

**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

**RECEIVED**  
**AUG 28 2018**  
**DISTRICT II-ARTESIA O.C.D.**  
**AMENDED REPORT**

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

<sup>1</sup> Operator Name and Address Percussion Petroleum Operating, LLC 919 Milam, Ste.2475 Houston, TX 77002		<sup>2</sup> OGRID Number 371755
		<sup>3</sup> API Number 30-015- <b>45220</b>
<sup>4</sup> Property Code <b>321016</b> (TBD)	<sup>5</sup> Property Name Chalk Bluff State SWD	<sup>6</sup> Well No. 2

**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
K	32	<b>17S</b> <b>175</b>	27E		1730	FSL	1880	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
K	32	<b>17S</b> <b>175</b>	27E		1730	FSL	1880	FWL	EDDY

**9. Pool Information**

Pool Name SWD; Devonian-Silurian	Pool Code 97869
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**Additional Well Information**

<sup>11</sup> Work Type N	<sup>12</sup> Well Type SWD	<sup>13</sup> Cable/Rotary R	<sup>14</sup> Lease Type S	<sup>15</sup> Ground Level Elevation 3439'
<sup>16</sup> Multiple No	<sup>17</sup> Proposed Depth 11,000'	<sup>18</sup> Formation Devonian	<sup>19</sup> Contractor Silver Oak	<sup>20</sup> Spud Date 10/01/2018
Depth to Ground water 120'		Distance from nearest fresh water well 430'		Distance to nearest surface water >1 mile

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	12.25"	9.875"	32.0 lb/ft	1200'	450	SURFACE
Production	8.5	7.0"	26.0 lb/ft	10,250'	1500	SURFACE
Openhole	6.125	--	--	10,250'-11,000'		

**Casing/Cement Program: Additional Comments**

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**22. Proposed Blowout Prevention Program**

Type	Working Pressure	Test Pressure	Manufacturer
Double Hydraulic/Blinds, Pipe	5000 (5M)	8000	Shaffer or Equivalent

<p><sup>23</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: </p> <p>Printed name: Ben Stone Title: Agent for Percussion Petroleum Operating, LLC E-mail Address: ben@sosconsulting.us Date: 8/26/2018</p>	<p style="text-align: center;"><b>OIL CONSERVATION DIVISION</b></p> <p>Approved By: </p> <p>Title: <b>Geologist</b> Approved Date: <b>8-30-18</b>      Expiration Date: <b>8-30-20</b></p> <p>Conditions of Approval Attached <b>Approved C-108</b></p>
Phone: 903-488-9850	

# Percussion Petroleum Operating, LLC

Chalk Bluff State SWD Well No.2

1730' FSL & 1880' FWL

Section 32, Twp 17-S, Rng 27-E

Eddy County, New Mexico

## Well Program - New Drill

**Objective: Drill new well for private-use salt water disposal into the Devonian and Silurian (mudlogging and e-logging to determine zone control) per SWD-(pending).**

### I. Geologic Information - Devonian Formation

The Devonian and Silurian 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 rocks come in as expected the well will only be drilled deep enough for adequate logging rathole, approximately 11,000'.

Estimated Formation Tops:

Seven Rivers	173
Queen	738
San Andres	1404
Glorieta	2417
Abo	4745
Wolfcamp	6100
Cisco	7350
Strawn	8397
Atoka	8960
Morrow	9116
Devonian	10250
TD Silurian	11000
Ellenburger	16000

### 2. Drilling Procedure

- a. MIRU drilling rig and associated equipment. Set up H<sub>2</sub>S 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. (R360, Eddy County)
- e. After surface casing set/drilled; if H<sub>2</sub>S levels >20ppm detected, implement H<sub>2</sub>S Plan accordingly. (e.g., cease operations, shut in well, employ H<sub>2</sub>S 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 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.

**Well Program - New Drill (cont.)**

**3. Casing program - Casing designed as follows:**

STRING	HOLE SZ	DEPTH	CSG SZ	COND	WT/GRD	CLLPS/BRS	TNSN
						<i>(Minimum Safety Factors)</i>	
Surface	12.25"	0-1200'	9.875"	New	32.0 lb. J-55 STC	1.125/1.1	1.8
Production	8.5"	0-10,250'	7.0"	New	26.0 lb. L-80	1.125/1.1	1.8
Openhole*	6.125" hole	10,250'-11,000'	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 10,250'. TD is expected to be 11,000' 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: 350 sacks of Class C containing 4% gel + 2% CaCl<sub>2</sub> + .4 pps defoamer + .125 pps cello flake + 3 pps Koal Seal. Weight 13.7 ppg, yield 1.68 ft<sup>3</sup>/sack; TAIL Slurry: 100 sacks of Class C Neet containing 2% CaCl<sub>2</sub>. Weight 14.8 ppg, yield 1.34 ft<sup>3</sup>/sack; 100% excess, circulate to surface.

