

**RESUBMITTAL**UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

## APPLICATION FOR PERMIT TO DRILL OR REENTER

OCD-ARTESIA

RECEIVED

OCT 7 2009

NMOC D ARTESIA

FORM APPROVED  
OMB NO 1004-0137  
Expires: July 31, 20101a Type of Work ☒ DRILL ☐ REENTER1b Type of Well ☒ Oil Well ☐ Gas Well ☐ Other ☐ Single Zone ☐ Multiple Zone

2 Name of Operator

Yates Petroleum Corporation 025575

3a Address

105 South Fourth Street, Artesia, NM 88210

3b Phone No (include area code)

575-748-1471

4 Location of well (Report location clearly and in accordance with any State requirements \*)  
At surface1980' FNL and 330' FWL, Unit E - Surface Hole  
1980' FNL and 950' FEL, Unit H - Bottom Hole

At proposed prod zone

same as above

14 Distance in miles and direction from the nearest town or post office\*

Approximately 35 miles southeast of Hobbs, New Mexico

15 Distance from proposed\*  
location to nearest  
property or lease line, ft  
(Also to nearest drlg unit line, if any)

330'

16 No. of acres in lease

880.00

17 Spacing Unit dedicated to this well

160

18 Distance from proposed location\*  
to nearest well, drilling, completed,  
applied for, on this lease, ft

1100'

19 Proposed Depth  
110-890' + 10-5150'  
Pilot Hole 5400'

20 BLM/ BIA Bond No. on file

NATIONWIDE BOND #NMB000434

21 Elevations (Show whether DF, KDB, RT, GL, etc.)

2930' GL

22 Approximate date work will start\*

ASAP

23 Estimated duration

45 days

24 Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1 shall be attached to this form

1 Well plat certified by a registered surveyor

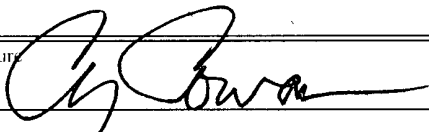
2 A Drilling Plan

3 A Surface Use Plan (if the location is on National Forest System Lands, the  
SUPO must be filed with the appropriate Forest Service Office).4 Bond to cover the operations unless covered by existing bond on file(see  
item 20 above)

5 Operator certification

6 Such other site specific information and/ or plans as may be required by the  
BLM

25 Signature



Cy Cowan

Date

8/27/2009

Title

Land Regulatory Agent

Approved By (Signature)

/s/ Don Peterson

Name (Printed/ Typed)

/s/ Don Peterson

Date

OCT 02 2009

Title

FIELD MANAGER

Office

CARLSBAD FIELD OFFICE

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to cc  
operations thereon

Conditions of approval, if any, are attached

APPROVAL FOR TWO YEARS

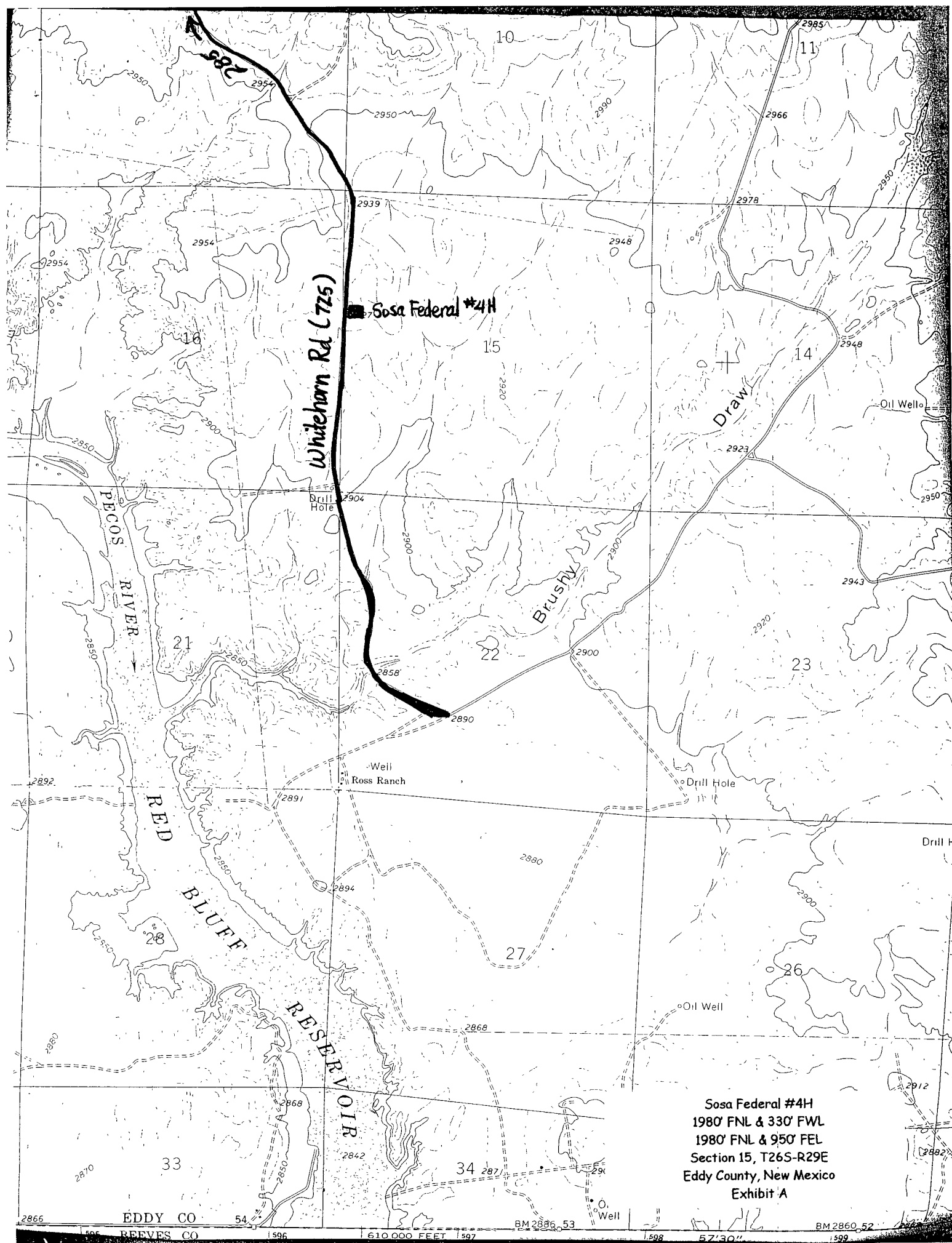
Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and wilfully to make to any department or agency of the United  
States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction

