD-1552; limit injection pressure to 1660 psi.

### **Well Re-entry Program (cont.)**

3. **Tubular program** - The well casing is set as described above. (See attached Proposed Well Schematic) 2-7/8" internally coated tubing will be run and set in a packer located at approximately 8205' (within 100' of the uppermost injection perforation at 8300').

4. **Cementing Program** - Existing Surface and Intermediate casing strings were all circulated to surface during the original well drilling and completion operations as follows:

Surface	11.75"	48.0#	14.75" hole	666'	350 sx 'C'	Circ to Surf
Intermediate	8.625"	32.0#	11.0" hole	4006'	1350 sx 'C'	Circ to Surf
Production	5.5"	17.0#	7.875" hole	11506'	1500 sx 'H'	4725'
Set 5.5" CIBP @ 10,010 w/ 30' cement cap for estimated 9980' PBTD						

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. Minimum working pressure of the BOP and related equipment required for the drillout shall be 3000 psi. OCD will be notified a minimum of 4 hours prior to 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 Artesia district office. The BOP test(s) will 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 Circulation System** - the plugs will be drilled with 8.4 lb/gal fresh water looped through the reverse unit with all cutting recovered for disposal. Visual inspection will be made by personnel while reverse unit is in operation so cement plug cuttings and potential losses are witnessed and acted upon.

7. **Auxiliary Well Control and Monitoring** - Not Applicable

8. **H<sub>2</sub>S Safety** - There is a low risk of H<sub>2</sub>S in this area. The operator will comply with the provisions of company H<sub>2</sub>S contingency plan as applicable. All personnel will wear monitoring devices and a wind direction sock will be placed on location.

9. **Logging, Coring and Testing** - Ray Westall Operating is not anticipating running additional logs. 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. All personnel will be familiar with the safe operation of the equipment being used to drillout and reenter this well. The maximum anticipated bottom hole pressure is 4500 psi and the maximum anticipated bottom hole temperature is 130° F.

11. **Waste Management** - All drill cuttings and other wastes associated with the re-entry and drill out operations will be transported to a commercial surface waste disposal facility permitted by the Environmental Bureau of the New Mexico Oil Conservation Division.

12. **Anticipated Start Date** - Ready now - MIRU 5/15/2015. Completion of the well operations will take two to three weeks. Installation of the tank battery, berms, plumbing and other and associated equipment would be occurring during the same interval.

**Well Re-entry Program (cont.)**

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, the anticipated start date is:

**May 15, 2015.**

**13. Configure for Salt Water Disposal** – SWD Permit No. SWD-1552. Prior to commencing any work, an NOI sundry(ies) will be submitted to configure the well for SWD and will detail the following tasks: drillout and workover including all work otherwise described above, any change to the procedure noted herein and to perform mechanical integrity pressure test per 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 volume is ~5,000 bpd at a maximum surface injection pressure of 1660 psi.

**Sand Tank '32' State Com Well No.1 SWD**

660' FSL & 1980' FWL, SEC. 32-T17S-R30E  
EDDY COUNTY, NEW MEXICO

P&A Date: 6/05/2008

<PLUGGING ITEMS LISTED LEFT>

11506



Drawn by: Ben Stone, 3/12/2015



## WELL SCHEMATIC - PROPOSED CONFIGURATION

### Sand Tank '32' State Com Well No.1 SWD

API 30-015-28960

660' FSL & 1980' FWL, SEC. 32-T17S-R30E  
EDDY COUNTY, NEW MEXICO

Spud Date: 8/22/1996

P&A Date: 6/05/2008

SWD Config Date: TBD

Annulus Monitored  
or open to atmosphere

Injection Pressure Regulated  
and Volumes Reported  
1650 psi Surface Max

**RAY WESTALL OPERATING, INC.**

D/O & C/O Existing Cmt Plugs.