**Production** – Stage 1 LEAD Slurry: 800 sacks of 65/35 POZ H containing 10% gel + .4 pps defoamer + .125 pps cello flake + 1 pps Koal Seal + 5% NaCl. Weight 11.9 ppg, yield 2.473 ft<sup>3</sup>/sack; TAIL Slurry: 200 sacks of Class H containing 2% retarder + .2 pps defoamer. Weight 15.6 ppg, yield 1.18 ft<sup>3</sup>/sack; 25% excess. DV TOOL ~6800'; Stage 2 LEAD Slurry: 350 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 ft<sup>3</sup>/sack; TAIL Slurry: 150 sacks of Class C containing 2% retarder + .2 pps defoamer. Weight 15.6 ppg, yield 1.18 ft<sup>3</sup>/sack; 35% excess. circulate to surface.

**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

## **Well Program - New Drill (cont.)**

**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'-1200'	Brine Water	9.8-10.2	28-32	NC	NC	NC	10.0
1200'-10,250'	FW Mud/Gel	8.7-9.0	28-32	NC	NC	NC	9.5-10.5
10,250-11,000'	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 H<sub>2</sub>S, mud shall be adjusted appropriately by weight and H<sub>2</sub>S scavengers.

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

**8. H<sub>2</sub>S Safety** - This well and related facilities are not expected to have H<sub>2</sub>S releases. However, there may be H<sub>2</sub>S in the area. There are no private residences or public facilities in the area but a contingency plan has been developed. Percussion Petroleum Operating, LLC will have a company representative available to personnel throughout all operations. If H<sub>2</sub>S levels greater than 10ppm are detected or suspected, the H<sub>2</sub>S Contingency Plan will be implemented at the appropriate level.

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 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 H<sub>2</sub>S 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.
- f) Mud program - If H<sub>2</sub>S levels require, proper mud weight, safe drilling practices and H<sub>2</sub>S scavengers will minimize potential hazards.
- g) Metallurgy - all tublars, pressure control equipment, flowlines, valves, manifolds and related equipment will be rated for H<sub>2</sub>S service if required.

***The Percussion Petroleum Operating, LLC H<sub>2</sub>S Contingency Plan will be implemented if levels greater than 10ppm H<sub>2</sub>S are detected.***

**9. Logging, Coring and Testing** – Percussion Petroleum Operating, 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 7,000'.
- 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.)

**Well Program - New Drill (cont.)**

**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 5000 psi and the maximum anticipated bottom-hole temperature is 150° F.

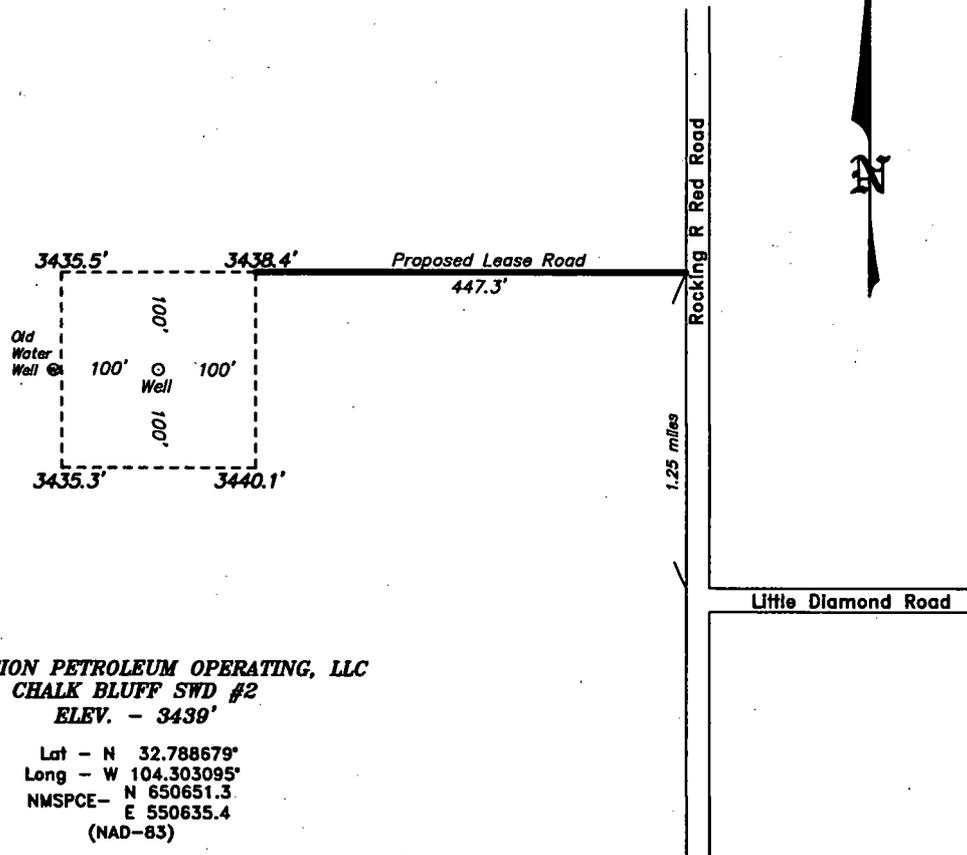
**11. Waste Management** - All drill cuttings and other wastes associated with and drilling operations will be transported to the Eddy County R360 facility (or alternate), permitted by the Environmental Bureau of the New Mexico Oil Conservation Division.