Previously Approved

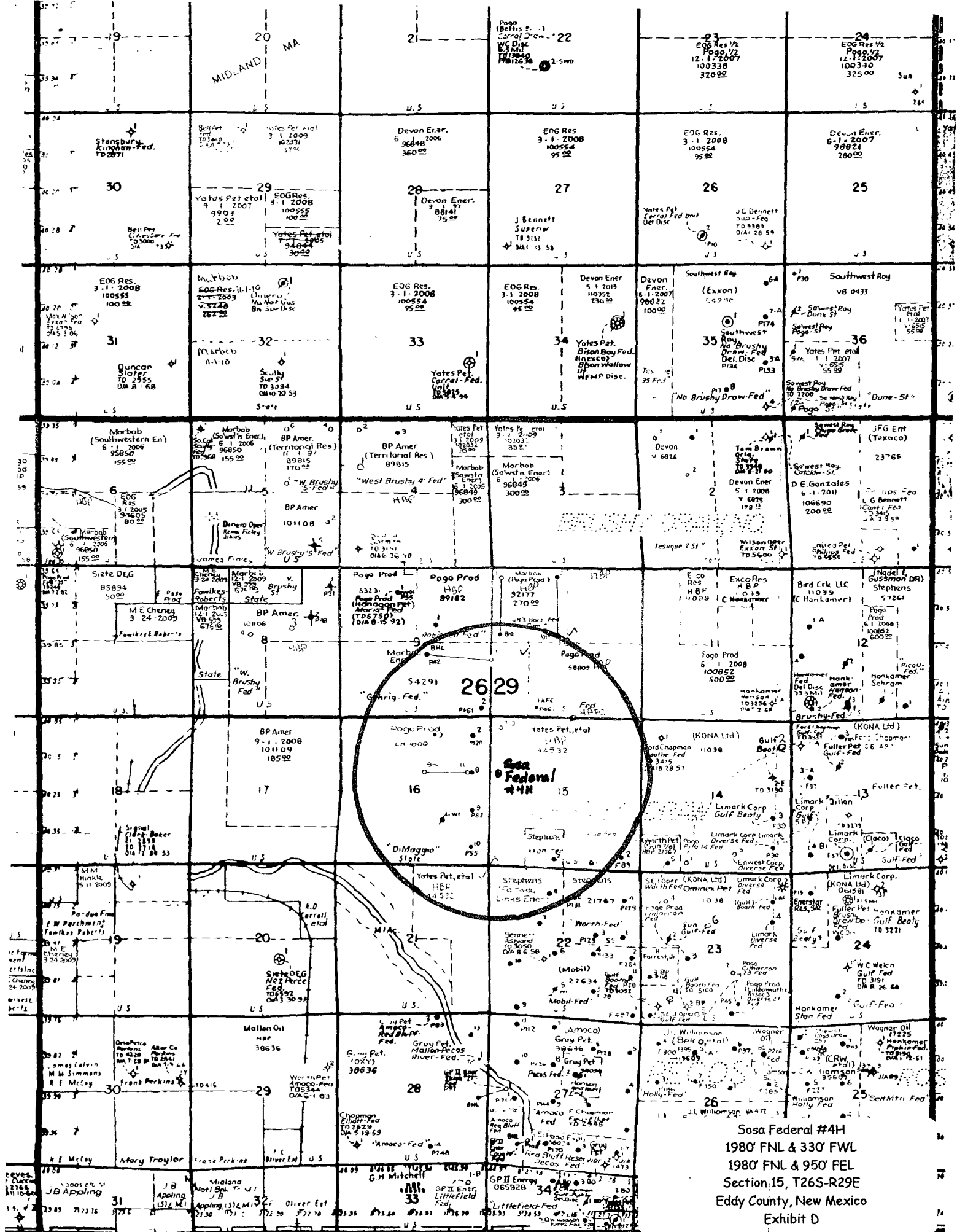
Carlsbad Controlled Water Basin

Approval Subject to General Requirements  
& Special Stipulations AttachedSEE ATTACHED FOR  
CONDITIONS OF APPROVAL

<p>16</p> <p>Penetration Point 1980' FNL &amp; 801' FWL</p>	<p>17</p> <p><b>OPERATOR CERTIFICATION</b></p> <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 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 working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</i></p> <p>Signature: <i>Cy Cowan</i> Date: <i>2/27/06</i></p> <p>Cy Cowan, Land Regulatory Agency</p> <p>Printed Name</p>
<p>LAT N32.94424 LON W103.97946</p> <p>Producing Area</p> <p>Project Area</p>	<p>18</p> <p><b>SURVEYOR CERTIFICATION</b></p> <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> <p>JUNE 12, 2006</p> <p>Date of Survey</p> <p>Signature and Seal of Professional Surveyor</p> <div style="text-align: center;"> </div> <p>Certificate Number</p> <p>DAN R. REDDY NMTS &amp; PS #5412</p>



Sosa Federal #4H  
1980' FNL & 330' FWL  
1980' FNL & 950' FEL  
Section 15, T26S-R29E  
Eddy County, New Mexico  
Exhibit A



**YATES PETROLEUM CORPORATION**  
**Sosa Federal #4H**  
1980' FNL and 330' FWL Surface Hole Location  
1980' FNL and 950' FEL Bottom Hole Location  
Section 15-T26S-R29E  
Eddy County, New Mexico

1. The estimated tops of geologic markers are as follows:

Rustler	330'	Cherry Canyon	3850'
Top of Salt	710'	Brushy Canyon	5120
Base of Salt	2945'	TD	5400'
Bell Canyon	2970'		

2. The estimated depths at which anticipated water, oil or gas formations are expected to be encountered:

Water: 85'  
Oil or Gas: Cherry Canyon, Brushy Canyon.

3. Pressure Control Equipment: BOPE will be installed on the 9 5/8" casing and rated for 3000 BOP systems will be consistent with API RP 53. Pressure tests will be conducted before drilling out from under all casing strings which are set and cemented in place. Blowout Preventor controls will be installed prior to drilling the surface plug and will remain in use until the well is completed or abandoned. Preventors will be inspected and operated at least daily to ensure good mechanical working order, and this inspection recorded on the daily drilling report. See Exhibit B.

Auxiliary Equipment:

- A. Auxiliary Equipment: Kelly cock, pit level indicators, flow sensor equipment and a sub with full opening valve to fit the drill pipe and collars will be available on the rig floor in the open position at all times for use when kelly is not in use.

4. THE PROPOSED CASING AND CEMENTING PROGRAM:

- A. Casing Program: (All New) *see COA*

<u>Hole Size</u>	<u>Casing Size</u>	<u>Wt./Ft</u>	<u>Grade</u>	<u>Coupling</u>	<u>Interval</u>	<u>Length</u>
14 3/4"	9 5/8"	36#	J-55	ST&C	<del>0-500'</del>	<del>500'</del> 375'
7 7/8"	5 1/2"	17#	HCP-110	LT&C	0-8901'	8901' MD

*See COA* Pilot hole drilled to 5400'. Well will be plugged back with 180' plug on bottom then a 400'-500' kick off plug with KOP at approximately 4628'. Well will be kicked off and directionally drilled at 12 degrees per 100' with a 7 7/8" hole to 8901' MD (5150' TVD) where 5 1/2" casing will be set and cemented. Penetration point of producing zone will be encountered at 1980' FNL and 801' FWL Section 15-26S-29E. Deepest TVD in the well is 5400' in the pilot hole. Deepest TVD in the lateral is 5150'.

Minimum Casing Design Factors: Burst 1.0, Tensile 1.8, Collapse 1.125

## B. CEMENTING PROGRAM:

Surface Casing: 525 sx 'C' (WT 14.8 YLD 1.32) + 2% CaCl<sub>2</sub>. TOC –Surface.

Production Casing: Stage 1: DV Tool @ 5000' TOC-5000' 975 sx Pecos VILT(WT 13.00 YLD 1.41)

Stage 2: TOC –Surface, 745 sx Lite Crete (WT 9.90, YLD 2.34)

## 5. MUD PROGRAM AND AUXILIARY EQUIPMENT:

<u>Interval</u>	<u>Type</u>	<u>Weight</u>	<u>Viscosity</u>	<u>Fluid Loss</u>
0-500'	Fresh Water/Gel	8.4-9.2	28-32	N/C
500'-5400'	Brine Water	9.9-10.0	28-29	<15cc
4628'-8901'	Brine Water	9.9-10.0	28-29	N/C

Sufficient mud material(s) to maintain mud properties, control lost circulation and contain a blow out will be available at the well site during drilling operations. Mud will be checked hourly by rig personnel.