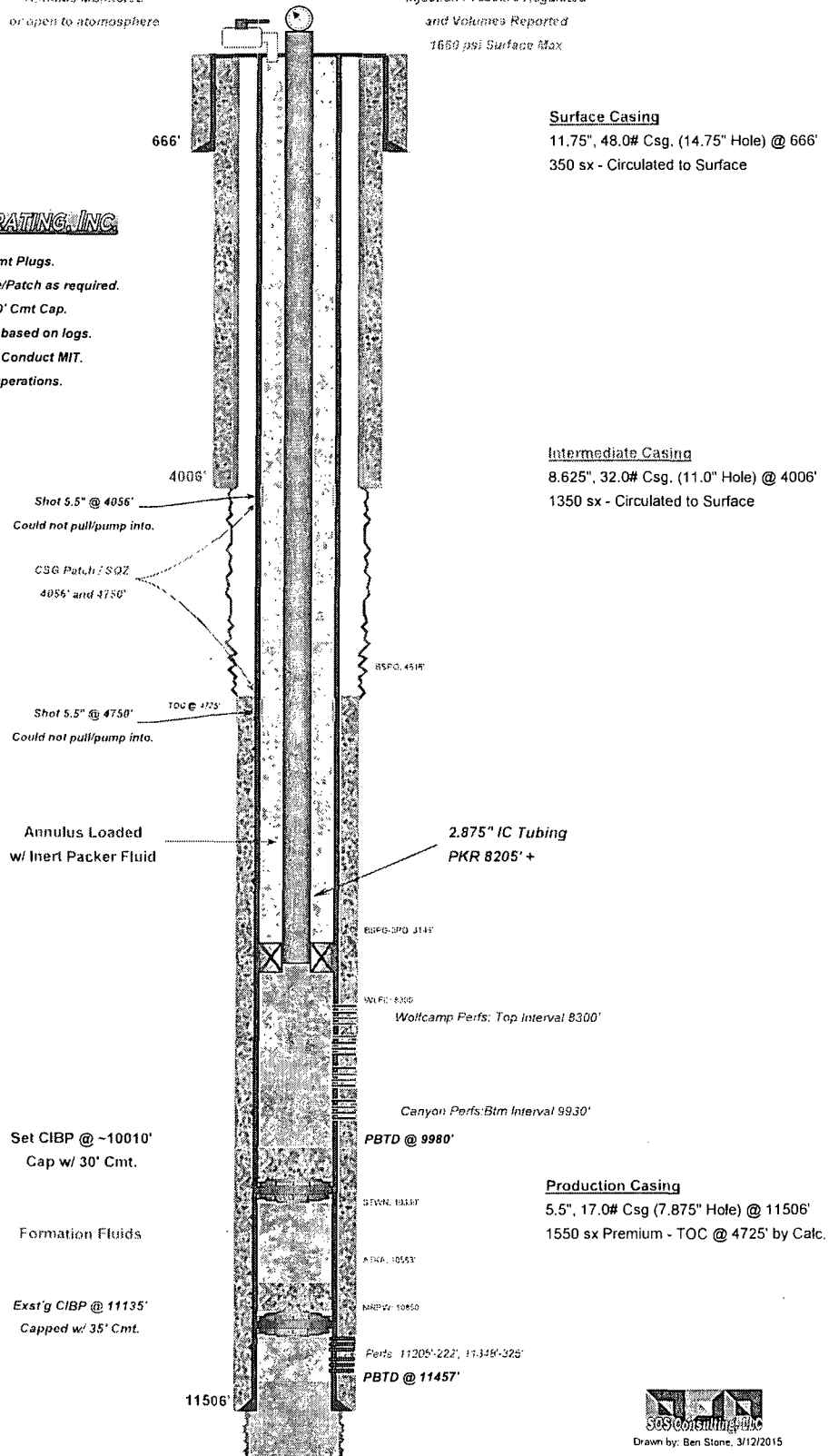
Test CSG shot depths - Squeeze/Patch as required.

Set CIBP @ 10010' w/ 30' Cmt Cap.

Perforate Specific Intervals based on logs.

Run PC Tubing and PKR - Conduct MIT.

Commence Disposal Operations.