**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:

**October 1, 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 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 7,500 bpd and average of 5,000 bpd at a maximum surface injection pressure of 2050 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, Percussion Petroleum Operating, LLC will conduct a step-rate test and apply for an injection pressure increase 50 psi below parting pressure.

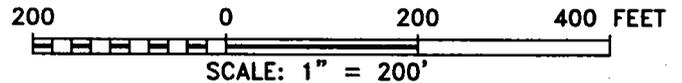
SECTION 32, TOWNSHIP 17 SOUTH, RANGE 27 EAST, N.M.P.M.,  
 EDDY COUNTY, NEW MEXICO.



**PERCUSSION PETROLEUM OPERATING, LLC**  
**CHALK BLUFF SWD #2**  
**ELEV. - 3439'**

Lat - N 32.788679°  
 Long - W 104.303095°  
 NMSPC - N 650651.3  
 E 550635.4  
 (NAD-83)

ARTESIA, NM IS ±14 MILES TO THE NORTHEAST OF LOCATION.



**PERCUSSION PETROLEUM OPERATING, LLC**

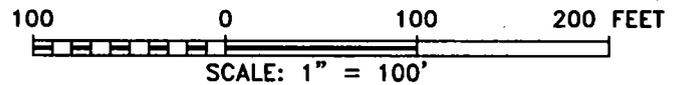
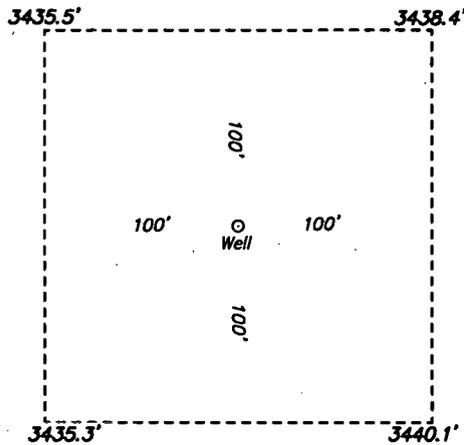
REF: CHALK BLUFF SWD #2 / WELL PAD TOPO

THE CHALK BLUFF SWD #2 LOCATED 1730' FROM  
 THE SOUTH LINE AND 1880' FROM THE WEST LINE OF  
 SECTION 32, TOWNSHIP 17 SOUTH, RANGE 27 EAST,  
 N.M.P.M., EDDY COUNTY, NEW MEXICO.



P.O. Box 1786 (575) 393-7316 - Office  
 1120 N. West County Rd. (575) 392-2206 - Fax  
 Hobbs, New Mexico 88241 basinsurveys.com

SECTION 32, TOWNSHIP 17 SOUTH, RANGE 27 EAST, N.M.P.M.,  
 EDDY COUNTY, NEW MEXICO.