## 6. EVALUATION PROGRAM:

Samples: 30' samples to 3000'. 10' samples from 3000' to TD.

Logging: Platform Hals/CMR.

Coring: None.

DST's: As warranted.

Mudlogging: Surface Casing to TD.

## 7. ABNORMAL CONDITIONS, BOTTOM HOLE PRESSURE, AND POTENTIAL HAZARDS:

Anticipated BHP:

From: 0	TO: 500'	Anticipated Max.	BHP: 240	PSI
From: 500'	TO: 5400'	Anticipated Max.	BHP: 2810	PSI

No abnormal pressures or temperatures are anticipated.

Lost Circulation Zones Anticipated: None

H<sub>2</sub>S Zones Anticipated: None Anticipated

Maximum Bottom Hole Temperature: 128F.

## 8. ANTICIPATED STARTING DATE:

Plans are to drill this well as soon as possible after receiving approval. It should take approximately 30 days to drill the well with completion taking another 15 days.

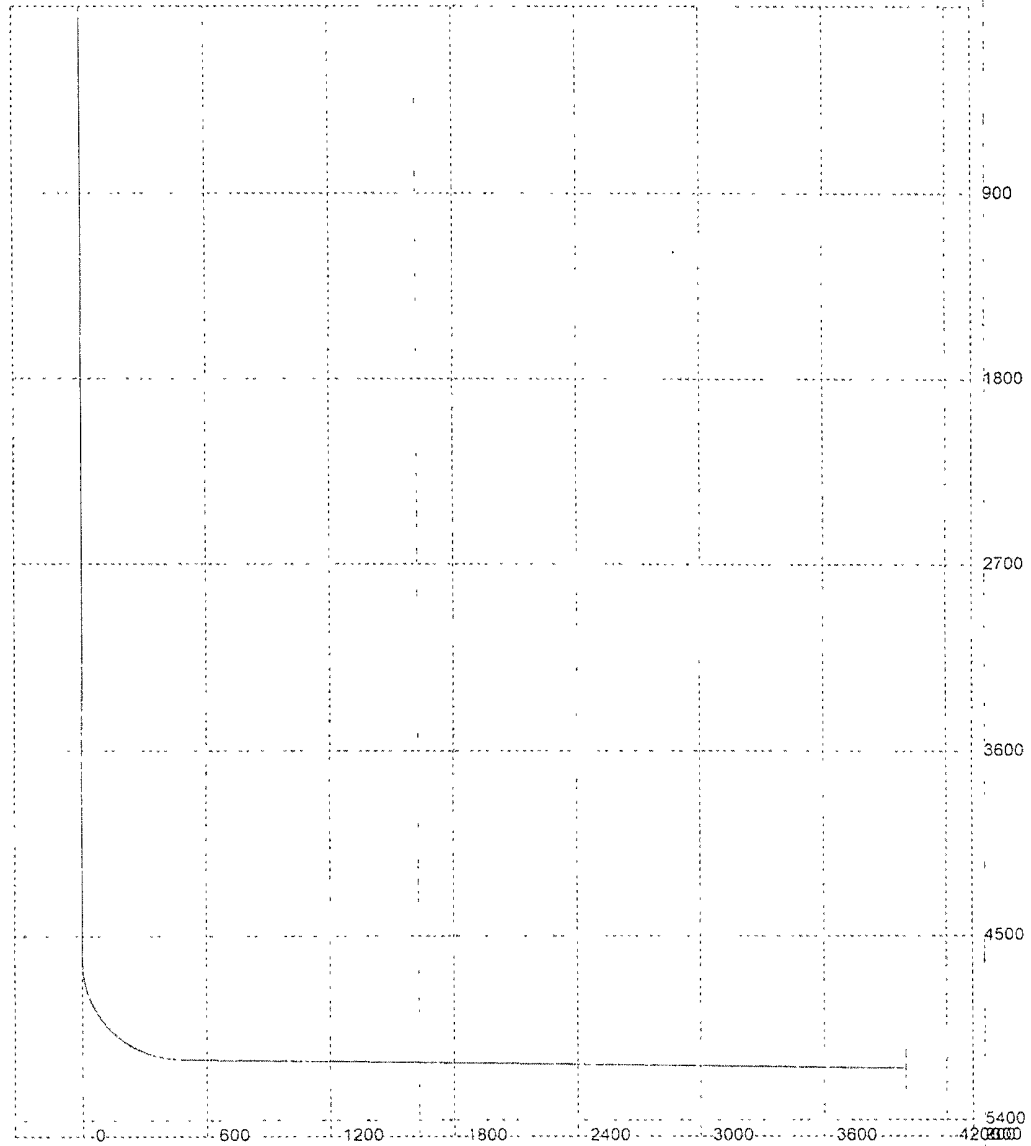
**Yates Petroleum Corporation**  
**Sosa Federal #4H**

M.D.	Inclination	Azimuth	T.V.D.	N+S	E+W	D.L.S.	ToolFace	T.F. Ref	HS/GN
0	0	0	0	0	0	0			
330			330						RUSTLER
710	0	0	710	0	0	0			TOP OF SALT
2945	0	0	2945	0	0	0			BASE OF SALT
2970	0	0	2970	0	0	0			BELL CANYON
3850	0	0	3850	0	0	0			CHERRY CANYON
4628	0	0	4628	0	0	12	90	GN	KOP
4650	2.64	90	4649.99	0	0.51	12	0	HS	
4675	5.64	90	4674.92	0	2.31	12	0	HS	
4700	8.64	90	4699.73	0	5.42	12	0	HS	
4725	11.64	90	4724.33	0	9.82	12	0	HS	
4750	14.64	90	4748.68	0	15.5	12	0	HS	
4775	17.64	90	4772.69	0	22.45	12	0	HS	
4800	20.64	90	4796.3	0	30.65	12	0	HS	
4825	23.64	90	4819.46	0	40.07	12	0	HS	
4850	26.64	90	4842.09	0	50.69	12	0	HS	
4875	29.64	90	4864.13	0	62.48	12	0	HS	
4900	32.64	90	4885.53	0	75.4	12	0	HS	
4925	35.64	90	4906.21	0	89.43	12	0	HS	
4950	38.64	90	4926.14	0	104.52	12	0	HS	
4975	41.64	90	4945.25	0	120.64	12	0	HS	
5000	44.64	90	4963.49	0	137.73	12	0	HS	
5025	47.64	90	4980.81	0	155.76	12	0	HS	
5050	50.64	90	4997.17	0	174.66	12	0	HS	
5075	53.64	90	5012.51	0	194.4	12	0	HS	
5100	56.64	90	5026.79	0	214.91	12	0	HS	
5125	59.64	90	5039.99	0	236.14	12	0	HS	
5150	62.64	90	5052.05	0	258.03	12	0	HS	
5175	65.64	90	5062.96	0	280.53	12	0	HS	
5200	68.64	90	5072.67	0	303.56	12	0	HS	
5225	71.64	90	5081.16	0	327.07	12	0	HS	
5250	74.64	90	5088.41	0	350.99	12	0	HS	
5275	77.64	90	5094.4	0	375.26	12	0	HS	
5300	80.64	90	5099.11	0	399.81	12	0	HS	
5325	83.64	90	5102.53	0	424.57	12	0	HS	
5350	86.64	90	5104.64	0	449.48	12	0	HS	
5371.97	89.28	90	5105.43	0	471.43	0			TARGET SAND
8900.82	89.28	90	5150	0	4000	0			LATERAL TD

Pilot hole drilled to 5400'. Well will be plugged back with 180' plug on bottom then a 400'-500' kick off plug with KOP at approx 4628'. Well will be kicked off and directionally drilled at 12 degrees per 100' with a 7 7/8" hole to 8,901' MD (5,150' TVD) where 5 1/2" casing will be set and cemented. Penetration point of producing zone will be encountered at 8900' FNL and 801' FWL Section 15-26S-29E. Deepest TVD in the well is 5400' in the pilot hole. Deepest TVD in the lateral is 5150'.