#### Surface Casing

11.75", 48.0# Csg. (14.75" Hole) @ 666'  
350 sx - Circulated to Surface

#### Intermediate Casing

8.625", 32.0# Csg. (11.0" Hole) @ 4006'  
1350 sx - Circulated to Surface

#### Production Casing

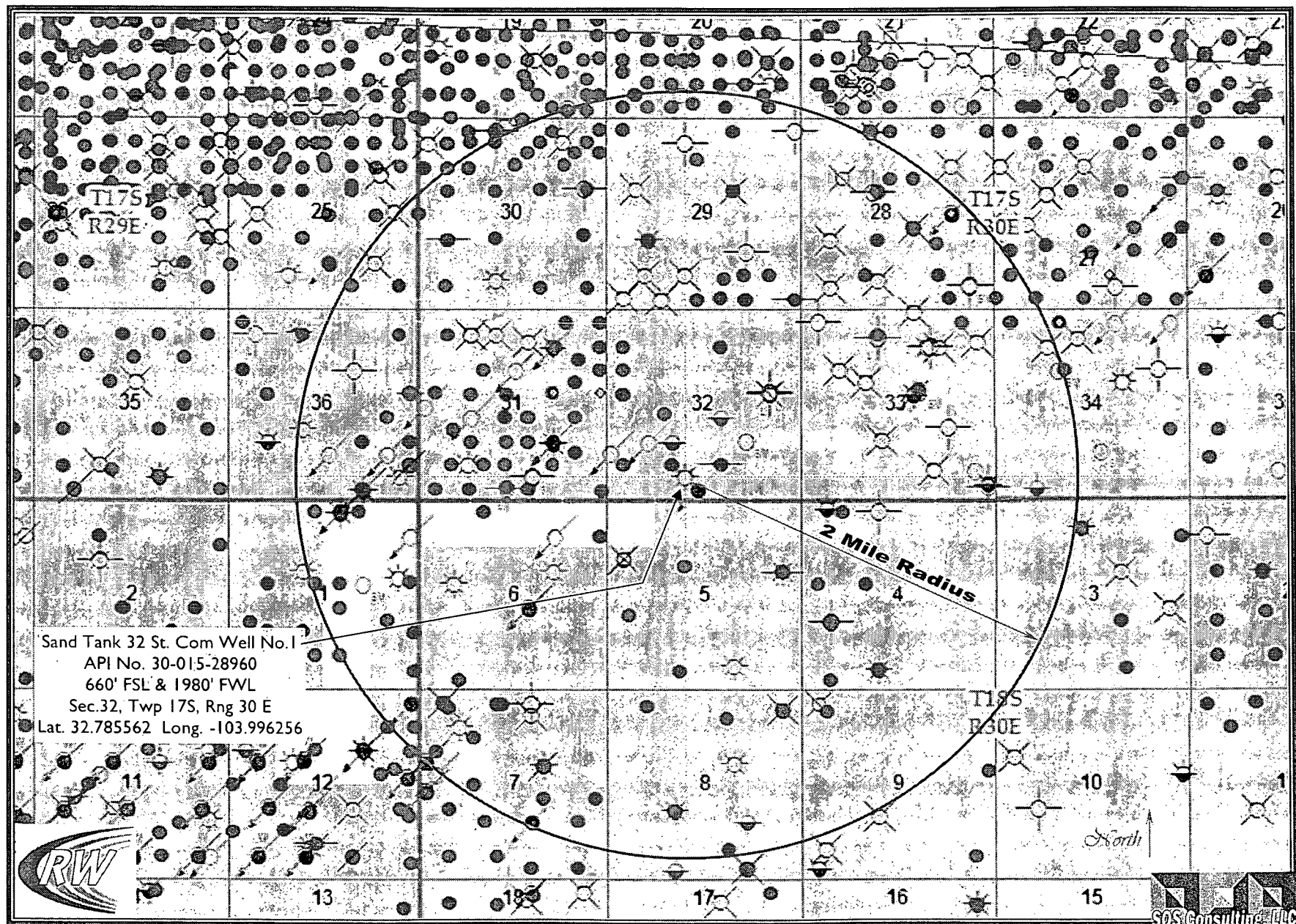
5.5", 17.0# Csg (7.875" Hole) @ 11506'  
1550 sx Premium - TOC @ 4725' by Calc.