**PERCUSSION PETROLEUM OPERATING, LLC**

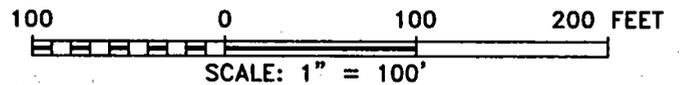
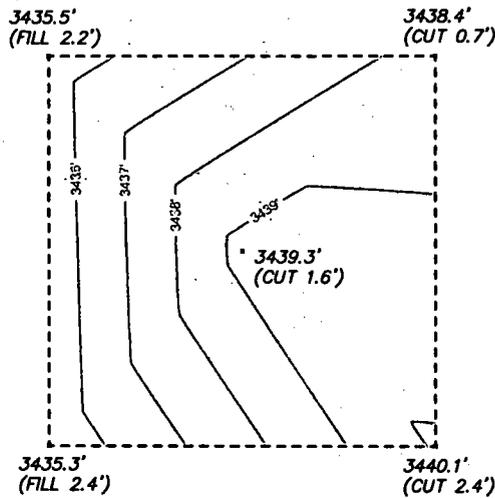
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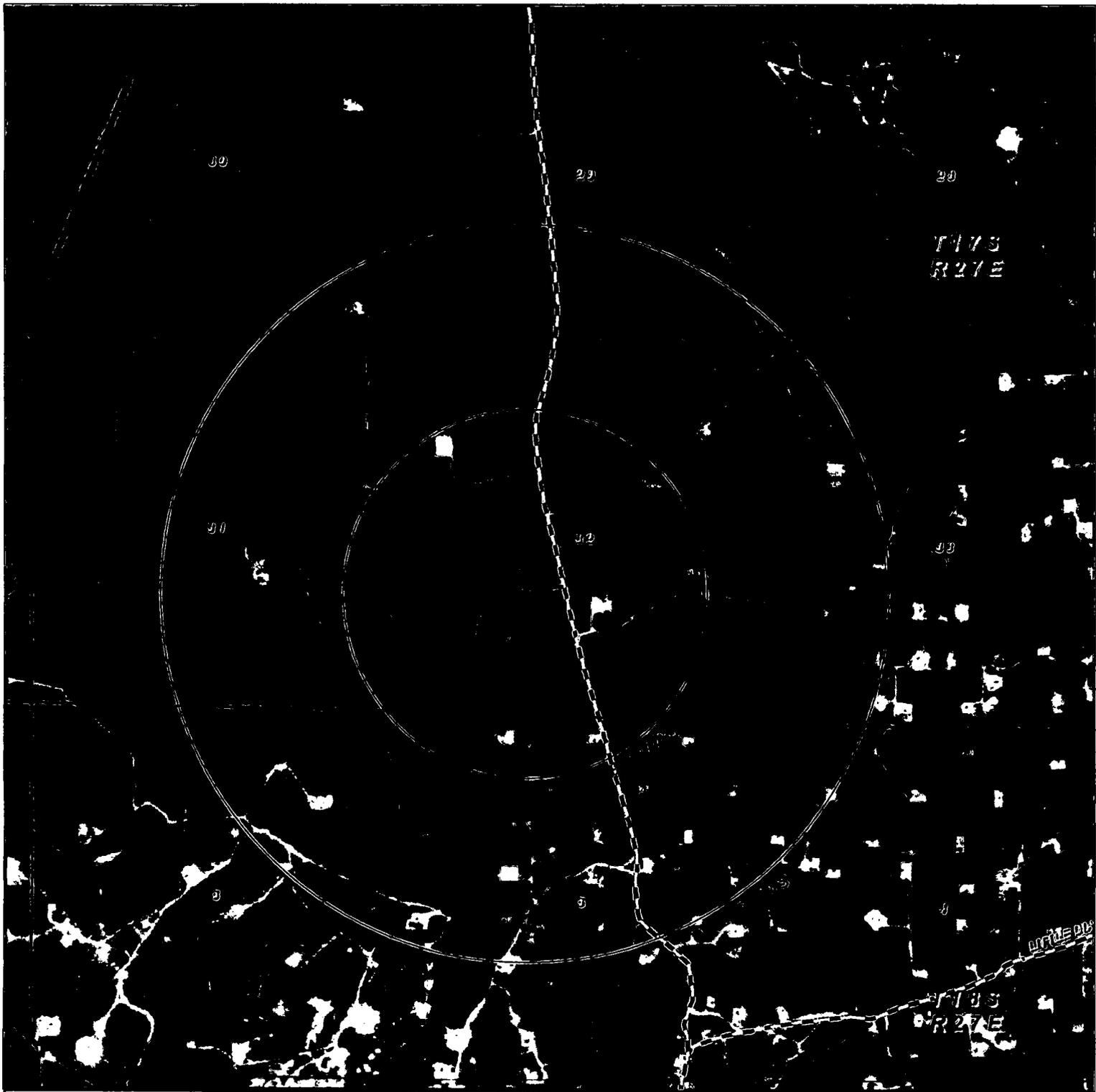
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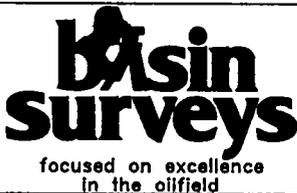
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**CHALK BLUFF SWD #2**

Located 1730' FSL and 1880' FWL  
 Section 32, Township 17 South, Range 27 East,  
 N.M.P.M., Eddy County, New Mexico.



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0' 1000' 2000' 3000' 4000'

SCALE: 1" = 2000'