# 3D<sup>s</sup> Directional Drilling Planner - 3D View

Company: Yates Petroleum Corporation  
Well: Sosa Federal #4H

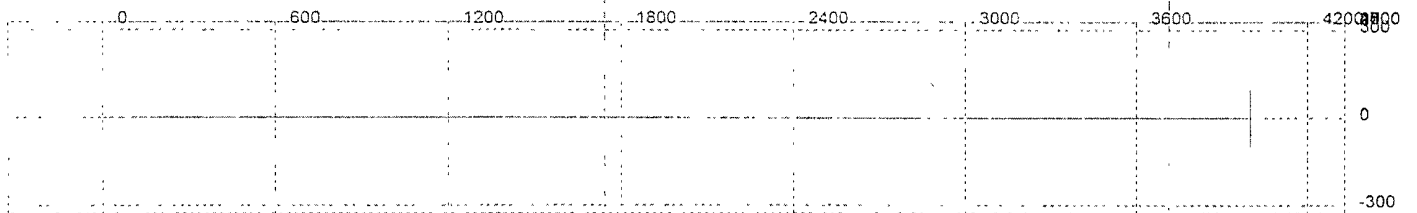


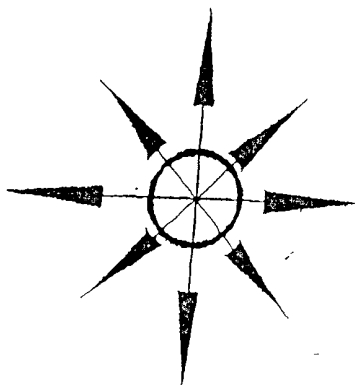


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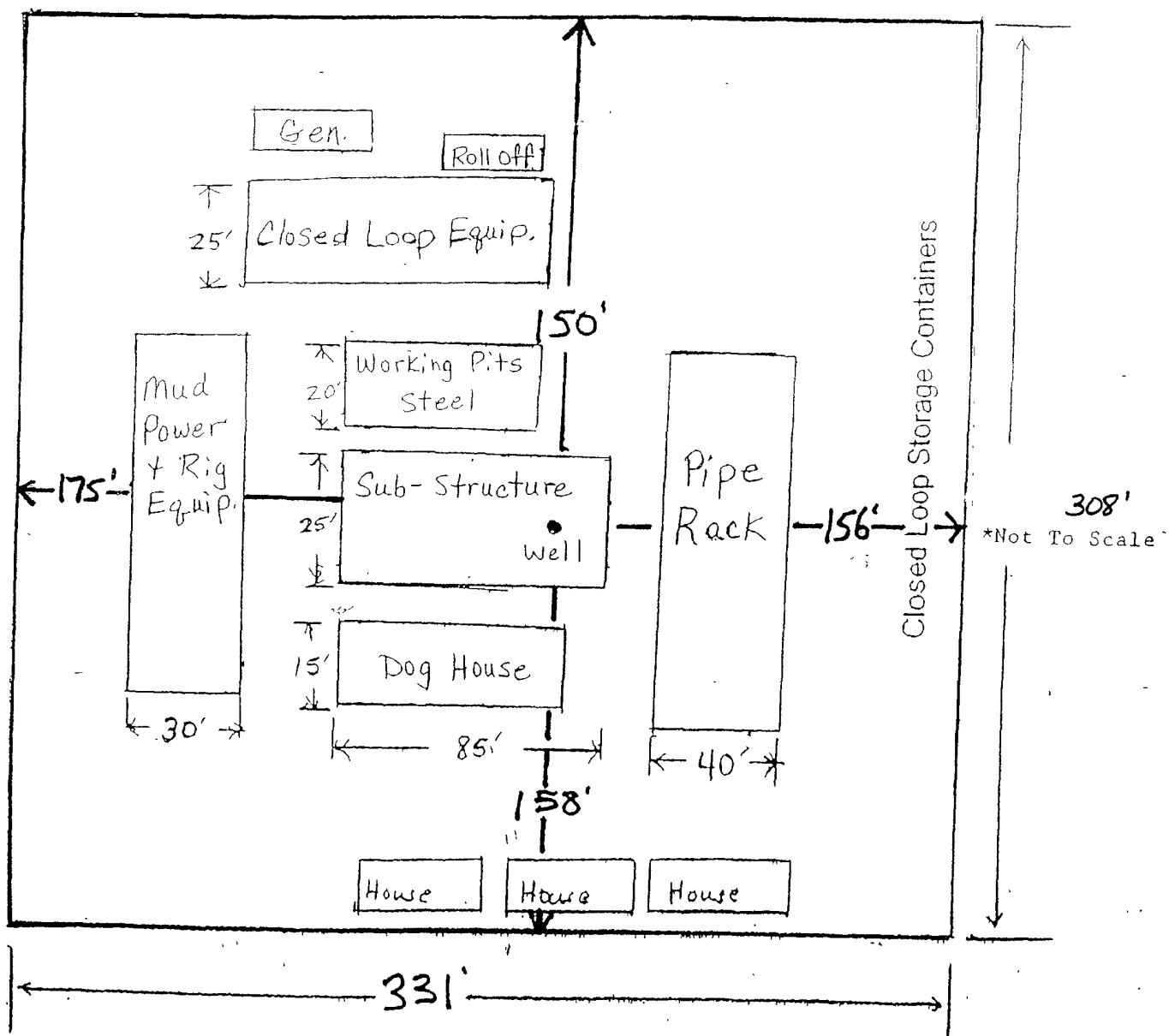




Yates Petroleum Corporation  
Location Layout for Permian Basin

Closed Loop Design Plan

Sosa Federal #4H  
1980' FNL & 330' FWL  
1980' FNL & 950' FEL  
Section 15, T26S-R29E  
Eddy County, New Mexico  
Exhibit C