Drawn by: Ben Stone, 3/12/2015

# Sand Tank '32' State Com Well No.1 - Area of Review / 2 Miles

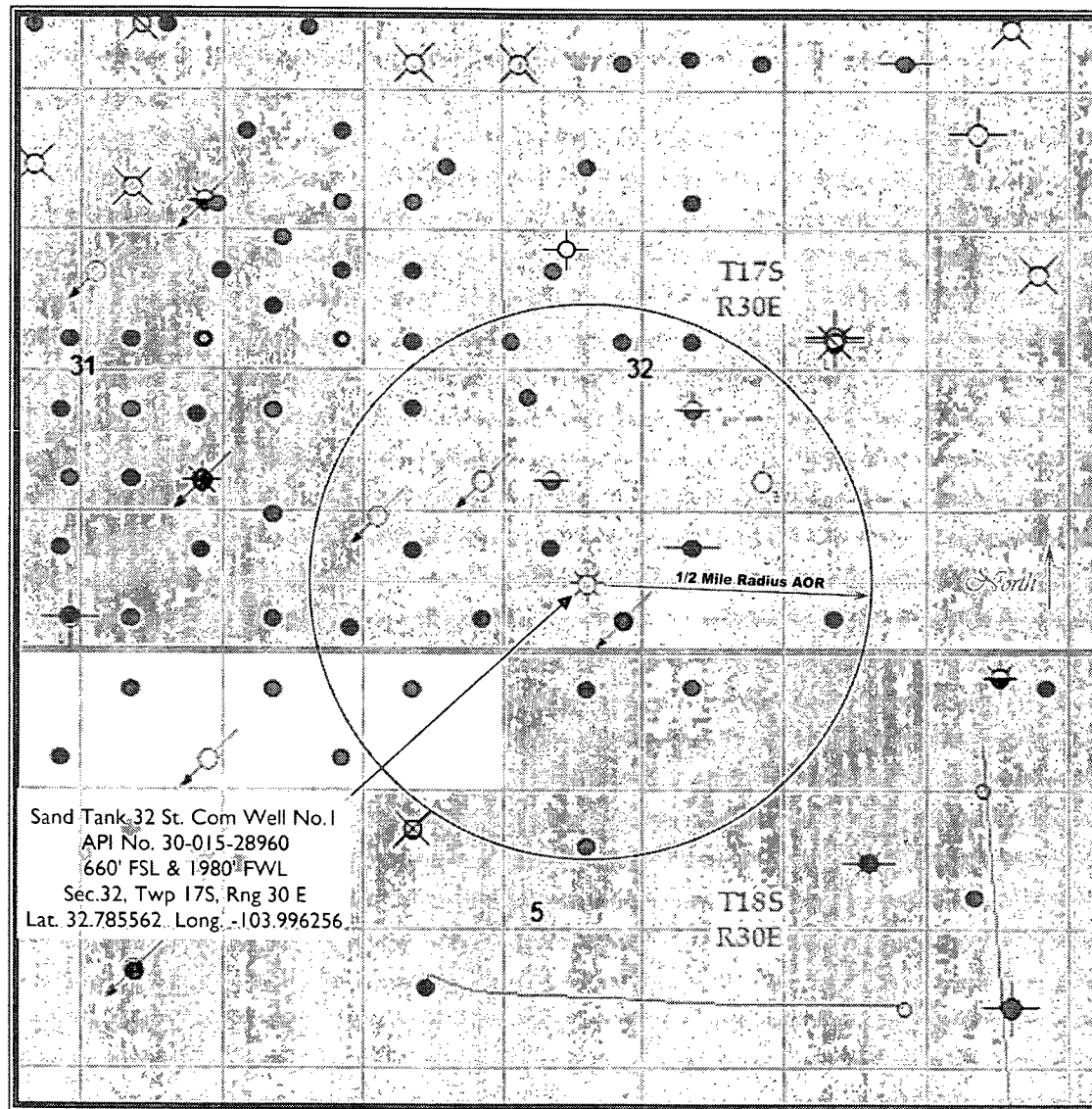
(Attachment to NMOCD Form C-108 - Item V)