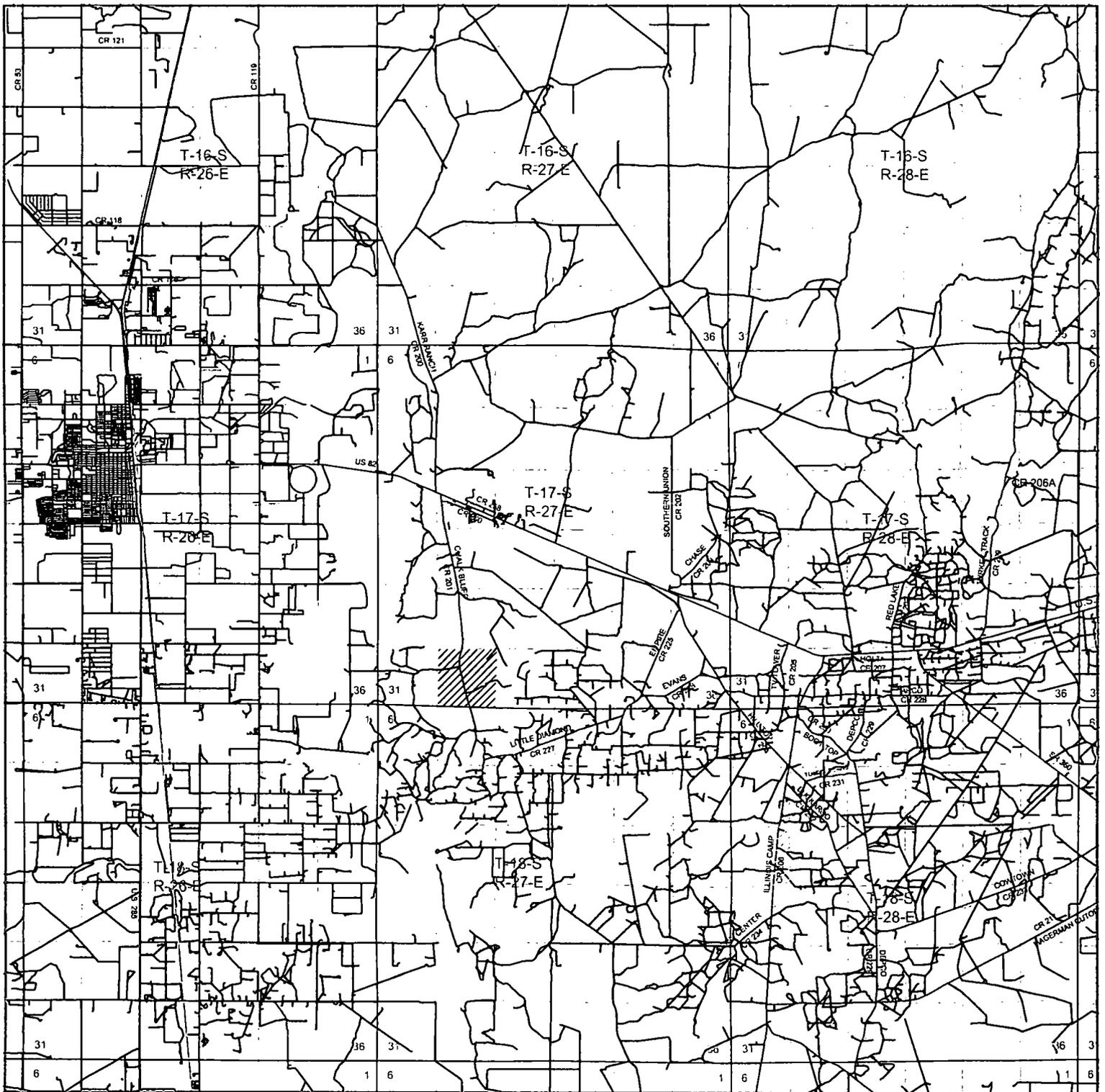
W.O. Number: KJG 33859

Survey Date: 06-20-2018

YELLOW TINT - USA LAND  
 BLUE TINT - STATE LAND  
 NATURAL COLOR - FEE LAND



**PERCUSSION  
 PETROLEUM  
 OPERATING, LLC**



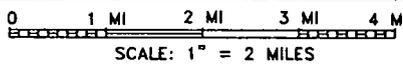
**CHALK BLUFF SWD #2**

Located 1730' FSL and 1880' FWL  
 Section 32, Township 17 South, Range 27 East,  
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W.O. Number: KJG 33859  
 Survey Date: 06-20-2018