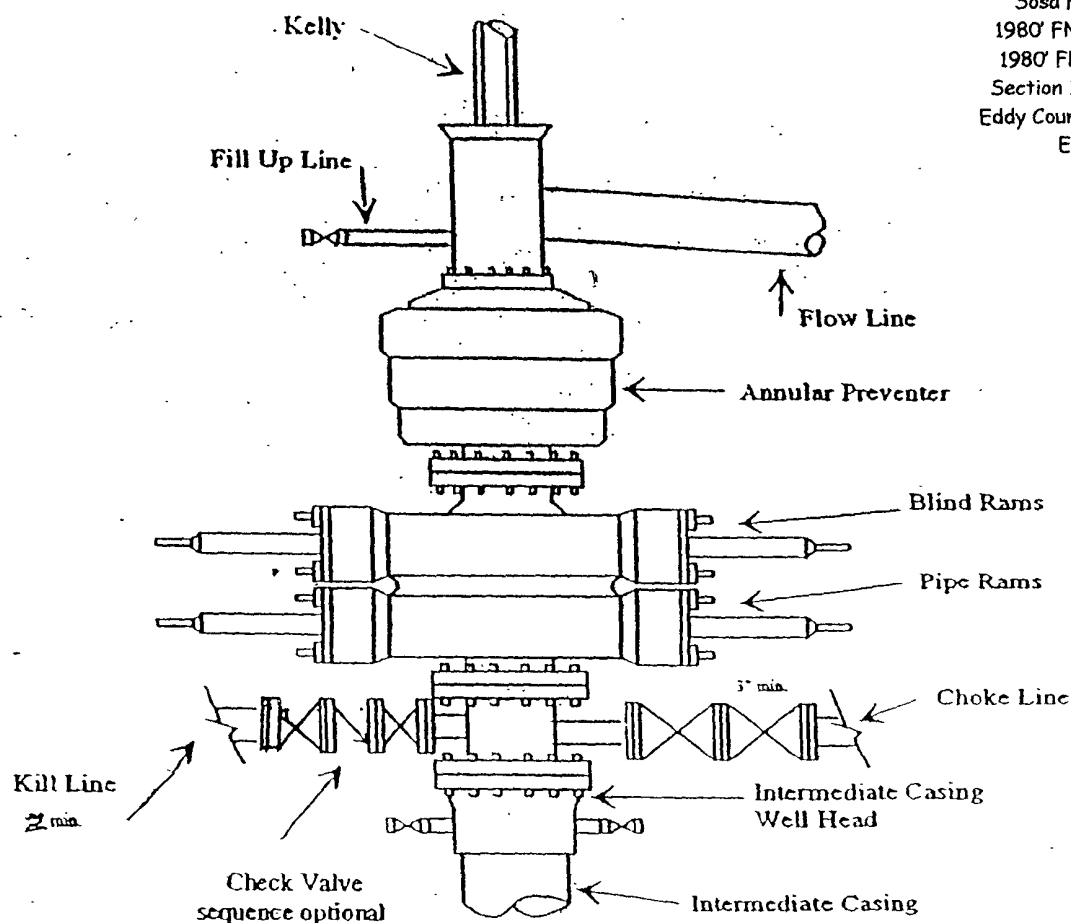


# Yates Petroleum Corporation

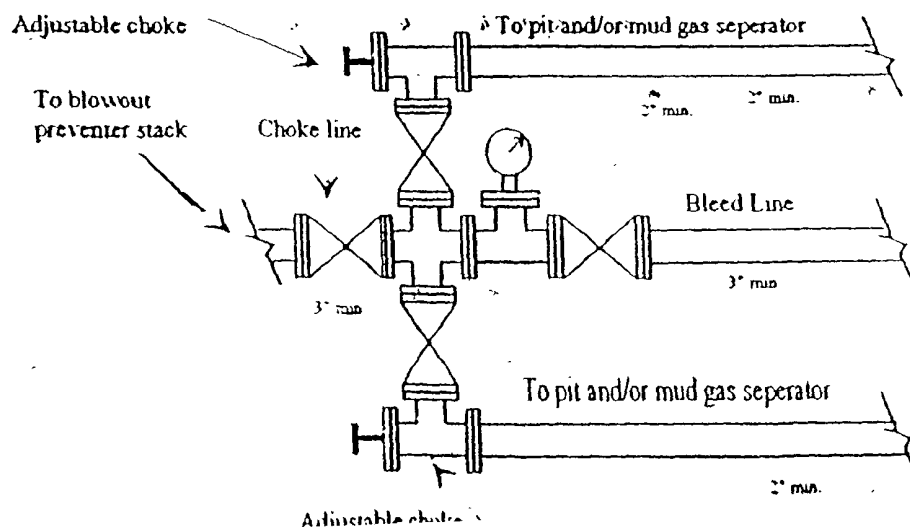
BOP-3

## Typical 3,000 psi Pressure System Schematic Annular with Double Ram Preventer Stack

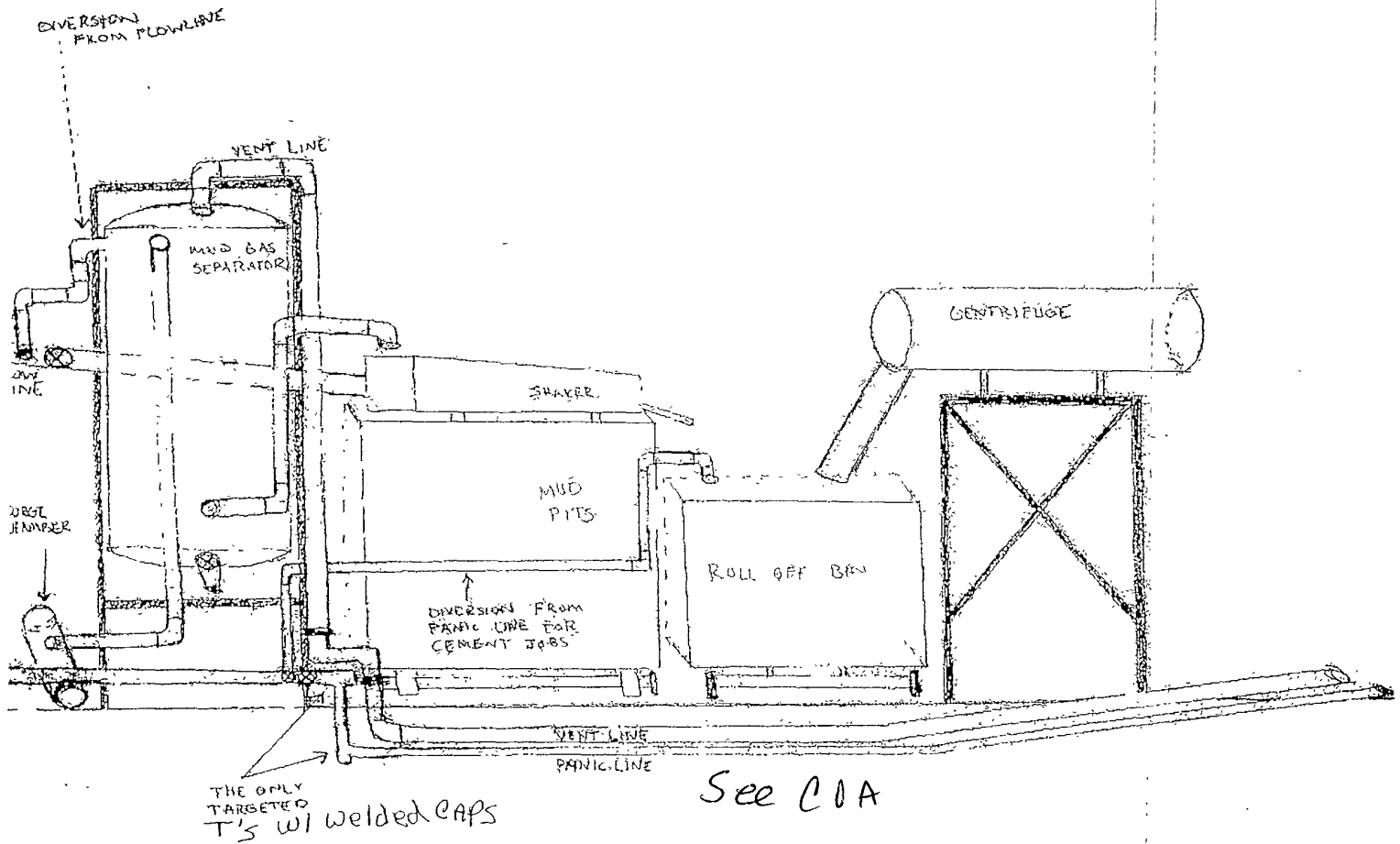
Sosa Federal #4H  
1980' FNL & 330' FWL  
1980' FNL & 950' FEL  
Section 15, T26S-R29E  
Eddy County, New Mexico  
Exhibit B