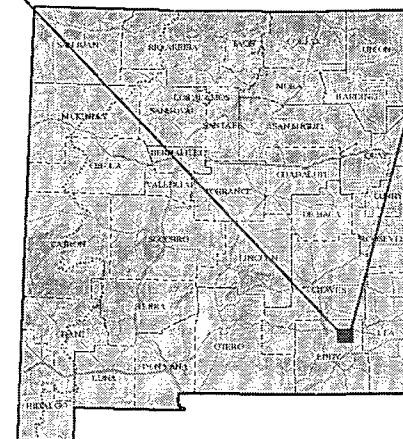
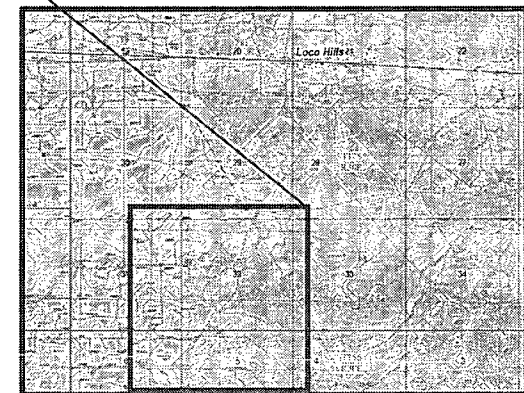


# Sand Tank '32' State Com Well No.1 - Area of Review / Overview Map

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



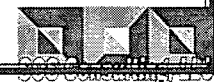
~2.1 miles S/SW  
of Loco Hills, NM



Eddy County, New Mexico

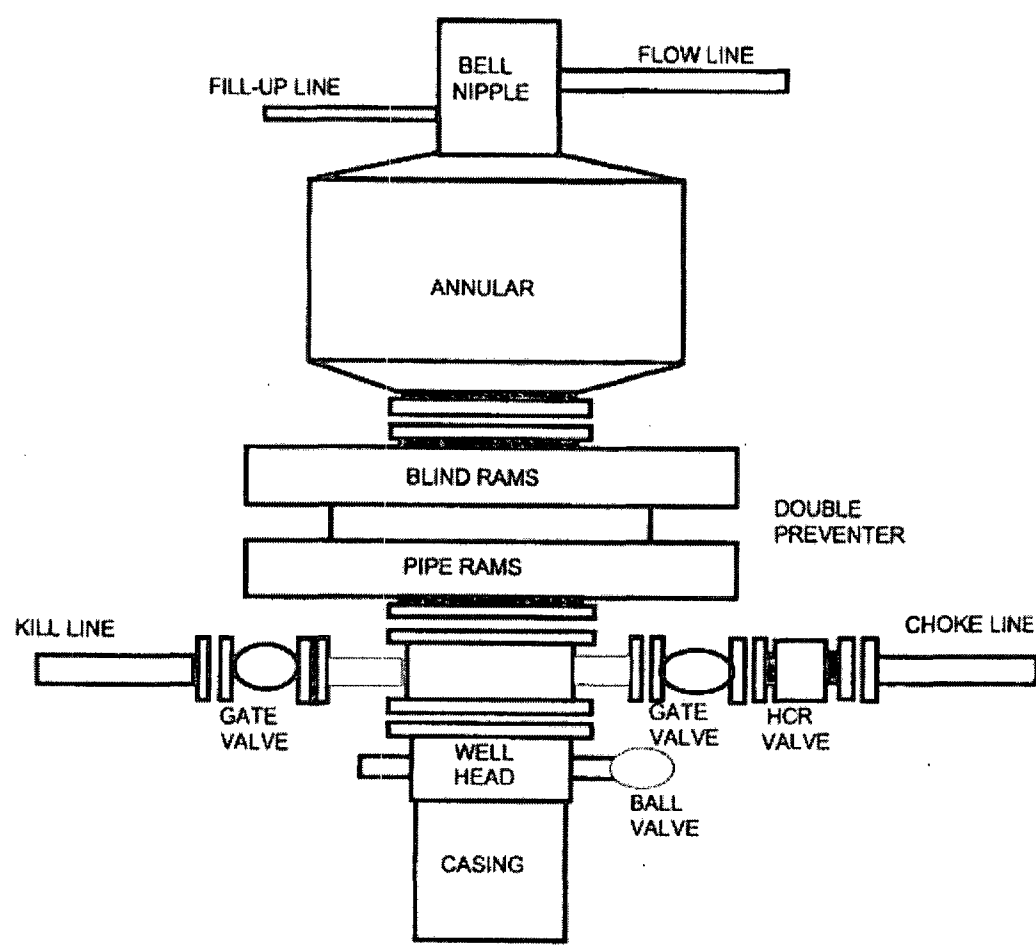


RW WESTALL OPERATING, INC.