YELLOW TINT - USA LAND  
 BLUE TINT - STATE LAND  
 NATURAL COLOR - FEE LAND



**PERCUSSION  
 PETROLEUM  
 OPERATING, LLC**



# RIG #7

*New Build - March, 2007*

**(RIG 10 SIMILAR CONFIGURATION)**

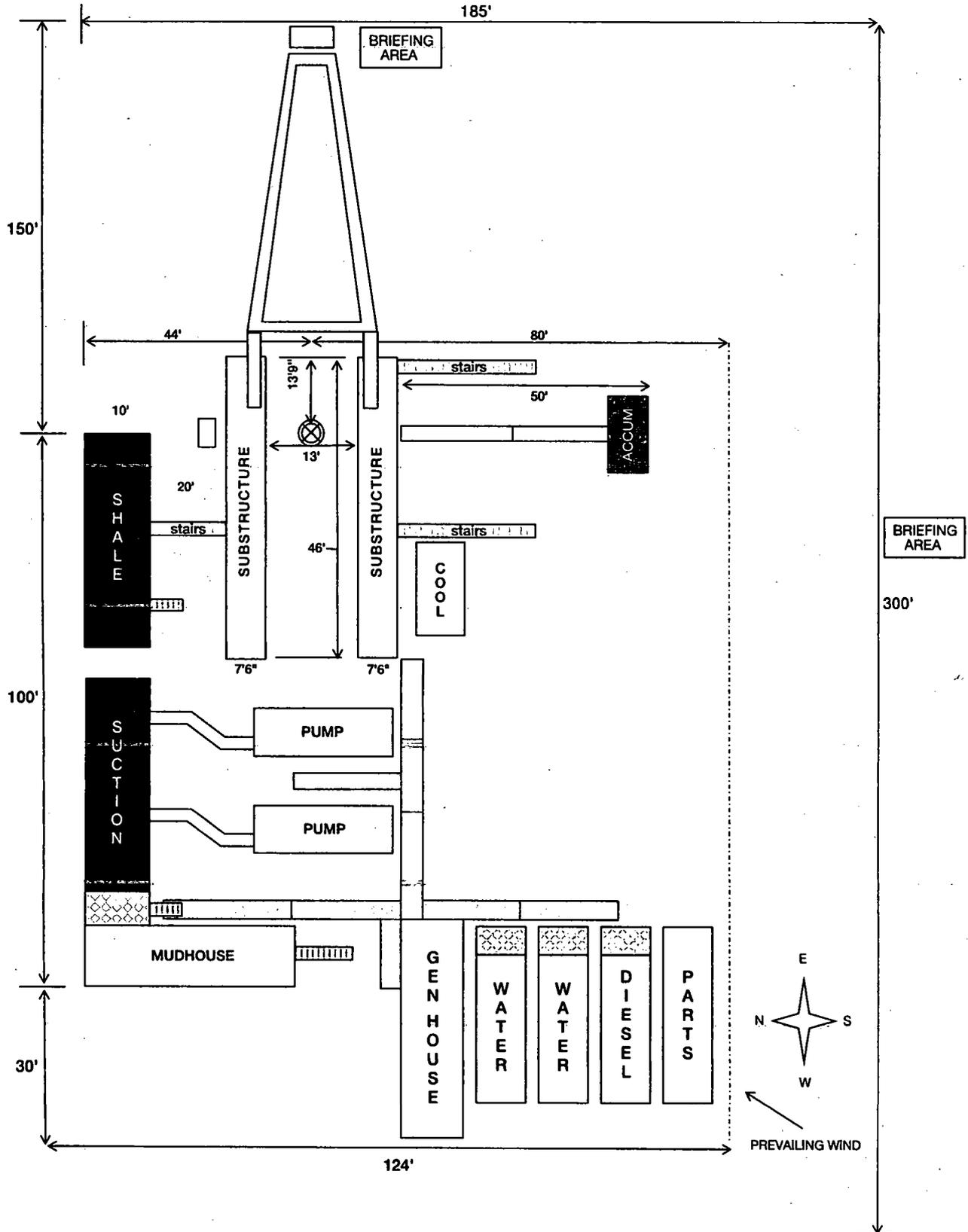
<b>Drawworks</b>	55 National Drawworks Powered by 2 - C18 CAT with Oilworks Torque Converters WPT 324 Water Cooled Air Brake
<b>Approx. Drilling Depth</b>	14,000'
<b>Mud Pumps</b>	(2) F1600 EMSCO Triplex Mud Pumps (Chinese) Powered by 3512 CAT
<b>Mast &amp; Sub</b>	142' United Derrick, 750,000# 46' x 28' x 18' 750,000# Substructure
<b>KB</b>	21'
<b>Block &amp; Hook</b>	Arctic 350 TON Blocks for 1-1/4" Drilling Line
<b>Optional Top Drive</b>	TESCO HXI 250 TON 700 HP
<b>Rotary Table</b>	20-1/2" RC ZP275 Rotary Table (Chinese)
<b>Swivel</b>	Sentry 350 Ton 46' x 5 1/4" Square Kelly
<b>Air Hoist(s)</b>	3 - Ingersoll Rand Air Hoists
<b>BOP</b>	13-5/8" Shaffer LWS, 5000# Double RAM BOP (Chinese) 13-5/8" Shaffer 5000# Annular BOP (Chinese) OCO 6 Station Hydraulic Closing Unit Scarborough Inc. 5000# 5 Valve Manifold w/2 Chokes
<b>Wireline Machine</b>	Oilworks Hydraulic Wireline Machine
<b>Drilling Recorder</b>	Pason Drilling Recorder and Automatic Driller
<b>Drill Collar</b>	25 - 6-1/2" x 31' Drill Collars 10 - 8" x 30' Drill Collars
<b>Drill Pipe</b>	14,000' - 4-1/2" XH, 16.60# Grade G Drill Pipe
<b>Gen House</b>	2 - 455 KW C-15 CAT, Housed
<b>Mud Pits w/ Shale Shaker</b>	8' x 10' x 40' Steel Pits w/5 Agitators and 2 - 5 x 6 Centrifugal Pumps MI Swaco Mongoose Shale Shaker Optional 3rd Mud Pit - 8' x 10' x 50'
<b>Doghouse</b>	45' Doghouse/Changing Room
<b>Mudhouse</b>	8' x 30' Mudhouse
<b>Toolhouse</b>	8' x 30' Toolhouse
<b>Water Storage</b>	2 - 500 bbl. Water Tanks with 2 - 3 x 4 Centrifugal Pumps and Lubester
<b>Diesel Tank</b>	8000 gal. Diesel Tank w/2 Electric Pumps
<b>Pipe Racks</b>	5 sets - 30' x 42" Triangle Pipe Racks
<b>Catwalks</b>	2 - 30' x 5' x 42" Catwalks
<b>Pusher's House</b>	10' x 40' ATCO Tool Pusher's House