Typical 3,000 psi choke manifold assembly with at least these minimum features



YATES PETROLEUM CORPORATION  
Piping from Choke Manifold  
to the Closed-Loop Drilling Mud System



Sosa Federal #4H  
1980' FNL & 330' FWL  
1980' FNL & 950' FEL  
Section 15, T26S-R29E  
Eddy County, New Mexico  
Exhibit C-1

**MULTI-POINT SURFACE USE AND OPERATIONS PLAN  
YATES PETROLEUM CORPORATION**

**Sosa Federal #4H**

1980' FNL and 330' FWL Surface Hole Location

1980' FNL and 950' FEL Bottom Hole Location

Section 15, T26S-R29E

Eddy County, New Mexico

This plan is submitted with Form 3160-3, Application for Permit to Drill, covering the above described well. The purpose of this plan is to describe the location of the proposed well, the proposed construction activities and operations plan, the magnitude of the surface disturbance involved and the procedures to be followed in rehabilitating the surface after completion of the operations, so that a complete appraisal can be made of the environmental effect associated with the operations.

**1. EXISTING ROADS:**

Exhibit A is a portion of the BLM map showing the well and roads in the vicinity of the proposed location. The proposed wellsite is located approximately 35 miles southeast of Carlsbad, New Mexico and the access route to the location is indicated in red and green on Exhibit A.

**DIRECTIONS:**

Go south of Carlsbad on Highway 285 for approximately 28.5 miles to Whitehorn Road (CR-725). Turn east on Whitehorn Road and go approximately 5.6 miles. The proposed well location is on the left side of the county road. No new road will be needed to access the location.

**2. PLANNED ACCESS ROAD:**

- A. No new access road will be needed.
- B. N/A
- C. N/A
- D. N/A
- E. Existing roads will be maintained in the same or better condition.

**3. LOCATION OF EXISTING WELL:**

- A. There is drilling activity within a one-mile radius of the wellsite.
- B. Exhibit shows existing wells within a one-mile radius of the proposed wellsite.

**4. LOCATION OF EXISTING AND/OR PROPOSED FACILITIES:**

- A. There are production facilities on this lease at the present time.
- B. In the event that the well is productive, the necessary production facilities will be installed on the drilling pad. If the well is productive oil, a gas or diesel self-contained unit will be used to provide the necessary power. No power will be required if the well is productive of gas.

**5. LOCATION AND TYPE OF WATER SUPPLY:**

- A. It is planned to drill the proposed well with a fresh water system. The water will be obtained from commercial sources and will be hauled to the location by truck over the existing and proposed roads shown in Exhibit A.

6. SOURCE OF CONSTRUCTION MATERIALS:

The dirt contractor will acquire any materials from the closest source at the time of construction of the well pad.

7. METHODS OF HANDLING WASTE DISPOSAL:

- A. A closed loop system will be used to drill this well.
- B. The closed loop system will be constructed, maintained, and closed in compliance with the State of New Mexico, Energy and Natural Resources Department, Oil Conservation Division – the “Pit Rule” 19.15.17 NMAC.
- C. Water produced during operations will be collected in tanks until hauled to an approved disposal system, or separate disposal application will be submitted.
- D. Oil produced during operations will be stored in tanks until sold.
- E. Current laws and regulations pertaining to the disposal of human waste will be complied with.
- F. All trash, junk, and other waste materials will be contained in trash cages or bins to prevent scattering and will be removed and deposited in an approved sanitary landfill. Burial on site is not approved.

8. ANCILLARY FACILITIES:

None.

9. WELLSITE LAYOUT:

- A. Exhibit C shows the relative location and dimensions of the well pad, the closed loop mud system, location of the drilling equipment, rig orientation and access road approach. The proposed well location will be approximately 350' x 300'.
- B. The closed loop system will be constructed, maintained and closed in compliance with the State of New Mexico, Energy and Natural Resources Department, Oil Conservation Division—the “Pit Rule” 19.15.17 NMAC.
- C. A 600' x 600' area has been previously staked and flagged for archaeological purposes; refer to arc report on file.

10. PLANS FOR RESTORATION:

- A. After finishing drilling and/or completion operations, all equipment and other material not needed for further operations will be removed. The location will be cleaned of all trash and junk to leave the wellsite in as aesthetically pleasing a condition as possible.
- B. Unguarded pits, if any, containing fluids will be fenced until they have dried and been leveled.
- C. If the proposed well is non-productive, all rehabilitation and/or vegetation requirements of the Bureau of Land Management will be complied with and will be accomplished as expeditiously as possible. All pits will be filled level after they have evaporated and dried.

11. SURFACE OWNERSHIP: Federal Surface, Administered by Bureau of Land Management, Carlsbad, New Mexico.

**12. OTHER INFORMATION:**

- A. Topography: Refer to the existing archaeological report for a description of the topography, flora, fauna, soil characteristics, dwellings, historical and cultural sites.
- B. The primary surface use is for grazing.

**(Exhibits Attached)**

- Exhibit A Topographic Map and Road Plat
- Exhibit B BOP Schematic
- Exhibit C Location Layout
- Exhibit C-1 Closed Loop System Diagram
- Exhibit D One Mile Radius

CERTIFICATION  
YATES PETROLEUM CORPORATION  
Sosa Federal #4H

I hereby certify that I or the company I represent, have inspected the drill site and access route proposed herein; that the company I represent is familiar with the conditions which currently exist; that full knowledge of state and federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that the company I represent is responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

Executed this 27th day of August, 2009

Printed Name Cy Cowan

Signature 

Position Title Land Regulatory Agent

Address 105 South Fourth Street, Artesia, NM 88210

Telephone 575-748-4372

E-mail (optional) cy@yatespetroleum.com

Field Representative (if not above signatory) Tim Bussell

Address (if different from above) Same

Telephone (if different from above) 575-748-4221

E-mail (optional) \_\_\_\_\_



## PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Yates Petroleum Corp
LEASE NO.:	NM44532
WELL NAME & NO.:	4H Sosa Federal
SURFACE HOLE FOOTAGE:	1980' FNL & 330' FWL
BOTTOM HOLE FOOTAGE:	1980' FNL & 950' FEL
LOCATION:	Section 15, T. 26 S., R 29 E., NMPM
COUNTY:	Eddy County, New Mexico

### TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☒ **Special Requirements**
  - Cave/Karst
- ☒ **Construction**
  - Notification
  - Topsoil
  - Reserve Pit
  - Federal Mineral Material Pits
  - Well Pads
  - Roads
- ☐ **Road Section Diagram**
- ☒ **Drilling**
  - High cave/karst
  - Logging requirements
- ☐ **Production (Post Drilling)**
  - Well Structures & Facilities
- ☐ **Interim Reclamation**
- ☐ **Final Abandonment/Reclamation**

## **I. GENERAL PROVISIONS**

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

## **II. PERMIT EXPIRATION**

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

## **III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES**

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

## **IV. NOXIOUS WEEDS**

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

## **V. SPECIAL REQUIREMENT(S)**

### **Cave and Karst**

**\*\*** Depending on location, additional Drilling, Casing, and Cementing procedures may be required by engineering to protect critical karst groundwater recharge areas.