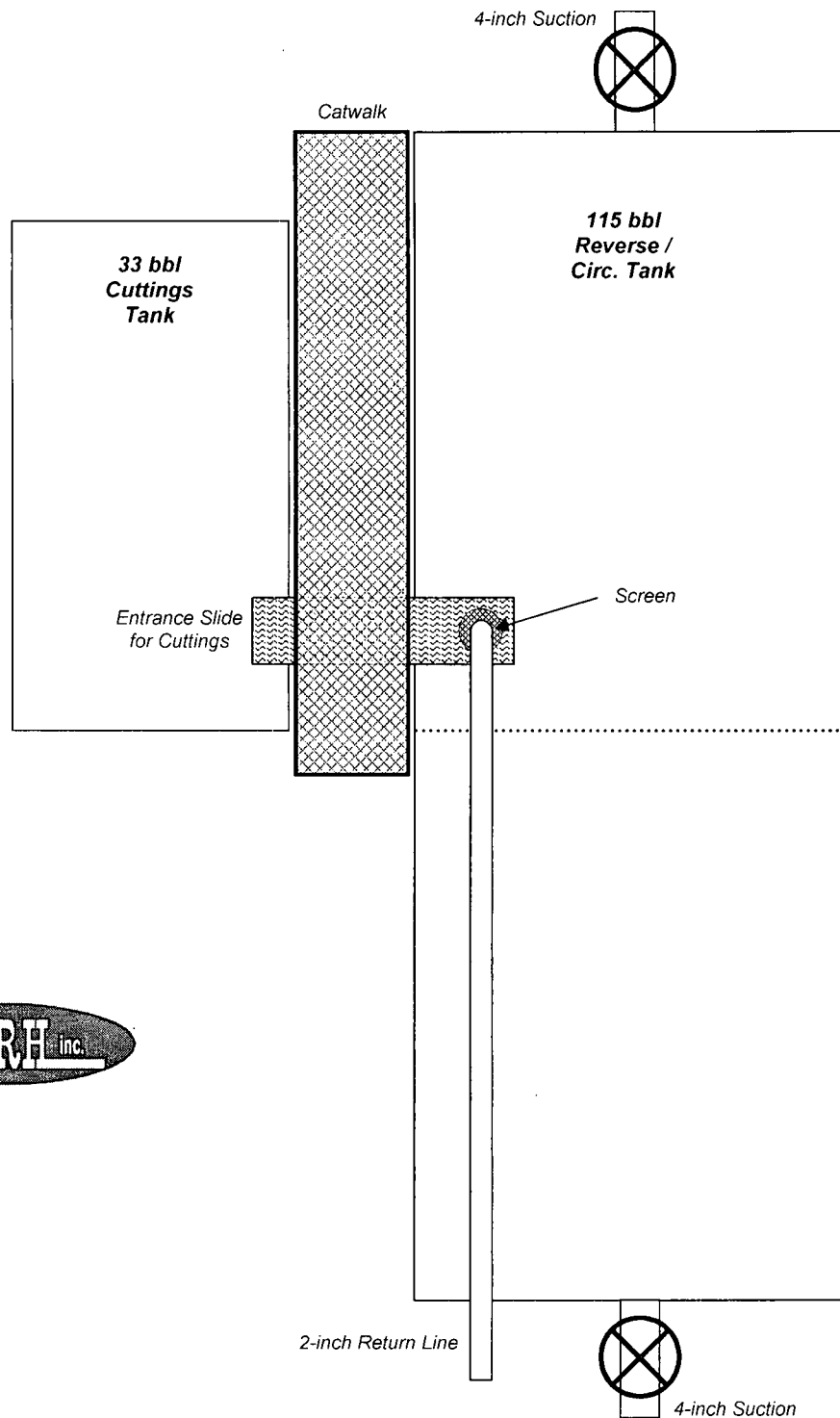


**BLOWOUT PREVENTER DIAGRAM**

3000 PSI WORKING PRESSURE

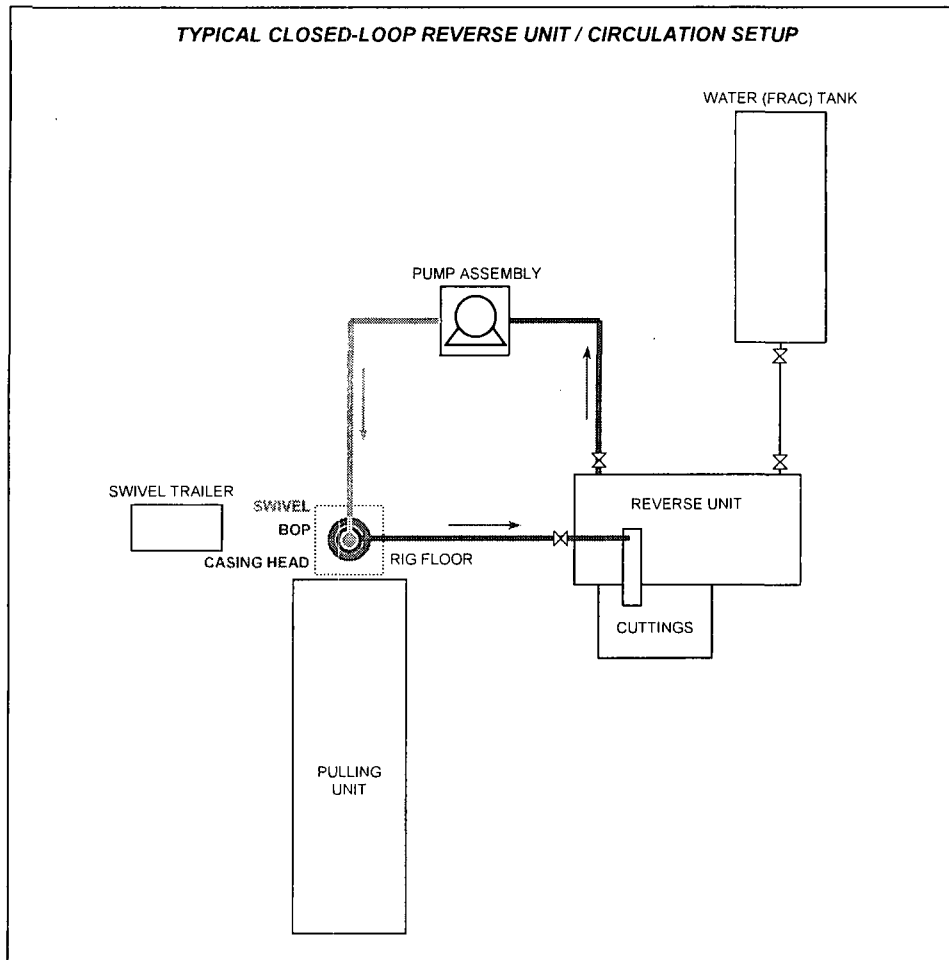


## Reverse / Circulation Tank for Workovers & Drillouts



## Standard Operating Procedure - Re-entry Closed-Loop Reverse Unit Diagram

1. Blow Out Preventer tested prior to any operations. Notify OCD at least 4 hours prior.
2. Visual monitoring maintained on returns. Proceed with drillout operations accordingly.
3. Cuttings / waste hauled to specified facility. CRI - LEA COUNTY
4. 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 required. Operator shall comply with 19.15.29 NMAC and 19.15.30 NMAC, as appropriate.
5. Subsequent sundry / forms filed as needed - well returned to service.



State of New Mexico  
Energy, Minerals and Natural Resources Department

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Susana Martinez  
Governor

David Martin  
Cabinet Secretary

Brett F. Woods, Ph.D.  
Deputy Cabinet Secretary

David R. Catanach, Division Director  
Oil Conservation Division



Administrative Order SWD-1552  
May 8, 2015

**ADMINISTRATIVE ORDER  
OF THE OIL CONSERVATION DIVISION**

Pursuant to the provisions of Division Rule 19.15.26.8B, NMAC, Ray Westall Operating, Inc. (the "operator") seeks an administrative order to utilize its proposed Sand Tank '32" State Com. SWD Well No. 1 located 660 feet from the South line and 1980 feet from the West line, Unit N of Section 32, Township 17 South, Range 30 East, NMPM, Eddy County, New Mexico, for the purpose of commercial disposal of produced water.