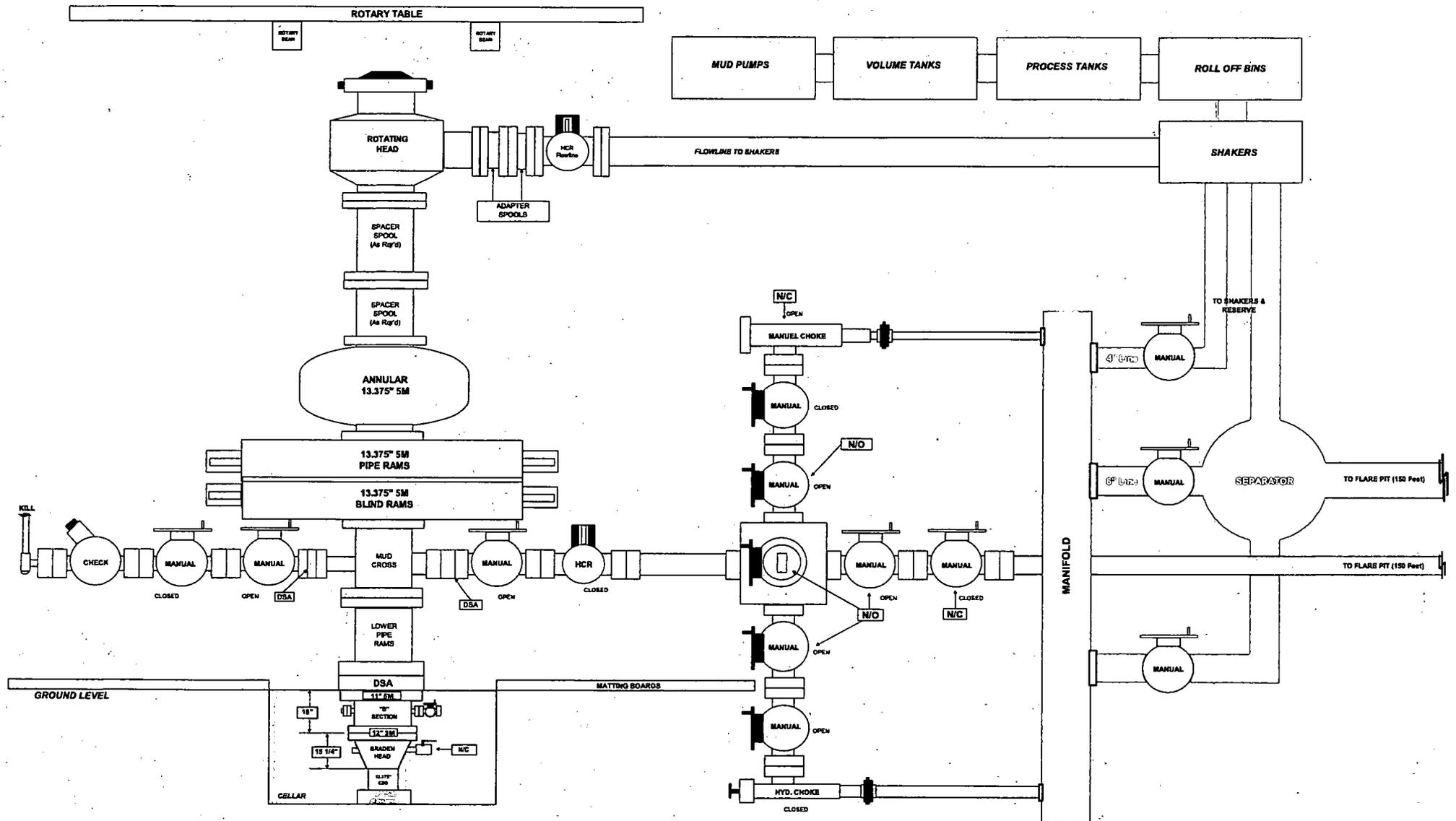
# RIG #7 LOCATION LAYOUT

New Build - March, 2007

(RIG 10 SIMILAR CONFIGURATION)



# BOPE 5K & Closed-Loop Schematic (w/ 9.625" Rams)





# WELL SCHEMATIC - PROPOSED

## Chalk Bluff SWD Well No.2

SWD; Devonian-Silurian (97869)

API 30-015-xxxxx

1730' FSL & 1880' FWL, SEC. 32-T17S-R27E  
EDDY COUNTY, NEW MEXICO

Est. Spud Date: 10/01/201  
Config SWD Dt (Est): ~11/01/

Annulus Monitored  
or open to atmosphere

Injection Pressure Regulated  
and Volumes Reported  
2050 psi Max. Surface (0.2 psi/ft)

### Surface Casing

9.625", 32.0# J-55 STC Csg. (12.25" Hole) @ 1200'  
450 sx - Circ to surface.