#### **Cave/Karst Surface Mitigation**

The following stipulations will be applied to minimize impacts during construction, drilling and production.

##### **Construction:**

In the advent that any underground voids are opened up during construction activities, construction activities will be halted and the BLM will be notified immediately.

##### **No Blasting:**

No blasting will be utilized for pad construction. The pad will be constructed and leveled by adding the necessary fill and caliche.

##### **Pad Berming:**

The pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the pad. All sides will be bermed.

##### **Tank Battery Liners and Berms:**

Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.

##### **Leak Detection System:**

A method of detecting leaks is required. The method could incorporate gauges to measure loss, situating valves and lines so they can be visually inspected, or installing electronic sensors to alarm when a leak is present. Leak detection plan will be submitted to BLM for approval.

##### **Automatic Shut-off Systems:**

Automatic shut off, check valves, or similar systems will be installed for pipelines and tanks to minimize the effects of catastrophic line failures used in production or drilling.

#### **Cave/Karst Subsurface Mitigation**

The following stipulations will be applied to protect cave/karst and ground water concerns:

##### **Rotary Drilling with Fresh Water:**

Fresh water will be used as a circulating medium in zones where caves or karst features are expected. SEE ALSO: Drilling COAs for this well.

**Directional Drilling:**

Kick off for directional drilling will occur at least 100 feet below the bottom of the cave occurrence zone. SEE ALSO: Drilling COAs for this well.

**Lost Circulation:**

ALL lost circulation zones from the surface to the base of the cave occurrence zone will be logged and reported in the drilling report.

Regardless of the type of drilling machinery used, if a void of four feet or more and circulation losses greater than 70 percent occur simultaneously while drilling in any cave-bearing zone, the BLM will be notified immediately by the operator. The BLM will assess the situation and work with the operator on corrective actions to resolve the problem.

**Abandonment Cementing:**

Upon well abandonment in high cave karst areas additional plugging conditions of approval may be required. The BLM will assess the situation and work with the operator to ensure proper plugging of the wellbore.

**Pressure Testing:**

Annual pressure monitoring will be performed by the operator on all casing annuli and reported in a sundry notice. If the test results indicated a casing failure has occurred, remedial action will be undertaken to correct the problem to the BLM's approval.

## **VI. CONSTRUCTION**

### **A. NOTIFICATION**

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5972 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

### **B. TOPSOIL**

The operator shall stockpile the topsoil of the well pad. The topsoil shall not be used to backfill the reserve pit and will be used for interim and final reclamation.

### **C. RESERVE PITS**

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

### **D. FEDERAL MINERAL MATERIALS PIT**

If the operator elects to surface the access road and/or well pad, mineral materials extracted during construction of the reserve pit may be used for surfacing the well pad and access road and other facilities on the lease.

Payment shall be made to the BLM prior to removal of any additional federal mineral materials from any site other than the reserve pit. Call the Carlsbad Field Office at (575) 234-5972.

### **E. WELL PAD SURFACING**

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation.

The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

### **F. ON LEASE ACCESS ROADS**

### **Road Width**

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed thirty (30) feet.

### **Surfacing**

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

### **Crowning**

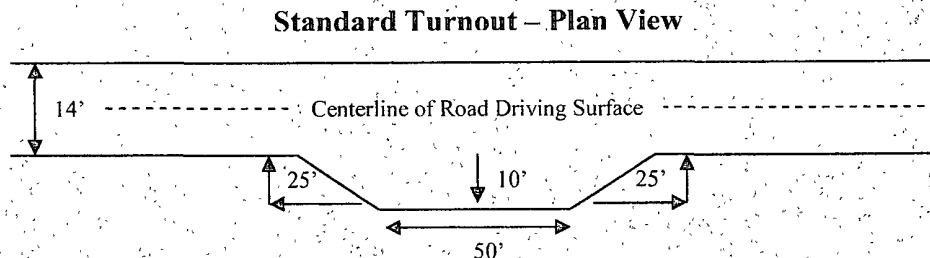
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

### **Ditching**

Ditching shall be required on both sides of the road.

### **Turnouts**

Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:

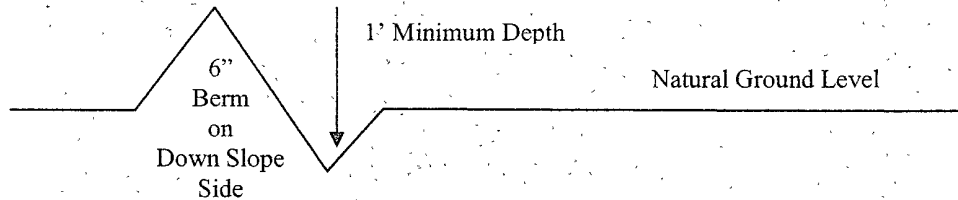


### **Drainage**

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

#### **Cross Section of a Typical Lead-off Ditch**



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

#### **Formula for Spacing Interval of Lead-off Ditches**

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$400 \text{ foot road with } 4\% \text{ road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

#### **Culvert Installations**

Appropriately sized culvert(s) shall be installed at the deep waterway channel flow crossing.

#### **Cattleguards**

An appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s).

Any existing cattleguard(s) on the access road shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguard(s) that are in place and are utilized during lease operations.

A gate shall be constructed and fastened securely to H-braces.