**THE DIVISION DIRECTOR FINDS THAT:**

The application has been duly filed under the provisions of Division Rule 19.15.26.8B, NMAC and satisfactory information has been provided that affected parties as defined in said rule have been notified and no objections have been received within the prescribed waiting period. The applicant has presented satisfactory evidence that all requirements prescribed in Rule 19.15.26.8 NMAC have been met and the operator is in compliance with Rule 19.15.5.9 NMAC.

**IT IS THEREFORE ORDERED THAT:**

The applicant, Ray Westall Operating, Inc. (OGRID 119305), is hereby authorized to utilize its Sand Tank '32' State Com. SWD Well No. 1 (API 30-015-28960) located 660 feet from the South line and 1980 feet from the West line, Unit N of Section 32, Township 17 South, Range 30 East, NMPM, Eddy County, for commercial disposal of oil field produced water (UIC Class II only) in the interval consisting of the Wolfcamp and Cisco formations through perforations from approximately 8300 feet to 9930 feet. Injection will occur through internally-coated, 2 7/8-inch or smaller tubing and a packer set within 100 feet of the top perforation.

**IT IS FURTHER ORDERED THAT:**

The operator shall take all steps necessary to ensure that the disposed water enters only the approved disposal interval and is not permitted to escape to other formations or onto the surface. This includes the well construction proposed and described in the application and modified in this order.

After installing tubing, the casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer. The casing shall be pressure tested from the surface to

the packer setting depth to assure casing integrity.

The well shall pass an initial mechanical integrity test ("MIT") prior to initially commencing disposal and prior to resuming disposal each time the disposal packer is unseated. All MIT procedures and schedules shall follow the requirements in Division Rule 19.15.26.11A. NMAC. The Division Director retains the right to require at any time wireline verification of completion and packer setting depths in this well.

The wellhead injection pressure on the well shall be limited to **no more than 1660 psi**. In addition, the disposal well or system shall be equipped with a pressure limiting device in workable condition which shall, at all times, limit surface tubing pressure to the maximum allowable pressure for this well.

The Director of the Division may authorize an increase in tubing pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the disposed fluid from the target formation. Such proper showing shall be demonstrated by sufficient evidence including but not limited to an acceptable Step-Rate Test.

The operator shall notify the supervisor of the Division's District II office of the date and time of the installation of disposal equipment and of any MIT so that the same may be inspected and witnessed. The operator shall provide written notice of the date of commencement of disposal to the Division's District office. The operator shall submit monthly reports of the disposal operations on Division Form C-115, in accordance with Division Rules 19.15.26.13 and 19.15.7.24 NMAC.

Without limitation on the duties of the operator as provided in Division Rules 19.15.29 and 19.15.30 NMAC, or otherwise, the operator shall immediately notify the Division's District II office of any failure of the tubing, casing or packer in the well, or of any leakage or release of water, oil or gas from around any produced or plugged and abandoned well in the area, and shall take such measures as may be timely and necessary to correct such failure or leakage.

The injection authority granted under this order is not transferable except upon Division approval. The Division may require the operator to demonstrate mechanical integrity of any injection well that will be transferred prior to approving transfer of authority to inject.

The Division may revoke this injection permit after notice and hearing if the operator is in violation of Rule 19.15.5.9 NMAC.

The disposal authority granted herein shall terminate two (2) years after the effective date of this order if the operator has not commenced injection operations into the subject well. One year after the last date of reported disposal into this well, the Division shall consider the well abandoned, and the authority to dispose will terminate *ipso facto*. The Division, upon written request mailed by the operator prior to the termination date, may grant an extension thereof for good cause.

Compliance with this order does not relieve the operator of the obligation to comply with other applicable federal, state or local laws or rules, or to exercise due care for the protection of fresh water, public health and safety and the environment.

Jurisdiction is retained by the Division for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh or protectable waters or (2) consistent with the requirements in this order, whereupon the Division may, after notice and hearing, terminate the disposal authority granted herein.



DAVID R. CATANACH  
Director

DC/mam

cc: Oil Conservation Division – Artesia District Office  
State Land Office – Oil, Gas and Minerals Division  
Well File 30-015-28960