### Percussion Petroleum

Drill NEW SWD: Spud w/ 12.25" bit & set 9.625" Csg ~1200'; cmt to surface. Drill w/ 8.5" bit & set 7.0" csg ~ 10250'; cmt to Surface. Drill 6.125" Openhole interval to ~11,000'.  
Run 3.5" IPC Tbg & set PKR 10150'+.  
Conduct MIT. Commence Disposal Operations.

Annulus Loaded  
w/ Inert Packer Fluid

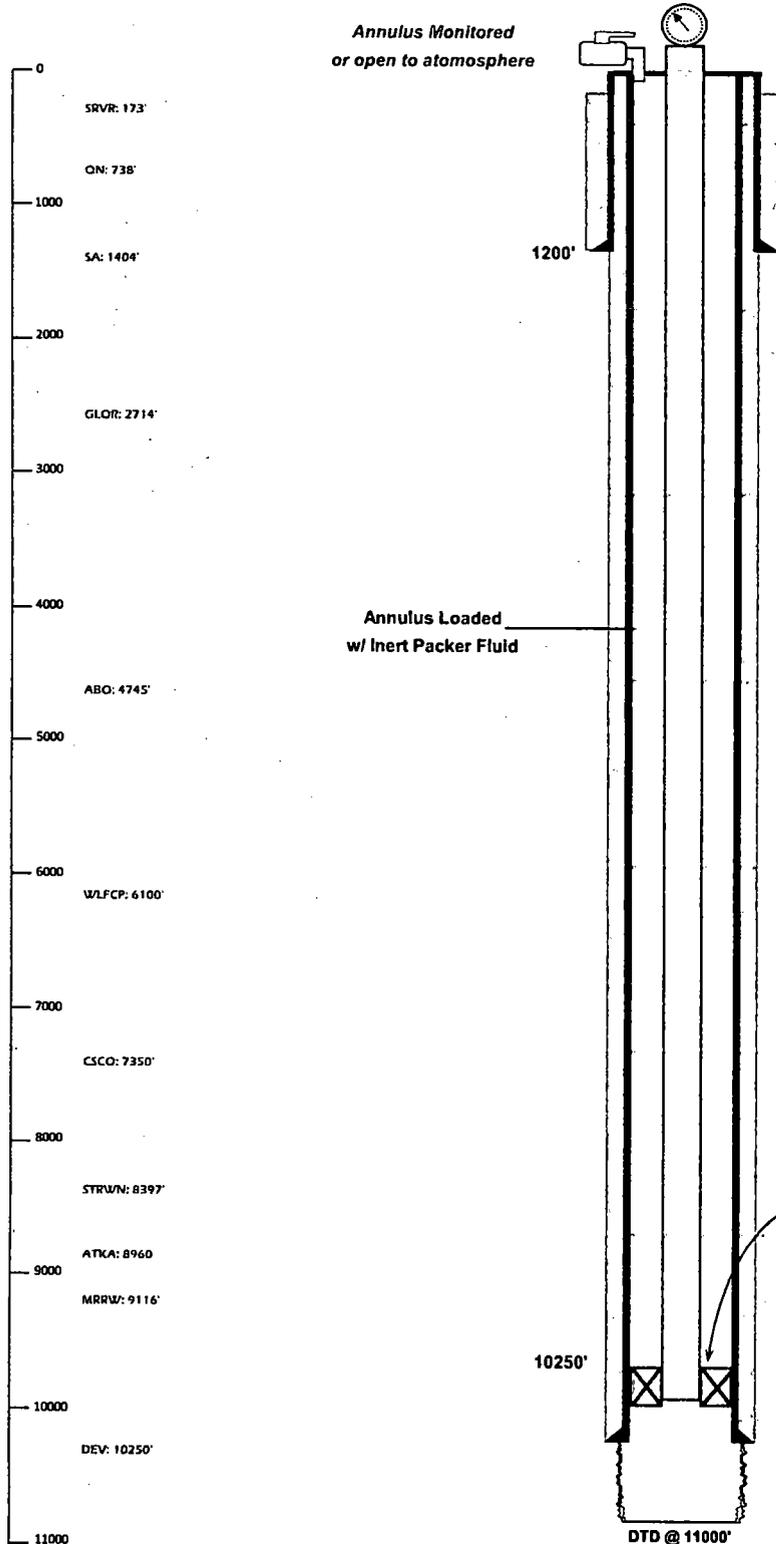
3.5" FJ/IC Tubing (or smaller)  
PKR ~10150'+

Note: PKR Set 100' Above Final Uppermost OH Interval.

### NEW Production Casing

7.0", 26.0# L-80 Csg. (8.5" Hole) @ 10250'  
1500 sx - 2 stage DV @ ~6800' - Circ. to Surface

6-1/8" Openhole Injection 10,250'-11,000'



Drawn by: Ben Stone, Ryad 8/28/2018