**Fence Requirement**

Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

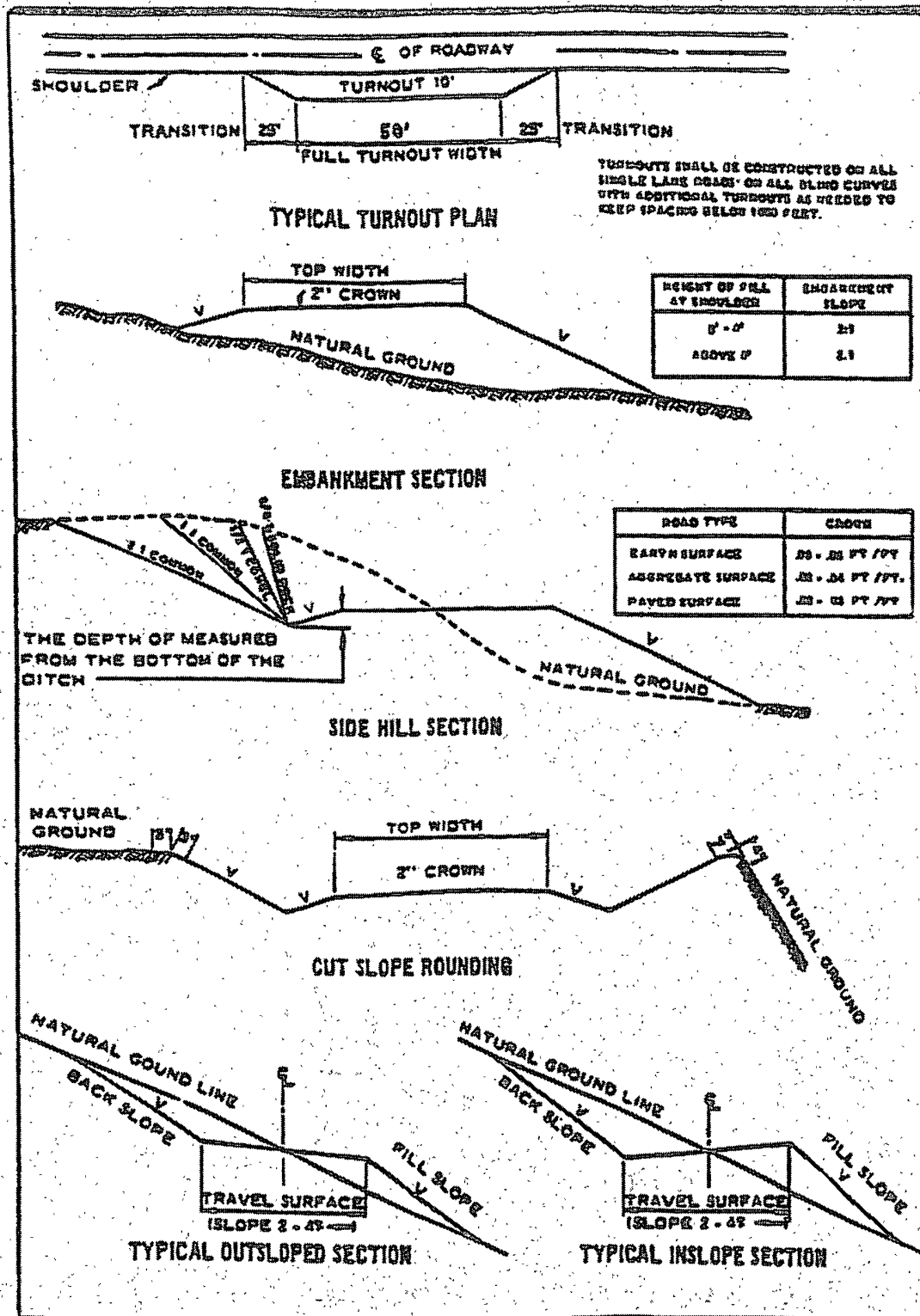
The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

**Public Access**

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.



Figure 1 – Cross Sections and Plans For Typical Road Sections



## VII. DRILLING

### A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified a minimum of 4 hours in advance for a representative to witness:

- a. Spudding well
- b. Setting and/or Cementing of all casing strings
- c. BOPE tests

☒ **Eddy County**

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,  
(575) 361-2822

1. **Hydrogen Sulfide has been reported, but no measurements have been recorded. It is recommended that monitoring equipment be onsite for potential Hydrogen Sulfide. If Hydrogen Sulfide is encountered, please report measurements and formations to the BLM.**
2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
3. **The record of the drilling rate along with the CAL/GR/N well log run from TD to surface will be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.**

### B. CASING

**Changes to the approved APD casing and cement program require submitting a sundry and receiving approval prior to work. Failure to obtain approval prior to work will result in an Incident of Non-Compliance being issued.**

**Centralizers required on surface casing per Onshore Order 2.III.B.1.f.**

**Wait on cement (WOC) time for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. See individual casing strings for details regarding lead cement slurry requirements.**

**No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.**

**HIGH CAVE/KARST – CONTINGENCY CASING WILL BE REQUIRED IF LOST CIRCULATION OCCURS WHILE DRILLING THE SURFACE HOLE. THE SURFACE HOLE WILL HAVE TO BE REAMED AND A LARGER CASING INSTALLED OR ANOTHER CASING STRING WILL BE REQUIRED INSIDE THE 9-5/8" CASING. IF LOST CIRCULATION OCCURS WHILE DRILLING THE 7-7/8" HOLE, THE CEMENT PROGRAM FOR THE 5-1/2" CASING WILL NEED TO BE MODIFIED AND THE BLM IS TO BE CONTACTED PRIOR TO RUNNING THE CASING. A MINIMUM OF TWO CASING STRINGS CEMENTED TO SURFACE IS REQUIRED IN HIGH CAVE/KARST AREAS. THE CEMENT MUST BE A SOLID SHEATH THEREFORE, ONE INCH OPERATIONS WILL NOT BE PERMITTED. A DV TOOL WILL BE REQUIRED.**

**Possible lost circulation in the Delaware Mountain and Bone Springs Group.  
Possible brine and water flows in the Salado Group.**

- 1. The 9-5/8 inch surface casing shall be set at approximately 375 feet (above the salt) and cemented to the surface. If the salt is encountered at a shallower depth, the casing is to be set a minimum of 25 feet above the salt.**
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement.**
  - b. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**
  - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.**
  - d. If cement falls back, remedial cementing will be done prior to drilling out that string.**

**Pilot hole plugging procedure approved as written with the additional requirement that the bottom plug be tagged. The BLM is to be contacted (575-361-2822) prior to tag of bottom plug. Tag depth to be reported on subsequent sundry with spud/casing details.**

**Centralizers required on horizontal leg, must be type for horizontal service and minimum of one every other joint.**

2. The minimum required fill of cement behind the 5-1/2 inch production casing is:
  - a. First stage to DV tool, cement shall:
    - ☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office, before proceeding with second stage cement job.
  - b. Second stage above DV tool, cement shall:
    - ☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office.
3. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

#### C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17. **Piping from choke manifold and to flare to be as straight as possible.**
2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **3000 (3M) psi.**
3. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
  - a. The tests shall be done by an independent service company.
  - b. The results of the test shall be reported to the appropriate BLM office.
  - c. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**
  - d. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.

**D. DRILL STEM TEST**

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

**RGH 092809**

## **VIII. PRODUCTION (POST DRILLING)**

### **A. WELL STRUCTURES & FACILITIES**

#### **Placement of Production Facilities**

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

#### **Containment Structures**

The containment structure shall be constructed to hold the capacity of the entire contents of the largest tank, plus 24 hour production, unless more stringent protective requirements are deemed necessary by the Authorized Officer.

#### **Painting Requirement**

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color  
Shale Green, Munsell Soil Color Chart # 5Y 4/2

## **IX. INTERIM RECLAMATION & RESERVE PIT CLOSURE**

### **A. INTERIM RECLAMATION**

If the well is a producer, interim reclamation shall be conducted on the well site in accordance with the orders of the Authorized Officer. The operator shall submit a Sundry Notices and Reports on Wells (Notice of Intent), Form 3160-5, prior to conducting interim reclamation.

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

The operators should work with BLM surface management specialists to devise the best strategies to reduce the size of the location. Any reductions should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

### Seed Mixture 3, for Shallow Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)\* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed\* per acre:

<u>Species</u>	<u>lb/acre</u>
Plains Bristlegrass ( <i>Setaria magrostachya</i> )	1.0
Green Spangletop ( <i>Leptochloa dubia</i> )	2.0
Side oats Grama ( <i>Bouteloua curtipendula</i> )	5.0

\*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed  
(Insert Seed Mixture Here)



## **X. FINAL ABANDONMENT & REHABILITATION REQUIREMENTS**

Upon abandonment of the well and/or when the access road is no longer in service the Authorized Officer shall issue instructions and/or orders for surface reclamation and restoration of all disturbed areas.

On private surface/federal mineral estate land the reclamation procedures on the road and well pad shall be accomplished in accordance with the private surface land owner agreement.